Esso Australia Pty Ltd

FINAL WELL REPORT

913711 001

BEARDIE-1 (W1340)

PAGE 1 OF 858

August 2002

Volume Two

913711 002

Operations Conditions

Operations Conditions

913711 003

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

24.07.02	2400 hrs.	AET					Tow to Beardie
WEATHER	**MAX**	**AT RPT**	**UNITS**	**WEATHER**	**MAX**	**AT RPT,**	**UNITS**
Wind Speed	35	20	Knots	Heave	0.0	0.0	Metres
Wind Dir	285	180	Degrees	Pitch	1.2	1.2	Degrees
Gusts Speed	38	25	Knots	Roll	1.5	1.5	Degrees
Gusts Dir	265	160	Degrees	Visibility	16	16	N.Miles
Wave Height	1.5	1.2	Metres	Cloud	8	6	Okras
Wave Dir	285	180	De ees	Temperature	14	10	°Celsius
Wave period	3	3	Seconds	Precip Type	Squalls	Showers	n/a
Swell Height	2.4	2.1	Metres	Riser degrees	0.0	0-0	Degrees
Swell Dir	265	160	De ees	Well offset	0.0	0.0	%WD
Swell Per	12	12	Seconds	Riser tension	0	0	Pounds total
Current Dir	n/a	n/a	De ees	Var dk load	n/a	0.0	Kips
Current S	n/a	n/a	meter/sec	Var dk load	n/a	1635.7	M.Tonnes
Barometer	1022	1022	Millibars	Rig Heading	n/a	0	Degrees
Anchors 1	2	3	4	5	6	7	8
0	0	0	0	0	0	0	0
BULK ITEMS	**UNITS**	**PREV**	**RECD**	**USED**	**RO.B.**	**CAP**	**UNITS**
DIESEL	Cu-Metres	389.2	0.0	10.8	378.4	1086	Cu. Mts. 90 % ca
DRILL. WATER	M Tonnes	510	0	25	484	2320	M Tonnes
POT WATER	M Tonnes	98	19	19	98	98	M Tonnes
CEMENT G	Sacks	332	0	0	332	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	662	0	0	662	3070	Sacks
BARITE	Sacks	1182	0	0	1182	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LI ULD MUD	Barrels	0	0	0	0	3255	Barrels
BRINE:	Barrels	0	0	0	0	2916	Barrels
HELLFUEL	Litres	3653	0	0	3653	16000	Litres 90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	**CALL SIGN**	**ON DECK**	**PAX**	**OFF DECK**	**PAX**
1	0	0	0	0	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0

STAND BY VESSEL		**PACIFIC CONQUEROR**			**PACIFIC SENTINEL**		
BULK ITEMS	**UNITS**	**PREV**	**USED**	**RO.B.**	**PREV**	**USED**	**RO.B.**
DIESEL	Metre cub	275.1	8.0	267.1	352.1	26.7	325.4
DRILL WATER	M.tonnes	650	0	650	680	0	680
POT WATER	M.tonnes	150	5	145	225	5	220
CEMENT G	Sacks	0	0	0	1826	0	1826
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	0	0	0	1422	0	1422
BARITE	Sacks	0	0	0	0	0	0
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

Pacific Conqueror:. Arr'd at Rig:- 0130hrs. Arr figs: F.0:-275.1m3.

Pacific Sentinel:- On main tow bridle.

Pacific Conqueror:- On starboard tow line

0

913711 004

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

25.07.02	2400 hrs.	AET					Beardie 1
WEATHER	**MAX**	**AT RPT**	**UNITS**	**WEATHER**	**MAX**	**AT RPT,**	**UNITS**
Wind Speed	20	18	Knots	Heave	0.0	0.0	Metres
Wind Dir	180	1 BO	Degrees	Pitch	1.5	0.8	Degrees
Gusts Speed	25	0	Knots	Roll	2.0	0.5	Degrees
Gusts Dir	160	0	Degrees	Visibility	16	16	N.Miles
Wave Height	1.2	0.6	Metres	Cloud	7	6	Oktas
Wave Dir	180	180	Degrees	Temperature	15	10	°Celsius
Wave period	3	3	Seconds	Precip Type	0	0	n/a
Swell Height	2.1	1.8	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	160	175	Degrees	Well offset	0.0	0.0	% WD
Swell Per	12	12	Seconds	Riser tension	0	0	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current S	n/a	n/a	meter/sec	Var dk load	n/a	1676.4	M.Tonnes
Barometer	1022	1016	Millibars	Rig Heading	n/a	0	Degrees
Anchors 1	2	3	4	5	6	7	8
0	300	300	0	0	300	300	0
BULK ITEMS	**UNITS**	**PREY**	**RECD**	**USED**	**RO.B.**	**CAP**	**UNITS**
DIESEL	Cu.Metres	378.4	0.0	4.8	373.7	1086	Cu. Mts. (90% cap)
DRILL WATER	M.Tonnes	484	0	13	471	2320	M.Tonnes
POT WATER	M.Tonnes	98	19	19	98	98	M.Tonnes
CEMENT G	Sacks	332	0	0	332	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	662	0	0	662	3070	Sacks
BARITE	Sacks	1182	0	0	1182	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	**CALL SIGN**	**ON DECK**	**PAX**	**OFF DECK**	**PAX**
1	EXK	1023	5	1031	4
2	EXK	1249	7	1255	2
3	0	0	0	0	0
4	0	0	0	0	0

STAND BY VESSEL		**PACIFIC CONQUEROR**			**PACIFIC SENTINEL**		
BULK ITEMS	**UNITS**	**PREY**	**USED**	**RO.B.**	**PREY**	**USED**	**RO.B.**
DIESEL	Metre cub	267.1	13.6	253.5	325.4	19.1	306.3
DRILL WATER	M.tonnes	650	0	650	680	0	680
POT WATER	M.tonnes	145	5	140	220	5	215
CEMENT G	Sacks	0	0	0	1826	0	1826
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	0	0	0	1422	0	1422
BARITE	Sacks	0	0	0	0	0	0
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

Ballasting Rig down to drilling draft 70ft.

Pacific Sentinel:- Standing by Rig.

Pacific Conqueror:- Anchor operations.

Lady Elizabeth; Arr'd at Rig:- 1041hr. Arr Figs: Barite-- 3000sx Cement:- 2400sx, Cargo Anchors.

0

913711 005

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

26.07.02	2400 hrs.	AET					Beardic 1
WEATHER	**MAX**	**AT RPT**	**UNITS**	**WEATHER**	**MAX**	**AT RPT,**	**UNITS**
Wind Speed	18	15	Knots	Heave	0.0	0.0	Metres
Wind Dir	180	300	Degrees	Pitch	0.9	0.3	Degrees
Gusts Seed	0	0	Knots	Roll	0.8	0.3	Degrees
GusLS Dir	0	0	Degrees	Visibility	16	16	N.Miles
Wave Height	0.9	0.6	Metres	Cloud	6	3	Oktas
Wave Dir	180	300	Degrees	Temperature	15	14	°Celsius
Wave)eriod	3	2	Seconds	Precip Type	0	0	n/a
Swell Hei ht	0.9	0.9	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	190	310	Degrees	Well offset	0.0	0.0	%WD
Swell Per	12	12	Seconds	Riser tension	0	0	Pounds total
Current Dir	n/a	nla	Degrees	Var dk load	n/a	0.0	Kips
Current S	n/a	n/a	meter/sec	Var dk load	nla	1676.4	M_Tonncs
Barometer	1024	1024	Millibars	Rig Heading	nla	0	Degrees
Anchors 1	2	3	4	5	6	7	8
360	380	250	290	260	250	370	350
BULK ITEMS	**UNITS**	**PREY**	**RECD**	**USED**	**RO.B.**	**CAP**	**UNITS**
DIESEL	Cu.Metres	373.7	0.0	9.5	364.1	1086	Cu. Mts. 90 % ca
DRILL WATER	M Tonnes	471	370	408	433	2320	M Tonnes
POT WATER	M Tonnes	98	21	21	98	98	M Tonnes
CEMENT G	Sacks	332	4226	0	4558	7786	Sacks
LEND	Sacks	0	0	0	0	7796	Sacks
GEL	Sacks	662	1422	751	1333	3070	Sacks
BARITE	Sacks	1182	0	511	671	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres 90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	**CALL SIGN**	**ON DECK**	**PAX**	**OFF DECK**	**PAX**
1	EXX	1316	8	1324	5
2	EXW	1331	2	1333	0
3	0	0	0	0	0
4	0	0	0	0	0

STAND BY VESSEL		**PACIFIC CONQUEROR**			**PACIFIC SENTINEL**		
BULK ITEMS	**UNITS**	**PREY**	**USED**	**RO.B.**	**PREY**	**USED**	**RO.B.**
DIESEL	Metre cub	253.5	10.5	243.0	306.3	4.0	302_3
DRILL WATER	M.tonnes	650	370	280	680	0	680
POT WATER	M.tonnes	140	5	135	215	2	213
CEMENT G	Sacks	0	0	0	1826	1826	0
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	0	0	0	1422	1422	0
BARITE	Sacks	0	0	0	0	0	0
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

Note:- Drill Water being transferred to Rig at time of report

Pacific Sentinel:- Dep'd 0626hrs, ETA-- Barry Beach:- 26/1300 hrs. Dep'd F.O. Figs:- 302.3m3.

Pacific Conqueror.- Standby Rig

Lady Elizabeth:- Departed Rig. 0314hr/26 for Tuna 1.

Lady Elizabeth:- Arr'd at Rig:- 1307hr/26. Arr Figs: Barite:- 3000sx. Cement:- 2400sx, cargo, anchors

Lady Elizabeth:- Transferred Cement to Rig 2400sx, being backloaded at time of report.

913711 006

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

27.07.02 **2400 hrs.** **AET** **Beardie 1**

WEATHER	MAX	AT RPT	UNITS	WEATHER	MAX	AT RPT	UNITS
Wind Speed	20	20	Knots	Heave	0.0	0.0	Metres
Wind Dir	360	020	Degrees	Pitch	0.3	0.2	Degrees
Gusts Speed	0	0	Knots	Roll	0.3	0.2	Degrees
Gusts Dir	0	0	Degrees	Visibility	16	15	N.Miles
Wave Height	0.6	0.6	Metres	Cloud	3	2	Oktas
Wave Dir	360	020	Degrees	Temperature	15	13	°Celsius
Wave period	3	2	Seconds	Precip Type	0	0	n/a
Swell Height	0.9	0.9	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	310	225	Degrees	Well offset	0.0	0.0	%WD
Swell Per	12	12	Seconds	Riser tension	0	0	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	2285.7	M.Tonnes
Barometer	1024	1023	Millibars	Rig Heading	n/a	0	Degrees
Anchors **1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
360	330	230	220	240	260	305	220

BULK ITEMS	UNITS	PREV	REC'D	USED	R.O.B.	CAP	UNITS
DIESEL	Cu.Metres	364.1	0.0	8.4	355.7	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	433	770	376	827	2320	M Tonnes
POT WATER	M Tonnes	98	21	21	98	98	M Tonnes
CEMENT G	Sacks	4558	0	1263	3295	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	1333	0	500	833	3070	Sacks
BARITE	Sacks	671	2978	2581	1068	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	CALL SIGN	ON DECK	PAX	OFF DECK	PAX
1	EXW	1047	0	1053	6
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0

STAND BY VESSEL		PACIFIC CONQUEROR			PACIFIC SENTINEL		
BULK ITEMS	UNITS	PREV	USED	R.O.B.	PREV	USED	R.O.B.
DIESEL	Metre cub	243.0	5.5	237.5	440.4	6.5	433.9
DRILL WATER	M.tonnes	280	280	0	514	490	24
POT WATER	M.tonnes	135	5	130	239	4	235
CEMENT G	Sacks	0	0	0	0	0	0
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	0	0	0	500	0	500
BARITE	Sacks	0	0	0	1500	0	1500
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

0

Pacific Sentinel:- Arr'd at Rig:- 0550hrs. Arr Figs: F.O:- 440.4m3.

Pacific Conqueror:- Standby Rig, Down current/wind to observe any pollutants from open well drilling.

Lady Elizabeth:- Departed Rig:- 0435hr/27 for Barry Beach, ETA 1300.

0

Lady Elizabeth:- Transferred Barite to Rig 3000sx.

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

28.07.02 **2400 hrs.** **AET** **Beardie 1**

WEATHER	MAX	AT RPT	UNITS	WEATHER	MAX	AT RPT	UNITS
Wind Speed	25	20	Knots	Heave	0.0	0.0	Metres
Wind Dir	225	225	Degrees	Pitch	0.3	0.2	Degrees
Gusts Speed	0	0	Knots	Roll	0.3	0.2	Degrees
Gusts Dir	0	0	Degrees	Visibility	15	12	N.Miles
Wave Height	0.9	0.6	Metres	Cloud	8	6	Oktas
Wave Dir	225	225	Degrees	Temperature	15	13	°Celsius
Wave period	3	3	Seconds	Precip Type	Showers	0	n/a
Swell Height	1.2	0.9	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	225	225	Degrees	Well offset	0.0	0.0	%WD
Swell Per	12	12	Seconds	Riser tension	0	0	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	2005.5	M.Tonnes
Barometer	1023	1022	Millibars	Rig Heading	n/a	0	Degrees
Anchors **1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
360	335	230	225	245	250	310	220
BULK ITEMS	**UNITS**	**PREV**	**REC'D**	**USED**	**R.O.B.**	**CAP**	**UNITS**
DIESEL	Cu.Metres	355.7	0.0	18.0	337.7	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	827	256	265	817	2320	M Tonnes
POT WATER	M Tonnes	98	24	24	98	98	M Tonnes
CEMENT G	Sacks	3295	0	0	3295	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	833	500	561	772	3070	Sacks
BARITE	Sacks	1068	0	0	1068	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	**CALL SIGN**	**ON DECK**	**PAX**	**OFF DECK**	**PAX**
1	EXW	1136	0	1142	3
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0

STAND BY VESSEL		**PACIFIC CONQUEROR**			**PACIFIC SENTINEL**		
BULK ITEMS	**UNITS**	**PREV**	**USED**	**R.O.B.**	**PREV**	**USED**	**R.O.B.**
DIESEL	Metre cub	237.5	8.6	228.9	433.9	10.1	423.8
DRILL WATER	M.tonnes	0	0	0	24	24	0
POT WATER	M.tonnes	130	85	45	235	157	78
CEMENT G	Sacks	0	0	0	0	0	0
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	0	0	0	500	500	0
BARITE	Sacks	0	0	0	1500	0	1500
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

0

Pacific Sentinel:- Standby Rig.

Pacific Conqueror:- Dep'd 2045hrs. ETA:- Barry Beach:- 29/0600 hrs. Dep'd F.O.Figs:- 228.9m3.

0

0

0

913711 008

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

29.07.02 **2400 hrs.** **AET** **Beardie 1**

WEATHER	MAX	AT RPT	UNITS	WEATHER	MAX	AT RPT	UNITS
Wind Speed	22	Lt Airs	Knots	Heave	0.0	0.0	Metres
Wind Dir	225	Variable	Degrees	Pitch	0.3	0.2	Degrees
Gusts Speed	0	0	Knots	Roll	0.3	0.2	Degrees
Gusts Dir	0	0	Degrees	Visibility	15	14	N.Miles
Wave Height	0.6	0.6	Metres	Cloud	8	6	Oktas
Wave Dir	225	225	Degrees	Temperature	14	12	°Celsius
Wave period	3	3	Seconds	Precip Type	Showers	0	n/a
Swell Height	0.9	0.9	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	225	225	Degrees	Well offset	0.0	0.0	%WD
Swell Per	12	8	Seconds	Riser tension	0	0	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	1894.7	M.Tonnes
Barometer	1029	1029	Millibars	Rig Heading	n/a	0	Degrees
Anchors 1	2	3	4	5	6	7	8
395	340	250	270	235	290	335	240
BULK ITEMS	**UNITS**	**PREV**	**REC'D**	**USED**	**R.O.B.**	**CAP**	**UNITS**
DIESEL	Cu.Metres	337.7	0.0	7.2	330.6	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	817	0	275	542	2320	M Tonnes
POT WATER	M Tonnes	98	24	24	98	98	M Tonnes
CEMENT G	Sacks	3295	0	2270	1025	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	772	0	0	772	3070	Sacks
BARITE	Sacks	1068	1500	0	2568	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	CALL SIGN	ON DECK	PAX	OFF DECK	PAX
1	EXW	1035	8	1042	3
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0

STAND BY VESSEL		PACIFIC CONQUEROR			PACIFIC SENTINEL		
BULK ITEMS	**UNITS**	**PREV**	**USED**	**R.O.B.**	**PREV**	**USED**	**R.O.B.**
DIESEL	Metre cub	228.9	0.0	228.9	423.8	8.7	415.1
DRILL WATER	M.tonnes	0	0	0	0	0	0
POT WATER	M.tonnes	45	0	45	78	5	73
CEMENT G	Sacks	0	0	0	0	0	0
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	0	0	0	0	0	0
BARITE	Sacks	0	0	0	1500	1500	0
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

0

Pacific Sentinel:- Standby Rig.

Pacific Conqueror:- Barry Beach:

0

0

0

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

30.07.02	2400 hrs.	AET					Beardie 1
WEATHER	**MAX**	**AT RPT**	**UNITS**	**WEATHER**	**MAX**	**AT RPT**	**UNITS**
Wind Speed	10	12	Knots	Heave	0.2	0.2	Metres
Wind Dir	260	060	Degrees	Pitch	0.3	0.2	Degrees
Gusts Speed	0	0	Knots	Roll	0.3	0.2	Degrees
Gusts Dir	0	0	Degrees	Visibility	18	16	N.Miles
Wave Height	0.6	0.6	Metres	Cloud	6	2	Oktas
Wave Dir	260	060	Degrees	Temperature	14	12	°Celsius
Wave period	3	3	Seconds	Precip Type	0	0	n/a
Swell Height	0.9	0.9	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	225	245	Degrees	Well offset	0.0	0.0	%WD
Swell Per	8	7	Seconds	Riser tension	0	216000	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	1898.4	M.Tonnes
Barometer	1029	1024	Millibars	Rig Heading	n/a	0	Degrees
Anchors **1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
341	324	256	260	253	295	334	245
BULK ITEMS	**UNITS**	**PREV**	**REC'D**	**USED**	**R.O.B.**	**CAP**	**UNITS**
DIESEL	Cu.Metres	330.6	0.0	8.4	322.1	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	542	385	74	853	2320	M Tonnes
POT WATER	M Tonnes	98	24	24	98	98	M Tonnes
CEMENT G	Sacks	1025	0	0	1025	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	772	0	0	772	3070	Sacks
BARITE	Sacks	2568	0	159	2409	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	**CALL SIGN**	**ON DECK**	**PAX**	**OFF DECK**	**PAX**
1	EXW	1315	8	1323	8
2	EXW	1401	8	1408	8
3	EXU	1520	4	1525	1
4	0	0	0	0	0

STAND BY VESSEL		**PACIFIC CONQUEROR**			**PACIFIC SENTINEL**		
BULK ITEMS	**UNITS**	**PREV**	**USED**	**R.O.B.**	**PREV**	**USED**	**R.O.B.**
DIESEL	Metre cub	350.1	0.0	350.1	415.1	10.3	404.8
DRILL WATER	M.tonnes	670	0	670	0	0	0
POT WATER	M.tonnes	245	0	245	73	5	68
CEMENT G	Sacks	1170	0	1170	0	0	0
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	0	0	0	0	0	0
BARITE	Sacks	1146	0	1146	0	0	0
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

0

Pacific Sentinel:- Standby Rig.

Pacific Conqueror:- Arr'd at Rig:- 2350hrs. Arr Figs: F.O:- 350.1m3.

Lady Karri-Ann:- Arr'd at Rig:- 0430hrs. Discharge bulk KCL and Drill Water:- 85m3, Dep'd @ 0525hrs

Lady Elizabeth:- Arr'd at Rig:- 0530hrs.Transferred Drill Water to Rig:- 300m3. Dep'd @ 0718hrs.

0

913711 010

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

31.07.02 2400 hrs. AET — Beardie 1

WEATHER	MAX	AT RPT	UNITS	WEATHER	MAX	AT RPT	UNITS
Wind Speed	20	20	Knots	Heave	0.2	0.2	Metres
Wind Dir	300	300	Degrees	Pitch	0.3	0.2	Degrees
Gusts Speed	0	0	Knots	Roll	0.3	0.2	Degrees
Gusts Dir	0	0	Degrees	Visibility	18	16	N.Miles
Wave Height	0.9	0.6	Metres	Cloud	6	5	Oktas
Wave Dir	300	300	Degrees	Temperature	15	14	°Celsius
Wave period	3	3	Seconds	Precip Type	0	0	n/a
Swell Height	0.9	0.9	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	225	245	Degrees	Well offset	0.0	0.0	%WD
Swell Per	7	6	Seconds	Riser tension	0	216000	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	2060.0	M.Tonnes
Barometer	1024	1018	Millibars	Rig Heading	n/a	0	Degrees
Anchors 1	2	3	4	5	6	7	8
344	243	212	209	263	316	387	244

BULK ITEMS	UNITS	PREV	REC'D	USED	R.O.B.	CAP	UNITS
DIESEL	Cu.Metres	322.1	150.0	19.2	453.0	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	853	0	97	756	2320	M Tonnes
POT WATER	M Tonnes	98	24	24	98	98	M Tonnes
CEMENT G	Sacks	1025	1170	0	2195	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	772	0	0	772	3070	Sacks
BARITE	Sacks	2409	0	68	2341	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

HELICOPTER MOVEMENTS

FLIGHT NO.	CALL SIGN	ON DECK	PAX	OFF DECK	PAX
1	EXZ	0825	6	0830	2
2	EXZ	1617	0	1620	2
3	EXU	0	0	0	0
4	0	0	0	0	0

STAND BY VESSEL		PACIFIC CONQUEROR			PACIFIC SENTINEL		
BULK ITEMS	UNITS	PREV	USED	R.O.B.	PREV	USED	R.O.B.
DIESEL	Metre cub	350.1	4.0	346.1	404.8	155.2	249.6
DRILL WATER	M.tonnes	670	0	670	0	0	0
POT WATER	M.tonnes	245	5	240	68	5	63
CEMENT G	Sacks	1170	1170	0	0	0	0
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	0	0	0	0	0	0
BARITE	Sacks	1146	0	1146	0	0	0
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

0

Pacific Sentinel:- Dep'd 2300hrs. ETA:- Barry Beach:- 01/0730 hrs. Dep'd F.O. Figs:- 249.6m3.

Pacific Conqueror:- Standby Rig.

0

0

0

913711 011

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

01.08.02 2400 hrs. AET Beardie 1

WEATHER	MAX	AT RPT	UNITS	WEATHER	MAX	AT RPT	UNITS
Wind Speed	20	Lt Airs	Knots	Heave	0.2	0.2	Metres
Wind Dir	300	Variable	Degrees	Pitch	0.2	0.2	Degrees
Gusts Speed	0	0	Knots	Roll	0.2	0.2	Degrees
Gusts Dir	0	0	Degrees	Visibility	18	16	N.Miles
Wave Height	0.9	#VALUE!	Metres	Cloud	7	5	Oktas
Wave Dir	300	300	Degrees	Temperature	15	14	°Celsius
Wave period	3	3	Seconds	Precip Type	0	0	n/a
Swell Height	0.9	0.3	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	225	350	Degrees	Well offset	0.0	0.0	%WD
Swell Per	10	8	Seconds	Riser tension	0	216000	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	1974.8	M.Tonnes
Barometer	1018	1014	Millibars	Rig Heading	n/a	0	Degrees
Anchors 1	2	3	4	5	6	7	8
345	247	217	214	263	312	382	247
BULK ITEMS	**UNITS**	**PREV**	**REC'D**	**USED**	**R.O.B.**	**CAP**	**UNITS**
DIESEL	Cu.Metres	453.0	0.0	18.0	435.0	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	756	0	82	673	2320	M Tonnes
POT WATER	M Tonnes	98	24	24	98	98	M Tonnes
CEMENT G	Sacks	2195	0	0	2195	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	772	0	0	772	3070	Sacks
BARITE	Sacks	2341	0	68	2273	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	CALL SIGN	ON DECK	PAX	OFF DECK	PAX
1	EXX	1335	6	1341	4
2	EXZ	0	0	0	0
3	EXU	0	0	0	0
4	0	0	0	0	0

STAND BY VESSEL		PACIFIC CONQUEROR			PACIFIC SENTINEL		
BULK ITEMS	**UNITS**	**PREV**	**USED**	**R.O.B.**	**PREV**	**USED**	**R.O.B.**
DIESEL	Metre cub	346.1	1.9	344.2	249.6	0.0	249.6
DRILL WATER	M.tonnes	670	0	670	0	0	0
POT WATER	M.tonnes	240	5	235	63	0	63
CEMENT G	Sacks	0	0	0	0	0	0
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	0	0	0	0	0	0
BARITE	Sacks	1146	0	1146	0	0	0
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

0

Pacific Sentinel:- Barry Beach

Pacific Conqueror:- Standby Rig.

0

0

0

913711 012

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

02.08.02 2400 hrs. AET **Beardie 1**

WEATHER	MAX	AT RPT	UNITS	WEATHER	MAX	AT RPT	UNITS
Wind Speed	16	15	Knots	Heave	0.2	0.2	Metres
Wind Dir	030	030	Degrees	Pitch	0.2	0.2	Degrees
Gusts Speed	0	0	Knots	Roll	0.2	0.2	Degrees
Gusts Dir	0	0	Degrees	Visibility	10	8	N.Miles
Wave Height	0.9	0.9	Metres	Cloud	8	4	Oktas
Wave Dir	030	030	Degrees	Temperature	14	12	°Celsius
Wave period	3	2	Seconds	Precip Type	Fog	0	n/a
Swell Height	0.9	0.9	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	080	080	Degrees	Well offset	0.0	0.0	%WD
Swell Per	10	10	Seconds	Riser tension	0	216000	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	1963.0	M.Tonnes
Barometer	1015	1011	Millibars	Rig Heading	n/a	0	Degrees
Anchors 1	2	3	4	5	6	7	8
345	249	218	214	266	317	382	247

BULK ITEMS	UNITS	PREV	REC'D	USED	R.O.B.	CAP	UNITS
DIESEL	Cu.Metres	435.0	0.0	14.3	420.7	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	673	0	95	578	2320	M Tonnes
POT WATER	M Tonnes	98	24	24	98	98	M Tonnes
CEMENT G	Sacks	2195	0	0	2195	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	772	0	0	772	3070	Sacks
BARITE	Sacks	2273	0	0	2273	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	CALL SIGN	ON DECK	PAX	OFF DECK	PAX
1	EXU	1252	8	1259	10
2	EXX	1307	7	1316	7
3	EXU	0	0	0	0
4	0	0	0	0	0

STAND BY VESSEL		PACIFIC CONQUEROR			PACIFIC SENTINEL		
BULK ITEMS	UNITS	PREV	USED	R.O.B.	PREV	USED	R.O.B.
DIESEL	Metre cub	344.2	4.1	340.1	249.6	0.0	249.6
DRILL WATER	M.tonnes	670	0	670	0	0	0
POT WATER	M.tonnes	235	5	230	63	0	63
CEMENT G	Sacks	0	0	0	0	0	0
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	0	0	0	0	0	0
BARITE	Sacks	1146	0	1146	0	0	0
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

0

Pacific Sentinel:- ETA @ RIG 0015

Pacific Conqueror:- Standby Rig.

0

0

0

913711 013

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

03.08.02 2400 hrs. AET **Beardie 1**

WEATHER	MAX	AT RPT	UNITS	WEATHER	MAX	AT RPT	UNITS
Wind Speed	28	26	Knots	Heave	0.2	0.2	Metres
Wind Dir	230	235	Degrees	Pitch	0.3	0.2	Degrees
Gusts Speed	30	30	Knots	Roll	0.3	0.2	Degrees
Gusts Dir	240	240	Degrees	Visibility	14	12	N.Miles
Wave Height	0.9	0.9	Metres	Cloud	8	7	Oktas
Wave Dir	230	235	Degrees	Temperature	14	12	°Celsius
Wave period	3	2	Seconds	Precip Type	0	0	n/a
Swell Height	1.2	1.2	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	240	240	Degrees	Well offset	0.0	0.0	%WD
Swell Per	10	8	Seconds	Riser tension	0	216000	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	2102.5	M.Tonnes
Barometer	1010	1010	Millibars	Rig Heading	n/a	0	Degrees
Anchors **1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
351	256	221	214	256	300	376	246
BULK ITEMS	**UNITS**	**PREV**	**REC'D**	**USED**	**R.O.B.**	**CAP**	**UNITS**
DIESEL	Cu.Metres	420.7	0.0	16.7	404.0	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	578	310	149	739	2320	M Tonnes
POT WATER	M Tonnes	98	26	26	98	98	M Tonnes
CEMENT G	Sacks	2195	0	0	2195	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	772	0	0	772	3070	Sacks
BARITE	Sacks	2273	0	158	2115	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	**CALL SIGN**	**ON DECK**	**PAX**	**OFF DECK**	**PAX**
1	EXW	1016	0	1019	0
2	EXW	1258	0	1300	1
3	EXU	0	0	0	0
4	0	0	0	0	0

STAND BY VESSEL		**PACIFIC CONQUEROR**			**PACIFIC SENTINEL**		
BULK ITEMS	**UNITS**	**PREV**	**USED**	**R.O.B.**	**PREV**	**USED**	**R.O.B.**
DIESEL	Metre cub	340.1	0.0	340.1	335.4	10.2	325.2
DRILL WATER	M.tonnes	670	0	670	550	310	240
POT WATER	M.tonnes	230	0	230	240	5	235
CEMENT G	Sacks	0	0	0	0	0	0
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	0	0	0	0	0	0
BARITE	Sacks	1146	0	1146	1000	0	1000
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

0

Pacific Sentinel:- Standby Rig.

Pacific Conqueror:- Barry Beach

0

0

0

913711 014

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

04.08.02 **2400 hrs.** **AET** **Beardie 1**

WEATHER	MAX	AT RPT	UNITS	WEATHER	MAX	AT RPT	UNITS
Wind Speed	32	8	Knots	Heave	0.4	0.3	Metres
Wind Dir	250	235	Degrees	Pitch	0.4	0.3	Degrees
Gusts Speed	35	10	Knots	Roll	0.6	0.3	Degrees
Gusts Dir	240	240	Degrees	Visibility	16	14	N.Miles
Wave Height	1.2	0.9	Metres	Cloud	8	7	Oktas
Wave Dir	250	235	Degrees	Temperature	13	12	°Celsius
Wave period	3	2	Seconds	Precip Type	0	0	n/a
Swell Height	2.4	1.8	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	240	240	Degrees	Well offset	0.0	0.0	%WD
Swell Per	12	12	Seconds	Riser tension	0	216000	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	1969.9	M.Tonnes
Barometer	1024	1024	Millibars	Rig Heading	n/a	0	Degrees
Anchors 1	2	3	4	5	6	7	8
366	264	224	215	261	300	382	250

BULK ITEMS	UNITS	PREV	REC'D	USED	R.O.B.	CAP	UNITS
DIESEL	Cu.Metres	404.0	0.0	9.5	394.5	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	739	0	41	699	2320	M Tonnes
POT WATER	M Tonnes	98	23	23	98	98	M Tonnes
CEMENT G	Sacks	2195	0	0	2195	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	772	0	0	772	3070	Sacks
BARITE	Sacks	2115	0	0	2115	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	CALL SIGN	ON DECK	PAX	OFF DECK	PAX
1	EXW	1020	1	1022	0
2	EXW	0	0	0	0
3	EXU	0	0	0	0
4	0	0	0	0	0

STAND BY VESSEL		PACIFIC CONQUEROR			PACIFIC SENTINEL		
BULK ITEMS	UNITS	PREV	USED	R.O.B.	PREV	USED	R.O.B.
DIESEL	Metre cub	340.1	0.0	340.1	325.2	5.5	319.7
DRILL WATER	M.tonnes	670	0	670	270	0	270
POT WATER	M.tonnes	230	0	230	200	0	200
CEMENT G	Sacks	0	0	0	0	0	0
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	0	0	0	0	0	0
BARITE	Sacks	1146	0	1146	1000	0	1000
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

Pacific Sentinel:- Standby Rig. Please note :- P. Sentinel transferred Pot water into Drill water tanks to carry out repairs to tanks

P. Sentinel transferred Pot water into Drill water tanks to carry out repairs to tanks, note adjustment.

Pacific Conqueror:- Barry Beach

0

0

0

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

05.08.02 **2400 hrs.** **AET** **Beardie 1**

WEATHER	MAX	AT RPT	UNITS	WEATHER	MAX	AT RPT	UNITS
Wind Speed	14	12	Knots	Heave	0.2	0.2	Metres
Wind Dir	060	045	Degrees	Pitch	0.3	0.2	Degrees
Gusts Speed	0	0	Knots	Roll	0.3	0.2	Degrees
Gusts Dir	0	0	Degrees	Visibility	14	12	N.Miles
Wave Height	0.6	0.3	Metres	Cloud	8	7	Oktas
Wave Dir	060	045	Degrees	Temperature	13	12	°Celsius
Wave period	3	3	Seconds	Precip Type	0	0	n/a
Swell Height	0.9	0.9	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	135	135	Degrees	Well offset	0.0	0.0	%WD
Swell Per	10	8	Seconds	Riser tension	0	216000	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	1711.3	M.Tonnes
Barometer	1029	1017	Millibars	Rig Heading	n/a	0	Degrees
Anchors 1	2	3	4	5	6	7	8
352	250	224	206	266	319	385	252

BULK ITEMS	UNITS	PREV	REC'D	USED	R.O.B.	CAP	UNITS
DIESEL	Cu.Metres	394.5	0.0	7.2	387.3	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	699	0	38	661	2320	M Tonnes
POT WATER	M Tonnes	98	22	22	98	98	M Tonnes
CEMENT G	Sacks	2195	0	0	2195	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	772	0	0	772	3070	Sacks
BARITE	Sacks	2115	0	0	2115	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

HELICOPTER MOVEMENTS

FLIGHT NO.	CALL SIGN	ON DECK	PAX	OFF DECK	PAX
1	EXU	1605	1	1608	0
2	0	0	0	0	0
3	0	0	0	0	0
4	0	0	0	0	0

STAND BY VESSEL		PACIFIC CONQUEROR			PACIFIC SENTINEL		
BULK ITEMS	UNITS	PREV	USED	R.O.B.	PREV	USED	R.O.B.
DIESEL	Metre cub	340.1	0.0	340.1	319.7	6.4	313.3
DRILL WATER	M.tonnes	670	0	670	270	0	270
POT WATER	M.tonnes	230	0	230	200	5	195
CEMENT G	Sacks	0	0	0	0	0	0
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	0	0	0	0	0	0
BARITE	Sacks	1146	0	1146	1000	0	1000
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

Pacific Sentinel:- Standby Rig.

0

Pacific Conqueror:- ETA@ Rig 0100

0

0

0

913711 016

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

06.08.02 2400 hrs. AET **Beardie 1**

WEATHER	MAX	AT RPT	UNITS	WEATHER	MAX	AT RPT	UNITS
Wind Speed	270	260	Knots	Heave	0.9	0.6	Metres
Wind Dir	40	30	Degrees	Pitch	0.3	0.3	Degrees
Gusts Speed	270	0	Knots	Roll	0.5	0.5	Degrees
Gusts Dir	50	0	Degrees	Visibility	14	12	N.Miles
Wave Height	2.4	1.8	Metres	Cloud	8	8	Oktas
Wave Dir	270	260	Degrees	Temperature	15	12	°Celsius
Wave period	5	5	Seconds	Precip Type	0	0	n/a
Swell Height	3.0	2.4	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	300	300	Degrees	Well offset	0.0	0.0	%WD
Swell Per	10	10	Seconds	Riser tension	0	216000	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	1664.0	M.Tonnes
Barometer	1012	1007	Millibars	Rig Heading	n/a	240	Degrees
Anchors 1	2	3	4	5	6	7	8
369	278	256	243	277	293	354	241

BULK ITEMS	UNITS	PREV	REC'D	USED	R.O.B.	CAP	UNITS
DIESEL	Cu.Metres	387.3	0.0	7.5	379.9	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	661	0	119	542	2320	M Tonnes
POT WATER	M Tonnes	98	22	22	98	98	M Tonnes
CEMENT G	Sacks	2195	0	0	2195	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	772	0	0	772	3070	Sacks
BARITE	Sacks	2115	0	0	2115	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	CALL SIGN	ON DECK	PAX	OFF DECK	PAX
1	EXU	1243	9	1249	9
2	EXZ	1319	0	1326	9
3	0	0	0	0	0
4	0	0	0	0	0

STAND BY VESSEL		PACIFIC CONQUEROR			PACIFIC SENTINEL		
BULK ITEMS	UNITS	PREV	USED	R.O.B.	PREV	USED	R.O.B.
DIESEL	Metre cub	420.0	5.7	414.3	313.3	0.0	313.3
DRILL WATER	M.tonnes	720	0	720	270	0	270
POT WATER	M.tonnes	240	5	235	195	0	195
CEMENT G	Sacks	0	0	0	0	0	0
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	635	0	635	0	0	0
BARITE	Sacks	1146	0	1146	1000	0	1000
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

Pacific Sentinel:- 0040hrs departed for BBMT ETA 0730hrs. ETA at Rig 0130hrs 7th.

0

Pacific Conqueror:- on location at 0032hrs 6th.

0

0

0

913711 017

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

07.08.02 2400 hrs. AET Beardie 1

WEATHER	MAX	AT RPT	UNITS	WEATHER	MAX	AT RPT	UNITS
Wind Speed	250	260	Knots	Heave	0.6	0.6	Metres
Wind Dir	40	30	Degrees	Pitch	0.5	0.5	Degrees
Gusts Speed	260	0	Knots	Roll	0.5	0.5	Degrees
Gusts Dir	45	0	Degrees	Visibility	12	12	N.Miles
Wave Height	2.4	1.8	Metres	Cloud	8	8	Oktas
Wave Dir	260	260	Degrees	Temperature	15	12	°Celsius
Wave period	5	5	Seconds	Precip Type	0	0	n/a
Swell Height	2.7	2.7	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	230	230	Degrees	Well offset	0.0	0.0	%WD
Swell Per	12	12	Seconds	Riser tension	0	216000	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	1564.2	M.Tonnes
Barometer	1024	1024	Millibars	Rig Heading	n/a	240	Degrees
Anchors 1	2	3	4	5	6	7	8
378	280	260	240	290	260	360	250

BULK ITEMS	UNITS	PREV	REC'D	USED	R.O.B.	CAP	UNITS
DIESEL	Cu.Metres	379.9	0.0	9.7	370.2	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	542	0	132	410	2320	M Tonnes
POT WATER	M Tonnes	98	26	26	98	98	M Tonnes
CEMENT G	Sacks	2195	0	1995	200	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	772	0	0	772	3070	Sacks
BARITE	Sacks	2115	0	0	2115	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	CALL SIGN	ON DECK	PAX	OFF DECK	PAX
1	EXX	0842	4	0845	0
2	EXZ	0854	0	0900	8
3	EXW	1055	0	1100	2
4	0	0	0	0	0

STAND BY VESSEL		PACIFIC CONQUEROR			PACIFIC SENTINEL		
BULK ITEMS	UNITS	PREV	USED	R.O.B.	PREV	USED	R.O.B.
DIESEL	Metre cub	414.3	6.3	408.0	342.9	12.7	330.2
DRILL WATER	M.tonnes	720	0	720	450	0	450
POT WATER	M.tonnes	235	5	230	250	5	245
CEMENT G	Sacks	0	0	0	500	0	500
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	635	0	635	0	0	0
BARITE	Sacks	1146	0	1146	1000	0	1000
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

Pacific Sentinel:- on location at 0105hrs, standing by.

0

Pacific Conqueror:- departed for BBMT at 0110hrs.Returned to location at 2330hrs.

0

0

0

913711 018

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

08.08.02 2400 hrs. AET **Beardie 1**

WEATHER	MAX	AT RPT	UNITS	WEATHER	MAX	AT RPT	UNITS
Wind Speed	20	20	Knots	Heave	0.0	0.0	Metres
Wind Dir	290	290	Degrees	Pitch	0.5	0.2	Degrees
Gusts Speed	0	0	Knots	Roll	0.5	0.3	Degrees
Gusts Dir	0	0	Degrees	Visibility	15	15	N.Miles
Wave Height	0.9	0.9	Metres	Cloud	6	6	Oktas
Wave Dir	290	290	Degrees	Temperature	13	12	°Celsius
Wave period	2	2	Seconds	Precip Type	0	0	n/a
Swell Height	2.1	0.9	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	220	230	Degrees	Well offset	0.0	0.0	%WD
Swell Per	12	8	Seconds	Riser tension	0	0	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	1505.8	M.Tonnes
Barometer	1028	1026	Millibars	Rig Heading	n/a	240	Degrees
Anchors 1	2	3	4	5	6	7	8
250	280	260	240	290	260	360	250
BULK ITEMS	**UNITS**	**PREV**	**REC'D**	**USED**	**R.O.B.**	**CAP**	**UNITS**
DIESEL	Cu.Metres	370.2	0.0	9.5	360.6	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	410	0	16	394	2320	M Tonnes
POT WATER	M Tonnes	98	23	23	98	98	M Tonnes
CEMENT G	Sacks	200	0	0	200	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	772	0	0	772	3070	Sacks
BARITE	Sacks	2115	0	0	2115	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	**CALL SIGN**	**ON DECK**	**PAX**	**OFF DECK**	**PAX**
1	EXZ	0755	3	0759	1
2	EXU	1153	0	1157	2
3	EXU	1337	5	1343	1
4	0	0	0	0	0

STAND BY VESSEL		PACIFIC CONQUEROR			PACIFIC SENTINEL		
BULK ITEMS	**UNITS**	**PREV**	**USED**	**R.O.B.**	**PREV**	**USED**	**R.O.B.**
DIESEL	Metre cub	408.0	9.4	398.6	330.2	17.6	312.6
DRILL WATER	M.tonnes	720	140	580	450	0	450
POT WATER	M.tonnes	230	30	200	245	5	240
CEMENT G	Sacks	0	0	0	500	0	500
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	635	0	635	0	0	0
BARITE	Sacks	1146	0	1146	1000	0	1000
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

Pacific Sentinel:- on location at 1630hrs, standing by.

Lady Elizabeth:- on location at 1900hrs, departed at 2320hrs..

Pacific Conqueror:- standing by.Dumped 140 M3 DW,25 M3 PW, working on aft peak tank

0

0

0

**** OCEAN BOUNTY****

****DAILY REPORT***WEATHER AND FIGURES****

09.08.02 **2400 hrs.** **AET** **Beardie 1**

WEATHER	MAX	AT RPT	UNITS	WEATHER	MAX	AT RPT	UNITS
Wind Speed	12	10	Knots	Heave	0.0	0.0	Metres
Wind Dir	270	300	Degrees	Pitch	0.2	0.2	Degrees
Gusts Speed	0	0	Knots	Roll	0.2	0.2	Degrees
Gusts Dir	0	0	Degrees	Visibility	15	15	N.Miles
Wave Height	0.6	0.3	Metres	Cloud	6	2	Oktas
Wave Dir	270	300	Degrees	Temperature	15	12	°Celsius
Wave period	2	2	Seconds	Precip Type	0	0	n/a
Swell Height	0.9	0.6	Metres	Riser degrees	0.0	0.0	Degrees
Swell Dir	230	240	Degrees	Well offset	0.0	0.0	%WD
Swell Per	8	8	Seconds	Riser tension	0	0	Pounds total
Current Dir	n/a	n/a	Degrees	Var dk load	n/a	0.0	Kips
Current Sp	n/a	n/a	meter/sec	Var dk load	n/a	1431.4	M.Tonnes
Barometer	1028	1026	Millibars	Rig Heading	n/a	var	Degrees
Anchors **1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
0	0	0	0	0	200	0	0
BULK ITEMS	**UNITS**	**PREV**	**REC'D**	**USED**	**R.O.B.**	**CAP**	**UNITS**
DIESEL	Cu.Metres	360.6	0.0	8.4	352.2	1086	Cu. Mts.(90 % cap)
DRILL WATER	M Tonnes	394	0	44	350	2320	M Tonnes
POT WATER	M Tonnes	98	25	25	98	98	M Tonnes
CEMENT G	Sacks	200	0	0	200	7786	Sacks
HTB BLEND	Sacks	0	0	0	0	7786	Sacks
GEL	Sacks	772	0	0	772	3070	Sacks
BARITE	Sacks	2115	0	0	2115	6287	Sacks
BASE OIL	Barrels	0	0	0	0	2916	Barrels
LIQUID MUD	Barrels	0	0	0	0	3255	Barrels
BRINE	Barrels	0	0	0	0	2916	Barrels
HELIFUEL	Litres	3653	0	0	3653	16000	Litres (90% cap)

	HELICOPTER MOVEMENTS				
FLIGHT NO.	**CALL SIGN**	**ON DECK**	**PAX**	**OFF DECK**	**PAX**
1	EXU	1256	6	1303	7
2	EXZ	1306	5	1312	6
3	EXX	1602	9	1606	4
4	0	0	0	0	0

STAND BY VESSEL		**PACIFIC CONQUEROR**			**PACIFIC SENTINEL**		
BULK ITEMS	**UNITS**	**PREV**	**USED**	**R.O.B.**	**PREV**	**USED**	**R.O.B.**
DIESEL	Metre cub	398.6	20.2	378.4	312.6	11.1	301.5
DRILL WATER	M.tonnes	580	0	580	450	0	450
POT WATER	M.tonnes	200	5	195	240	5	235
CEMENT G	Sacks	0	0	0	500	0	500
HTB BLEND	Sacks	0	0	0	0	0	0
GEL	Sacks	635	0	635	0	0	0
BARITE	Sacks	1146	0	1146	1000	0	1000
BRINE	Barrels	0	0	0	0	0	0
BASE OIL	Barrels	0	0	0	0	0	0
LIQUID MUD	Barrels	0	0	0	0	0	0

VESSEL MOVEMENTS AND REMARKS

0

Pacific Sentinel:- on tow bridle.

0

Pacific Conqueror:- on starboard tow wire.

0

0

0

913711 020

Report Prepared For
Esso Australia Limited

Real Time Current Metering at Beardie 1 - July-August, 2002

Report J2119/R2026
October, 2002

913711 021

Current Metering at Beardie 1

July-August 2002

Report Prepared For

Esso Australia Ltd

Report J2119/R2026
October, 2002

Lawson and Treloar Pty Ltd
Level 2
27 Merriwa Street
Gordon NSW 2072
Australia

Telephone: 61 2 9499 3000
Facsimile: 61 2 9499 3033
Email: nsw@lat.com.au

A.B.N. 55 001 882 873
A.C.N. 001 882 873

REPORT STATUS

Version	Date	Status	Prepared by:	Reviewed by:	Approved by:
1	9/10/2002	Final	DGA	RAR	RAR

It is the responsibility of the reader to verify the currency of the version number of this report. All subsequent releases will be made directly to the Client.

REPORT COPY NUMBER: ....

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. INTRODUCTION

Lawson and Treloar Pty Ltd (L&T) were commissioned by Esso Australia Ltd (EAL) to install a current meter and measure water currents off the Ocean Bounty semi-submersible drilling rig while on location at Beardie 1 (BD1) in Bass Strait. At the same time, Lawson & Treloar monitored anchor line tensions and metocean conditions on board the Ocean Bounty. The purpose of this project was twofold:

- to give warning to platform personnel of high currents which may have caused damage during drilling operations,
- provide current and oceanographic measurements for further investigations on the inter-relationship of these with the mooring performance.

The program was to be carried out for the duration of the drilling program, which was expected to be up to 28 days. As the drilling program was shorter than originally thought, measurements were only made for 12 days.

Currents were measured 10m below the pontoons on the Ocean Bounty, at an approximate depth of 30 metres below surface.

2. DEPLOYMENT DETAILS

2.1 Summary

Table 1 details the location of the deployment. Deployment was carried out by L&T with the assistance of personnel on board the Ocean Bounty.

Figure 1 is a locality plan showing the location of Beardie 1 and some other Bass Strait facilities. The Barracouta (BTA) platform is located only 13 km SW of Beardie.

2.2 Instrumentation

An InterOcean S4 electromagnetic current meter was used to collect vector averaged current speed and direction data for this installation. Instrument specifications are included in appendix A. From instrument checks carried out both before and after deployment it is considered that the data is accurately timed and within specification.

L&T's real time current measuring program (RTCUR) was installed on a PC to collect and display data from the S4 on a screen on the Ocean Bounty.

2.3 Mooring

To minimise the effect of the Ocean Bounty on the current meter, the instrument was installed in a single taut line mooring approximately 10m below the Ocean Bounty's pontoons (or 30m below sea level). The S4 was suspended from a point midway along the stern of the Ocean Bounty using 10mm diameter wire rope, with a 120 kg cylindrical, steel weight 2 metres below the current meter.

A communications cable was run along the wire rope connecting the S4 to an interface box and the PC running RTCUR. The PC was installed in the electrical workshop.

3. RESULTS

When comparing data from the current meter installed at BD1 with data from a current meter installed on EAL's Barracouta (BTA) platform, it was apparent that data from one sector was inconsistent with the expected currents. Section 4 details tests and quality control carried out on the data before being presented in this report. All BD1 current data presented in this report has been modified in line with the procedures outlined in section 4.

Table 2 details the initial anchor line bearings.

A summary time history plot of the currents is presented in Figure 2, and more detailed weekly plots in Figures 3 and 4. These plots show that the currents were a mixture of tidal and non-tidal components. The non-tidal component is mostly wind driven, however it is dominated by the tidal component.

Current speed and direction frequency rose, current speed exceedance and current progressive vector plots are presented in Figures 5 to 7. The net current was towards the NE over the period. The longer term data from BTA shows a far more even distribution of currents between NE and SW.

From the current speed-direction frequency rose, the dominant directions for the period of data collected was SW and NE. This is not unexpected given the bathymetry of the area. The current speed exceeded at various probability levels over the period, read from the current speed exceedance plots, is given in Table 3.

Table 3 also presents current speeds exceeded at various probability levels taken from longer term data recorded at BTA. In general it can be seen that the speeds are very similar. However, over the period of recordings at Beardie there were much fewer high currents. This can be attributed to the generally calm conditions experienced during the Beardie program

The current progressive vector plot (Figure 7) is the result of plotting a current speed-direction data point as a distance vector. The vector length is calculated as the current speed multiplied by the interval between records. The vectors are plotted progressively with the start of one vector at the end of the previous vector. The result gives a pictorial representation of the net current drift past the site.

The progressive vector plot SHOULD NOT be confused with the path a drogue buoy would follow if released at the site. This is because the current regime will alter as distance from the recording site increases.

Due to the limited amount of data collected, a tidal harmonic analysis was not carried out. Ten minute wind and wave data from the Kingfish B platform is presented in Figure 8.

Figure 9 contains the anchor line layout and headings.

Table 3 contains the measured anchor line tension and current speed and direction at approximately 6 hourly intervals. Anchor line tensions recorded are a visual average of the value displayed in the Ballast Control Room on board the Ocean Bounty, and varied by up to +- 10 tons at the time of reading. At the same time, the Lawson & Treloar person onboard estimated wave height and period from the gauge board on the vertical leg below the quarters, and estimated wind speed by observing local conditions. The platform anemometer was found to over estimate wind speeds by up to 10 knots.

4. DISCUSSION

After initial analysis of the recovered current data from BD1, it was obvious that the current direction from the SW was inconsistent with the expected currents. Comparison of the data with current data collected at BTA at the beginning and end of the collection period confirmed that the current direction appeared to be incorrect. Further investigation showed data collected from directions between ESE and NE were higher by approximately 45 degrees at BD1 then BTA.

A review of the data collected from BTA showed the BTA data to be consistent with previous deployments at BTA and elsewhere on EAL's Bass Strait platforms. Based on this Lawson & Treloar believe the directions measured by the BTA current meter are correct, while direction data collected from the BD1 current meter is incorrect.

Lawson & Treloar carried out extensive testing of the instrument deployed at BD1, including simple flume tests, both before and after deployment. All of these tests indicated the instrument, including its compass, was working correctly.

Based on this information, Lawson & Treloar can not make a definite statement on the source of the inconsistency in the recorded current directions, however some possibilities are:

1) The most likely issue was that the Ocean Bounty pontoons created an eddy structure around the current meter when currents flowed from the SW. Eddy structures around the legs of fixed platforms are common and usually resolved by placing the current meter off a corner of the platform where they should be least affected. With the Ocean Bounty, Lawson & Treloar endeavoured to reduce this problem by deploying the current meter deep enough that it would be unaffected by these eddies. A previous deployment (see L&T report J1979/R1970) was at the same depth and appeared to be unaffected by eddies.

2) During SW currents, magnetic interference of either the compass or the magnetic field used by the current meter to measure currents, caused the current meter to read incorrectly. This may have been caused by something hanging from the platform and swinging towards the current meter in SW currents only. Lawson & Treloar believe this is unlikely as an inspection of the compass readings show no correlation between the incorrect currents and the measured compass value.

While the source of the error is unknown, we have attempted to correct the data by applying a correction factor to the BD1 direction data. This has been calculated by producing a cross-correlation of the data for the same period from both BD1 and BTA. This showed that overall there appeared to be a difference of approximately 10 degrees between the two sites, and a further difference of 45 degrees in the segment from 112.5 degrees to 315 degrees.

In reviewing all of the data collected, there does not appear to be any obvious correlation between the anchor line tension and any of the metocean measurements.

Table 1:- Deployment Details

Location	**Beardie 1,** **Bass Strait**
Co-ordinates	E 571 500 N 5766 100 (WGS84, 55H)
Latitude **Longitude**	38 deg 15' S 147 deg 49' E
Total Depth	90 metres
Instrument Depth	30 metres below surface
Current Meter	InterOcean S4 s/n 07581603
Sampling	120 0.5Hz samples 1 minute vector average
Deployment	1346 27:07:2002
Recovery	1314 07:08:2002
Time Zone	AEST (ie UTC + 10)
Data Recovery	100%

Table 2:- Initial Anchor Line Bearings

Anchor Line	Bearing (deg)
1	179
2	211
3	271
4	306
5	356
6	032
7	091
8	120

Table 3:- Current Speed Exceedance

Probability Level (%)	Current Speed Exceeded (Beardie 1) (m/s)	Current Speed Exceeded (BTA longer term) (m/s)
90	0.077	0.06
50	0.18	0.21
20	0.29	0.38
10	0.35	0.49
5	0.39	0.59
1	0.47	0.80

913711 033

Table 4: Observed Anchor Line Tension and Metocean Readings

Date/Time	Cur	Cur	Wind	Wind	Hmax	Hs	Tz	Hs	T	Dir	Hs	T	Dir	Anc1	Anc2	Anc3	Anc4	Anc5	Anc6	Anc7	Anc8	Weather Condition
	(m/s)	(dir)	(knots)	(dir)	(observed)	(observed)	(observed)	(primary)	(primary)	(primary)	(second)	(second)	(second)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	
27/07/2002 15:25	0.05	147.5	5	NE	0.9	0.6	3	0.6	8	E	0.5	3	NE	251	264	235	199	298	290	280	251	clear
27/07/2002 17:25	0.3	50	5to10	NE	1	0.7		0.6	9	E	0.3	2	NE	358	334	225	216	217	249	300	217	clear
27/07/2002 18:35	0.35	53	10	NE	1	0.7		1	0.7	E	0.3	2	NE	360	335	225	214	218	255	297	216	clear
27/07/2002 21:05	0.2	30	10	NNE	1	0.7					0.3	2	NNE	360	332	221	221	237	266	307	218	clear
28/07/2002 0:15	0.1	295	15	N	1	0.7					0.3	2	N	360	335	224	219	252	261	314	224	clear
28/07/2002 7:10	0.3	45	10to15	N	1.2	0.9	3	0.9	3	N				351	328	225	216	254	256	308	212	light rain
28/07/2002 12:15	0.22	270	5to10	NW	1.2	0.9	8	0.9	8	E				356	330	224	228	245	273	307	216	cloud
28/07/2002 14:40	0.1	275	5	WNW	0.9	0.6	7	0.6	7	E				363	336	224	221	254	265	309	218	light rain
28/07/2002 16:25	0.16	50	0to5	NNE	0.6	0.4	3	0.5	7	E	0.3	2	N	359	331	225	222	248	261	307	215	light rain
28/07/2002 18:10	0.4	53	5	N	1	0.7		1	9	E	0.3	2	N	361	332	225	224	251	252	310	218	light rain
28/07/2002 19:05	0.45	55	10	N	0.6	0.4								362	333	225	224	251	252	310	218	cloud
28/07/2002 23:50	0.14	360	10	SW	1.2	0.8	8							360	338	235	231	260	248	310	220	light rain
29/07/2002 1:15	0.1	330	10to15	SSW	1.2	0.8	8							362	339	234	226	246	252	316	221	light rain
29/07/2002 6:40	0.42	50	10	W	1.2	0.8	8							361	336	234	229	246	245	297	209	light rain
29/07/2002 10:10	0.2	20	5to10	SW	1.2	0.8	9	0.7	9	E	,4	3	SW	366	340	230	228	243	251	308	220	light rain
29/07/2002 12:10	0.15	305	10	SW	0.9	0.6	8	0.6	8	E	0.3	3	S	368	340	231	228	255	265	313	218	cloud
29/07/2002 13:55	0.18	264	5	SW	0.9	0.6	3	0.6	3	SW				366	338	237	238	250	263	310	220	cloud
29/07/2002 15:45	0.05	55	10	SSW	0.9	0.6	3	0.6	3	SSW				361	338	234	240	257	267	313	220	cloud
29/07/2002 17:00	0.22	55	10	SSW	0.9	0.6	3	0.6	3	SSW				359	341	220	221	249	261	303	215	prior to rig move
29/07/2002 17:40	0.26	56	10	SSW	0.9	0.6	3	0.6	3	SSW				240	300	200	281	256	217	307	200	after rig move
29/07/2002 19:40	0.4	55	10	SW	1.2	0.8	5							248	310	204	277	245	211	310	203	cloud

Date/Time	Cur (m/s)	Cur (dir)	Wind (knots)	Wind (dir)	Hmax (observed)	Hs (observed)	Tz (observed)	Hs (primary)	T (primary)	Dir (primary)	Hs (second)	T (second)	Dir (second)	Anc1 (KIPS)	Anc2 (KIPS)	Anc3 (KIPS)	Anc4 (KIPS)	Anc5 (KIPS)	Anc6 (KIPS)	Anc7 (KIPS)	Anc8 (KIPS)	Weather Condition
29/07/2002 23:25														395	340	250	270	235	290	335	240	after rig moved back
30/07/2002 1:40	0.11	305	10	W	0.9	0.6								380	332	257	269	245	302	335	241	
30/07/2002 7:20	0.34	48	5	W	0.9	0.6	3	0.6	3	W				328	329	262	271	246	290	322	239	rig raised 2ft at 0230
30/07/2002 9:45	0.3	35	5	W	0.9	0.6	8	0.6	8	E	0.3	2	W	333	329	262	270	235	298	330	240	clear
30/07/2002 11:45	0.1	330	0to5	WNW	0.9	0.6	8	0.6	8	E	0.3	2	N	337	327	262	268	232	306	332	241	clear
30/07/2002 13:40	0.18	275	0to1	SW	1.2	0.8	8	0.6	8	E				342	326	255	262	240	300	335	248	clear
30/07/2002 15:30	0.1	265	0to5	SW	0.6	0.4	7	0.5	7	E				345	327	261	270	247	301	335	251	clear
30/07/2002 17:45	0.15	55	5	SE	0.6	0.4	7							344	325	255	264	248	300	334	249	clear
30/07/2002 19:30	0.35	55	5	SE	0.9	0.6	10							340	320	257	263	248	290	325	242	clear
30/07/2002 21:30	0.35	46	5to10	NE	1.5	1	10							342	323	262	262	299	299	325	241	
31/07/2002 4:00	0.12	280	10	NE	0.9	0.6								340	320	254	258	248	300	332	244	
31/07/2002 7:30	0.25	48	5	NW	0.6	0.4	3	0.4	3	NE				340	320	260	267	256	299	328	240	clear
31/07/2002 9:30	0.27	36	5	NNW	0.6	0.4	3	0.4	3	NE				343	321	260	264	246	305	335	240	clear
31/07/2002 11:30	0.15	360	0to5	N	0.6	0.4	3	0.4	3	NE				348	324	264	275	256	310	340	245	clear
31/07/2002 13:30	0.15	280	0to5	NNE	0.9	0.6	8	0.6	8	E				347	324	262	275	255	314	340	247	clear
31/07/2002 15:30	0.15	260	5	NE	0.9	0.6	7	0.6	7	ESE				342	321	267	275	260	314	331	246	clear
31/07/2002 17:30	0.04	36	5to10	NE	0.6	0.4	3	0.4	3	NE				332	318	263	276	259	316	330	241	prior to rig move
31/07/2002 18:05														339	233	203	205	256	305	396	240	after rig move
31/07/2002 19:30	0.28	55	5to10	NE	0.6	0.4	3							340	238	207	205	257	306	388	236	
01/08/2002 0:00	0.13	20	10	NW	0.9	0.6	3							344	241	212	210	261	317	388	242	

Date/Time	Cur	Cur	Wind	Wind	Hmax	Hs	Tz	Hs	T	Dir	Hs	T	Dir	Anc1	Anc2	Anc3	Anc4	Anc5	Anc6	Anc7	Anc8	Weather Condition
	(m/s)	(dir)	(knots)	(dir)	(observed)	(observed)	(observed)	(primary)	(primary)	(primary)	(second)	(second)	(second)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	
01/08/2002 7:30	0.15	60	5to10	NW	0.6	0.4	3	0.3	7	E	0.3	3	NW	340	243	212	213	262	313	387	244	cloud
01/08/2002 9:30	0.25	52	5	NW	0.6	0.4	3	0.3	3	NW				342	245	216	216	260	316	390	242	cloud
01/08/2002 11:45	0.18	25	5to10	NNW	0.9	0.6	3	0.4	3	N				343	244	220	220	267	316	394	246	cloud
01/08/2002 13:30	0.11	315	5	NW	0.9	0.6	8							346	250	213	215	273	315	394	250	cloud
01/08/2002 14:30	0.13	285	5	NW	0.9	0.6	8							349	249	212	213	275	326	393	251	cloud
01/08/2002 16:30	0.07	275	10to15	NW	0.9	0.6	7	0.4	6	E	0.3	3	NW	343	248	215	214	267	328	387	245	cloud
01/08/2002 18:30	0.13	48	10	NW	0.9	0.6	8							340	245	213	211	268	325	387	250	
01/08/2002 20:20	0.3	55	10	NW	0.9	0.6	8							344	250	218	208	267	318	387	244	
02/08/2002 3:00	0.18	290	0to5	S	0.9	0.6	8							345	247	214	212	265	315	383	247	prior to rig move
02/08/2002 5:00	0.14	275	0to5	S	0.9	0.6								343	247	213	213	268	317	380	245	after rig move
02/08/2002 7:20	0.1	55	0to5	W	0.9	0.6	7	0.6	7	E				343	248	217	213	265	318	383	247	cloud/light fog
02/08/2002 11:00	0.25	45	0to1	N	0.6	0.4	7	0.3	3	S				348	250	217	216	257	320	388	248	medium fog
02/08/2002 13:00	0.14	10	0to1	NE	0.6	0.4	8	0.4	8	E				346	249	217	217	267	330	386	245	cloud
02/08/2002 15:00	0.13	285	0to5	NE	0.9	0.6	8	0.6	8	E				347	251	213	216	260	325	390	251	
02/08/2002 17:00	0.1	275	10	NE	0.9	0.6	8	0.6	8	E	0.3	2	NE	342	250	218	217	267	328	390	257	
02/08/2002 19:00	0.08	45	10	NE	1	0.7	8							344	249	215	214	272	326	385	252	
02/08/2002 22:20	0.3	50	15	N	1.5	1	9							343	248	217	213	274	322	384	248	very light rain
03/08/2002 4:15	0.26	260	10	N	0.9	0.6	8							344	246	212	212	272	327	387	256	very light rain
03/08/2002 7:00	0.1	235	10to15	NNW	0.9	0.6	8	0.4	8	E	0.2	3	N	341	246	212	214	269	324	381	248	very light rain
03/08/2002 8:45	0.06	70	5	NNE	1	0.7	8	0.5	8	E	0.3	3	N	345	248	212	212	270	322	383	250	cloud

913711 035

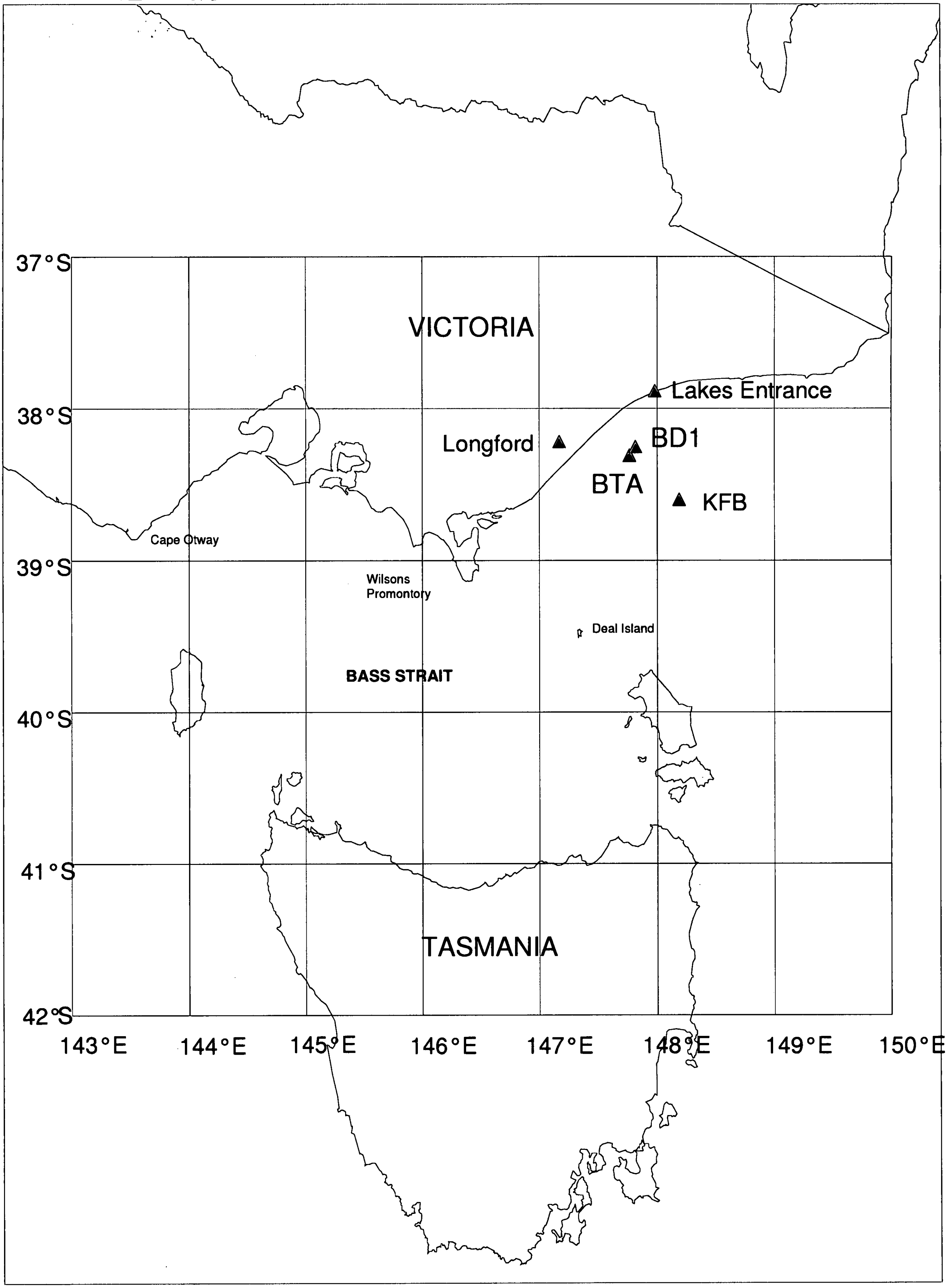
Date/Time	Cur	Cur	Wind	Wind	Hmax	Hs	Tz	Hs	T	Dir	Hs	T	Dir	Anc1	Anc2	Anc3	Anc4	Anc5	Anc6	Anc7	Anc8	Weather Condition
	(m/s)	(dir)	(knots)	(dir)	(observed)	(observed)	(observed)	(primary)	(primary)	(primary)	(second)	(second)	(second)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	
03/08/2002 10:30	0.2	50	0to5	NNE	0.9	0.6	8	0.4	8	E	0.3	2	N	346	248	213	212	270	321	385	249	cloud
03/08/2002 12:30	0.2	40	5	E	0.9	0.6	8	0.4	8	E	0.4	8	E	346	248	213	212	270	321	385	249	cloud
03/08/2002 14:30	0.1	330	0to5	E	0.9	0.6	8							348	252	218	216	279	329	386	250	clear
03/08/2002 16:00	0.1	285	0to2	SE	1	0.7	8	0.6	8	SSE				342	252	223	225	268	330	390	257	clear
03/08/2002 18:00	0.05	310	0to1	SW	0.6	0.4	7							343	256	221	224	262	320	380	254	clear
03/08/2002 21:30	0.27	53	15	SW	1.2	0.9								350	255	220	215	265	305	382	250	clear
04/08/2002 4:20	0.2	280	15	SW	1.8	1.3	4							345	258	222	220	263	300	375	245	clear
04/08/2002 7:30	0.08	280	20	SW	1.8	1.3	4	1.3	4	SW				346	261	224	220	266	304	371	243	light rain
04/08/2002 9:00	0.09	45	20	SW	1.8	1.3	4	1.3	4	SW				350	265	225	223	265	300	370	242	cloud
04/08/2002 11:00	0.26	45	20	SW	1.8	1.3	4	1.3	4	SW				358	266	230	226	263	298	371	245	v/light rain
04/08/2002 13:00	0.3	35	20	SW	1.8	1.3	5	1.3	5	SW				378	282	232	224	258	278	363	245	clear
04/08/2002 15:00	0.11	10	20	SW	2	1.5	6	1.3	6	SW				370	270	234	225	258	301	378	249	cloud
04/08/2002 17:00	0.1	318	15	SW	1.8	1.3	5	1.3	5	SW				368	268	230	223	267	312	384	253	cloud
04/08/2002 19:00	0.08	360	10to15	SW	1.5	1.2								369	265	228	221	266	308	386	257	
04/08/2002 21:00	0.22	45	10to15	SW	1.2	0.9								370	265	226	220	262	304	385	251	
04/08/2002 23:00	0.33	48	5to10	SW	1.2	0.9								368	263	218	214	262	300	383	253	
05/08/2002 7:30	0.27	252	0to5	N	0.9	0.6	7	0.5	7	ESE				353	256	217	215	272	329	381	250	clear
05/08/2002 8:40	0.15	50	5to10	N	1.8	1.5	8	1.2	8	ESE				354	250	219	218	265	328	385	250	clear
05/08/2002 11:00	0.03	50	10	NW	0.9	0.6	7	0.6	7	ESE				354	247	222	220	256	331	388	248	clear
05/08/2002 15:00	0.1	350	5to10	NE	1.2	0.9	3	0.6	7	ESE	0.3	3	NE	355	250	220	220	270	325	382	253	clear
Date/Time	Cur	Cur	Wind	Wind	Hmax	Hs	Tz	Hs	T	Dir	Hs	T	Dir	Anc1	Anc2	Anc3	Anc4	Anc5	Anc6	Anc7	Anc8	Weather Condition

	(m/s)	(dir)	(knots)	(dir)	(observed)	(observed)	(observed)	(primary)	(primary)	(primary)	(second)	(second)	(second)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	(KIPS)	
05/08/2002 17:00	0.1	280	10	NE	1.5	1	4	0.6	7	ESE	0.4	3	NE	358	255	225	215	267	328	391	259	clear
05/08/2002 19:00	0.1	270	10	NE	1.5	1								355	248	221	218	269	329	388	255	
05/08/2002 21:00	0.07	65	10to15	NE	1.5	1								350	250	219	216	267	332	386	249	
05/08/2002 23:00	0.23	55	5to10	N	1.8	1.2	8	1.2	8					350	249	220	215	270	315	386	252	
06/08/2002 1:00	0.25	50	10	NW	1.8	1.2	8	1.2	8					349	250	218	217	274	317	370	246	
06/08/2002 7:40	0.25	250	20	NW	1.8	1.2	4	1	4	NW	0.8	8	E	348	246	219	225	285	339	368	248	cloud
06/08/2002 10:00	0.05	220	25	NW	1.8	1.2	4	1	4	NW	0.8	8	E	330	247	236	232	290	340	365	241	cloud
06/08/2002 12:00	0.27	70	25	W	2.1	1.5	4	1.5	4	W				336	255	242	243	288	318	345	232	cloud
06/08/2002 14:00	0.35	55	25	SW	2.1	1.5	4	1.5	4	SW				347	282	274	256	280	295	322	219	cloud
06/08/2002 18:00	0.3	35	20to25	WSW	1.8	1.5	4	1	4	WSW				378	282	257	241	277	300	363	245	
06/08/2002 21:00	0.27	40	30	WSW	2.1	1.4	4							373	286	268	256	280	300	353	235	
07/08/2002 0:00	0.5	45	25to30	WSW	2.1	1.4								367	275	253	238	278	298	352	237	
07/08/2002 7:30	0.1	310	25	W	1.8	1.2	4	1	4	WSW				368	270	243	231	277	307	366	245	cloud
07/08/2002 9:00	0.06	317	30	WSW	1.8	1.5	4	1.4	4	WSW				363	271	256	245	280	309	353	238	cloud
07/08/2002 12:00	0.3	55	25to30	WSW	2.1	1.5	4	1.4	4	WSW				370	283	260	242	268	290	343	241	cloud
07/08/2002 14:00	0.5	55	35	WSW	2.4	1.7	5	1.7	5	WSW				379	293	275	253	268	265	332	235	cloud

Definitions:

- Hs(primary): Is the dominant wave train.
- Hs(secondary): Is the smaller of the two wave trains if visible.
- KIPS: 1000 Pounds Force

913711 038

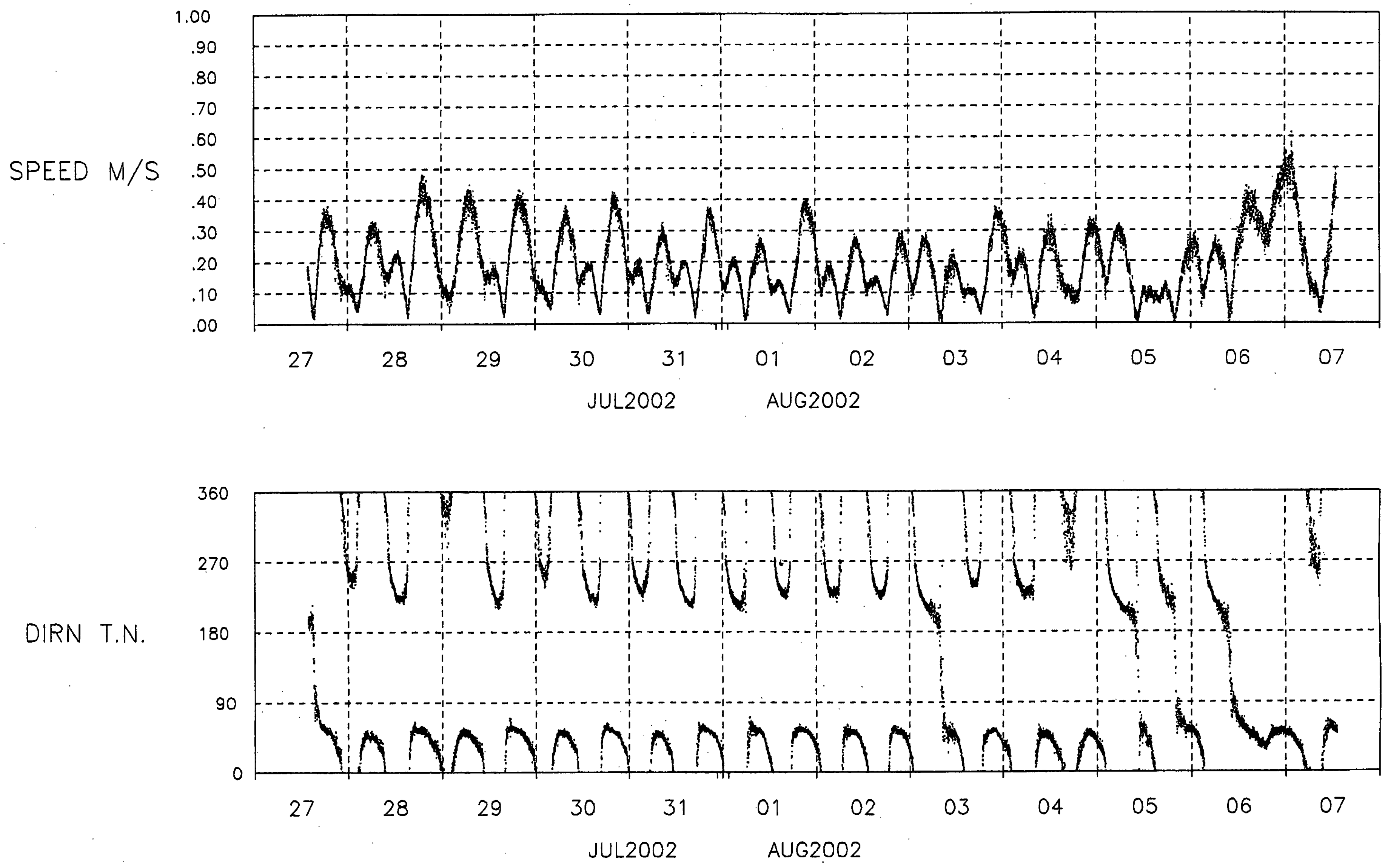


LAWSON & TRELOAR
J2119/R2026/V1
02 October 2002

Current Metering at Beardie 1

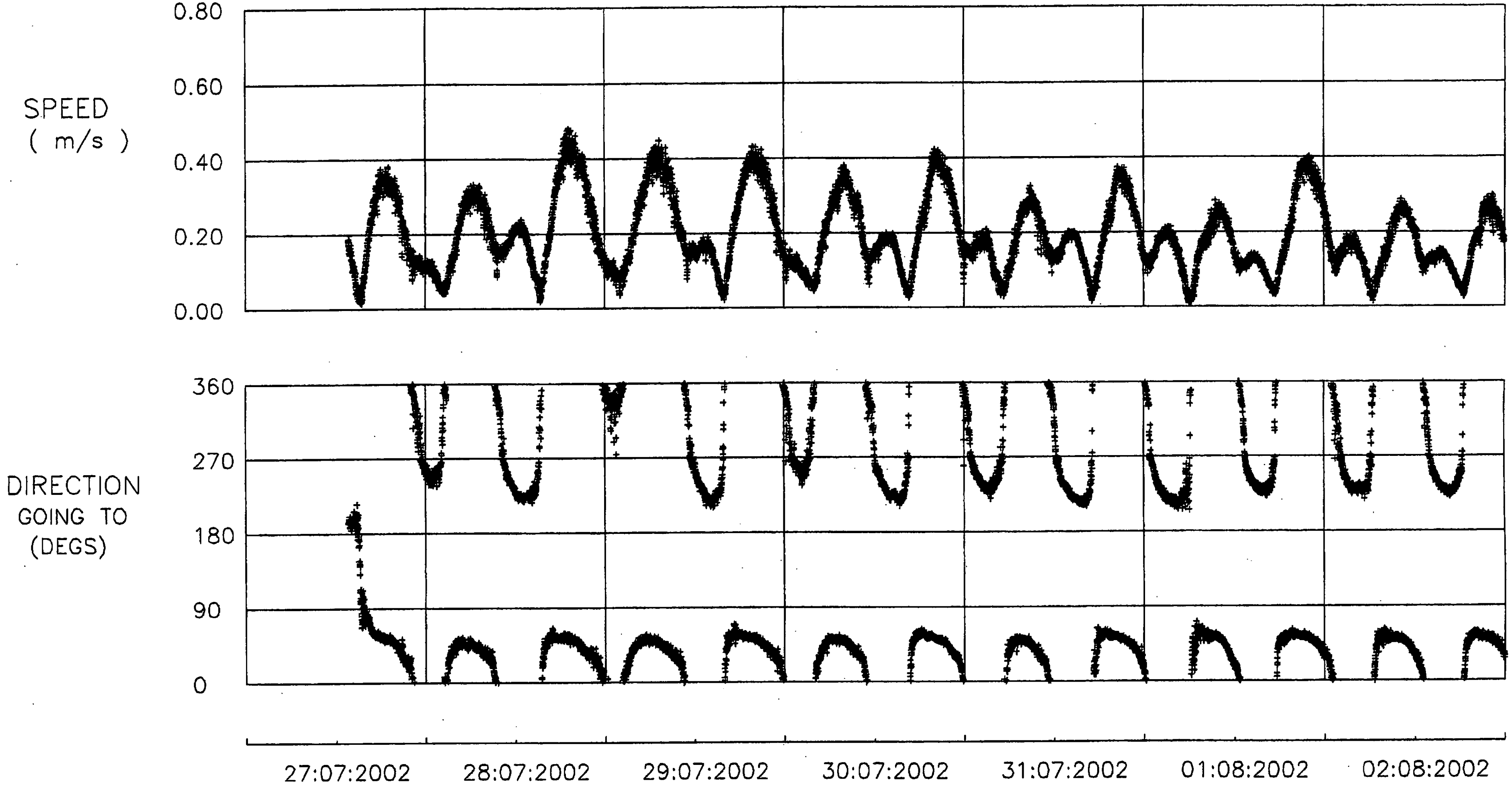
FIGURE 1
LOCATION MAP

Maroubra..c:\J2119\Figures\Figure1.Wor



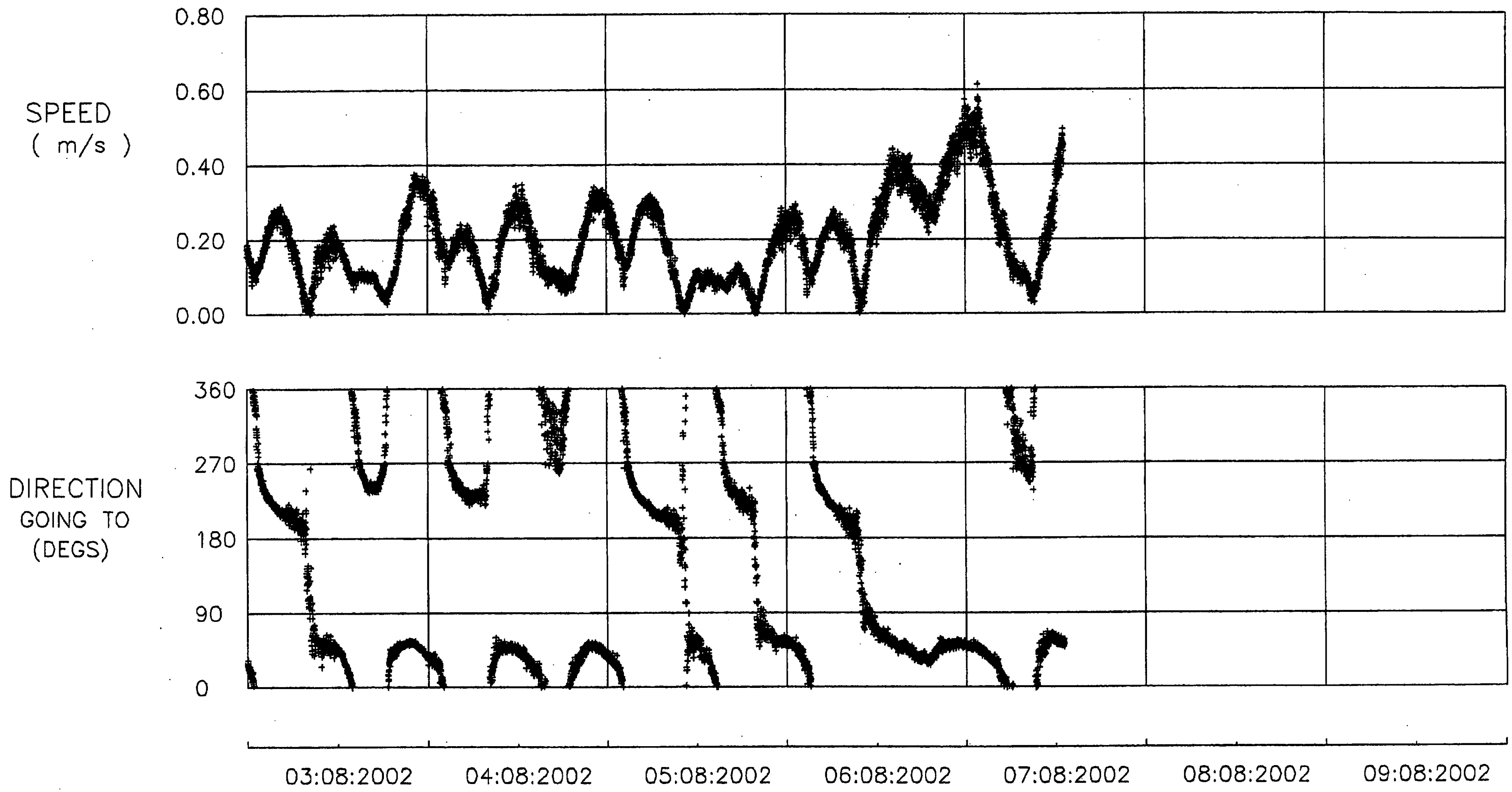
Site : BEARDIE1 −29.3m Instrument : S4 (s/n07581603) Data Start : 1346 27:07:2002 Data End : 1314 07:08:2002	ESSO AUSTRALIA	LAWSON & TRELOAR PTY LTD	
	BEARDIE 1 CURRENT SPEED−DIRECTION TIME HISTORY PLOT	JOB NO. : J2119 PLOT DATE : 8 OCT 2002	
		FIG : 2	

913711 039



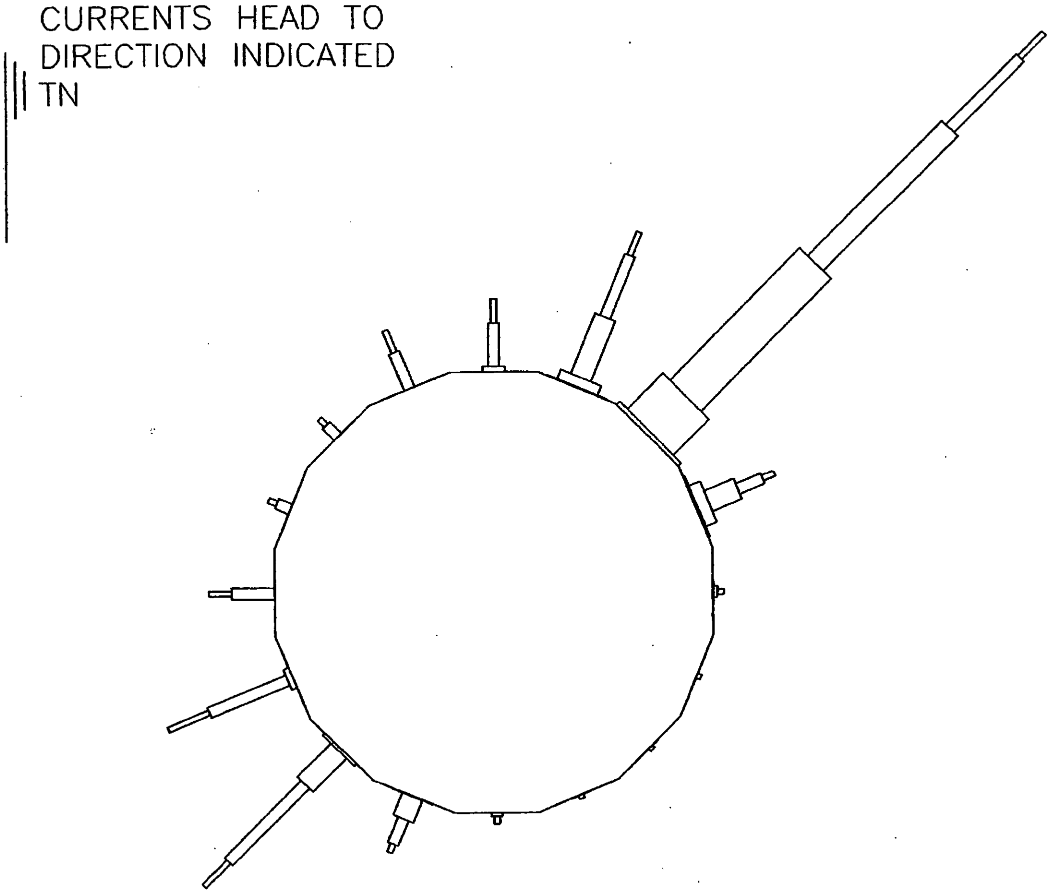
Depth	: BEARDIE1 −29.3m	ESSO AUSTRALIA	LAWSON & TRELOAR PTY LTD
Instrument	: S4 (s/n07581603)	BEARDIE 1	JOB NO. : J2119
Data Start	: 1346 27:07:2002	CURRENT SPEED−DIRECTION	PLOT DATE : 8 OCT 2002
Data End	: 1314 07:08:2002	TIME HISTORY PLOT	FIG : 3

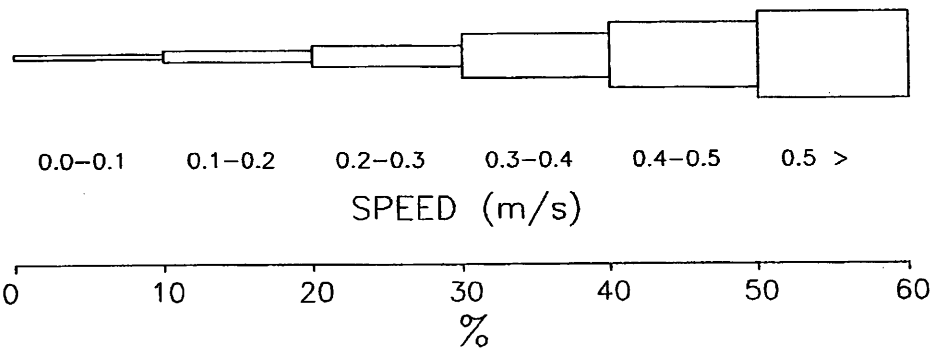
913711 040



Depth	: BEARDIE1 −29.3m	ESSO AUSTRALIA	LAWSON & TRELOAR PTY LTD
Instrument	: S4 (s/n07581603)	BEARDIE 1	JOB NO. : J2119
Data Start	: 1346 27:07:2002	CURRENT SPEED−DIRECTION	PLOT DATE : 8 OCT 2002
Data End	: 1314 07:08:2002	TIME HISTORY PLOT	FIG : 4

913711 042

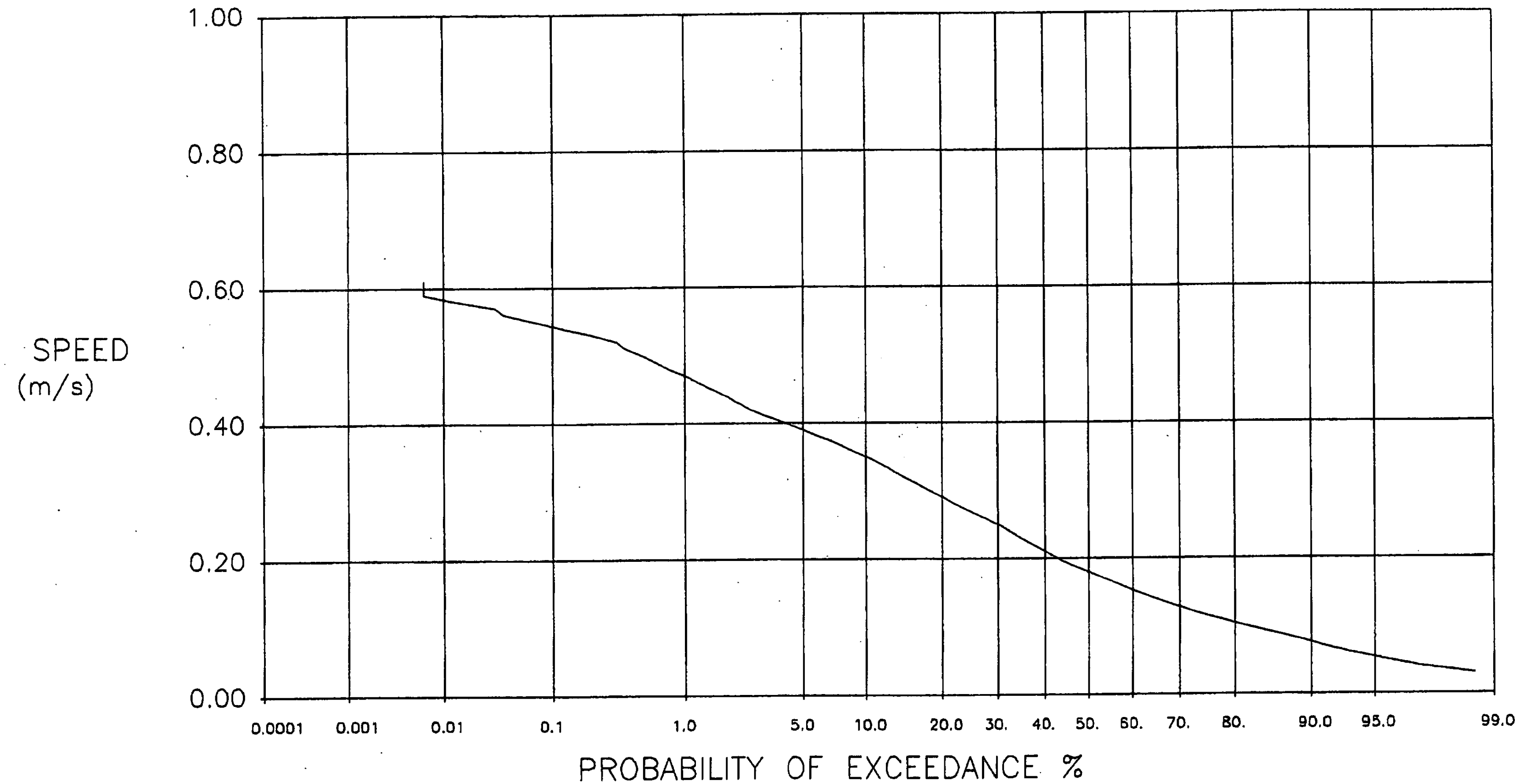




Depth	: BEARDIE1 −29.3m	Data Start	:	1346 27:07:2002
Instrument	: S4 (s/n07581603	Data End	:	1314 07:08:2002

ESSO AUSTRALIA	LAWSON & TRELOAR PTY LTD
BEARDIE 1 CURRENT SPEED–DIRN FREQUENCY ROSE	JOB NO. : J2119 PLOT DATE : 8 OCT 2002
	FIG : 5

913711 043



Depth	: BEARDIE1 −29.3m
Instrument	: S4 (s/n07581603)
Data Start	: 1346 27:07:2002
Data End	: 1314 07:08:2002
No. of Pts	: 15792

ESSO AUSTRALIA

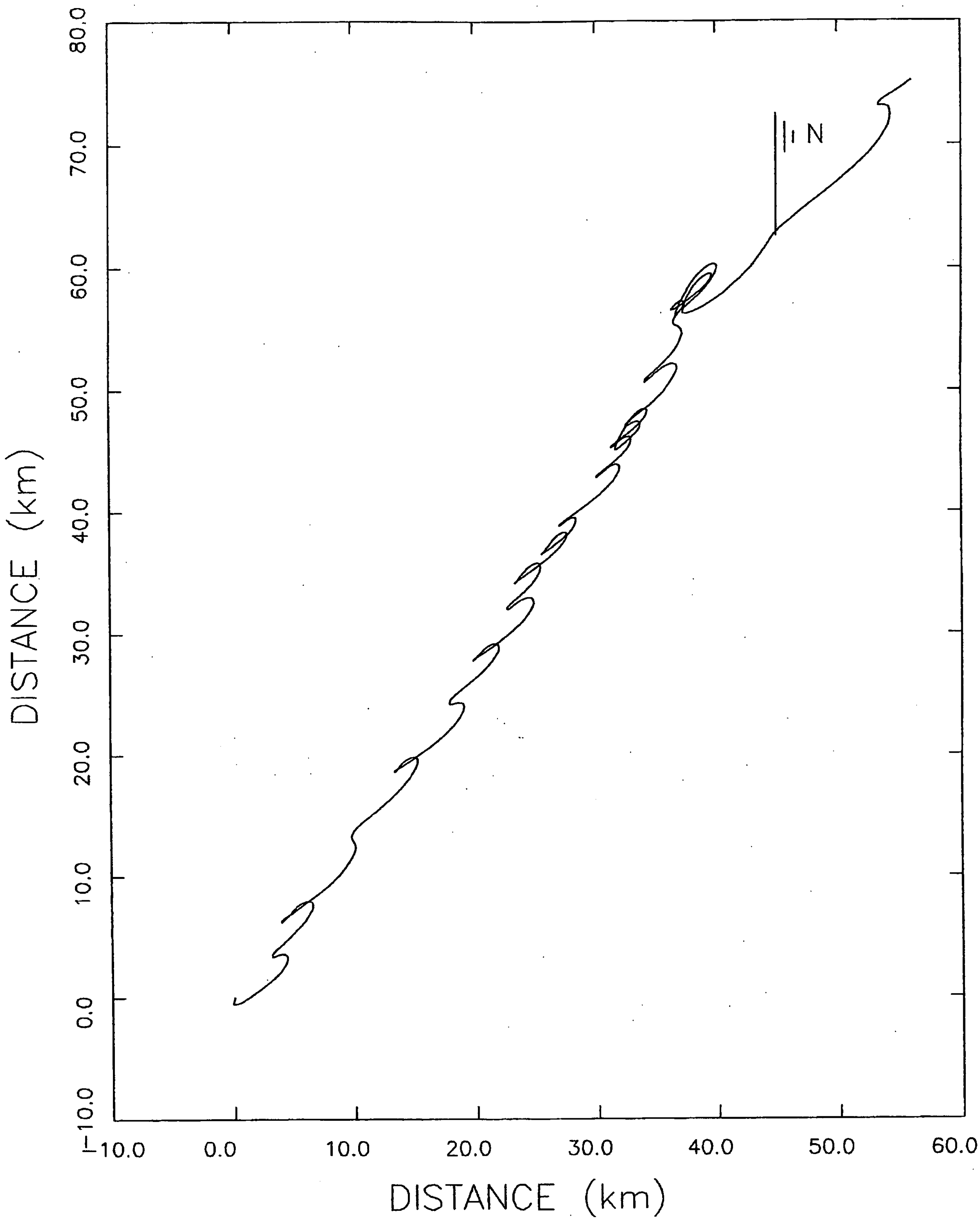
BEARDIE 1
CURRENT SPEED
EXCEEDANCE PLOT

LAWSON & TRELOAR PTY LTD

JOB NO. : J2119
PLOT DATE : 8 OCT 2002

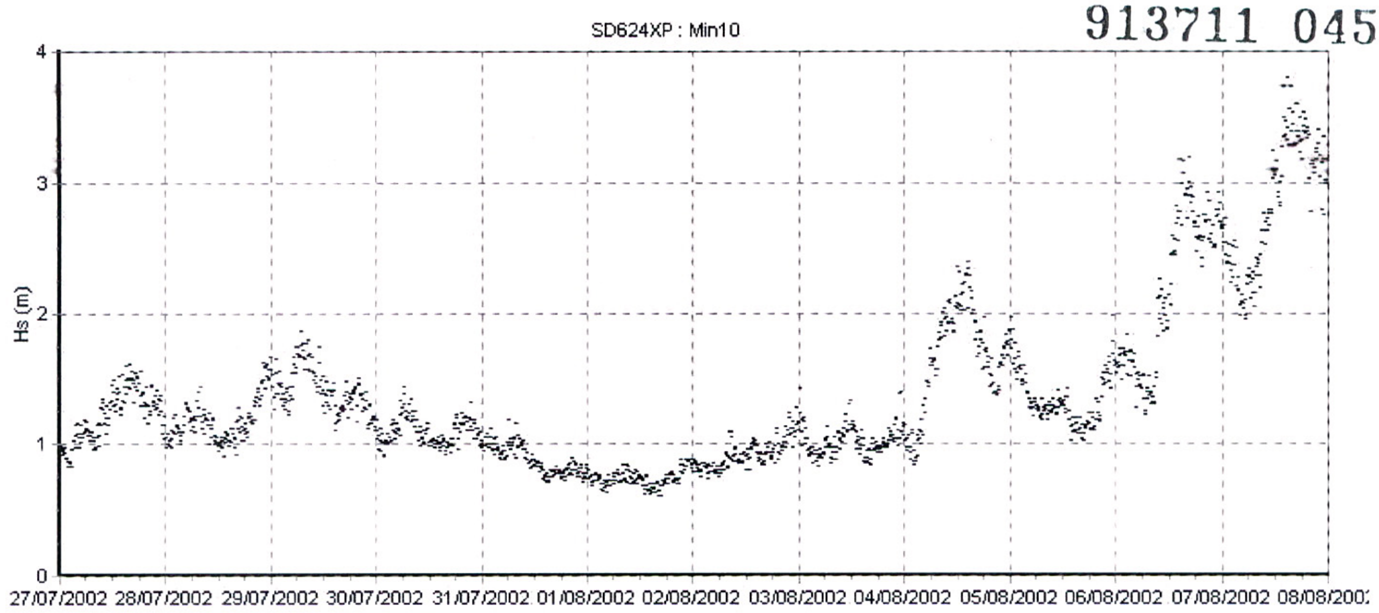
FIG : 6

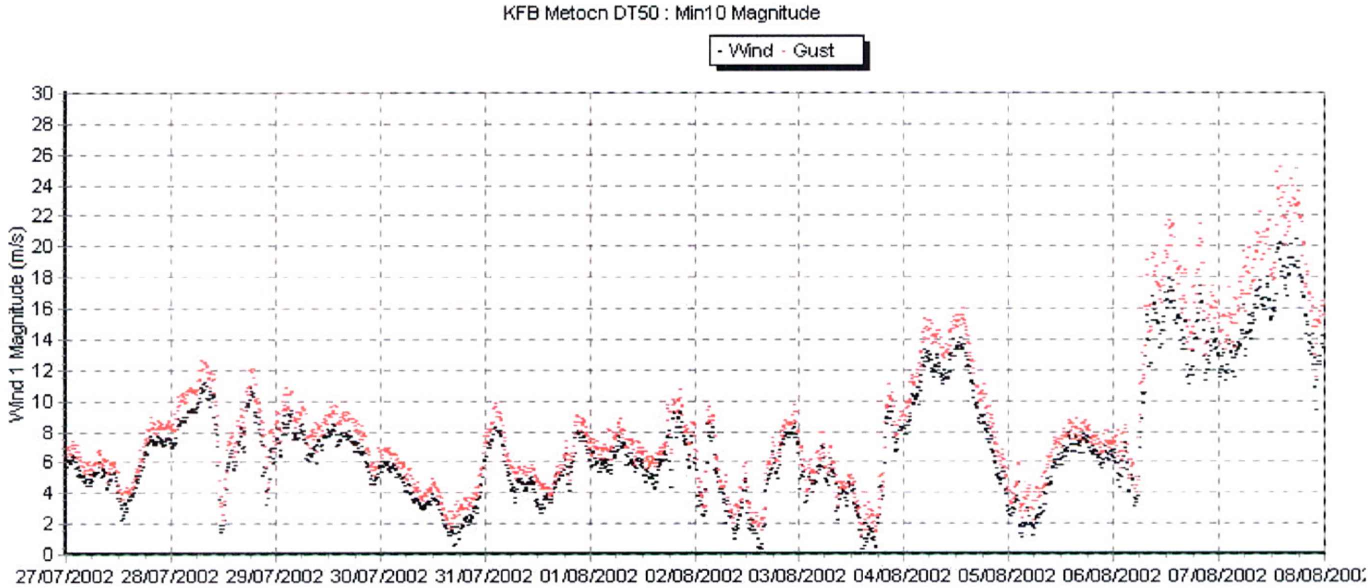
913711 044

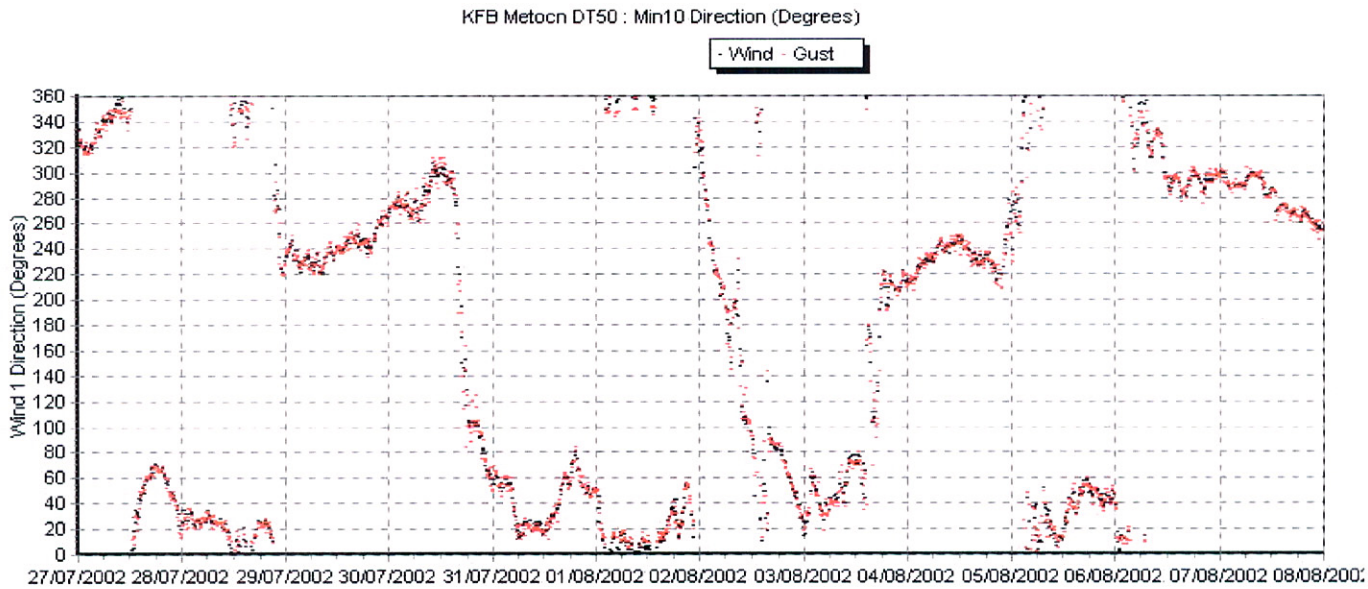


Depth	: BEARDIE1 −29.3m	Data Start	:	1346 27:07:2002
Instrument	: S4 (s/n07581603	Data End	:	1314 07:08:2002

ESSO AUSTRALIA	LAWSON & TRELOAR PTY LTD
BEARDIE 1 CURRENT PROGRESSIVE VECTOR PLOT	JOB NO. : J2119 PLOT DATE : 8 OCT 2002
	FIG : 7







LAWSON & TRELOAR

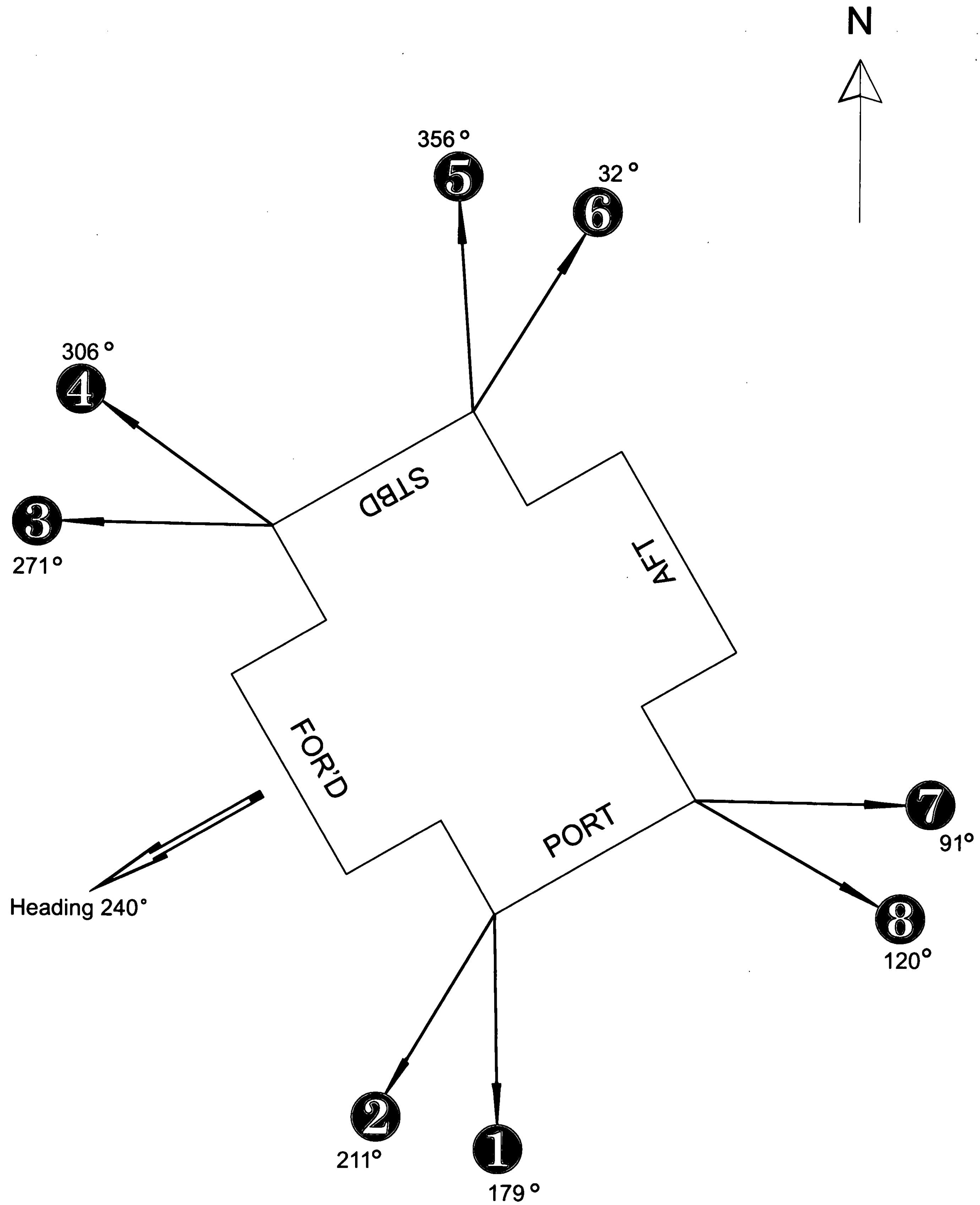
FIGURE 8
Wave Height , Wind Speed and Direction at KFB

J2119/R2026V1
08 October 2002

Current Metering at Beardie

Maroubra,c:/JobsJ2119/Figures/Figure8.cdr

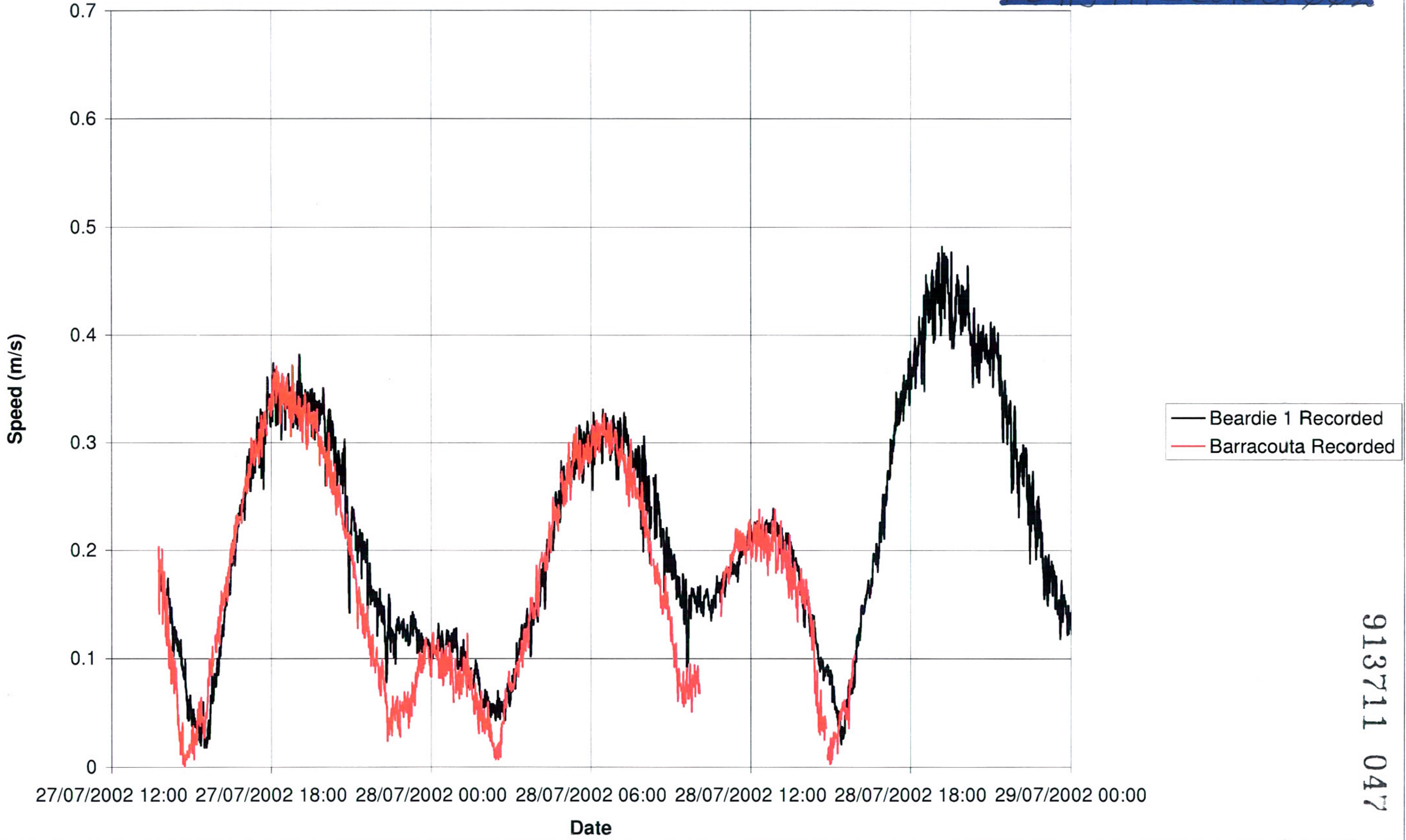
913711 046



LAWSON & TRELOAR

FIGURE 9
ANCHOR LINE LAYOUT

~~Pe913711 — colour 002~~



913711 047

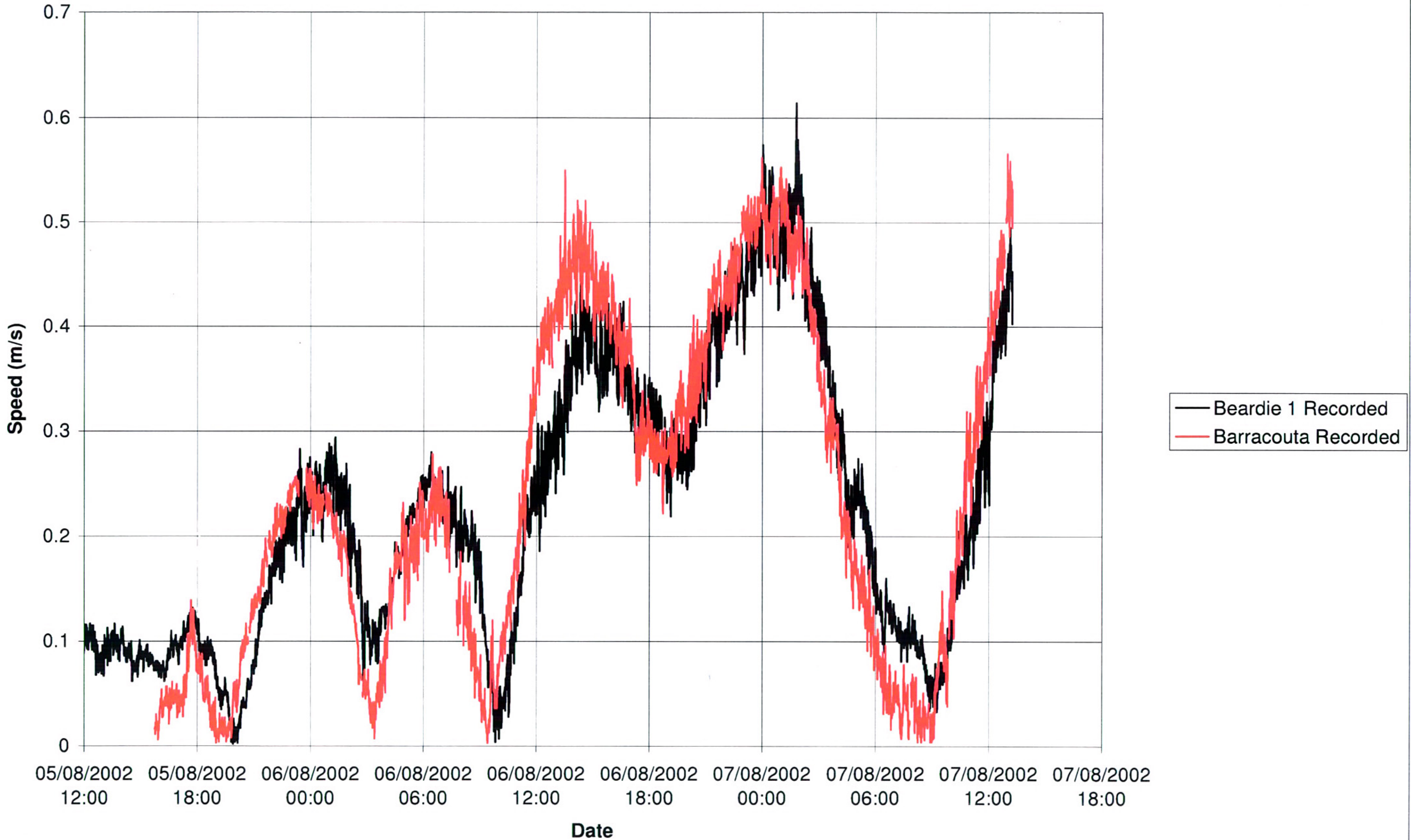
Lawson Treloar
J2119/R2026/Version 1
04/10/2002

Current Metering at Beardie 1

Figure 10
Comparsion Time History Speed Plot
\Jobs\J2119\Currents\bd1comp.xls

[redacted]

913711 048

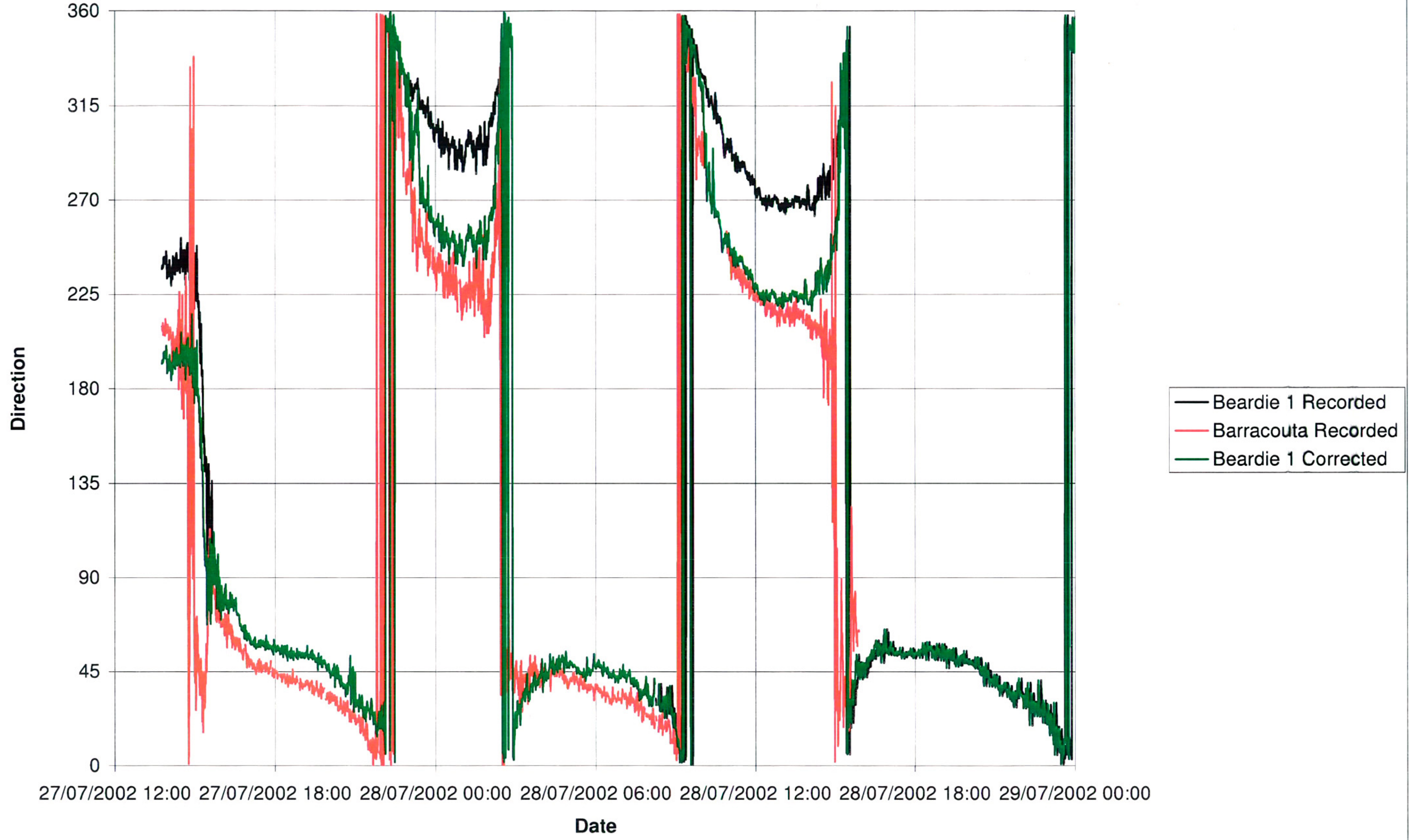


Lawson Treloar
J2119/R2026/Version 1
04/10/2002

Current Metering at Beardie 1

Figure 11
Comparsion Time History Speed Plot
\Jobs\J2119\Currents\bd1comp.xls

PE913711 - colour 004



913711 049

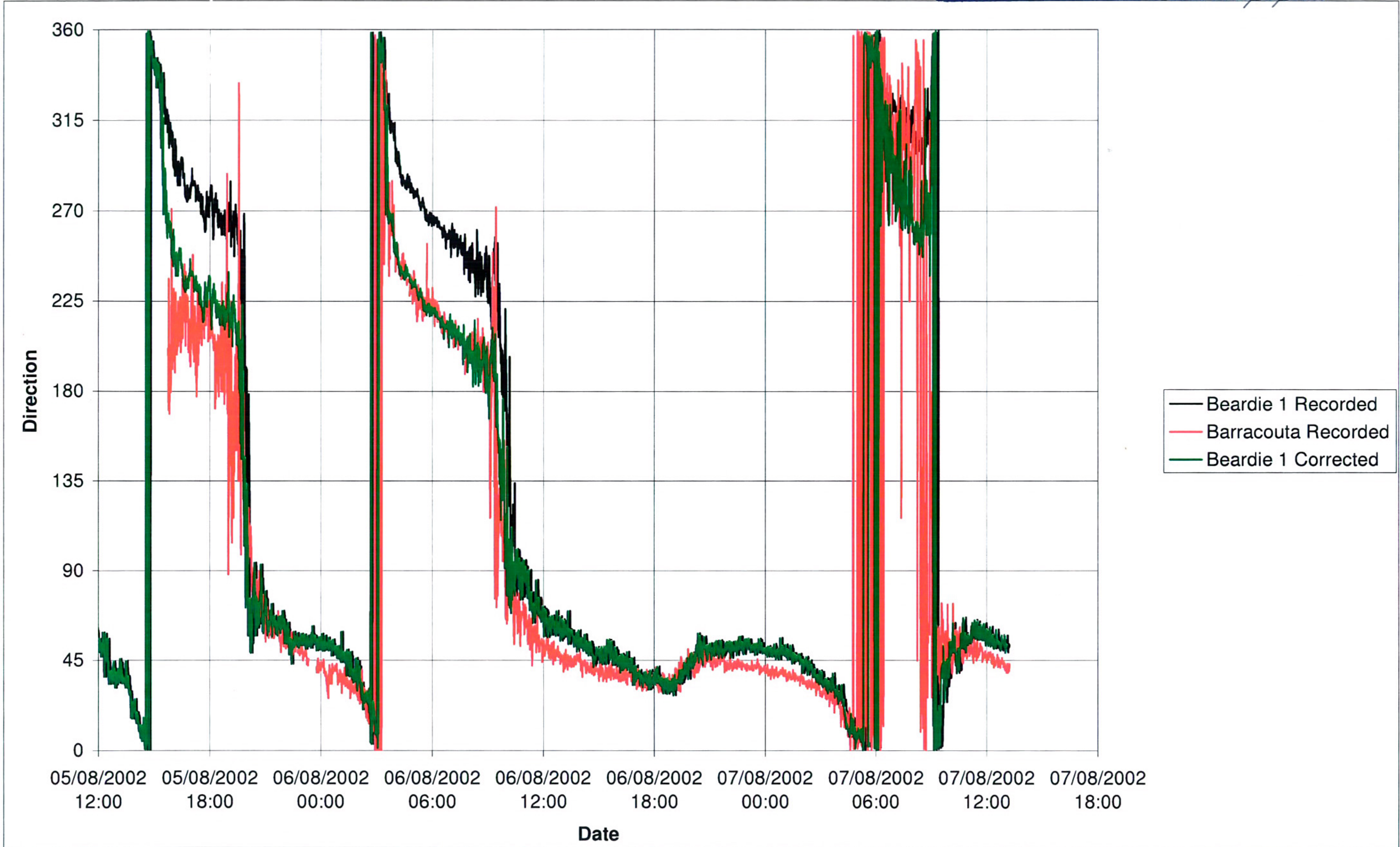
Lawson Treloar
J2119/R2026/Version 1
04/10/2002

Current Metering at Beardie 1

Figure 12
Comparsion Time History Direction Plot
\Jobs\J2119\Currents\bd1comp.xls

~~PE913711 - colour 005~~

913711 050



Lawson Treloar
J2119/R2026/Version 1
04/10/2002

Current Metering at Beardie 1

Figure 13
Comparsion Time History Direction Plot
\Jobs\J2119\Currents\bd1comp.xls

913711 051

Permits

Permits

Esso Australia Pty Ltd
Beardie-1 PERMITS

#	Date	To	Permit
1	4 October 2001	Environment Australia	Submission of Beardie-1 referral under the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC).
2	18 October 2001	Environment Australia	Withdrawal of the Beardie-1 Referral Submission.
3	7 November 2001	Environment Australia	Submission of Beardie-1 referral under the Environmental Protection and Biodiversity Conservation Act 1999 (EPBC).
4	17 December 2001	Esso	Decision that Beardie-1 is not a controlled action under the EPBC Act 1999.
5	18 March 2002	DNRE	Advising Beardie-1 Site Survey.
6	13 June 2002	DNRE	Beardie-1 Authorisation to Drill.
7	18 June 2002	DNRE	Beardie-1 Consents & Approvals, viz. application for: ➢ Consent to use the Ocean Bounty; ➢ Acceptance of the MODU Safety Case Bridging Document, Beardie Campaign; ➢ Submission of the Beardie Bridging Emergency Response Plan; ➢ Acceptance of the Beardie Environmental Plan; ➢ Approval to Drill Beardie-1.
8	24 June 2002	General	Notice of Prohibition of Entry into Safety Zone Beardie-1 Well, published in the Victoria Government Gazette.
9	9 July 2002	Esso	DNRE Consent to Drill Beardie-1, viz: ➢ Consent to use the Ocean Bounty; ➢ Acceptance of the Safety Case Bridging Document; ➢ Acceptance of the Beardie Bridging Emergency Response Plan; ➢ Acceptance of the Beardie Environmental Plan; ➢ Approval to Drill Beardie-1.
10	10 July 2002	DNRE, AMSA	Approval to move Ocean Bounty from Sole-2 to Beardie-1.
11	10 July 2002	Esso	DNRE Consent to move Ocean Bounty from Sole-2 to Beardie-1.
12	11 July 2002	Esso	AMSA Consent to move Ocean Bounty from Sole-2 to Beardie-1.
13	24 July 2002	MRCC, DOT, AMSA, DNRE	Advice of Rig Move from Sole-2 to Beardie-1.
14	25 July 2002	MRCC, DOT, AMSA, DNRE	Advice of Rig Arrival at Beardie-1.
15	6 August 2002	DNRE	Request for Approval to Abandon Beardie-1.
16	6 August 2002	Esso	Consent to Plug and Abandon Beardie-1 Exploration Well.
17	10 August 2002	MRCC, DOT, AMSA, DNRE	Advice of Rig Move from Beardie-1 to Sole-2.
18	11 August 2002	MRCC, DOT, AMSA, DNRE	Advice of Rig Arrival at Sole-2.
19	12 August 2002	DNRE	Advice on the details of the Beardie-1 P&A and seabed survey.
20	16 August 2002	DNRE	Plug & Abandonment of Beardie-1, VIC/L2. Revision of the Final Well Location.

913711 053

Esso Australia Pty Ltd
ABN 49 000 018 566
12 Riverside Quay
Southbank, Victoria 3006
GPO Box 400C
Melbourne, Victoria 3001
61 3 9270 3333 Telephone

4 October, 2001

Referrals Section (EPBC Act)
Approvals and Legislation Division
Environment Australia
GPO Box 787
Canberra ACT 2601

RE: BEARDIE - 1 REFERRAL

Attached is Esso Australia Pty Ltd's (Esso) referral under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC) for the proposed Beardie-1 near field wildcat well, located in Bass Strait.

It is Esso's view that there are no "controlling actions" based on information gathered from the literature, regional and State agencies consulted, and field surveys undertaken. The referral addresses the potential impacts related to the Commonwealth marine area, the migratory species, and the threatened species present within the area of the Beardie-1 well.

Should you require any further information please contact Daniel L Whiteman, Drilling Manager (03 9270 3422) or Greg Terrens, Environmental Adviser (03 9270 3509).

Yours sincerely

Original signed by Daniel L. Whiteman

Daniel L Whiteman
Drilling Manager

bcc:

Mel Osborne (BHPP)
David Tyler (SRO)
Andy Zannetos
Dan Whiteman

File: Beardie 3.2
Beardie-1 Final Well Report
Beardie-1 Well Planning & Surveillance file

913711 055

Environment Protection and Biodiversity Conservation Act 1999

Referral Form

1.1 Person making the referral

Note: This must be either the person proposing to take the action, their agent (e.g. a consultant), or a State, Territory or Commonwealth agency making the referral in relation to an action to be taken by another person.

(Include name, postal address, telephone, fax, email)

Esso Australia Pty Ltd
12 Riverside Quay
Southbank VIC 3006
Phone – 03 9270 3333
Fax – 03 9270 3895

1.2 Corporation or individual(s) proposing to take an action.

Note: If the person proposing to take the action is the same as the person making the referral, write 'as above'.

(Include name of corporation or individual(s) proposing to take the action, postal address, telephone, fax, email)

As above

If a corporation is proposing to take the action, please also provide the name of a contact officer for this matter.

Mr Daniel L Whiteman
Drilling Manager
Esso Australia Pty Ltd

1.3 Corporation or individual(s) proposed as proponent for the action

Note: If the person proposed as proponent is the same as the person proposing to take the action, write 'as above'.
If the proponent is different from the person proposing to take the action, the signature of both is required (at Section 4).

(Include name(s) of corporation or individual(s) proposed as proponent for the action, postal address, telephone, fax, e-mail.)

As above

If a corporation is the proponent for the action, please also provide the name of a contact officer for this matter.

Mr Daniel L Whiteman
Drilling Manager
Esso Australia Pty Ltd

2. Description of the proposal

2.1 Provide a summary description of the action

Esso Australia Pty Ltd (Esso) proposes to drill one exploration well from a semi-submersible mobile offshore drilling unit (MODU). The Beardie-1 well is proposed as a vertical oil well to be drilled in approximately 50 m of water to a depth of 1,880m measured depth below the rigfloor (MDRT). Well planning presently allows for the well to be extended to a depth of 3,200m in the event that significant hydrocarbon accumulations are encountered.

2.2 details of the location of the project area

Where the project is of less than 1 km^2 in size, provide the location as a single pair of latitude and longitude references

The general location of the proposed drilling activity is displayed in Figures 1 & 2, below. Beardie-1 (Vic/L2) is located approximately 30 km south east from the Victorian coast, 10 km north east of Esso's Barracouta platform and 6.5 km south west of Esso's Whiting development.

Attach an A4 size map showing the location and approximately boundaries of the area in which the project is to occur (This map, or a second attached map, should also show features mentioned in responses to questions in part 3 of this referral).

2.3 The timeframe in which the action is proposed to occur. (Include start and finish dates where applicable)

Drilling is scheduled for a period between December 2001 and January 2002. The exact timing is not known at this stage and is dependent upon MODU availability. The drilling duration is approximately 25 days to 1,880m with a maximum expected duration of 45 days in the event that the well is continued to a depth of 3,200m.

2.4 Provide details of the action including activities proposed to be carried out as part of the proposed action.

Esso proposes to drill one exploration well from a semi-submersible mobile offshore drilling unit (MODU). The Beardie-1 well is proposed as a vertical oil well to be drilled in 50 m of water to a depth of 1,880 m MDRT below the rigfloor. Well planning presently allows for the well to be deepened to a depth of 3,200 m measured depth if significant hydrocarbon accumulations are encountered. The well will not be production tested.

The proposed drilling fluid scheme for Beardie-1 is a water based mud (WBM). Synthetic or oil based mud is not proposed for the well. The location of the well is described in Section 2.2.

The MODU to be contracted for the well will be Diamond Offshore General Company's vessel the "Ocean Bounty".

The drilling program for Beardie-1 will include a conventional two string casing design. A 36-inch hole will be drilled riserless with seawater and bentonite gel sweeps to a depth of 125 m DRT and 30" structural casing will be set and cemented. This casing is used to support the 30" wellhead housing. A 17 ½" surface hole will be drilled riserless with seawater and bentonite gel sweeps to approximately 850 m MDRT and the 18 ¾" high pressure wellhead housing with one joint of 20" below swaged to 13 $^{3}/_{8}$" casing will be set and cemented. Cuttings and drilling fluid will be returned to the seafloor while drilling riserless. A blow-out prevention stack (BOP) and riser will be installed on the high-pressure housing. A 12 ¼" hole will then be drilled using water-based drilling fluid system comprised of KCl, partially hydrolysed poly acrylamide, glycol and polymers. This section will be drilled to a depth of 1,880m to evaluate the primary target. In the event that significant hydrocarbons are encountered the well may be deepened to a depth of 3,200 m. In the event that significant hydrocarbons are encountered, a 9 $^{5}/_{8}$" production casing string will be set and cemented. The well will then be plugged and abandoned or suspended with cement plugs.

Drilled cuttings will be continuously discharged overboard after separation from recirculated drilling fluid by vibrating screens (shale-shakers) and to a lesser extent, centrifuges, desanders and desilters. Cuttings discharged can be expected to range from very fine to very coarse (<1 cm) particle/sediment size. The volume of cuttings discharged will be in the order of 225 m^3 or 240 m^3 in the event that the well is drilled to a depth of 1,905 m or 3,225 m respectively.

2.5 provide an explanation of the context in which the action is proposed to take place, including any relevant planning framework, in which the action is proposed

An Environment Plan (EP) is to be prepared for the well, as required under the *Petroleum (Submerged Lands) (Management of Environment) Regulations 1999* for the Victorian Designated Authority, the Department of Natural Resources and Environment. This plan will address the drilling program from a risk based context and will include an implementation plan, containing agreed performance objectives, defined roles and responsibilities and reporting requirements. Well drilling design and execution will be conducted under the framework of the ExxonMobil Development Company Drilling Operations Integrity Management System (OIMS) and the Beardie-1 Environmental Plan, which will ensure that all potential hazards to the environment are identified, assessed and either avoided or managed to an acceptable level.

Oil spill risks associated with well drilling activities will be managed in accordance with Esso's approved Bass Strait Emergency Response Manual that includes the Oil Spill Contingency Plan.

2.6 Indicate whether, and in what way, the action is related to other actions or proposals in the region.

Esso Australia Pty Ltd operates 21 oil and gas projects within the Gippsland Basin, on behalf of the Esso Australia Resources Pty Ltd and BHP Petroleum (Bass Strait) Pty Ltd Joint Venture. The existing operations comprise staffed and not normally staffed production platforms, monotowers and subsea completions.

The Longford plants receive Bass Strait production by pipeline and are located about 20 km south east of Sale and 12 km from the coast in the Gippsland region of Victoria. Gas processing and crude oil stabilisation operations take place at Longford.

The primary objective of the Beardie-1 exploration well is to discover oil, condensate or gas deposits that can be economically developed and contribute to the existing developments in Bass Strait.

3. Nature and extent of the likely impacts of the action

3.1 Describe the affected area, referring as appropriate to attached maps. In particular indicate the location of any of the following features: World Heritage properties, Ramsar wetlands, listed threatened species or communities and/or known habitat for these species or communities, listed migratory species and/or known habitat for these species, Commonwealth marine areas and Commonwealth land.

(Note - show relevant features on an attached map)

The general location of the proposed activity is displayed in Figures 1 & 2. The proposed Beardie-1 well location and drilling activities are explained in Sections 2.2 and 2.4.

There are no significant seabed features in the vicinity of the proposed well site.

Although specific seabed surveys have not been conducted at the proposed well site, Esso has undertaken various studies in eastern Bass Strait. These studies show the seabed material is likely to be predominantly calcium carbonate comprised of calcarenites, marls and marine shales. Sediment particle sizes in the vicinity of the well are likely to be similar in size to sand (0.25 – 0.5 mm).

Benthic sampling in the Bass Strait has consistently shown a highly diverse array of invertebrate groups with several polychaete families, pycnogonids, pericarid crustaceans, opisthobranch molluscs, bryozoans and brachiopods being the most species rich.

There are no marine reserves, World Heritage properties, or areas listed or nominated on the Register of the National Estate, or listed Ramsar wetlands in the vicinity of the Beardie-1 well location. The closest reserve area is the proposed Ninety Mile Beach Marine Park near Seaspray, the position of the proposed park is approximately 50 km west of the proposed well location. The Victorian Environment Conservation Council has proposed this park, however it is yet to be proclaimed.

Species that are listed under the EPBC Act may migrate or move through the proposed drilling area. However, none of the species listed are dependent upon the area for food or reproduction.

Threatened biota which is likely to be found in the offshore project area is the Blue Whale *Balaenopetra musculus* listed as endangered; and the Humpback Whale *Megaptera novaeangliae*, Southern Right Whale *Eubalaena australis,* Fin Whale *Balaenoptera physalus* and Great White Shark *Carcharodon carcharias* listed as vulnerable.

The Humpback Whale occurs regularly in the region while migrating to and from the north-eastern Australian coast from the sub-antarctic, but it does not feed in the Bass Strait. Low numbers of sightings have been made of other whale species along the eastern Bass Strait coastline. Like the Humpback Whale, the Blue, Southern Right and Fin whale all use the Bass Strait to migrate between feeding grounds in the antarctic and breeding grounds to the north. From sightings recorded by Esso, most whale movements occur in the Bass Strait during winter and spring, which is outside of the proposed drilling period of summer.

Great White Sharks are uncommon but are generally known to frequent waters around seal colonies. There are known Australian fur seal colonies at Wilson's Promontory over 130 km to the south west of the drilling location.

Migratory seabirds, some of which will be protected by international agreements (Bonn Convention, JAMBA and CAMBA) may pass through or near to the well location on their way to islands in the Bass Strait and/or Tasmania. Foraging groups of seabirds are also sighted, sporadically, in the eastern Bass Strait area.

Drilling activities are considered unlikely to have any significant impact on the movements of migratory species.

It is considered highly unlikely that EPBC Act listed marine species or ecological communities will be affected by the proposed drilling activity.

Any support vessels mobilised to site from overseas are required to comply with the AQIS Australian Ballast Water Guidelines to minimise the potential for any introduction of exotic marine organisms. In addition, the water depth and distance from the coast will effectively further reduce the risks of exotic introductions.

It is anticipated that disturbance to the Commonwealth marine area will be limited to the effects of water based drilling mud and cuttings causing temporary localised effects on benthic fauna only. According to Hinwood *et al.* (1994) the plume created by a discharge of drill cuttings can be expected to dilute by a factor of at least 10,000 within 100 m of the point of discharge.

The drilling program is unlikely to have any significant, long lasting effects on benthic communities due to the water depth (50 m) and seawater current regime. There will be minor localised impact within a radius of approximately 5 m from the wellhead where a cuttings pile will generate during the riserless section of the well. The extensive nature of the habitat and nature of the seabed indicates a high potential for recovery of benthic fauna from physical disturbance.

3.2 Describe the nature and extent of likely impacts on the following matters protected by the EPBC Act (to the extent that each is relevant to the action and the affected area):

- the world heritage values of a declared World Heritage property, or
- the ecological character of a declared Ramsar wetland, or
- the members of a listed threatened species (except a conservation dependent species) or any threatened ecological community, or their habitat;
- the members of a listed migratory species or their habitat, or
- part of the Commonwealth marine area
- Commonwealth land

There will be no impacts from the drilling activity on World Heritage property, Ramsar wetlands, listed migratory species or their habitats or threatened ecological communities, or Commonwealth land and it is considered highly unlikely that any threatened species will be impacted by the drilling activities. As stated in Section 3.1, most whale movements through the region are in winter and spring. The drilling operations are planned for summer 2001/2002, thus avoiding the main whale migration period. The eastern Bass Strait region contains 21 oil and gas installations, which have associated support vessel traffic. It also supports a significant portion of the community through commercial fishing activities. The small increase in support vessel movements (approximately 1 vessel movement per day) in the region are unlikely to have any significant impact on whale migration behaviour.

3.3 Indicate whether the action is a nuclear action or an action by the Commonwealth or by a Commonwealth agency

The action is not a nuclear action or an action conducted by the Commonwealth or a Commonwealth agency.

3.4 Provide a description of important features of the **project area** and the **affected area**, including (if relevant to the project area or affected area) information about:

(a) soil and vegetation characteristics;
(b) water flows, including rivers, creeks and impoundments;
(c) the presence of outstanding natural features, including caves;
(d) gradient;
(e) any buildings or other infrastructure;
(f) any marine areas;
(g) kinds of fauna in the area; and
(h) the current state of the environment in the area, including information about the extent of erosion, whether the area is infested with weeds or feral animals and whether the area is covered by native vegetation or crops.

(Note - show relevant features on an attached map)

The general location of the proposed activity is displayed in Figure 1. The proposed Beardie-1 well is located approximately 45 km south of the Victorian coast, in Vic/L2 production licence area. The area is entirely within Commonwealth waters.

Beardie-1 is located on the continental shelf in approximately 50 m of water. There are no significant seabed features in the vicinity.

A description of the environment at the proposed well location is provided in Section 3.1.

3.5 Whether the **project area** is held under freehold, leasehold or any other tenure.

The proposed Beardie-1 well is located within the production licence Vic/L2. The Permits are operated by Esso Australia Pty Ltd on behalf of the Gippsland Basin Joint Venture and is administered by the Department of Natural Resources and Environment as the Designated Authority.

3.6 Current or proposed land uses for the **project area**.

The broader project area is used for the production and transport of oil and gas. Project activity will take place in the Vic/L2 Production Licence area.

3.7 For information given in this referral

(a) the source of the information; and
(b) how recent the information is; and
(c) how the reliability of the information was tested; and
(d) what uncertainties (if any) are in the information.

Bannister, JL; Kemper, CM and Warneke, RM (1999) "The Action Plan for Australian Cetaceans" Wildlife Australia, Environment Australia, Canberra

Environment Conservation Council (1999) "Marine Coastal & Estuarine Investigation – Draft Report for Public Comment" Environment Conservation Council, East Melbourne

Environment Australia (2000) "Draft Recovery Plan for Great White Sharks *Carcharodon carcharias* in Australia" Environment Australia, Canberra

Esso Australia (2000) Whale sighting data 1987 to 2000.

Esso Australia (1997) "Blackback Environment Plan"

Esso Australia (2001) "East Pilchard Environment Plan"

Esso Australia "Bass Strait Environment Plan"

Hinwood, JB, Poots, AE, Dennis, LR, Carey, JM, Houridis, H, Bell, RJ, Thomson, JR, Boudreau, P and Ayling, AM Australian Marine and Offshore Group Pty Ltd (in association with Marine Science and Ecology, Labrador Petro-Management Ltd and Sea Research) (1994) "Drilling Activities. In: Environmental Implications of Offshore Oil and Gas Development in Australia – the findings of an independent scientific review, Swan, JM, Neff, JM and Young, PC (Eds)" Australian Petroleum Exploration Association, Sydney, pp 123 - 207

Shaughnessy, P. D. (1999) "The Action Plan for Australian Seals" Natural Heritage Trust, Environment Australia, Canberra

Seabed information, including sediments and infauna descriptions, were collected by the Museum of Victoria and Esso Australia during the years 1979 to 1993. Whale species distribution was obtained from observations made from Esso platforms, vessels and helicopters. Knowledge on the distribution and abundance of seabirds in the Bass Strait is limited.

4. Signatures and Declarations

1. Signature of person making the referral

I, Ian Angus, for and on behalf of Esso Australia Pty Ltd, declare that the information contained in this form is, to my knowledge, true and not misleading.

Signature

Date

2. Statement by person making this referral on whether or not they believe the referred action to be a controlled action and nomination of relevant controlling provisions (note: this Section must be completed in *all cases* except where the referral is made by a State or Territory or a Commonwealth agency in relation to an action to be taken by another person.)

I, Ian Angus, for and on behalf of Esso Australia Pty Ltd, being the person making this referral and the person proposing to take the action (or agent acting on behalf of the person) believe that the action described in this referral **is not** a controlled action.

Briefly provide reasons why you believe the action to be controlled or not controlled:

The proposed activity has no significant impact on matters of National Environmental Significance. There will be no impacts from the project on World Heritage property, Ramsar wetlands, listed migratory species or their habitats or threatened ecological communities, or Commonwealth land and it is considered highly unlikely that any threatened species will be significantly impacted by the project activity.

Disturbance to the Commonwealth marine area will be limited to the effects of water based drilling mud and cuttings causing temporary localised effects on benthic fauna. According to Hinwood *et al.* (1994) the plume created by a discharge of drill cuttings can be expected to dilute by a factor of at least 10,000 within 100 m of the point of discharge.

The drilling program is unlikely to have any significant, long lasting effects on benthic communities due to the water depth (50 m) and seawater current regime. The extensive nature of the habitat and nature of the seabed indicates a high potential for recovery of fauna from any physical disturbance.

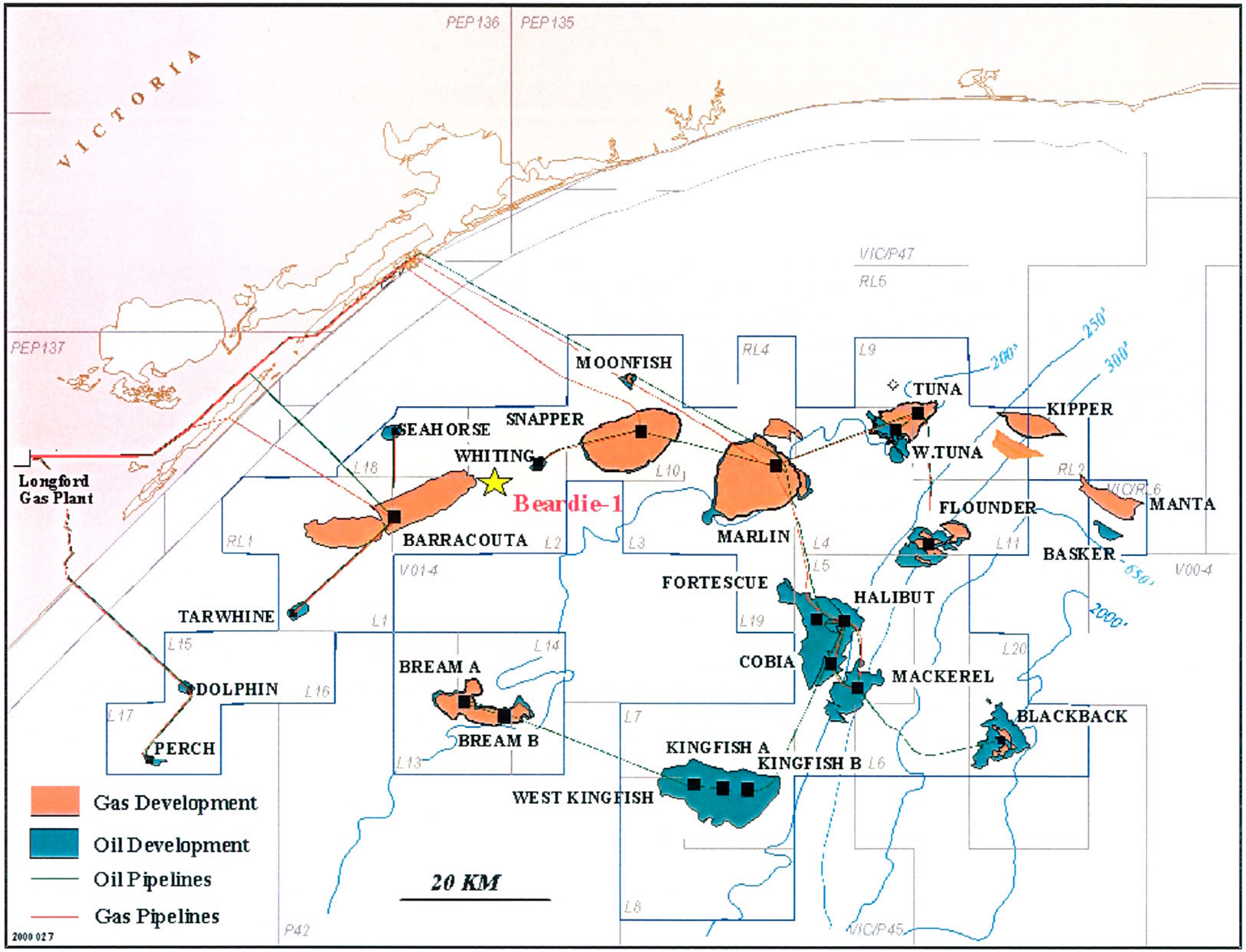
Signature

Date

END OF FORM

~~PE913711 _colour 006~~

Figure 1: BEARDIE - LOCATION MAP

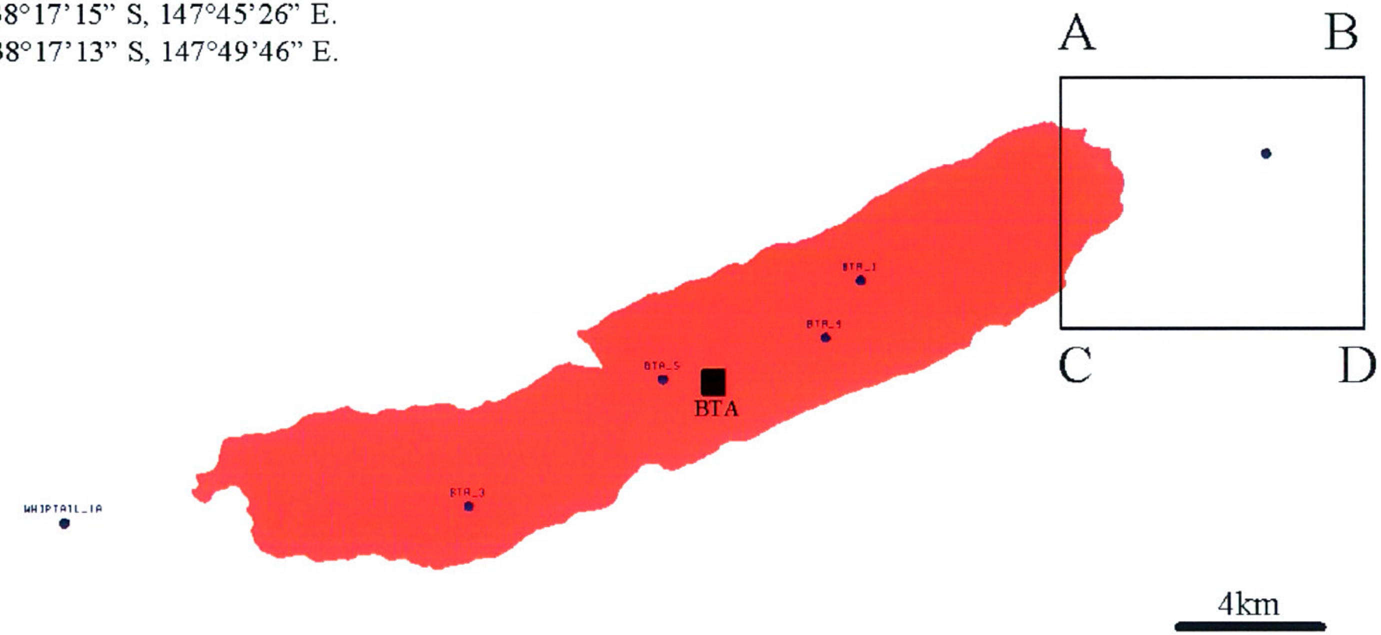


913711 063

Figure 2: BEARDIE - LOCATION MAP & CO-ORDINATES

Co-ordinates: Latitude, Longitude

A: 38°14'23" S, 147°45'24" E.
B: 38°14'22" S, 147°49'44" E.
C: 38°17'15" S, 147°45'26" E.
D: 38°17'13" S, 147°49'46" E.



Esso Australia Pty Ltd
ABN 49 000 018 566
12 Riverside Quay
Southbank, Victoria 3006
GPO Box 400C
Melbourne, Victoria 3001
61 3 9270 3333 Telephone

913711 065

18 October, 2001

Referrals Section (EPBC Act)
Approvals and Legislation Division
Environment Australia
GPO Box 787
Canberra ACT 2601

BEARDIE - 1 REFERRAL WITHDRAWAL

Please withdraw the Esso Australia Pty Ltd's (Esso) referral under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC) for the proposed Beardie-1 near field wildcat well, located in Bass Strait, dated 4 October, 2001.

Due to MODU availability we are unable to drill the well in the December/January time period. Hence we withdraw the current referral and we will resubmit the referral for Beardie-1 for drilling this well next year.

Should you require any further information please contact Daniel L. Whiteman, Drilling Manager (03 9270 3422) or Greg Terrens, Environmental Adviser (03 9270 3509).

Yours sincerely

Original signed by F.W Kratzer for Daniel L. Whiteman 18-Oct-2001
A copy of the signed original is on file at the Sender's location.

Daniel L Whiteman
Drilling Manager

bcc:

Mel Osborne (BHPP)
David Tyler (SRO)
Andy Zannetos
Dan Whiteman

File: Beardie 3.2
Beardie-1 Final Well Report
Beardie-1 Well Planning & Surveillance file

Esso Australia Pty Ltd
ABN 49 000 018 566
12 Riverside Quay
Southbank, Victoria 3006
GPO Box 400C
Melbourne, Victoria 3001
61 3 9270 3333 Telephone

7 November, 2001

Referrals Section (EPBC Act)
Approvals and Legislation Division
Environment Australia
GPO Box 787
Canberra ACT 2601

RE: BEARDIE - 1 REFERRAL

Attached is Esso Australia Pty Ltd's (Esso) referral under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC) for the proposed Beardie-1 near field wildcat well, located in Bass Strait. This referral was originally submitted on 4 October, 2001, and then withdrawn on18 October, 2001 when the Beardie-1 program was delayed.

It is Esso's view that there are no "controlling actions" based on information gathered from the literature, regional and State agencies consulted, and field surveys undertaken. The referral addresses the potential impacts related to the Commonwealth marine area, the migratory species, and the threatened species present within the area of the Beardie-1 well.

Should you require any further information please contact Daniel L Whiteman, Drilling Manager (03 9270 3422) or Michael Greenwood, Environmental Adviser (03 9270 3955).

Yours sincerely

Original signed by Daniel L. Whiteman 7-Nov-2001
A copy of the signed original is on file at the Sender's location.

Daniel L Whiteman
Drilling Manager

bcc:

Mel Osborne (BHPP)
David Tyler (SRO)
Michael Greenwood (SRO)
Andy Zannetos
Dan Whiteman

File: Beardie 3.2
Beardie-1 Final Well Report
Beardie-1 Well Planning & Surveillance file

Environment Protection and Biodiversity Conservation Act 1999

Referral Form

1.1 Person making the referral

Note: This must be either the person proposing to take the action, their agent (e.g. a consultant), or a State, Territory or Commonwealth agency making the referral in relation to an action to be taken by another person.

(Include name, postal address, telephone, fax, email)

Esso Australia Pty Ltd
12 Riverside Quay
Southbank VIC 3006
Phone – 03 9270 3333
Fax – 03 9270 3895

1.2 Corporation or individual(s) proposing to take an action.

Note: If the person proposing to take the action is the same as the person making the referral, write 'as above'.

(Include name of corporation or individual(s) proposing to take the action, postal address, telephone, fax, email)

As above

If a corporation is proposing to take the action, please also provide the name of a contact officer for this matter.

Mr Daniel L Whiteman
Drilling Manager
Esso Australia Pty Ltd

1.3 Corporation or individual(s) proposed as proponent for the action

Note: If the person proposed as proponent is the same as the person proposing to take the action, write 'as above'.

If the proponent is different from the person proposing to take the action, the signature of both is required (at Section 4).

(Include name(s) of corporation or individual(s) proposed as proponent for the action, postal address, telephone, fax, e-mail.)

As above

If a corporation is the proponent for the action, please also provide the name of a contact officer for this matter.

Mr Daniel L Whiteman
Drilling Manager
Esso Australia Pty Ltd

2. Description of the proposal

2.1 Provide a summary description of the action

Esso Australia Pty Ltd (Esso) proposes to drill one exploration well from a semi-submersible mobile offshore drilling unit (MODU). The Beardie-1 well is proposed as a vertical oil well to be drilled in approximately 50 m of water to a depth of 1,880m measured depth below the rigfloor (MDRT). Well planning presently allows for the well to be extended to a depth of 3,200m in the event that significant hydrocarbon accumulations are encountered.

2.2 details of the location of the project area

Where the project is of less than 1 km^2 in size, provide the location as a single pair of latitude and longitude references

The general location of the proposed drilling activity is displayed in Figures 1 & 2, below. Beardie-1 (Vic/L2) is located approximately 30 km south east from the Victorian coast, 10 km north east of Esso's Barracouta platform and 6.5 km south west of Esso's Whiting development.

Attach an A4 size map showing the location and approximately boundaries of the area in which the project is to occur (This map, or a second attached map, should also show features mentioned in responses to questions in part 3 of this referral).

2.3 The timeframe in which the action is proposed to occur. (Include start and finish dates where applicable)

Drilling is scheduled for a period between March 2002 and March 2003. The exact timing is not known at this stage and will be dependent upon MODU availability. The drilling duration is approximately 25 days to 1,880m with a maximum expected duration of 45 days in the event that the well is continued to a depth of 3,200m.

2.4 Provide details of the action including activities proposed to be carried out as part of the proposed action.

Esso proposes to drill one exploration well from a semi-submersible mobile offshore drilling unit (MODU). The Beardie-1 well is proposed as a vertical oil well to be drilled in 50 m of water to a depth of 1,880 m MDRT below the rigfloor. Well planning presently allows for the well to be deepened to a depth of 3,200 m measured depth if significant hydrocarbon accumulations are encountered. The well will not be production tested.

The proposed drilling fluid scheme for Beardie-1 is a water based mud (WBM). Synthetic or oil based mud is not proposed for the well. The location of the well is described in Section 2.2.

The MODU to be contracted for this proposed drilling operation is not known at this time.

The drilling program for Beardie-1 will include a conventional two string casing design. A 36-inch hole will be drilled riserless with seawater and bentonite gel sweeps to a depth of 125 m DRT and 30" structural casing will be set and cemented. This casing is used to support the 30" wellhead housing. A 17 ½" surface hole will be drilled riserless with seawater and bentonite gel sweeps to approximately 850 m MDRT and the 18 ¾" high pressure wellhead housing with one joint of 20" below swaged to 13 3/8" casing will be set and cemented. Cuttings and drilling fluid will be returned to the seafloor while drilling riserless. A blow-out prevention stack (BOP) and riser will be installed on the high-pressure housing. A 12 ¼" hole will then be drilled using water-based drilling fluid system comprised of KCl, partially hydrolysed poly acrylamide, glycol and polymers. This section will be drilled to a depth of 1,880m to evaluate the primary target. In the event that significant hydrocarbons are encountered the well may be deepened to a depth of 3,200 m. In the event that significant hydrocarbons are encountered, a 9 5/8" production casing string will be set and cemented. The well will then be plugged and abandoned or suspended with cement plugs.

Drilled cuttings will be continuously discharged overboard after separation from recirculated drilling fluid by vibrating screens (shale-shakers) and to a lesser extent, desanders and desilters. Cuttings discharged can be expected to range from very fine to very coarse (<1 cm) particle/sediment size. The volume of cuttings discharged will be in the order of 225 m3 or 240 m3 in the event that the well is drilled to a depth of 1,905 m or 3,225 m respectively.

2.5 provide an explanation of the context in which the action is proposed to take place, including any relevant planning framework, in which the action is proposed

An Environment Plan (EP) is to be prepared for the well, as required under the Petroleum (Submerged Lands) (Management of Environment) Regulations 1999 for the Victorian Designated Authority, the Department of Natural Resources and Environment. This plan will address the drilling program from a risk based context and will include an implementation plan, containing agreed performance objectives, defined roles and responsibilities and reporting requirements. Well drilling design and execution will be conducted under the framework of the ExxonMobil Development Company Drilling Operations Integrity Management System (OIMS) and the Beardie1 Environmental Plan, which will ensure that all potential hazards to the environment are identified, assessed and either avoided or managed to an acceptable level.

Oil spill risks associated with well drilling activities will be managed in accordance with Esso's approved Bass Strait Emergency Response Manual that includes the Oil Spill Contingency Plan.

2.6 Indicate whether, and in what way, the action is related to other actions or proposals in the region.

Esso Australia Pty Ltd operates 21 oil and gas projects within the Gippsland Basin, on behalf of the Esso Australia Resources Pty Ltd and BHP Petroleum (Bass Strait) Pty Ltd Joint Venture. The existing operations comprise staffed and not normally staffed production platforms, monotowers and subsea completions.

The Longford plants receive Bass Strait production by pipeline and are located about 20 km south east of Sale and 12 km from the coast in the Gippsland region of Victoria. Gas processing and crude oil stabilisation operations take place at Longford.

913711 072

The primary objective of the Beardie-1 exploration well is to discover oil, condensate or gas deposits that can be economically developed and contribute to the existing developments in Bass Strait.

3. Nature and extent of the likely impacts of the action

3.1 Describe the affected area, referring as appropriate to attached maps. In particular indicate the location of any of the following features: World Heritage properties, Ramsar wetlands, listed threatened species or communities and/or known habitat for these species or communities, listed migratory species and/or known habitat for these species, Commonwealth marine areas and Commonwealth land.

(Note - show relevant features on an attached map)

The general location of the proposed activity is displayed in Figures 1 & 2. The proposed Beardie-1 well location and drilling activities are explained in Sections 2.2 and 2.4.

There are no significant seabed features in the vicinity of the proposed well site.

Although specific seabed surveys have not been conducted at the proposed well site, Esso has undertaken various studies in eastern Bass Strait. These studies show the seabed material is likely to be predominantly calcium carbonate comprised of calcarenites, marls and marine shales. Sediment particle sizes in the vicinity of the well are likely to be similar in size to sand (0.25 – 0.5 mm).

Benthic sampling in the Bass Strait has consistently shown a highly diverse array of invertebrate groups with several polychaete families, pycnogonids, pericarid crustaceans, opisthobranch molluscs, bryozoans and brachiopods being the most species rich.

There are no marine reserves, World Heritage properties, or areas listed or nominated on the Register of the National Estate, or listed Ramsar wetlands in the vicinity of the Beardie-1 well location. The closest reserve area is the proposed Ninety Mile Beach Marine Park near Seaspray, the position of the proposed park is approximately 50 km west of the proposed well location. The Victorian Environment Conservation Council has proposed this park, however it is yet to be proclaimed.

Species are listed under the EPBC Act that may migrate or move through the proposed drilling area. However, none of the species listed are dependent upon the area for food or reproduction.

Cetacean and fish species listed under the EPBC Act as being threatened, which may occur within the area of the drilling operation are:

- **Cetaceans**

Blue Whale Balaenoptera musculus (endangered)
Southern Right Whale Eubalaena australis (endangered)
Humpback Whale Megaptera novaeangliae (vulnerable)
Fin Whale Balaenoptera physalus (vulnerable)

- **Fish**

Great White Shark Carchardodon carcharias (vulnerable)
Grey Nurse Shark Carcharias taurus (vulnerable)

The Humpback Whale occurs regularly in the region while migrating to and from the north-eastern Australian coast from the sub-antarctic, but it does not feed in the Bass Strait. Low numbers of sightings have been made of other whale species along the eastern Bass Strait coastline. Like the Humpback Whale, the Blue, Southern Right and Fin whales all use the Bass Strait to migrate between feeding grounds in the antarctic and breeding grounds to the north. From sightings recorded by Esso, most whale movements occur in the Bass Strait during winter and spring.

Great White Sharks are uncommon but are generally known to frequent waters around seal colonies. There are known Australian fur seal colonies at Wilson's Promontory over 130 km to the south west of the drilling location. In general, details of the species life history are not well understood, it is not known whether white sharks make use of particular pupping areas, however pups are fully developed and independent at birth, potentially weighing up to 32 kg (EA 2000).

Grey Nurse Sharks may be found within the vicinity of the proposed drilling location, the species distribution is such that they are uncommon in Victorian and Tasmanian waters, however the general distribution within Australian waters includes most of the southern half of the continent (EA 2000b). The species has been recorded at a range of depths, however is generally found between 15 m and 25 m (EA 2000b). The precise timing of mating and pupping in Australian waters is not known.

Migratory seabirds, some of which will be protected by international agreements (Bonn Convention, JAMBA and CAMBA) may pass through or near to the well location on their way to islands in the Bass Strait and/or Tasmania. Foraging groups of seabirds are also sighted, sporadically, in the eastern Bass Strait area.

3.2 Describe the nature and extent of likely impacts on the following matters protected by the EPBC Act (to the extent that each is relevant to the action and the affected area):

- **the world heritage values of a declared World Heritage property, or**
  Not Applicable

- **the ecological character of a declared Ramsar wetland, or**
  Not Applicable

- **the members of a listed threatened species (except a conservation dependent species) or any threatened ecological community, or their habitat;**

It is considered highly unlikely that EPBC Act listed marine species or ecological communities will be affected by the proposed drilling activity.

Any support vessels mobilised to site from overseas are required to comply with the AQIS Australian Ballast Water Guidelines to minimise the potential for any introduction of exotic marine organisms. In addition, the water depth and distance from the coast will effectively further reduce the risks of exotic introductions.

It is anticipated that disturbance to the Commonwealth marine area will be limited to the effects of water based drilling mud and cuttings causing temporary localised effects on benthic fauna only. According to Hinwood et al. (1994) the plume created by a discharge of drill cuttings can be expected to dilute by a factor of at least 10,000 within 100 m of the point of discharge.

The drilling program is unlikely to have any significant, long lasting effects on benthic communities due to the water depth (50 m) and seawater current regime. There will be minor localised impact within a radius of approximately 5 m from the wellhead where a cuttings pile will generate during the riserless section of the well. The extensive nature of the habitat and nature of the seabed indicates a high potential for recovery of benthic fauna from physical disturbance.

Cetaceans:
Studies conducted by the American Petroleum Institute have indicated that the underwater sound produced through the operation of a MODU overlap with the hearing frequencies of baleen whales, potentially found within the Gippsland Basin. However at distances of greater than 1 km it is anticipated that noise produced from a MODU will be undetectable (API 1986)

The eastern Bass Strait region contains 21 oil and gas installations, which have associated support vessel traffic. It also supports a significant portion of the community through commercial fishing activities. The small increase in support vessel movements (approximately 1 vessel movement per day) in the region are unlikely to have any significant impact on whale migration behaviour.

Fish:
It is considered highly unlikely that the proposed drilling activity will have any affect on the Great White Shark or Grey Nurse Shark. The permit area is not classified as being a habitat critical for the protection of either species and EA (2000 & 2000a) describe potential major threats to both species as being; shark control activities, trade commercial and recreational fishing. Further threats to these species include the potential behavioural changes caused to Great White Sharks by berleying practices associated with ecotourism and the practice of shark finning (the removal of the sharks fins, prior to returning it to the water) in the case of Grey Nurse Sharks.

- **the members of a listed migratory species or their habitat, or**

Birds:

Drilling activities are considered unlikely to have any significant impact on the movements of migratory species.

- **part of the Commonwealth marine area**

It is highly unlikely that any effect will occur as a result of the proposed works.

- **Commonwealth land**

It is highly unlikely that any effect will occur as a result of the proposed works.

3.3 Indicate whether the action is a nuclear action or an action by the Commonwealth or by a Commonwealth agency

The action is not a nuclear action or an action conducted by the Commonwealth or a Commonwealth agency.

3.4 Provide a description of important features of the **project area** and the **affected area**, including (if relevant to the project area or affected area) information about:

(a) soil and vegetation characteristics;
(b) water flows, including rivers, creeks and impoundments;
(c) the presence of outstanding natural features, including caves;
(d) gradient;
(e) any buildings or other infrastructure;
(f) any marine areas;
(g) kinds of fauna in the area; and
(h) the current state of the environment in the area, including information about the extent of erosion, whether the area is infested with weeds or feral animals and whether the area is covered by native vegetation or crops.

(Note - show relevant features on an attached map)

The general location of the proposed activity is displayed in Figure 1. The proposed Beardie-1 well is located approximately 45 km south of the Victorian coast, in Vic/L2 production licence area. The area is entirely within Commonwealth waters.

Beardie-1 is located on the continental shelf in approximately 50 m of water. There are no significant seabed features in the vicinity.

A description of the environment at the proposed well location is provided in Section 3.1.

3.5 Whether the **project area** is held under freehold, leasehold or any other tenure.

The proposed Beardie-1 well is located within the production licence Vic/L2. The Permits are operated by Esso Australia Pty Ltd on behalf of the Gippsland Basin Joint Venture and is administered by the Department of Natural Resources and Environment, Minerals Petroleum Victoria division as the Designated Authority.

3.6 Current or proposed land uses for the **project area**.

The broader project area is used for the production and transport of oil and gas. Project activity will take place in the Vic/L2 Production Licence area.

3.7 For information given in this referral

(a) the source of the information; and
(b) how recent the information is; and
(c) how the reliability of the information was tested; and
(d) what uncertainties (if any) are in the information.

American Petroleum Institute (1986) "Underwater Drilling-Measurement of Sound Levels and their Effects on Belukah Whales" API Publication No. 4438, Washington.

Bannister, JL; Kemper, CM and Warneke, RM (1999) "The Action Plan for Australian Cetaceans" Wildlife Australia, Environment Australia, Canberra

Environment Conservation Council (1999) "Marine Coastal & Estuarine Investigation – Draft Report for Public Comment" Environment Conservation Council, East Melbourne

Environment Australia (2000) "Draft Recovery Plan for Great White Sharks *Carcharodon carcharias* in Australia" Wildlife Management Section, Biodiversity Group, Canberra

Environment Australia (2000b) "Draft Recovery Plan for Grey Nurse Sharks, *Carcharitas taurus,* in Australia" Wildlife Management Section, Biodiversity Group, Canberra

Esso Australia (1997) "Blackback Environment Plan"

Esso Australia (2000) Whale sighting data 1987 to 2000.

Esso Australia (2001) "East Pilchard Environment Plan"

Esso Australia "Bass Strait Environment Plan"

Hinwood, JB, Poots, AE, Dennis, LR, Carey, JM, Houridis, H, Bell, RJ, Thomson, JR, Boudreau, P and Ayling, AM Australian Marine and Offshore Group Pty Ltd (in association with Marine Science and Ecology, Labrador Petro-Management Ltd and Sea Research) (1994) "Drilling Activities. In: Environmental Implications of Offshore Oil and Gas Development in Australia – the findings of an independent scientific review, Swan, JM, Neff, JM and Young, PC (Eds)" Australian Petroleum Exploration Association, Sydney, pp 123 - 207

Shaughnessy, P. D. (1999) "The Action Plan for Australian Seals" Natural Heritage Trust, Environment Australia, Canberra

Seabed information, including sediments and infauna descriptions, were collected by the Museum of Victoria and Esso Australia during the years 1979 to 1993. Whale species distribution was obtained from observations made from Esso platforms, vessels and helicopters. Knowledge on the distribution and abundance of seabirds in the Bass Strait is limited.

4. Signatures and Declarations

1. Signature of person making the referral

I, Ian Angus, for and on behalf of Esso Australia Pty Ltd, declare that the information contained in this form is, to my knowledge, true and not misleading.

Signature **Original signed for Esso Australia Pty Ltd by its Attorney Ian William Angus**

Date **Original dated 7-11-01**

2. Statement by person making this referral on whether or not they believe the referred action to be a controlled action and nomination of relevant controlling provisions (note: this Section must be completed in *all cases* except where the referral is made by a State or Territory or a Commonwealth agency in relation to an action to be taken by another person.)

I, Ian Angus, for and on behalf of Esso Australia Pty Ltd, being the person making this referral and the person proposing to take the action (or agent acting on behalf of the person) believe that the action described in this referral **is not** a controlled action.

Briefly provide reasons why you believe the action to be controlled or not controlled:

The proposed activity has no significant impact on matters of National Environmental Significance. There will be no impacts from the project on World Heritage property, Ramsar wetlands, listed migratory species or their habitats or threatened ecological communities, or Commonwealth land and it is considered highly unlikely that any threatened species will be significantly impacted by the project activity.

Disturbance to the Commonwealth marine area will be limited to the effects of water based drilling mud and cuttings causing temporary localised effects on benthic fauna. According to Hinwood et al. (1994) the plume created by a discharge of drill cuttings can be expected to dilute by a factor of at least 10,000 within 100 m of the point of discharge.

The drilling program is unlikely to have any significant, long lasting effects on benthic communities due to the water depth (50 m) and seawater current regime. The extensive nature of the habitat and nature of the seabed indicates a high potential for recovery of fauna from any physical disturbance.

Signature **Original signed for Esso Australia Pty Ltd by its Attorney Ian William Angus**

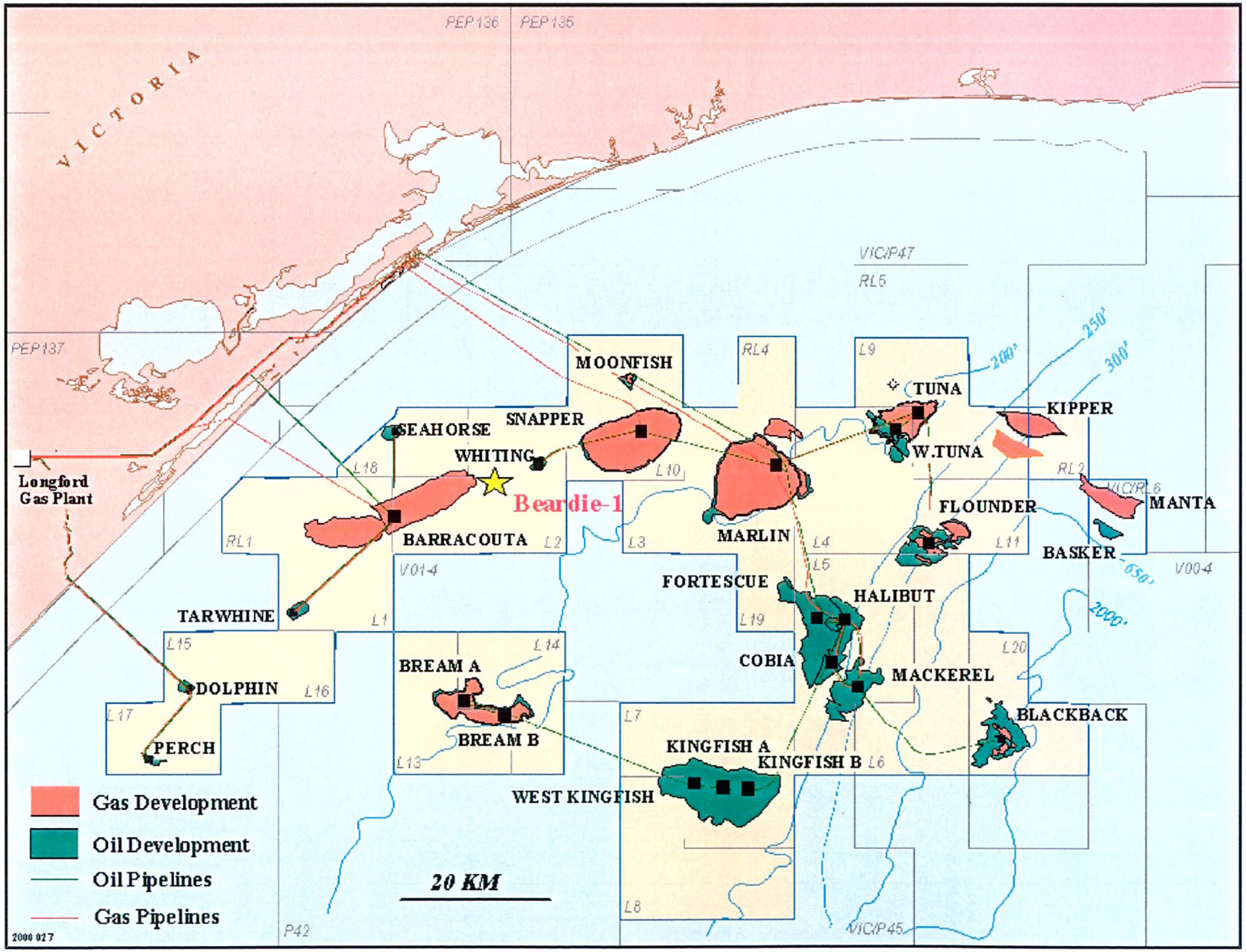
Date **Original dated 7-11-01**

END OF FORM

Pe913711 - colour 008

913711 078

Figure 1: BEARDIE - LOCATION MAP

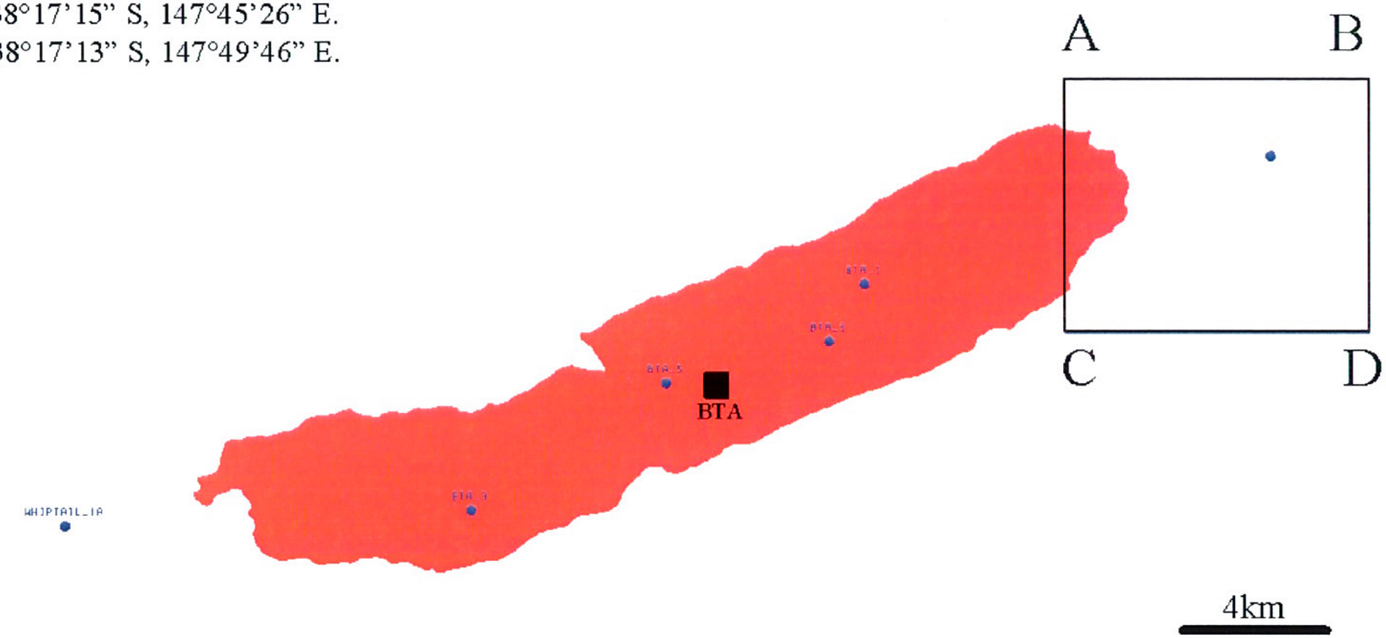


~~PE913711 colour 009~~

Figure 2: BEARDIE - LOCATION MAP & CO-ORDINATES

Co-ordinates: Latitude, Longitude

A: 38°14'23" S, 147°45'24" E.
B: 38°14'22" S, 147°49'44" E.
C: 38°17'15" S, 147°45'26" E.
D: 38°17'13" S, 147°49'46" E.



913711 079

913711 080

Environment Australia

Department of the Environment and Heritage

Mr Daniel Whiteman
Drilling Manager
Esso Australia Pty Ltd
12 Riverside Quay
SOUTHBANK VIC 3006

Dear Mr Whiteman

Esso Australia/Mining - petroleum/Bass Strait/Commonwealth Marine/Beardie-1 Field wildcat oil well (Our Reference: 2001/490)

The above action was referred by you on behalf of Esso Australia Pty Ltd, and received on 19 November 2001, for decision whether or not approval is needed under Chapter 4 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). The referral documentation nominated yourself as the person proposing to undertake the action.

The referral has now been considered under the EPBC Act and I have decided that the action is not a controlled action. Approval is therefore not needed under Part 9 of the Act before the action can proceed.

A copy of the document recording my decision is attached for your information.

Chapter 5 of the EPBC Act states that it is an offence to take, kill, injure, move, trade or keep a member of a listed migratory species, listed threatened species or ecological community, listed marine species, or a cetacean, in a Commonwealth area (terrestrial or marine). It is necessary to make a separate application for a permit if the above circumstances are likely to apply to a proposed action. Further information may be obtained by calling 1800 803 772 or visiting Environment Australia's web site (http://www.environment.gov.au/epbc).

Yours sincerely

Stephanie Martin

Stephanie Martin
Assistant Secretary
Policy & Compliance Branch

17 December 2001

Greenhouse Challenge Member

GPO Box 787 Canberra ACT 2601 Telephone 02 6274 1111 Facsimile 02 6274 1666
Internet: www.environment.gov.au

Environmental Management System

913711 081

COMMONWEALTH OF AUSTRALIA

ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999

DECISION THAT ACTION IS NOT A CONTROLLED ACTION

Pursuant to section 75 of the *Environment Protection and Biodiversity Conservation Act 1999*, I, STEPHANIE ROSE MARTIN, Assistant Secretary, Policy and Compliance Branch, Environment Australia, decide that the proposed action, set out in the Schedule, is not a controlled action.

SCHEDULE

The proposed action by Esso Australia Pty Ltd to drill one exploration well from a semi-submersible mobile offshore drilling unit at the Beardie-1 site in eastern Bass Strait, between March 2002 and March 2003, as described in the referral received under the Act on 19 November 2001 (EPBC 2001/505).

Dated this 17th day of December 2001

Stephanie Martin
....
ASSISTANT SECRETARY
POLICY AND COMPLIANCE BRANCH
ENVIRONMENT AUSTRALIA

913711 082

Esso Australia Pty Ltd
ABN 49 000 018 566
12 Riverside Quay
Southbank, Victoria 3006
GPO Box 400C
Melbourne, Victoria 3001
61 3 9270 3333 Telephone

18 March, 2002

Mr Rob King
Manager, Mineral & Petroleum Operations
Department of Natural Resources and Environment
240 Victoria Parade
P.O. Box 500
EAST MELBOURNE VIC 3002

Our Ref: DD:6785/CPM

Attention: Mr Bruce Amour

Dear Sir,

Subject: BEARDIE-1 SITE SURVEY

Please be advised that Esso Australia Pty Ltd plan to commence the site survey of the Beardie-1 Near-field Wildcat well location in Permit Area VIC/L2 on or about Monday March 25, 2002. The survey will be a 3km by 3km square centred on the proposed Beardie-1 well location at:

- Latitude 38° 15' 16.3" S; Longitude 147° 48' 24.6" E;
- AMG Coordinates (AGD66) 5,765,623m N, 570,593m E.

The survey will be conducted by Thales-Geosolutions using the vessel MV Bluefin, and will be a continuation of their work at Patricia Baleen.

Please contact Chris Meakin on 9270-3536 (E-mail: chris.p.meakin@exxonmobil.com) if you require any further information.

Yours faithfully
Esso Australia Pty Ltd
(for and on behalf of
Esso Resources Pty Ltd
ACN 091 829 819)

Original signed by Daniel L. Whiteman 18-Mar-2002
A copy of the signed original is on file at the Sender's location.

Daniel L. Whiteman
Drilling Manager

913711 083

bcc: Norman Mackay (Thales Geosolutions)
D. Tyler (SRO)
Andy Zannetos
Beardie-1 Final Well Report
Beardie-1 Well Planning & Surveillance File
File: Beardie 3.2.

913711 084

Esso Australia Pty Ltd
ABN 49 000 018 566
12 Riverside Quay
Southbank, Victoria 3006
GPO Box 400C
Melbourne, Victoria 3001
61 3 9270 3333 Telephone

June 13, 2002

Attention : Kathy Hill
Manager, Petroleum Development
Minerals and Petroleum, Victoria
Department of Natural Resources and Environment
7th Floor
250 Victoria Parade
EAST MELBOURNE VIC 3002

Dear Kathy,

RE: BEARDIE-1 AUTHORISATION TO DRILL

Please find attached 2 copies of the "Authorisation to Drill" for the Beardie-1 well in licence VIC/L2. Contingent on your approval, drilling operations are anticipated to commence in July 2002.

Yours sincerely,

Glen. Nash

Glen A. Nash
Gippsland Geoscience Project Manager

Esso Australia Pty Ltd
Production Department

BEARDIE-1

AUTHORISATION TO DRILL

GIPPSLAND BASIN
VICTORIA

A. Zannetos
P. B. Owen

May 2002

913711 086

DRILLING RECOMMENDATIONS

Name	:	Beardie-1		
Classification	:	Near Field Wildcat		
Location	:	Reservoir	:	Latrobe Group
		Basin, Permit	:	Gippsland Basin, Vic/L2
		Seismic Lines	:	Barracouta G99 3D Seismic Survey Inline-684, Crossline-3235
		Latitude	:	38 15' 16.27" S
		Longitude	:	147 48' 24.63" E
		A.M.G.	:	X = 570,593.8mE Y = 5,765,622.4mN
		Datum	:	**Australian Geodetic 1966 (AGD66)**
		Spheroid	:	Australian National Spheroid (ANS). UTM Zone 55 / **AMG Zone 55** Central Meridian (CM) **147 Degrees East.** False Easting 500,000.0 False Northing 10,000,000.0 Scale Factor at CM 0.9996.
		Projection	:	Universal Transverse Mercator (UTM).
		Tolerance	:	The drilling target at the depth of -1880mTVDSS should be intersected within a circle of radius 100m.:

Location Checked by : ________________
S. Jenkins

Location Verified by : ________________
J.F. Moore
Acquisitions Geophysicist

Programmed T.D.	:	-1880m TVDSS (potential to deepen if required)		
Water Depth	:	50m TVDSS		
Nearest Wells	:	Whiting-2	:	4 km to the east
		Wirrah-3	:	6.3 km to the north-northeast

913711 087

Objectives	:	The Beardie-1 well will drill a four-way dip closure in the intra-Latrobe Group section, between the Barracouta and Whiting fields.

Assessed by : ______________ ______________

A. Zannetos — Geophysicist

P. B. Owen — Geologist

Recommended by : ______________

Glen. A. Nash

Gippsland Production Geoscience Manager

Approved by : ______________

Mark J. Nolan

Deputy Production Mangager

CONTENTS

FIGURES

ENCLOSURES

SUMMARY

The proposed Beardie-1 location is approximately 4 km west of Whiting-2. The location lies in 50 metres of water, within the VIC/L2 licence area of the Gippsland Basin (Figure 1).

The Beardie-1 well is designed to explore for oil in fluvial reservoirs in the Latrobe Group (*N.asperus – L.balmei* age). A four-way dip closure has been mapped on the Barracouta anticlinal trend. This is part of a larger anticlinal feature that extends from Mulloway to Snapper along which have been intersected several intra-Latrobe oil accumulations. The closest of these are the Whiting P and the Barracouta N and M sands with combined production of over 38 mbbls. Traditionally intra-Latrobe prospects have carried a greater risk due to fault seal and top seal integrity issues. In this region proven seals are observed across the Whiting and Barrcouta fields, and have been interpreted, with the aid of high resolution 3D seismic data to extend over the Beardie area as well.

The velocity field across this area is complex with fast lateral velocity changes observed across the Barracouta field. A high velocity Miocene age carbonate filled channel extends across the Beardie prospect and is interpreted to be producing some time pull-up. Each depth conversion technique used in the area produced a closure at Beardie but it should be noted that closure adequacy remains the greatest Prospect risk.

In the success case the well may be deepened to evaluate fluvial-coastal plain reservoir facies in the deeper *L.balmei* and *T.lilliei*.

GEOLOGICAL DISCUSSION

OVERVIEW

Exploration in the Gippsland basin has historically focussed on the upper Latrobe, most of the large fields are Top Latrobe closures sealed by overlying Lakes Entrance Formation marine shales. Some large intra-Latrobe fields are also present such as the Tuna T and Turrum L reservoirs that are sealed by coastal plain shales. Within the greater Barracouta, Whiting and Snapper area there are several medium to small intra-Latrobe hydrocarbon accumulations sealed by coastal plain shales and each of these fields has produced oil within the upper Latrobe (*N.asperus - L.balmei*).

The G99A Barracouta3D seismic survey was aquired to progress delineation of the Barracouta gas field. The survey extends across all of Barracouta and includes the Wirrah-3 well. Interpretation of the Barracouta3D survey highlighted an intra-Latrobe closure near the eastern extent of the Barracouta field.

REGIONAL SETTING

The initial formation of the Gippsland Basin was associated with rifting and subsidence that extended along the southern margins of Australia during the Jurassic to Early Cretaceous. During this period, deposition of predominantly volcanoclastic successions occurred in alluvial and fluvial environments, in NE trending en-echelon graben systems (Otway and Strzelecki groups). A phase of structuring and localised uplift of the Strzelecki Group occurred around 100-95 Ma.

A renewed phase of Late Cretaceous (approximately 90 Ma) rifting coincided with the onset of Tasman seafloor spreading to the east of Tasmania. This resulted in the rapid development of extensional basins in the Gippsland area, with active extensional faults oriented WNW/ESE (oblique to the earlier extensional event). A thick (overall coarsening-up) succession was deposited in these tectonically active depocentres (Emperor-Golden Beach Groups). Initial rift deposition included marine and lacustrine shales in distal parts of the basin, while deltaic successions and alluvial fans developed along basin margins. The rift fill succession gradually evolved into a fluvial-dominated system. The upper parts of the Golden Beach Group were predominantly braided fluvial to delta plain in character. As the northward migrating Tasman spreading centre passed by the Gippsland Basin around 85-80 Ma, the eruption of mafic volcanics and emplacement of related intrusions occurred across the Gippsland Basin.

The active rift phase in the Gippsland Basin ceased at approximately 80 Ma, as the Tasman Rift proceeded to migrate further northwards towards Queensland. From this time onwards, the Gippsland Basin evolved into essentially a failed arm of the Tasman Rift system. The Latrobe Group was deposited in this sag phase basin setting, with fault controlled subsidence continuing until the Late Paleocene. Most of the Latrobe Group was deposited in a non-marine setting behind a NE-SW tending beach-barrier complex. As sedimentation rates declined, the strandline moved to the northwest, depositing thin Eocene-aged glauconitic green sands over a wide area (Gurnard Formation).

Two major phases of canyon cutting occurred during the Tertiary. The Early Eocene Tuna/Flounder Channel was cut and then filled with predominantly marine sediments of the Flounder Formation. The Marlin Channel was cut during the Middle Eocene and partially filled with distal marine sediment of the Turrum Formation. Erosion associated with the top of Latrobe Group unconformity resulted in the formation of many of the hydrocarbon traps in the basin.

The end of the Latrobe Group is marked by deposition of marl and calcareous siltstone of the Lakes Entrance Formation in response to continued marine transgression in the Oligocene. Prograding limestone and calcareous siltstone wedges of the Gippsland Limestone result in the formation of the present day shelf.

Compressional events in the late Eocene to mid-Miocene caused selective inversion of faults around the basin and the establishment of the major ENE-WSW anticlinal trends in the basin.

STRATIGRAPHY

The prognosed stratigraphy of the Beardie well (summarized in Figure 2) is based on adjacent well data and regional seismic correlations. The predicted section at Beardie-1 is not intersected in its entirety in any one well, although the section penetrated at Whiting-2 is expected to be similar. Whiting-2, Whiting-1, Barracouta-1, Barracouta-4 and the Wirrah wells provide the main control (Figure 3).

The well is expected to penetrate a thick succession of limestones and marls of the Gippsland Limestone, the Lakes Entrance Formation and a thick Latrobe clastic package. The Top Latrobe Coarse Clastics to the Top of the L. balmei (*N. asperuss* to *L. balmei* age) section is comprised of thick braided fluvial non-marine deposits and marginal marine estuarine and bayhead delta deposits. Stacked sandstone channel facies sequence are interbedded with thin shales and coals, with laterally continous coals ranging up to 25m thick. Minor dolomitisation has occurred within sandstones in this section.

The upper Latrobe section thickens from Barracouta-1 to Whiting-2 (west to east) over the Beardie-1 location. Sand packages similar to those seen in the Whiting-2 well are expected (stacked channel sand intervals with up to ~30m net in the upper Latrobe section).

The primary objective of the Beardie-1 well is to test potential stacked channel sandstone reservoirs within the intra-Latrobe Group. The primary N1.6, N1.7, N2, N4 and M1 reservoirs are expected to range in thickness from 10-30m and are composed of excellent quality, stacked, braided fluvial upper delta plain sands, as seen in the nearby Whiting and Barracouta wells. Intraformational seals are to be provided by thin, coastal plain shales and claystones that are expected to increase in quality over the Beardie-1 location. These shales and claystones have proven to be excellent seals for the neighbouring Barracouta and Whiting oil and gas reservoirs.

In the case where the primary objectives are successful, the well may be deepened to test the oil potential of the *L.balmei* and sub-volcanic *T.longus* to *T.lilliei* section. The volcanics themselves vary in thickness from 15m at Whiting-1 and Wirrah-1, up to 70m thick at Whiting-2. Volcanics have not been intersected by any Barracouta wells. The *L.balmei* reservoirs are expected to range in thickness from 2-30m and composed of good to excellent quality single and stacked fluvial to upper coastal plain sands, as seen in the nearby Whiting and Barracouta wells. Beneath the volcanics the reservoir is expected to be composed of fair to good quality single channel, fluvial to upper delta plain sands.

STRUCTURE

The Beardie closure is part of the larger Barracouta-Whiting-Snapper anticlinal trend. The structure was formed by compressional deformation during the Eocene with several subsequent compressional episodes during the Miocene. Like the Whiting structure Beardie is an anticlinal closure formed by the reactivation of older normal faults that have undergone reversal during compression. The reactivated faults that help seperate the Barracouta and Beardie closures are smaller and more problematic. In the area of Beardie these faults are interpreted to be small (<20m) and discontinuous, however some are observed on dip and amplitude maps as through-going features.

HYDROCARBON DISTRIBUTION

Multiple reservoirs are predicted at Beardie-1 within the intra-Latrobe Group section (*N.asperus* - *L.balmei*). Five reservoir targets have been identified, although a favourable geological environment could provide a multitude of stacked reservoirs. In the success case, the lowest closing contour at each reservoir level represents the spill points, with all reservoir being oil-filled to the spill point.

Drilling of the *L.balmei* - *T.lilliei* section at the Beardie-1 location is contingent on results in the *N.asperus* - *M.diversus* section. Oil and gas have been found in the *L.balmei* - *T.lilliei* section in the Barracouta, Whiting and Wirrah areas, with Whiting producing gas from *L.balmei* reservoirs. Whiting-2 intersected oil and gas below *L.balmei* volcanics down to a depth of -3532mTVDSS (TD of the well).

HYDROCARBON PROPERTIES IN ADJACENT WELLS

Gas production at Barracouta from the Latrobe Group N1 reservoir (*N.asperus*) begun in 1968 and has currently produced 1.8 trillion cubic feet of gas. Whiting gas production from the lower intra-Latrobe Group L460 reservoirs (Lower *L.balmei*) begun in 1989 with cummulative production of 15 billion cubic feet of gas. Gas reservoired within the Barracouta N1 reservoir have CO_2 levels <1%. By contast the CO_2 levels of the gas in the L460 reservoir at Whiting range up to 15%. H_2S levels from gas produced at Barracouta range from 0-18ppm, with lower levels recorded from Whiting gas production of <8ppm.

Barracouta oil production from the N4 and N5 reservoirs (Lower *N.asperus*) began in 1971 and has produced approximately 1 million barrels of oil. The oil properties consist of an API gravity of 56 degrees with a gas-oil-ratio of 17-20 scf/stb. The M1 reservoired oil (*M.diversus*) has an API gravity of 63 degrees and gas-oil-ratio of 22 scf/stb, with 21.7 million barrels of oil produced from 1969. Oil production at Whiting begun from the P240 and P250 reservoirs (*P.asperopolus*) in 1989, and have produced 18 million barrels of 57 degree API gravity oil, with a gas-oil-ratio of 230 scf/stb.

PREDICTED STRATIGRAPHY

Vertical Well

Formation/Marker ***	TVDSS ***	Lithology
Top Gippsland Limestone	0	Limestone, calcarenite, marl
Base mid-Miocene Channel	-754	Limestone, calcarenite, sandstone
Top Lakes Entrance Fm	-1129	Marl, claystone, limestone, shale
Top Latrobe Group	-1159	Sandstone, shale, coal
Top N1.6[1]	-1243	Sandstone, shale, coal
Top N1.7[1]	-1321	Sandstone, shale, coal
Top N2[1]	-1378	Sandstone, shale, coal
Top N4[1]	-1440	Sandstone, shale, coal
Top M1[1]	-1588	Sandstone, shale, coal
Top *L.balmei*	-1822	Sandstone, shale, coal
Dry hole TD	-1880	
		-

[1] Primary Objective

TOTAL DEPTH

Beardie-1 is predicted to penetrate the top of the *L.balmei*-aged section at -1822m TVDSS. In order to ensure adequate logging of the primary target reservoir section and test the upper part of the *L.balmei*, a Total Depth of -1880m TVDSS is required. The Total Depth of the well may be deepened if required.

GEOPHYSICAL DISCUSSION

GEOPHYSICAL DATA

The Beardie-1 prospect was highlighted by the G99A Barracouta survey. The prospect had been observed previously on 2D data but due to the limited coverage and depth conversion risk was not pursued. The seismic data quality on the Barracouta G99A is very good with improved multiple suppression and signal-to-noise ratio compared to previous 2D data.

The initial Barracouta G99A interpretation effort was directed at the N-1 gas at Top Latrobe and involved identifying and interpreting DHI's related to the original and current gas water contacts. Further work pursued the M-1 intra-latrobe oil accumulation beneath the Barracouta N-1 gas which lead to the re-visiting of the Beardie Prospect.

Five wells in the survey area were tied to the seismic data using synthetic seismograms these were Barracouta-1, 3, 4, 5 and Wirrah-3. In addition the Whiting-1 and 2 wells were tied in using G92 2D data.

TIME INTERPRETATION

The time interpretation across the Barracouta 3D included several horizons that were correlated between the well control. The most important of these were three Miocene events, Top Latrobe, DHI, N1.6, N1.7, N2, N4 and M1 horizons (Encl. 2).

The three Miocene horizons were used primarily for depth conversion. The second of these, HVC1, displays a steep sided channel that is intersected by the Wirrah-3 well and extends across the Beardie Prospect (Encl. 3). At Wirrah-3 the channel contains fast velocity carbonates with interval velocities of up to 3400m/sec.

The intra-Latrobe horizons N1, N1.6, N1.7, N2, N4 and M1 are tied to trough to peak zero crossings that are interpreted to mark the base of the coastal plain seal and the top of the fluvial reservoir.

The primary Barracouta N-1 DHI extends over a large part of the 3D and is interpreted to correspond to the OGWC. This surface was previously interpreted and used as a datum surface in depth converting the Barracouta M-1 accumulation. The DHI extends to the western edge of the Beardie closure and has been used to partially derisk the Beardie prospect.

DEPTH CONVERSION

Closure adequacy was identified as a primary risk as a shallow high velocity Miocene channel extends across the top of the Beardie prospect. This meant that there was a significant chance that although the Beardie prospect had a large time closure it might not have any closure in depth.

Three different depth conversions were attempted to try and mitigate this risk which were as follows; GEODEPTH depth conversion using both seismic and well velocities, BHPP high density seismic velocity depth conversion using seismic velocity functions at 25m intervals and a DHI depth conversion that used the N-1 DHI as a datum surface.

In the GEODEPTH depth conversion all major interpreted horizons were used. These included the Miocene horizon, base of Miocene channel 1 (HVC1), base of Miocene channel 2 (HVC2), top Latrobe and the five intra-Latrobe horizons that relate to the top of each of the reservoir units (N1.6 to M1). Depth conversion was done by isopaching down from surface with the first two intervals Surface to MH and MH to HVC1 using linear interval velocity functions derived from the wells. These functions are very similar for each of the wells. Interval velocities calculated from seismic velocity functions were used for the interval HVC1 to HVC2 as too much variation existed within this interval to model a function directly from the wells. For the fourth interval HVC2 to TOL another linear interval velocity function derived from the wells was used. Intervals beneath TOL were depth converted using a constant interval velocity of 2700m/sec. Depth errors at control wells Barracouta-1, 4, Wirrah-3 and Whiting-2 for the TOL varied from -12.1 to 5.4m. This equates to a maximum error of approximately 1%. The depth maps produced by this technique are displayed in Enclosure 1.

As a QC the interpreted DHI was also depth converted below the TOL. This was done by using a constant interval velocity of 2700m/sec to convert the TOL to DHI isochron to an isopach and adding it to the TOL depth. The degree of flatness of the DHI depth structure was used to gain confidence in the depth conversion. In the area east of Barracouta-4 and 1 the DHI is relatively flat but dips down as it approaches the Beardie prospect. This would infer that either the velocity field from the depth conversion applied across Beardie is too fast or more likely that the DHI at it's eastern limits has been interpreted slightly too shallow.

The second depth conversion method that has been used by BHPBilliton relies on dense velocity analysis from the Barracouta 3D data. Velocities are picked every 25m and are smoothed while keeping track of changes in time dip. Fast lateral velocity changes must be supported by observed changes in time dip otherwise they are smoothed. Smoothed stacking velocities at each of the layers of interest were used as input into the next phase of the depth conversion.

The following layers; MC1, MC2, TOL, N1.6, N1.7 and M1 were used to perform raytracing to calculate correction factors to change the Vnmo velocity maps to Vaverage velocity maps. Errors in this method are expected to be in the order of 1%.

The third depth conversion method used was the DHI depth conversion which used a DHI interpreted to be due to the N-1 OGWC as a datum surface. As the DHI did not extend all the way across Beardie or to the Wirrah-3 and Whiting-2 wells it was extended as an 1151m depth contour. The time-depth curves from these two wells were used to pick the corresponding time to 1151m on the seismic at these wells. The DHI/1151m time marker was then extended from the edge of Beardie to these wells. An isochron was then taken from the DHI to each of the horizons below and converted to an isopach using a constant interval velocity of 2700m/sec. A value of 1151m was then added to this isopach to come up with the final depth maps.

As this technique is more subjective than the other two techniques it is given less weighting in the final assessment.

Each of the three techniques used produced a closure at Beardie. This does mitigate the closure adequacy risk, however, the degree of error in each approach can still preclude any closure.

ASSESSMENT

METHOD

A detailed probabilistic assessment has been undertaken to assess the range of recoverable oil volumes potentially occurring in the primary intra-Latrobe Group reservoirs. It should be noted that the assessment does not consider highside potential of secondary reservoirs in the *N.asperus* - *L.balmei* section.

Closure adequacy was identified as a primary risk as a shallow, high velocity Miocene channel extends across the top of the Beardie prospect. Three different depth conversion methods were attempted to try and mitigate this risk, with the three models incorporated into the probabilistic assessment.

Oil Column Height

The Beardie-1 structure has two contributing trap features - an independent closure and a fault-dependent closure. These trapping mechanisms influence the height of possible oil containment at the Beardie-1 location.

Consideration was given to top seal and fault seal competence at each reservoir level. The results of a fault seal analysis of Barracouta field, Whiting field and the Beardie Prospect have been utilised in the assessment when modelling the range of hydrocarbon fill scenarios between crest and geological spill point.

In the most likely case the N2 and M1 reservoirs will be sealed by top and fault seal down to the lowest closing contour. The fault seal analysis has indicated that the shales expected at these levels are of high sealing quality. At the N1.6, N1.7 and N4 reservoir levels the poorer shale sealing quality has been recognised, and appropriate risking given to the top and fault seal based on their likelihood of occurrence.

Reservoir Quality

Probabilistic ranges have been used for net/gross, porosity, net thickness, oil saturation and recovery efficiency for the primary reservoirs N1.6, N1.7, N2, N4 and M1, which reflect the range of values experienced in wells proximal to the prospect (ie. exploration and development wells from the Barracouta, Whiting and Wirrah fields).

Structure

Uncertainty in depth prediction away from well control due to seismic velocity uncertainty has a great impact on the variation in gross rock volume (GRV). Three different depth conversion methods have been attempted, with a probabilistic range of GRV outcomes. A probabilistic assessment has been run using each of the three GRV, with all other reservoir parameters and risking remaining constant for each model. These scenarios have been incorporated within the final assessment and given appropriate weighting based on their likelihood of occurence.

RESULTS

Probabilistic oil assessment of the Beardie prospect yields a geologic success case mean of 27 MOEB with a range of 6 to 62 MOEB (P95-P5).

The Beardie-1 well is given a 60% chance of proving oil reserves sufficient to justify developmemt (>5 MBO). This well chance of success takes into account exposure to:

1. Uncertainty in seismic velocities below Miocene channeling and therefore depth closure of prospect, and
2. Top and fault sealing capacity of intraformational coastal plain shales and claystones.

OPERATIONS

MUD LOGGING

Mudlogging services will be provided from surface casing to total depth. Four sets of washed and oven dried ditch cutting samples and one set of lightly washed and air dried ditch cuttings samples will be caught and bagged every 30m from the base of surface casing to -900m TVDSS. 5m samples should be collected from -900m TVDSS to total depth. All cutting samples will be described and monitored for hydrocarbon fluorescence, and the mud gas for hydrocarbon, hydrogen sulphide and carbon dioxide.

CORING

No core is planned to be cut in the Beardie-1 well.

MWD

No MWD or LWD logs will be aquired in the Beardie-1 well.

PRODUCTION TESTING

No testing is planned for the Beardie-1 well

WIRELINE LOGGING

Sufficient quality pressure tests and samples are required to conclusively type fluids and determine hydrocarbon column heights in the Beardie-1 well if significant reservoired hydrocarbons are encountered

One suite of wireline logs are programmed with another suite contingent on deepening the well. The following logs are to be acquired:

Vertical Hole		
SUITE	**LOG TYPE**	**INTERVAL**
1.	Gamma Ray (+Spectral Gamma)	From total depth to mudline (Spectral Gamma from TD to 80m above TOL)
	Caliper	From total depth to 13 3/8" casing shoe
	Resistivity	From total depth to 13 3/8" casing shoe
	Bulk Density	From total depth to 13 3/8" casing shoe
	Neutron Porosity	From total depth to 13 3/8" casing shoe
	Dipmeter/Borehole Imaging (FMI)	From total depth to 13 3/8" casing shoe
	Sonic-P wave & dipole	From total depth to through casing until last good signal
	Velocity Survey / Checkshots	VSP from TD to through casing until last good signal, Then checkshots every 100m

	Formation Tester	Pre-tests and formation samples to be taken as appropriate
	Sidewall Cores	For palynological analysis and petrographic analysis. 60 cores to be taken as appropriate from total depth to 13 3/8" casing shoe.

GEOLOGICALLY RELATED DRILLING HAZARDS

Bore Hole Conditions

i) **Brecciated/Sheared Fault Zones**

There is a possibility for many small-scale (sub-seismic) faults to be encountered in the reservoir section and also in the section from -810m TVDSS to top Latrobe Group. LCM may be required although no lost circulation related to these fault zones has been encountered in offset wells.

ii) **Carbon Dioxide**

Adjacent well control indicates the primary target section at Beardie-1 is expected to have low CO_2 (<5%), with ranges in offset wells at 0-4%. There has been very low amounts of CO_2 produced from the Barracouta field from the M1 reservoir (0-0.8%). There is a small increase in the CO_2 levels below the primary target section, especially in the sub-volcanic section from adjacent well control. In the Whiting L460 reservoir CO_2 levels from gas production of 0-15% have been recorded, while CO2 levels of 7-12% were recorded in the sub-volcanic *T.longus* section from production tests at Whiting-2. In Wirrah-3 CO_2 concentration of 0-8% were recorded from RFT gas samples taken below the volcanics.

iii) **Hydrocarbon Gas**

Large gas columns are present in the Barracouta Latrobe section, but not at Whiting, as there is no independent closure at the Latrobe Group structural level. It is unlikely that gas sands will be encountered at TOL as there is no independent closure at that structural level. Gas columns are present in Whiting at the intra-Latrobe section (*L.balmei* reservoirs), and small gas columns are present in the sub-volcanis reservoirs (*T.lilliei*).

iv) **Swelling Shale**

The Lakes Entrance Formation is recognised as a potential problem zone for swelling shale. However, at the Beardie-1 location the Lakes Entrance Formation is expected to be only 25m thick..

v) **Coal**

Sloughing coals have been a problem within the Latrobe Group elewhere in the basin, however no drilling problems associated with sloughing coals have been reported in the nearby offset wells. Coals in surrounding wells are predominantly 2-20 m thick and these coal thicknesses are expected at the Beardie-1 location.

vi) **Hydrogen Sulphide Gas**

H_2S has not previously been a problem on exploration wells drilled in the Gippsland Basin, as experience to date suggests new fields have very low concentrations that increase over the duration of production life of a field, commonly in response to coning of water. H_2S levels at Barracouta range from 0-18 ppm recorded from gas production (*N.asperus* section) in 1992, yet no detection of H_2S has occurred on any of the initial exploration or production wells. Similarly, gas production from Whiting (*L.balmei* section) produced concentration of 0 ppm (1989-1993) until water coning introduced H_2S levels up to 70 ppm in the east of the field, although the west part of the field had low concentration of 10 ppm. At present the Whiting A6 flowline is reporting H_2S levels of <8 ppm. At Beardie-1 H_2S levels are expected to be in the range of 0-20 ppm for the entire well.

Over Pressure

i) **Abnormal Pressures**

Latrobe Group: Normally pressured systems can be expected from TOL to the top of the L.*balmei*; ie. ~ 1.4 psi/m (~8.5-8.6 ppg MWE).

***L.balmei* to *T.lilliei* section**: Pressure data in the *L.balmei* and sub-volcanic section from offset wells in the area can be summarised as follows:
The Wirrah exploration wells and Whiting-2 are normally pressured in most of the lower intra-Latrobe section (8.5-8.8ppg). Wirrah-2 has a sub-volcanic *P.mawsonni* section that has slighty elevated pressures of 8.9 - 9.2ppg, as does *T.longus* sands in Wirrah-3 and Whiting-2. Wirrah-1 and -3 have the highest pressure readings in the immediate area of 10.5 ppg and 11.5ppg respectively (*T.lilliei* section). The Whiting and Barracouta wells are probably the most likely analogues for Beardie-1 ie. similar reservoirs at similar depths.

It is expected that Beardie will be normally pressured throughout the Latrobe Group section.

ii) **Sea Floor Hydrocarbon Seeps**

No evidence of any sea-floor hydrocarbon seeps.

iii) **Flowing Formation**

Surrounding well data indicates no instances of formations flowing water and therefore it is not anticipated to occur at the Beardie-1 location.

iv) **Shallow Production**

Shallow production not present from nearby Barracouta and Whiting Field.

v) **Shallow Gas**

No shallow gas zones have been identified during drilling of the adjacent wells (Barracouta and Whiting Fields). Total gas units recorded above TOL are low. In Whiting-2 total gas ranged from 5-15 units (background 5 units) above the TOL. In the Barracouta/Whiting area, low impedance seismic anomalies are not associated with elevated levels of drill gas. Thus there is no demonstrated link between seismic amplitudes and shallow gas in the Barracouta/Whiting area.

However, there are seismic amplitudes at the Beardie-1 location that could possibly be associated with shallow gas. These occur at seismic two-way travel times (TWTT) between 265-311ms corresponding to predicted subsea true vertical depth of 272-320m

Under Pressure

i) **Drawn Down Reservoir**

Gas production from the N1 reservoir at Barracouta may cause draw down reservoirs at the TOL if reservoirs are continuous across to the Beardie-1 location, as the reservoir is 120psi drawn down at Barracouta. Oil production from the Barracouta M1 sands has drawn down the reservoir 90psi.

Pressure data from the Whiting P240 and P250 reservoirs indicates oil production has drawn down the reservoir 60-70psi. The M1 and L400/500 reservoirs at Whiting have undergone approximately 80psi of draw down.

Similar draw down is expected at equivalent levels at the Beardie-1 location.

ii) **Lost Returns**

Lost return intervals were recorded from Barracouta-4 at -874mTVDss and -1210mTVDSS. This occured within a porous sandstone section within the Miocene at this well. Based on seismic correlation a similar high porosity high permiability section is expected at Beardie-1 below the 13 3/8" casing shoe but above the Lakes Entrance Formation.

Completed by : _______________ A. Zannetos Geophysicist _______________ P. B. Owen Geologist

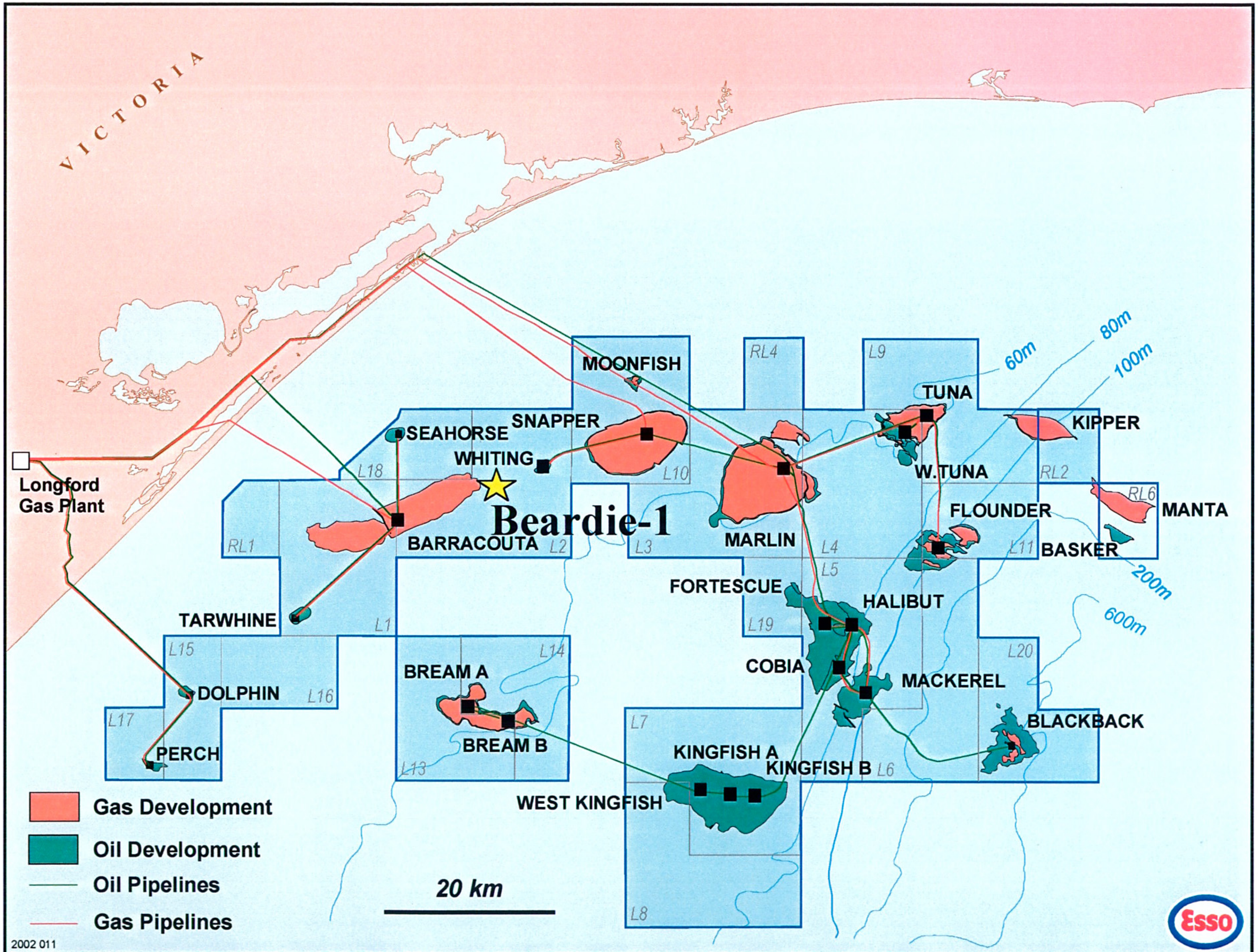
Checked by : _______________ K. Kuttan Petrophysicist

FIGURES

Figure 1. BEARDIE-1 LOCATION MAP

PE913711 - colour ØTC

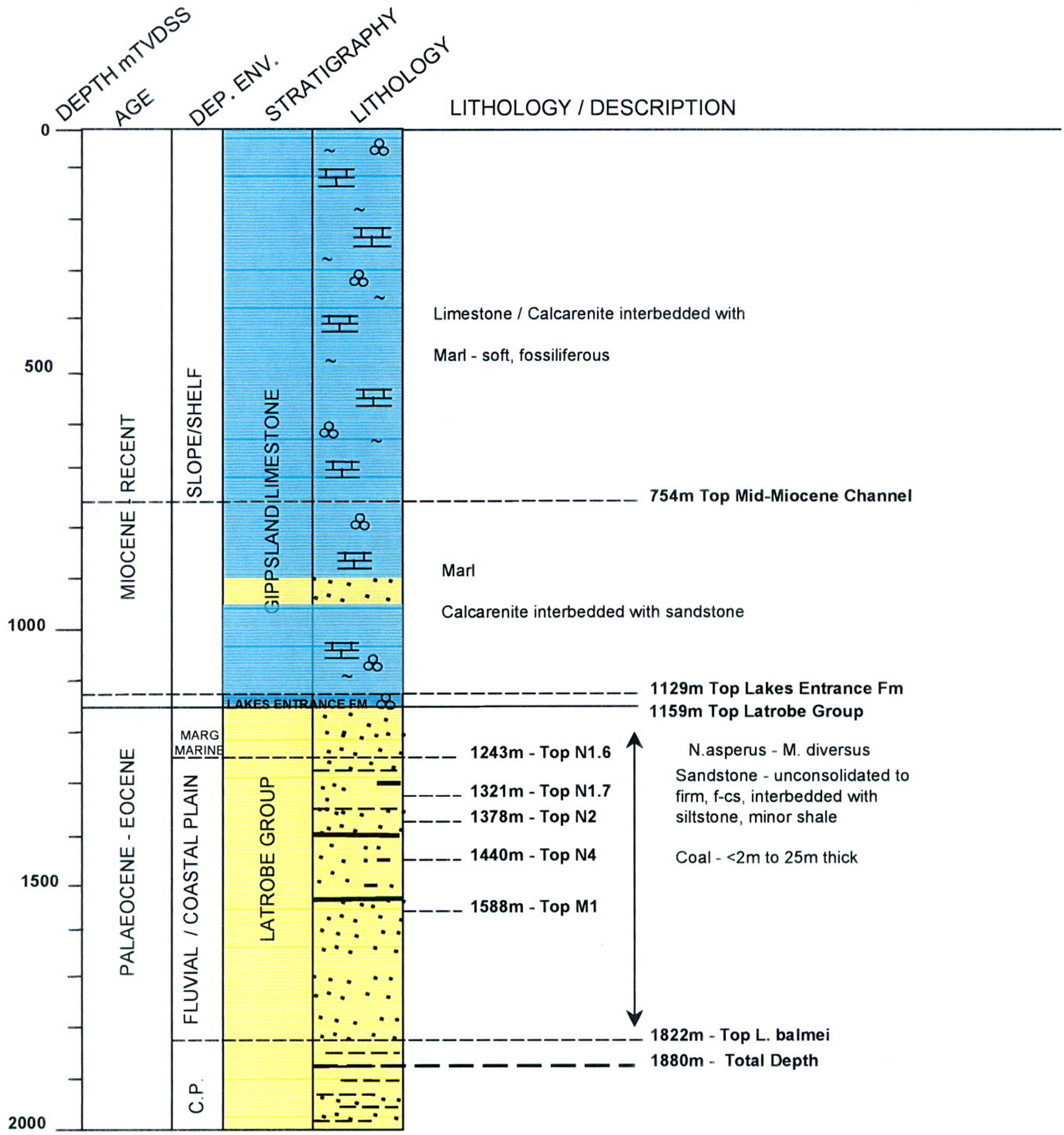
913711 106



~~PE913711 colour Ø11~~

Figure 2.

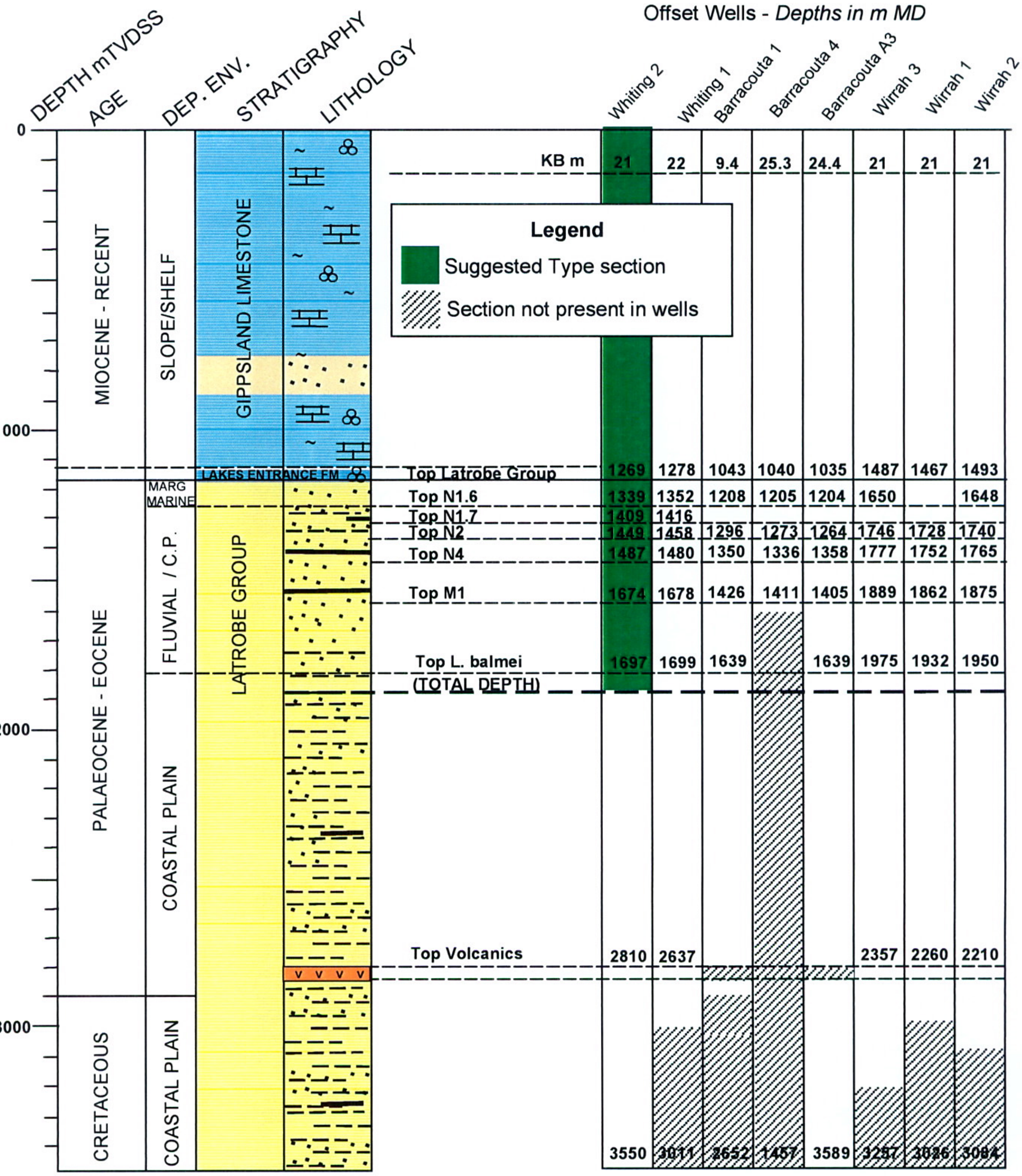
BEARDIE-1
PREDICTED STRATIGRAPHY



913711 108

Figure 3.

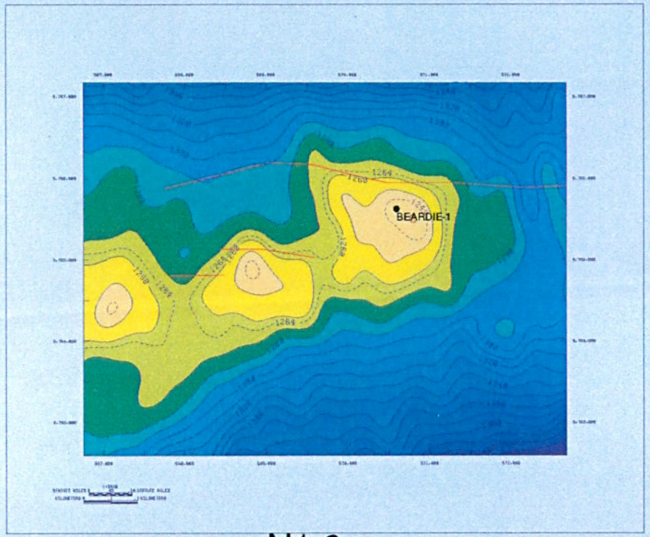
BEARDIE-1
OFFSET WELL STRATIGRAPHY



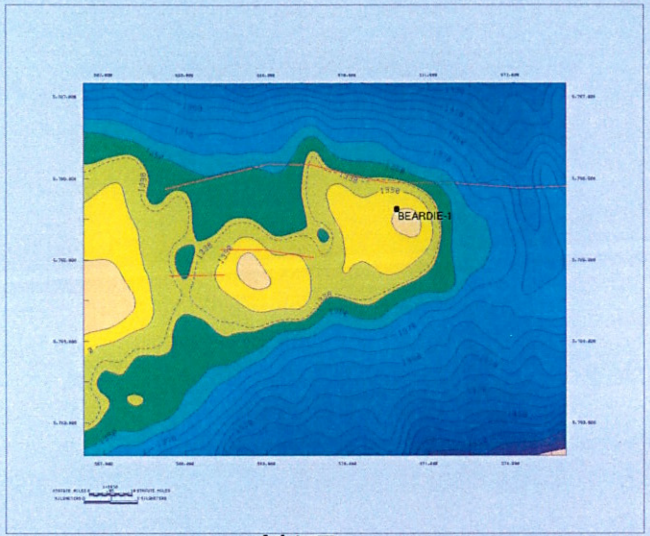
ENCLOSURES

~~PE913711 colour 013~~

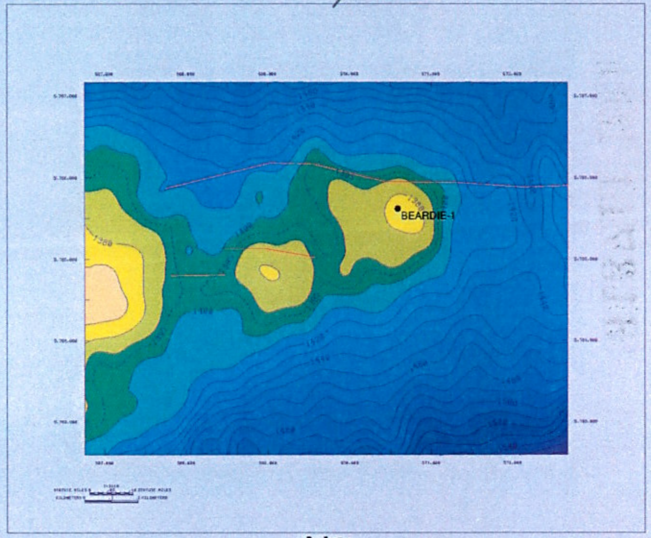
913711 110



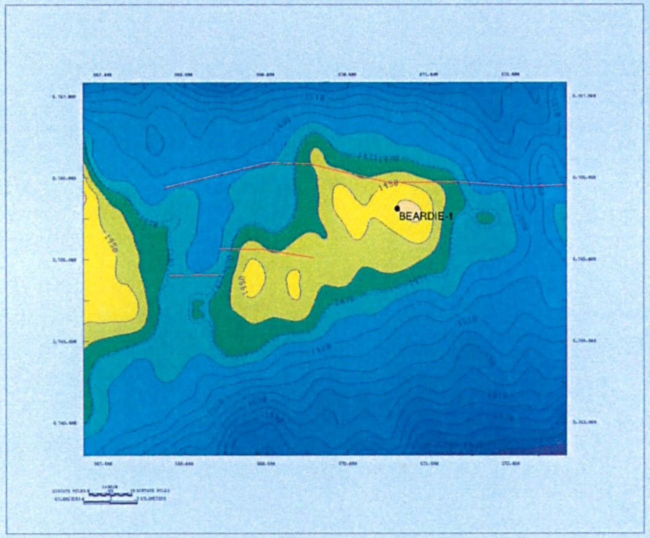
N1.6



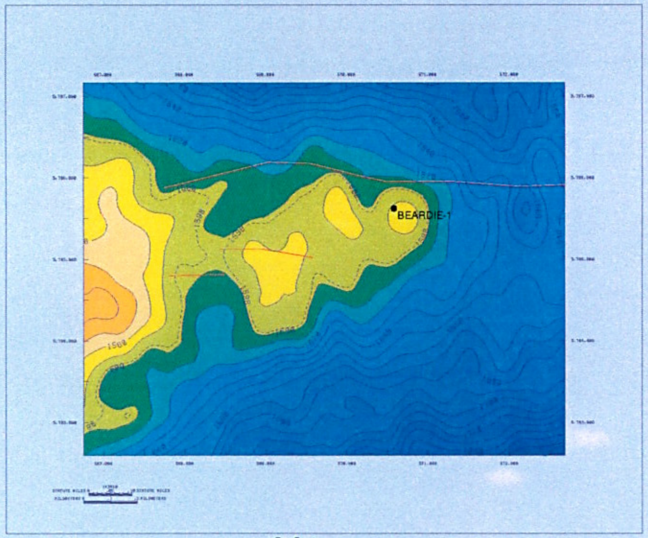
N1.7



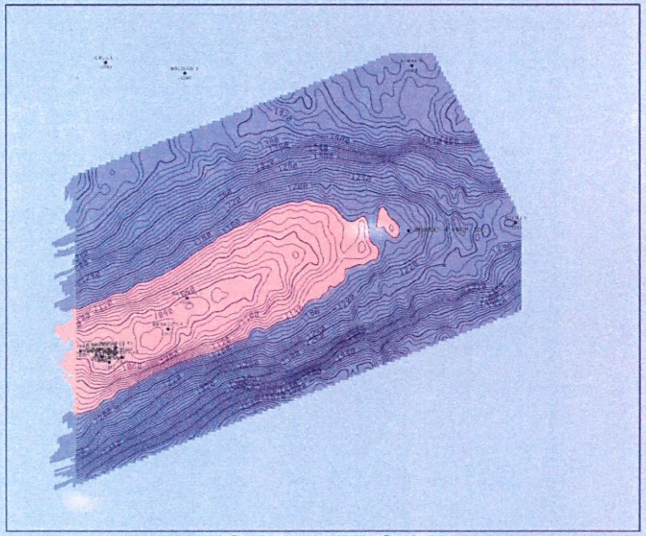
N2



N4



M1



TOP LATROBE

ESSO AUSTRALIA LTD
GIPPSLAND BASIN
VICTORIA

BEARDIE PROSPECT
DEPTH MAPS

AUTHOR: A. ZANNETOS
DATE: 5 DEC 2001 DRAWING No.
TO A [redacted] RDIE A TO D [redacted]
VOL [redacted] ENCL [redacted]

Esso Australia Pty Ltd
ABN 49 000 018 566
12 Riverside Quay
Southbank, Victoria 3006
GPO Box 400C
Melbourne, Victoria 3001
61 3 9270 3333 Telephone

18 June, 2002

Mr Rob King
Manager, Mineral & Petroleum Operations
Department of Natural Resources and Environment
240 Victoria Parade
P.O. Box 500
EAST MELBOURNE VIC 3002

Attention: Mr Bruce Amour

Dear Sir,

Subject: BEARDIE-1 CONSENTS & APPROVALS

Pursuant to the Petroleum (Submerged Lands) (Management of Safety on Offshore Facilities) Regulation 5, we hereby request your consent to use the vessel Ocean Bounty to drill the Beardie-1 near-field wildcat well in VIC/L2.

Pursuant to the Petroleum (Submerged Lands) (Management of Safety on Offshore Facilities) Regulation 7, we hereby submit for acceptance the **MODU Safety Case Bridging Document, Beardie Campaign** for VIC/L2.

The original Ocean Bounty Vessel Safety Case was accepted by WADME and the five year review process was accepted by DNRE on 23rd August 2001. The newly revised Vessel Safety Case was issued 14th May 2002.

We also include as part of the Safety Case bridging submission the **Beardie Bridging Emergency Response Plan**.

Pursuant to the Petroleum (Submerged Lands) (Management of Environment) Regulation 9, we hereby submit for acceptance the **Beardie Environment Plan** for the Beardie campaign in VIC/L2.

Pursuant to the Petroleum (Submerged Lands) Act Clause 501(1) we hereby request your approval to drill the Beardie-1 near-field wildcat well in VIC/L2. Enclosed are two copies of the drilling program and two copies of the **Esso Australia Pty Ltd Beardie-1 Drilling Operations Manual - Floating Drilling**. Two copies of the **Beardie-1 Authorisation to Drill** (Geological Prognosis) were sent to DNRE on June 13, 2002. The spud date for Beardie-1 is anticipated to be between July 18, 2002 and August 1, 2002.

Please contact Chris Meakin on 9270-3536 (E-mail: chris.p.meakin@exxonmobil.com) if you require any further information.

Yours faithfully
Esso Australia Pty Ltd
(for and on behalf of
Esso Resources Pty Ltd
ACN 091 829 819)

Original signed by Daniel L. Whiteman 18-Jun-2002
A copy of the signed original is on file at the Sender's location.

Daniel L. Whiteman
Drilling Manager

Department of
Natural Resources and Environment

240 Victoria Parade
PO Box 500 East Melbourne
Victoria 3002 Australia
Telephone: (03) 9412 4011
Facsimile: (03) 9412 4803
ABN 90 729 057 204
DX 210099

10 July 2002
Our Ref: No; PE/16/10011

Mr Daniel L. Whiteman
Drilling Manager
Esso Australia Pty Ltd
GPO Box 400C
Melbourne 3001

CONSENT TO MOVE OCEAN BOUTY FROM SOLE-2 TO BEARDIE-1

I refer your facsimile dated 10th July 2002 regarding the above subject.

In accordance with Provisions of Clause 302 of the *Petroleum (Submerged Lands) Act, Schedule of Specific Requirements as to Offshore Petroleum Exploration and Production in Waters Under Commonwealth Jurisdiction 1997.*

I hereby:

1. consent to move the Diamond Offshore General Company's MODU Ocean Bounty to the Beardie-1 well in Vic/L2.

Yours sincerely,

HORACIO HAAG
Manager, Petroleum Operations, Safety and Environment

913711 114

Facsimile

Drilling

Bcc:
D. Tyler (SRO)
A. Zannetos
Drilling Supervisors - Beardie-1
F. Fratzer
Beardie FWR
Beardie Well Planning & Surveillance
File: Beardie 3.2

Esso Australia Pty Ltd
ABN 49 000 018 566
12 Riverside Quay, Southbank VIC 3006
GPO Box 400C, Melbourne VIC 3001
Telephone: 61 3 9270 3333

An **ExxonMobil** Subsidiary

Facsimile

Drilling

Departing Location:	Sole-2 (VIC/RL3, Bass Strait)
	Latitude 38° 06' 18.6"S
	Longitude 149° 00' 29.0"E
Arriving Location:	Beardie-1 (VIC/L2, Bass Strait)
	Latitude 38° 15' 16.3"S
	Longitude 147° 48' 24.6"E
Distance of Tow:	Approximately 119km (64 nautical miles)
Anticipated Commencement Date:	18th July 2002
Anticipated Duration:	± 1 day
Towing Vessel(s):	"Pacific Conqueror" & "Pacific Sentinel"
Towing Arrangement:	As per Diamond Offshore's Rig Move Procedure
Person in charge during Tow:	Diamond Offshore OIM

Number Personnel on Board during Tow: 85

The actual commencement of the tow will be advised direct from the rig immediately prior to commencing the rig move.

Yours faithfully
Esso Australia Pty Ltd
(for and on behalf of
Esso Resources Pty Ltd
ACN 091 829 819)

Original signed by K.W. Kratzer for Daniel L. Whiteman

Daniel L. Whiteman
Drilling Manager

Esso Australia Pty Ltd
ABN 49 000 018 566
12 Riverside Quay, Southbank VIC 3006
GPO Box 400C, Melbourne VIC 3001
Telephone: 61 3 9270 3333

An **ExxonMobil** Subsidiary

913711 116

Facsimile

Drilling

To Mr Rob King, Manager, Mineral & Petroleum Operations

Manager - Marine Operations & Personnel
Australian Maritime Safety Authority

Pages Cover + 1 page

Fax 9412 5152 (DNRE)
(02) 6279 5966 (AMSA)

Date 10 July, 2002

From Daniel L. Whiteman

CC Distribution

Re Rig Move from Santos' Sole-2 Location to Esso's Beardie-1 Location

---

Distribution:

Maritime Rescue Co-ordination Centre, Canberra The Officer in Charge, MRCC	(02) 6230 6868
DOT Canberra The Officer in Charge DOT	(02) 6274 6699
Diamond Offshore General Company Mr Jimmy R. Moore - Operations Manager	(08) 9481 8103

Pursuant to Clauses 302(2) and 302(3) of the Petroleum (Submerged Lands) Schedule of Specific Requirements as to Offshore Petroleum Exploration and Production, Esso Australia Pty. Ltd. hereby request your approval to move the Semisubmersible Drilling Rig "OCEAN BOUNTY" from Santos' Sole-2 location in the Bass Strait to Esso Australia's Beardie-1 location in Bass Strait on or about 18th July 2002 as set out below.

Esso Australia Pty Ltd
ABN 49 000 018 566
12 Riverside Quay, Southbank VIC 3006
GPO Box 400C, Melbourne VIC 3001
Telephone: 61 3 9270 3333

An **ExxonMobil** Subsidiary

3. timely notification to the rescue coordination centre of AUSSAR of each rig move with a copy to this office; and
4. the *Victorian Occupational Health and Safely Act 1985* and the "*Occupational Health and Safety (Incident Notification) Regulations 1997.*

In addition:

- A seabed survey of the well location must be carried out prior to the rig move from the drilling site.
- A preliminary analysis of the logs is to be provided to the Department before approval can be granted for suspension, or plug and abandonment.
- This approval is not an approval pursuant *to the Environment Protection and Bio-Diversity Conservation Act 1999 (Commonwealth).*

Yours sincerely

HORACIO HAAG
Manager, Petroleum Operations, Safety and Environment

913711 118

Department of Natural Resources and Environment

240 Victoria Parade
PQ Box 500 East Melbourne
Victoria 3002 Australia
Telephone; (03) 9412 4011
Facsimile- (03) 9412 4803
ABN 90 719 052 204
DX 210099

9 July 2002
Our Ref: No: PE/ 16/0011

Mr Daniel L. Whiteman
Drilling Manager
Esso Australia Pty Ltd
GPO Box 400C
Melbourne 3001

CONSENT TO DRILL BEARDIE - 1 EXPLORATION WELL IN VIC /L2

I refer to the following Esso Australia Pty Ltd correspondence and documentation regarding the above subject.

1. Application to drill, your letter DD:6840/CPM dated 18 June 2002
2. Environment Plan for the drilling of Beardie- 1, Rev 0 dated 1 June 2002
3. Drilling Programme for Beardie- 1 exploration well, Rev 0 dated 17 June 2002
4. MODU Safety Case Bridging Document for Ocean Bounty, Rev 0, June 2002
5. Beardie - 1, Bridging Emergency Response Plan, Rev 0, June 2002
6. Drilling Operations Manual, Floating Drilling, Transitional Version 1, October 1999

In accordance with Provisions of Clause *501 of the Petroleum (Submerged Lands) Act, Schedule of Specific Requirements as to Offshore Petroleum Exploration and Production in Waters Under Commonwealth Jurisdiction* 1997, the *Petroleum (Submerged Lands) (Management of Safety on Offshore Facilities) Regulations, 1996*, and the *Petroleum (Submerged Lands) (Management of Environment) Regulations. 1991, I* hereby:

1. consent to use of the Diamond Offshore General Company's MODU Ocean Bounty to drill the Beardie- 1 well in Vic/L2;
2. accept Esso Australia's Beardie-1 Bridging Emergency Response Plan.
3. accept Esso Australia's Safety Case Bridging Document;
4. approve the drilling of Beardie - 1 well in accordance with Esso Australia's Drilling Programme; and
5. accept the Esso Australia Environmental Plan for drilling Beardie -1

The commencement of drilling operation and its continuation is subject to Esso Australia Pty Ltd and its contractor's adherence to:

1. the above approved or accepted procedures, manuals, safety case, plans and the drilling programme;
2. APPEA's Code of Environmental Practice (the latest edition);

boundaries of the application or licence. at the expiration of 28 days after the said land ceases to lie within the boundaries of the application or licence.

Dated 19 June 2002

RICHARD ALDOUS
Executive Director
Energy and Minerals

COMMONWEALTH OF AUSTRALIA
Petroleum (Submerged Lands) Act 1967

Prohibition of Entry into Safety Zone Beardie - 1 Well

Pursuant to the power conferred by Section 119 of the **Petroleum (Submerged Lands) Act 1967**, all vessels are prohibited, other than vessels engaged in or in connection with the petroleum exploration and/or production operations authorised under that Act, from entering or remaining in the safety zone specified in the schedule, without my consent in writing.

SCHEDULE

(1) The area within a distance of 500 metres measured from each point of the outer edge of the drilling vessel known as Ocean Bounty.
(2) The area or areas within a distance of 500 metres measured from each point of the outer edge of any anchor buoys or other equipmentdeployed from that drilling vessel.

while the vessel is engaged in operations associated with drilling of the Beardie - 1 Well situated at or about the point of Latitude 038° 15' South, Longitude 147° 48' East over the period from mid July 2002 until mid August 2002.

Dated 24 June 2002
Made under the
Petroleum (Submerged Lands) Act 1967
of the Commonwealth of Australia

HORACIO HAAG
Manager, Petroleum Operations
Safety and Environment
as delegate of the Designated Authority,
pursuant to delegation
dated 28 September 2000
under Section 15 of the
Petroleum (Submerged Lands) Act 1967

Subordinate Legislation Act 1994
NOTICE OF DECISION
Water (Groundwater) Regulations 2002

I, Sherry] Garbutt, Minister for Environment and Conservation and Minister responsible for the administration of the Water Act 1989. give notice under section 12 of the Subordinate Legislation Act 1994, as follows:

A Regulatory Impact Statement (RIS) was prepared in relation to the proposed Water (Groundwater) Regulations 2002 to prescribe fees for applications to issue or renew driller's licences and require certain persons who take water from a bore for domestic and stock use to give the Minister notice of the amount taken.

The RIS was advertised seeking public comment on 7 March 2002 and no submissions were received.

I have therefore decided that the proposed Water (Groundwater) Regulations 2002 should be made without amendment.

Dated 11 June 02

SHERRYL GARBUTT MP
Minister for Environment
and Conservation

Water Act 1989
SECTION 96
Coliban Region Water Authority
Extension to Trentham Water District

In accordance with the requirements of Section 96(7)(c) of the **Water Act 1989** notice is given of a proposed extension of the Trentham Water District. It is proposed that the extension will be bounded in the north by the Daylesford-Trentham Road and the Trentham Falls Road; in the east by Cranneys Lane; in the south by Reserved Forest and in the west by Doctors Creek, the Coliban River and the western boundary of CA 74 in the Parish of Coliban.

Plans of the proposed extension can be viewed at Coliban Water, 37-45 Bridge Street, Bendigo or Hepburn Shire, 96 Vincent Street, Daylesford, free of charge, during office hours.

Submissions are invited from members of the public. Any person making a submission should set out the grounds for any objection raised in the submission.

913711 120

bcc: D. Tyler (SRO)
Andy Zannetos
Beardie-1 Final Well Report
Beardie-1 Well Planning & Surveillance File
File: Beardie 3.2.

AUSTRALIAN MARITIME SAFETY AUTHORITY
SHIP OPERATIONS

Organisation	Esso Australia P/L	From :	James Bond
Attention	Mr Daniel Whiteman		Nautical Adviser
Phone		Phone	02 6279 5672
Fax		Fax	02 6279 5002
No of Pages: 1		Date	11/07/02
Your Ref:		AMSA Ref	000980-16

Movement of Ocean Bounty

Ref your fax of 10 july

You have AMSA's approval to shift Ocean Bounty from Sole 2 to Beardie 1 on or about 18 July 2002.

There seems to be some discrepancies between the PSLA and the Navigation Act regarding the approval process and we will look in to this as soon as possible. What is extremely important is to keep the Rescue Coordination Centre of AMSA (referred to as the Federal Sea Safety Centre in the PSLA) informed of the movements of the drilling rig. This allows AMSA to advise shipping of the presence of the rig by means of AusCoast radio warnings.

The Diamond Offshore OIM on the Ocean Bounty is dutifully doing this for the rig's movernents in Bass Strait.

James Bond

For

Manager ship operations

913711 122

DIAMOND
OFFSHORE

DIAMOND OFFSHORE GENERAL COMPANY
Ocean Bounty

To:	
RCC Australia	02 6230 6868
The Officer in Charge MRCC	
DOT Canberra	02 6274 6699
The Officer in Charge DOT	
AMSA Canberra	02 6279 5966
Manager - Marine Operations & Personnel	
DOGC Perth	08 9481 8103
Mr. Jimmy Ray Moore - Operations Manager	
VDNRE	03 9412 5152
Manager – Petroleum Operations & Safety	
Tasmanian Fishing Industry Council	03 6224 2321
Mr Bob Lister	
Seafood Industry Victoria	03 9824 0755
Mr Ross Hodge	
OMV	08 9223 5009
Mr. Ron King	
Esso	03 9270 3593
Frank Kratzer	

From: David Deron
OIM – Ocean Bounty.
Date: 24/07/02
Ref: Rigmove from Sole 2 to Beardie 1

Please be advised that the drilling rig Ocean Bounty has departed from Sole 2 location, Latitude: 38° 06'59.50" S, Longitude: 149° 02' 04.40" E for the Beardie 1 location at position Latitude: 38° 15'16.3" S, Longitude: 147° 48' 24.6" E on the 24th of July 2002. The last anchor was bolstered at 17:00 hrs on the 24th. The tow distance is approximately 64 nautical miles. The towing vessels are the Pacific Sentinel and the Pacific Conqueror.

Regards,

Original signed by David Deron

David Deron
OIM – Ocean Bounty

DIAMOND
OFFSHORE

DIAMOND OFFSHORE GENERAL COMPANY
Ocean Bounty

To:

RCC Australia	02 6230 6868
The Officer in Charge MRCC	
DOT Canberra	02 6274 6699
The Officer in Charge DOT	
AMSA Canberra	02 6279 5966
Manager - Marine Operations & Personnel	
DOGC Perth	08 9481 8103
Mr. Jimmy Ray Moore - Operations Manager	
VDNRE	03 9412 5152
Manager – Petroleum Operations & Safety	
Tasmanian Fishing Industry Council	03 6224 2321
Mr Bob Lister	
Seafood Industry Victoria	03 9824 0755
Mr Ross Hodge	
Esso	03 9270 3593
Frank Kratzer	

From: David Deron
OIM – Ocean Bounty.

Date: 25/07/02

Ref: Rigmove from Sole 2 to Beardie 1

Please be advised that the drilling rig Ocean Bounty has arrived and run the four primary anchors at the Beardie 1 location. Latitude 38° 15' 16.3" S - Longitude 147° 48' 24.6" E. The first anchor was on bottom at 0815 hrs on the 25th of July. Rig ballasted to drilling draft and anchor operations continuing.

Regards,

Original signed by David Deron

David Deron
OIM – Ocean Bounty

913711 124

Esso Australia Pty Ltd
ABN 49 000 018 566
12 Riverside Quay
Southbank, Victoria 3006
GPO Box 400C
Melbourne, Victoria 3001
61 3 9270 3333 Telephone

6 August, 2002

Mr Rob King
Manager, Mineral & Petroleum Operations
Department of Natural Resources and Environment
240 Victoria Parade
P.O. Box 500
EAST MELBOURNE VIC 3002

Attention: Mr Bruce Amour

Dear Sir,

Subject: REQUEST FOR APPROVAL TO ABANDON BEARDIE-1.

Pursuant to the Petroleum (Submerged Lands) Act Clause 513 (1) we hereby request your approval to abandon Beardie-1 near-field wildcat well in VIC/L2. Insufficient hydrocarbons were encountered to warrant completion. Beardie-1 was assessed as uneconomic. We plan to P&A this well as follows:

1. Spot a 50 bbl weighted hi-vis pill from 1460m to 1560m MDRT to support the open-hole cement plug;
2. Spot a continuous 675m balanced cement plug, in five stages, to isolate all "significant" hydrocarbon intervals in the wellbore, the saline Miocene sands from the fresher Latrobe aquifer, and to place a plug across the 13-3/8" casing shoe. WOC and tag to ensure the location and integrity of Plug #1;
3. Displace the mud in the surface casing with inhibited mud (bactericide, oxygen scavenger and pH > 10);
4. POOH, P/U, set and tag an EZSV at 160m to support the surface cement plug;
5. Spot the surface cement plug from 100m to 160m. Pressure test to 1,000 psi to ensure integrity;
6. POOH with riser and BOP;
7. Cut surface casing and conductor at least 1.5m below the mudline (subject to DNRE approval) with a Weatherford MOST tool. Retrieve the wellhead and casing stubs;
8. Conduct a seafloor survey with the ROV;
9. Pull anchors and release the rig.

A Wellbore Sketch of the proposed P&A is attached for your reference.

Esso Australia Pty Ltd requests dispensation from P(SL)A Clause 514(10) regarding severing the casing at least 5 metres below the mudline. In the above procedure we propose to cut the surface casing and conductor at least 1.5m below the mudline. Our concern is that that, if we cut at 5 metres below mudline, either we may not be able to recover the 30" stub which was cemented into 36" hole; or that excessive force may be required in the recovery operation.

We believe a cut at least 1.5m below the mudline is adequate. The seafloor consists of medium to coarse silty sands with some shell fragments (Beardie-1 Site Survey Report, 2002). Black *et al.* (1992)[1] observed that at water depth of about 42-45 m and deeper well defined wave-generated parallel bedforms no longer occur, and that this is one of the major features of the bedform patterns in eastern Bass Strait. Furthermore, the 42-45m limit coincides with a continental mud depositional limit discussed by Jones and Davies (1983)[2]. As Beardie-1, at 51m water depth, is below this region of wave generated influence, and as the sediment consists of medium to coarse sand, scouring to a depth of at least 1.5 metres is unlikely.

The proposed P&A is not expected to impact fishing in the area which is predominantly Danish Seine trawling. Lakes Entrance fish co-operatives will be notified of the location and depth of the P&A.

Please contact Chris Meakin on 9270-3536 (E-mail: chris.p.meakin@exxonmobil.com) if you require any further information.

Yours faithfully
Esso Australia Pty Ltd
(for and on behalf of
Esso Resources Pty Ltd
ACN 091 829 819)

Original signed by Daniel L. Whiteman 6-Aug-2002
A copy of the signed original is on file at the Sender's location.

Daniel L. Whiteman
Drilling Manager

/Attach.

[1] Black, K., Rosenberg, M., Symonds, G., Simons, R., Pattiaratchi, C., Nielsen, P., (1992) Measurements of wave, current and sea level dynamics of an exposed coastal site. In: International Biennial Conference on Physics of Estuaries and Coastal Seas (in press).
[2] Jones, H.A. and Davies, P.J. (1983). Surficial Sediments of the Tasmanian Continental Shelf and Part of Bass Strait. Bureau Mineral Resources, Geology and Geophysics Bulletin 218, Australian Government Publication, ACT, 25 p.

913711 126

bcc: D. Tyler (SRO)
Andy Zannetos
Beardie-1 Final Well Report
Beardie-1 Well Planning & Surveillance File
File: Beardie 3.2.

913711 127

Department of Natural Resources and Environment

240 Victoria Parade
PO Box 500 East Melbourne
Victoria 3002 Australia
Telephone: (03) 9412 4011
Facsimile: (03) 9412 4803
ABN 90 719 052 204
DX 210099

6 August 2001
Your Ref. No: DD6866/CPM
Our Ref. No: PE/16/0011

Daniel L. Whiteman
Drilling Manager
Esso Australia Pty Ltd
GPO Box 400C
MELBOURNE VIC 3001

Dear Mr Whiteman

CONSENT TO PLUG AND ABANDON BEARDIE-1 EXPLORATION WELL

I refer to your letter of 6 August requesting the Designated Authority's approval to plug and abandon the Beardie-1 exploration well in Vic/L2, and seeking dispensation to cut the surface casing and conductor only 1.5m below the mudline.

In accordance with Provisions of Clause 513 of the *Petroleum (Submerged Lands) Act, Schedule of Specific Requirements as to Offshore Petroleum Exploration and Production in Waters under Commonwealth Jurisdiction 1997,* I hereby approve your request to plug anal abandon the Beardie-1 exploration well according to your proposed procedure.

In view of the seafloor conditions you describe at the site, I also grant a dispensation to Clause 514(10) of the *Petroleum (Submerged Lands) Act, Schedule of Specific Requirements as to Offshore Petroleum Exploration and Production in Waters under Commonwealth Jurisdiction* 1997 - provided that the surface casing and conductor are severed at least 1.5m below the seafloor.

A seabed survey of the well location must be carried out prior to the rig move from the drilling site and copies of logs and other test data shall be provided to the Department.

Yours sincerely

HORACIO HAAC
Manager Petroleum Operations Safety and Environment

Victoria
The Place To Be

913711 128

DIAMOND
OFFSHORE

DIAMOND OFFSHORE GENERAL COMPANY
Ocean Bounty

To:

RCC Australia	02 6230 6868
The Officer in Charge MRCC	
DOT Canberra	02 6274 6699
The Officer in Charge DOT	
AMSA Canberra	02 6279 5966
Manager - Marine Operations & Personnel	
DOGC Perth	08 9481 8103
Mr. Jimmy Ray Moore - Operations Manager	
VDNRE	03 9412 5152
Manager – Petroleum Operations & Safety	
Tasmanian Fishing Industry Council	03 6224 2321
Mr Bob Lister	
Seafood Industry Victoria	03 9824 0755
Mr Ross Hodge	
OMV	08 8218 5623
Mr Ron King	
Esso	03 9270 3593
Mr Frank Kratzer	

From: Steve Andrews
OIM – Ocean Bounty.
Date: 10/08/02
Ref: Rigmove from Beardie 1 to Sole 2

Correction to Longitude of Sole – 2: 149° 02' 04.40"

Please be advised that the drilling rig Ocean Bounty departed the Beardie 1 location, Latitude: 38° 15'16. 3"S, Longitude: 147° 48' 24.6"E, for the Sole 2 location at position Latitude: 38° 06' 59.50" S, Longitude: 149° 02' 04.40" E at 00:30 Hrs on the 10th August 2002.

The tow distance is approximately 64 nautical miles and should take about 16 hours at an average speed of 4 knots.
The towing vessels are the Pacific Sentinel and the Pacific Conqueror.

Regards,

Original signed by Steve Andrews
Steve Andrews
OIM – Ocean Bounty

DIAMOND
OFFSHORE

DIAMOND OFFSHORE GENERAL COMPANY
Ocean Bounty

To:

RCC Australia	02 6230 6868
The Officer in Charge MRCC	
DOT Canberra	02 6274 6699
The Officer in Charge DOT	
AMSA Canberra	02 6279 5966
Manager - Marine Operations & Personnel	
DOGC Perth	08 9481 8103
Mr. Jimmy Ray Moore - Operations Manager	
VDNRE	03 9412 5152
Manager – Petroleum Operations & Safety	
Tasmanian Fishing Industry Council	03 6224 2321
Mr Bob Lister	
Seafood Industry Victoria	03 9824 0755
Mr Ross Hodge	
Esso	03 9270 3593
Frank Kratzer	
OMV	08 9223 5009
Mr Ron King	

From: S.Andrews
OIM – Ocean Bounty.

Date: 11/08/02

Ref: Rigmove from Beardie 1 to Sole 2.

Please be advised that the drilling Rig Ocean Bounty has arrived and run the primary and secondary anchors at the OMV Sole 2 location.
Latitude 38° 06' 59.50" S - Longitude 149° 02' 04.40" E.
The first anchor was on bottom at 14:35 hrs on the 10th of August 2002.
Rig ballasted to drilling draft.

Regards,

Original signed by Steve Andrews
Steve Andrews
OIM – Ocean Bounty

913711 130

Esso Australia Pty Ltd
ABN 49 000 018 566
12 Riverside Quay
Southbank, Victoria 3006
GPO Box 400C
Melbourne, Victoria 3001
61 3 9270 3333 Telephone

12 August, 2002

Mr Rob King
Manager, Mineral & Petroleum Operations
Department of Natural Resources and Environment
240 Victoria Parade
EAST MELBOURNE VIC 3002

Attention: Mr Bruce Amour

Dear Sir,

Subject: PLUG AND ABANDONMENT OF BEARDIE-1, VIC/L2.

Pursuant to the Petroleum (Submerged Lands) Act Clause 553 we hereby provide details of the plug and abandonment of the Beardie-1 well in Vic/L2.

We also attach the results of the seabed survey carried out prior to the rig move from the drilling site.

Please contact Chris Meakin on 9270-3536 (E-mail: chris.p.meakin@exxonmobil.com) if you require any further information.

Yours faithfully
Esso Australia Pty Ltd
(for and on behalf of
Esso Resources Pty Ltd
ACN 091 829 819)

Original signed by Daniel L. Whiteman 12-Aug-2002
A copy of the signed original is on file at the Sender's location.

Daniel L. Whiteman
Drilling Manager

/Attach.

913711 131

bcc: D. Tyler (SRO)
Andy Zannetos
Beardie-1 Final Well Report
Beardie-1 Well Planning & Surveillance File
File: Beardie 3.2.

913711 132

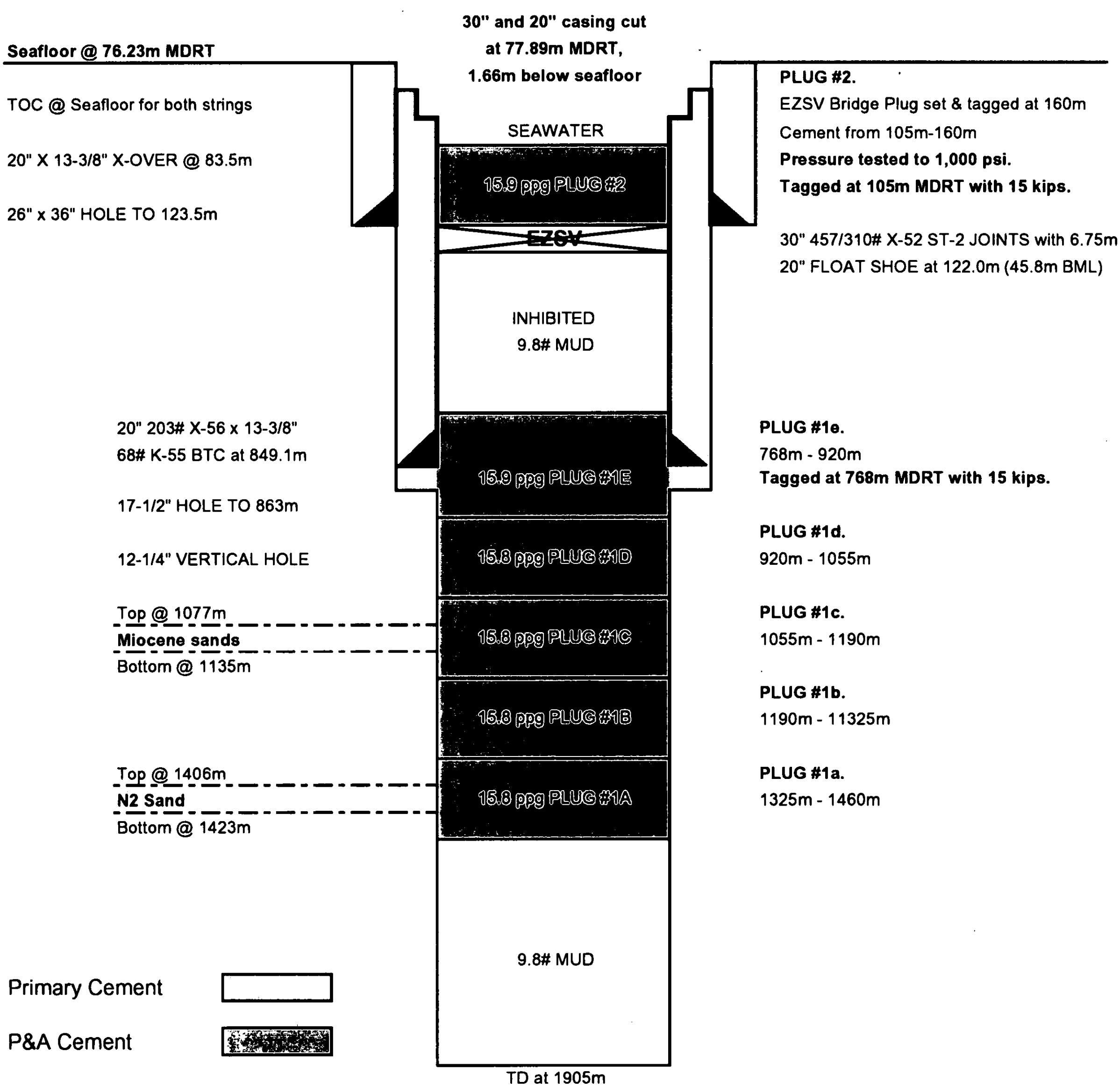
WELLBORE SKETCH AFTER PLUGGING & ABANDONING
DIAMOND OFFSHORE OCEAN BOUNTY
BEARDIE-1

LOCATION: AGD 1966. Latitude 38° 15' 16.745" S. Longitude 147° 48' 23.421" E.
AMG Zone 55 Easting 570,564.32m, Northing 5,765,608.05m
Rig on Location 0800hr 25-Jul-2002. Rig released 0030 hours 10-Aug-2002

ALL DEPTHS ARE LAT IN METERS FROM ROTARY TABLE (MD=TVD)

MSL @ 25m RT

WATER DEPTH = 51.23m



ROV SEABED SURVEY

913711 133

Client: ESSO	**Well / Location: Beardie-1**	**Permit No.:**
Vehicle: Nomad #7	**Sonar: Imagenex 881A**	**Date: 9/8/02**

All headings are taken using the well position on seabed as a starting datum.

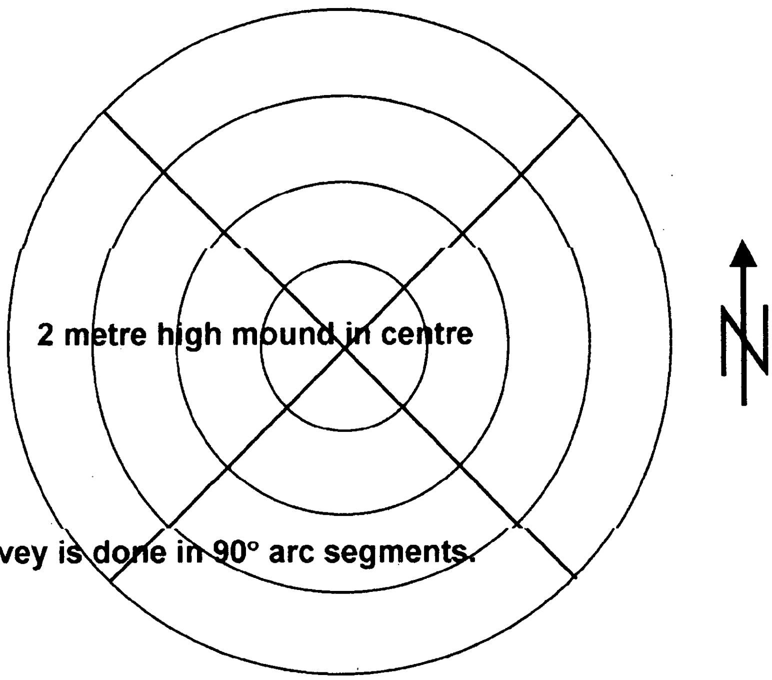
Visual survey is taken in 30° arc segments. Excursions are a minimum of 50 meters.

Post Drilling Survey Observations:
Previous to recovering the PGB and casing a full seabed visual and sonar survey was done
On 8/8/02 with no debris found. This was repeated on the 9/8/02 when the PGB and cut
Casing was recovered to surface. Again no debris was found during visual seabed surveys
Out to 50m from well and sonar scans to 100m.
At the wellsite a mound or crater is left approximately up to 2 metres above seabed about 2
To 3 metres in diameter at the centre. This is made of cutting returns and gently slopes down
To natural seabed over 10 meters.

Brief sketch of any features observed during the sonar scan.

Sonar Survey Diagram

Outer ring	= 100 meters
Third ring	= 75 meters
Second ring	= 50 meters
Centre ring	= 25 meters



Sonar survey is done in 90° arc segments.

913711 134

Esso Australia Pty Ltd
ABN 49 000 018 566
12 Riverside Quay
Southbank, Victoria 3006
GPO Box 400C
Melbourne, Victoria 3001
61 3 9270 3333 Telephone

16 August, 2002

Mr Rob King
Manager, Mineral & Petroleum Operations
Department of Natural Resources and Environment
240 Victoria Parade
EAST MELBOURNE VIC 3002

Attention: Mr Bruce Amour

Dear Sir,

**Subject: PLUG AND ABANDONMENT OF BEARDIE-1, VIC/L2.
REVISION OF THE FINAL WELL LOCATION**

In our letter dated 12 August, 2002 on the above subject we advised that the actual Beardie-1 surface location was:

Datum:	AGD66	**Latitude:**	38° 15" 16.745" S
		Longitude:	147° 48' 23.421" E
Projection:	AMG Zone 55	**Easting:**	570,564.32m
		Northing:	5,765,608.05m

This was in error. The actual Beardie-1 surface location Final Datum Position is:

Datum:	AGD66	**Latitude:**	38° 15" 16.214" S
		Longitude:	147° 48' 24.643" E
Projection:	AMG Zone 55	**Easting:**	570,594.15m
		Northing:	5,765,624.16m

This Final Datum Position is 1.79m on a bearing of 10.8° true from the intended location.

We apologise for any inconvenience this correction may have caused.

Yours faithfully
Esso Australia Pty Ltd
(for and on behalf of
Esso Resources Pty Ltd
ACN 091 829 819)

Original signed by Daniel L. Whiteman 16-Aug-2002
A copy of the signed original is on file at the Sender's location.

Daniel L. Whiteman
Drilling Manager

/Attach.

bcc: D. Tyler (SRO)
Andy Zannetos
Beardie-1 Final Well Report
Beardie-1 Well Planning & Surveillance File
File: Beardie 3.2.

913711 136

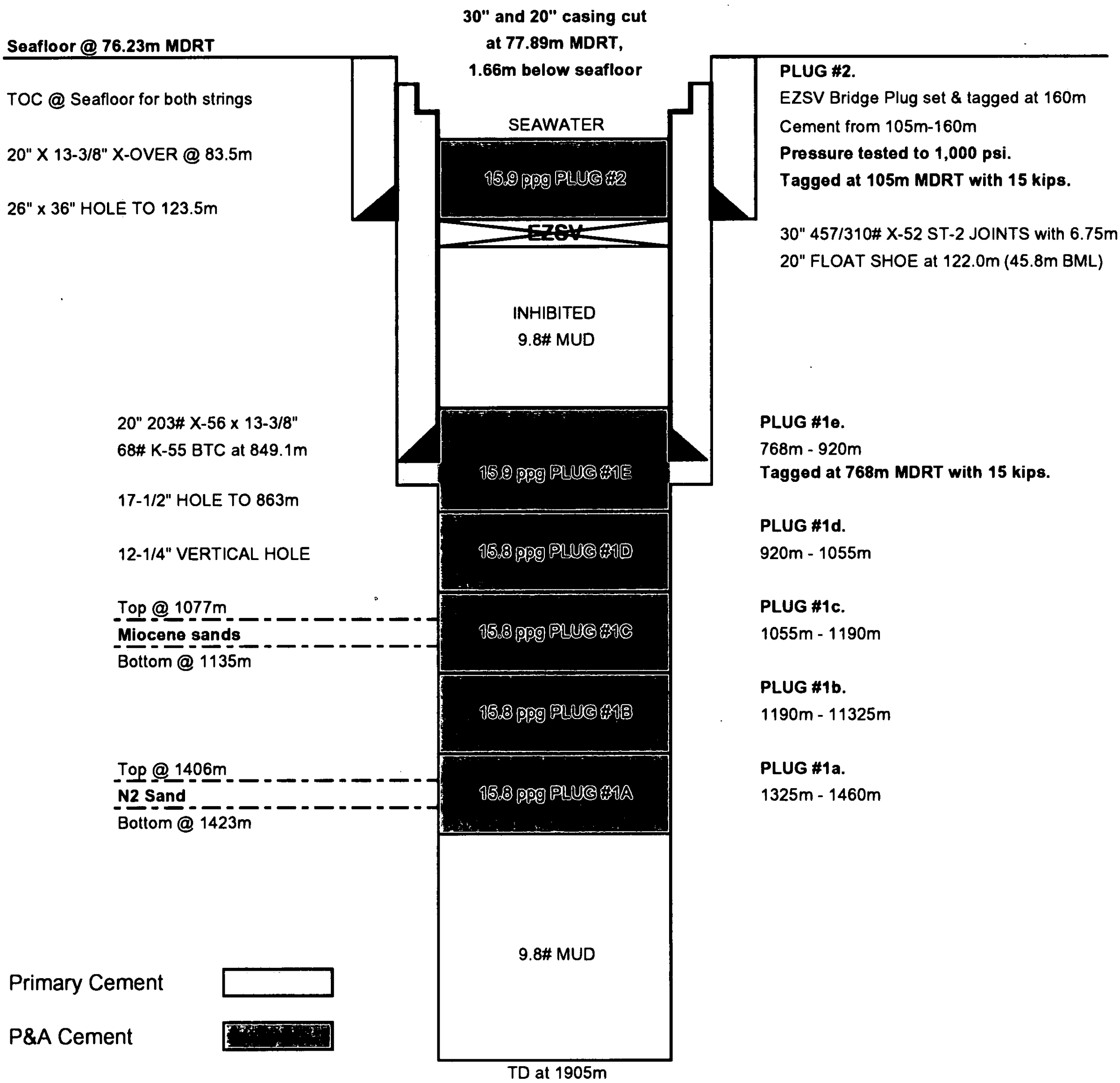
WELLBORE SKETCH AFTER PLUGGING & ABANDONING
DIAMOND OFFSHORE OCEAN BOUNTY
BEARDIE-1

LOCATION: AGD 1966. Latitude 38° 15' 16.214" S. Longitude 147° 48' 24.643" E.
AMG Zone 55 Easting 570,594.15m, Northing 5,765,624.16m
Rig on Location 0800hr 25-Jul-2002. Rig released 0030 hours 10-Aug-2002

ALL DEPTHS ARE LAT IN METERS FROM ROTARY TABLE (MD=TVD)

MSL @ 25m RT

WATER DEPTH = 51.23m



Revision 1.

ROV SEABED SURVEY

913711 137

Client: ESSO	**Well / Location: Beardie-1**	**Permit No.:**
Vehicle: Nomad #7	**Sonar: Imagenex 881A**	**Date: 9/8/02**

All headings are taken using the well position on seabed as a starting datum.

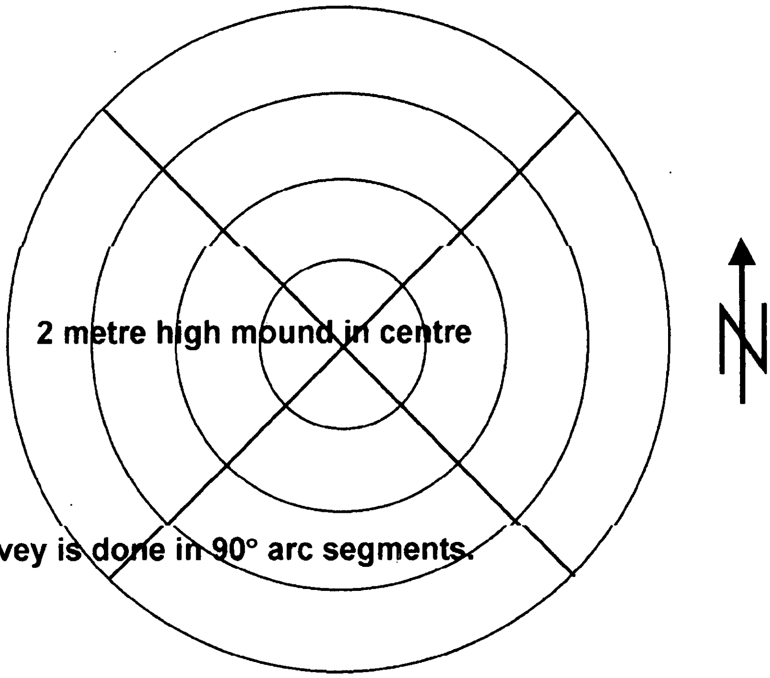
Visual survey is taken in 30° arc segments. Excursions are a minimum of 50 meters.

Post Drilling Survey Observations:
Previous to recovering the PGB and casing a full seabed visual and sonar survey was done
On 8/8/02 with no debris found. This was repeated on the 9/8/02 when the PGB and cut
Casing was recovered to surface. Again no debris was found during visual seabed surveys
Out to 50m from well and sonar scans to 100m.
At the wellsite a mound or crater is left approximately up to 2 metres above seabed about 2
To 3 metres in diameter at the centre. This is made of cutting returns and gently slopes down
To natural seabed over 10 meters.

Brief sketch of any features observed during the sonar scan.

Sonar Survey Diagram

Outer ring = 100 meters
Third ring = 75 meters
Second ring = 50 meters
Centre ring = 25 meters



Sonar survey is done in 90° arc segments.

Distribution White-Client Yellow-Office

Form Ref: TMT-00201

913711 138

Drilling Programs &
Supplemental Proceedures.

Drilling Programmes &
Supplemental Procedures

913711 139

ESSO AUSTRALIA PTY LTD

SPECIFICATION FOR THE BEARDIE-1 SITE SURVEY

Revision 0

March 2002

REV. NO.	ISSUE	Rev Date	Prepared By:	Signature:	Endorsed By:	Signature:
0	Issue for Contract	7-Mar-02	C.P. Meakin	C. Meakin	F.W. Kratzer	

TABLE OF CONTENTS

1 INTRODUCTION

This document outlines the scope of work and defines the minimum technical requirements for the equipment and procedures to be followed for the Beardie-1 Site Survey. Attachment 1 shows the location for Beardie-1.

Contractor shall supply all labour, materials, equipment, plant and inspections necessary for the performance of the Services, including the vessel, fuel and lubricants required for the work.

2 SCOPE AND GENERAL REQUIREMENTS & DEFINITIONS

2.1 Scope of work

Perform the site survey to acquire Bathymetric and Geophysical data over a 3 km x 3km area (in approx. 50 metres of water) centred on proposed drill rig location and oriented as shown in Attachment 1.

The survey will involve

- **Sidescan survey**
- **Echosounder/bathymetry survey**
- **Boomer sub-bottom profiler**

A **magnetometer survey** will not be required.

Interpret all acquired data and provide five (5) copies of detailed reports including detailed charts in paper and (1) one copy in electronic format (unprotected PDF).

2.2 General Requirements

Esso or its representative may witness any mobilisation, offshore survey and any demobilisation. The Contractor shall assist Esso or its representative, including providing access to office facilities and accommodation if required.

All survey equipment shall be maintained, shall provide the survey results in an efficient manner, and shall be suitable for use within the survey area.

If operating at any Esso site Contractor shall comply with all Esso work management practices.

Contractor shall provide a Procedure Manual prior to commencement of survey for review and acceptance by Esso. The procedures shall detail the offshore survey program, and include but not be limited to mobilisation and demobilisation (as applicable), seafastening calculations (if applicable), HSE (health, safety and environment) requirements, ERP (emergency response plan) and QA (Quality Assurance). Procedures shall include material safety data sheets (MSDS) and safety and handling procedures.

2.3 Schedule

Contractor shall advise Esso of the timing for the site survey at least two weeks prior to commencement. The site survey shall commence no earlier than March 1, 2002 and no later than April 15, 2002, unless approved otherwise in writing by Esso.

3 DETAILED SCOPE OF WORK

3.1 General

The drilling rig site survey shall cover the area specified to identify any seafloor or near seafloor obstruction (such as pipelines, powerlines, telephone or telegraph cables, wellheads, wrecks, oil/gas seeps, surface faults etc.) which may impact the rig's anchor pattern or drilling location.

A side scan sonar used in conjunction with a precise navigation (positioning) system such as a differential Global Positioning System is the minimum requirement to accomplish this successfully.

3.2 Analysis of survey data

The analysis includes the following:

- A review of any seafloor and subsurface geological and man-made features and conditions which may have an adverse effect on the drilling operation.
- A discussion of risks and any special safety measures that would minimize the adverse effects of shallow hazards.
- A foundation evaluation for jack-up rigs, if applicable, which considers the jack-up footing configuration, environmental loads, jack-up pre-load capacity and soil conditions.

The analysis shall be reviewed and endorsed by Esso.

3.3 Mobilisation & Demobilisation

3.3.1 Equipment

Contractor shall, at its own expense, carry out all required vessel modifications and mobilise and install all necessary equipment on board the vessel prior to commencement of the work, and de-install and demobilise all such equipment and make good and reinstate the vessel to its original condition after completion of the survey, as necessary.

3.3.2 Offshore Personnel

Contractor shall, at its own expense and timing, mobilise all necessary personnel to do the work, and demobilise such personnel on completion of the survey.

All personnel shall have the necessary training and experience to conduct the work to which they have been assigned.

If required Contractor shall supply Esso with details of the qualifications and experience of each person allocated to the Service

3.3.3 Field Acceptance Prior to Survey

Prior to commencing the survey calibration documentation may be inspected and/or some or all of the following checks may be made and endorsed by the Esso representative.

- Motion sensor and depth sounder field tested and checked.
- Gyro compass calibrated to a known datum
- DGPS Static calibration - AMG 66 datum comparison shall be undertaken to shoreside geodetic control.
- Bar check to echo sounder transducer (to be repeated in the field)
- Test deployment and operation of all equipment
- Vessel certificates checked
- Occupational Health and Safety requirements reviewed.

As part of the acceptance trials for the tow fish system, test runs may be performed within the side scan range of a known datum position. At least two lines shall be run duplicating survey acquisition parameters in opposite directions. The co ordinates determined from both runs should be within 15 metres of the datum position. Esso will advise subsea well locations that may be suitable for this check.

3.4 Survey Area Details

3 km x 3km area centred on following point:

E. 570 593m N. 5 765 623 m
Note: Co-ordinates to AGD 66

Latitude 38deg 15' 16.3" S
Longitude 147deg 48' 24.6" E

Area shall be crossed at minimum 100m line spacing. Tie line spacing shall be at the discretion of Survey Contractor. The survey is to obtain bathymetry and seabed surface features simultaneously along survey lines.

4 REPORTING REQUIREMENTS

4.1 Field Reports

Brief field reports are to be generated covering equipment calibration or other topics as requested.

A preliminary summary site survey report will be produced on board the survey vessel. The report will in addition to preliminary survey findings, highlight any anomalies, hazards, or any unusual features encountered on the survey. A copy of the field report shall be supplied in electronic format (unprotected PDF).

4.2 Final Reports

4.2.1 General

Contractor shall provide five (5) copies of a detailed report including detailed charts in paper and (1) one copy in electronic format (unprotected PDF).

The Final report shall be submitted to Esso no later than 14 days after the completion of the fieldwork. The report shall be comprehensive covering all aspects of the work including descriptions of all methods and equipment used together with discussions of the results.

Bathymetry shall be reduced to LAT.

A complete set of survey drawings, equipment calibrations, test results, tidal correction factors, and data files also shall be provided to Esso.

4.2.2 Drawings

Charts shall be produced showing bathymetry, seabed features and depth contours (1m interval). Coordinates must be referenced to the AGD 66 and show tie in to control points.

All drawings shall contain a key plan to show the location of adjacent drawings.

4.2.3 Survey Records and Data

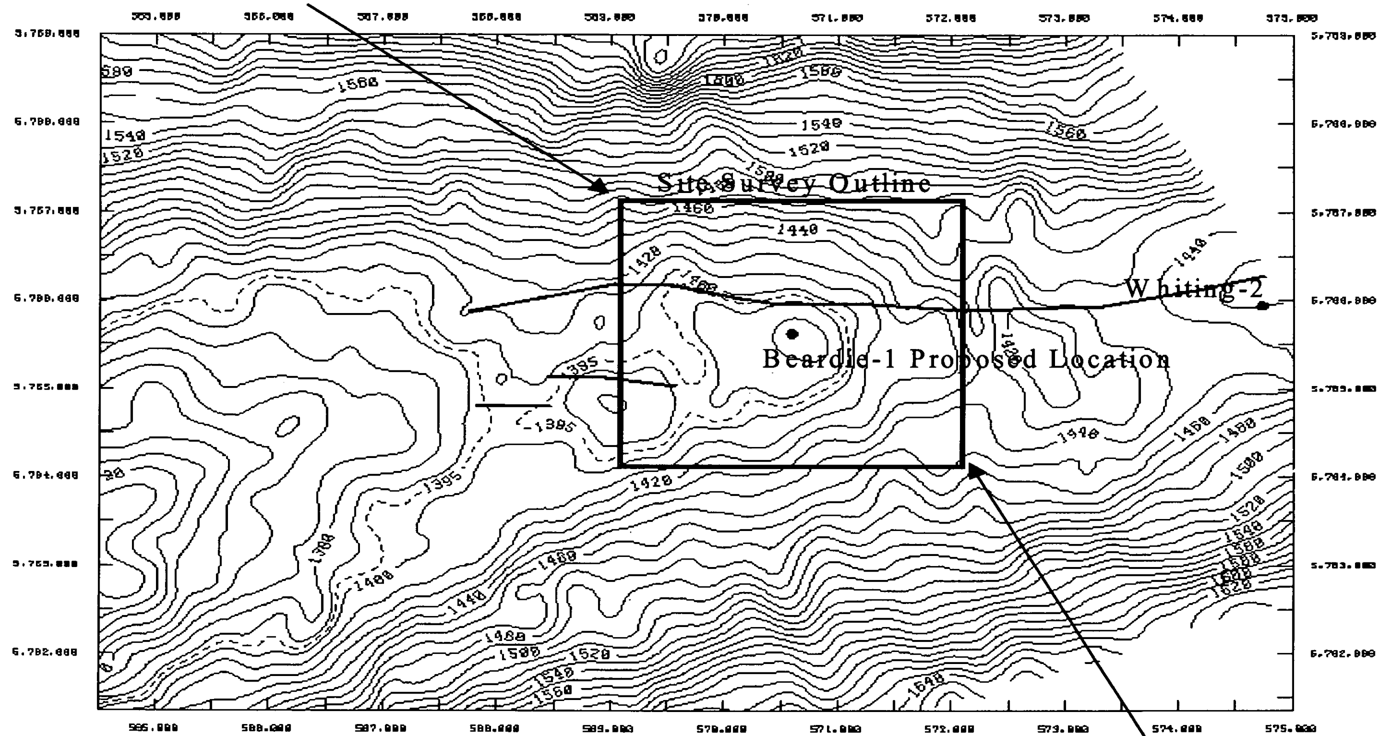
The following survey records and data shall be provided unless agreed otherwise by Esso in writing:

- Hard copy plot of the survey.
- A digital file in AutoCAD format of DXF interchange file format of each drawing sheet.
- A digital file AutoCAD format of DXF interchange file format showing seabed features and bathymetry contours.
- A listing of the reduced data and relevant survey summary in EXCEL (V5) format shall be supplied on a 3.5" floppy disk, 100mb zip disk or a CDROM disc (PC Format).
- Coordinates must be referenced to the AGD 66 and show tie in to control points.
- Boomer sub-bottom profile survey data in SEGY format.

Electronic drawings shall be compatible with AutoCADV14 and shall be issued in DWG format in addition to DXF format.

5 APPENDIX 1 - BEARDIE-1 LOCATION

Proposed Beardie-1 NFW Location X=570593mE Y=5765623mN



913711 145

913711 146

MOVE & MOORING PROGRAM	WELL: Beardie-1
AFE NO: L.0501B003 RK ORDER: 23000977	TYPE: Near Field Wildcat Well

1.0 MOVE & MOORING OBJECTIVES

Move the Ocean Bounty from the Santos' Sole-2 well location in the Bass Strait (VIC/RL3) to the Beardie-1 well location (VIC/L2) by towing with two boats at a transit draft of 32ft. The Pacific Conqueror and Pacific Sentinel will be used for the tow, with one vessel connected to the Main Tow Bridle and the other on the secondary tow bridle on the port or starboard column.

Position the rig within a 5m-radius circle centred on the proposed location on a heading of **240°**. The prevailing wind is from the SouthWest. By selecting a heading of 240°, the pipe and main aft deck work area will be protected providing safer crane operation. The drillfloor is also less exposed and the boat loading station is oriented to allow a workboat to be pushed away from the rig in the event of a breakdown of the thruster.

Set 8 anchors in 51m of water in an asymmetrical pattern and test.

On the completion of the well, recover the anchors, and move the Ocean Bounty to the next operator's location.

2.0 TABLE OF CONTENTS

Engineer	(C.P. Meakin)	[signature]	16-Jul-02
Drilling Engineering Manger	(C.A. Johancsik)	[signature]	16-06-02
Operations Superintendent	(F.W. Kratzer)	[signature]	16/06/02
Drilling Manager	(D.L. Whiteman)	[signature]	17/7/2002

REV: 0

3.0 SOLE-2 & BEARDIE-1 LOCATIONS

Sole-2 Location:

Latitude : 38° 06' 18.6"S
Longitude : 149° 00' 29.0"E

Beardie-1:

Latitude : 38° 15' 16.3"S
Longitude : 147° 48' 24.6"E

Northing : 5,765,623mN
Easting : 570,593mE

Seismic reference: Barracouta G99 3D Seismic Survey, Inline: 684, Crossline: 3235
Datum:- **Australian Geodetic 1966 (AGD66)**
Spheroid:- Australian National Spheroid (ANS).
UTM Zone 55 / **AMG Zone 55**
Central Meridian (CM) **147 Degrees East.**
False Easting 500,000.0
False Northing 10,000,000.0
Scale Factor at CM 0.9996
Projection:- Universal Transverse Mercator (UTM).

4.0 BOTTOM CONDITIONS / HAZARDS & PRECAUTIONS

Whiting platform is 5.9 km from the Beardie-1 location on a grid bearing of 76°. Barracouta platform is 12.5 km from the Beardie-1 location on a grid bearing of 248°.

The following conclusions were made from the Beardie-1 Site Survey Report:

- The nearest observable water depth to the proposed Beardie-1 location is 50.8m MSL (49.9m LAT, LAT is 0.93m below MSL). Minimum and maximum water depths over the site are 49.0m MSL (48.1m MSL) 1.9km NorthWest and 52.0m MSL (51.1m LAT) 2.0km SouthEast of the proposed Beardie-1 location respectively.

- Overall, the seabed is essentially flat across the site with only a 3.5m variation in seabed height. The seabed within the survey area shows no overall geographic trend but undulates with a very gentle gradient <1° (<1:57). The seabed within a 100.0m radius of the proposed Beardie-1 location appears clear of any topographical features, debris or other obstructions that may be considered hazardous to drilling operations.

- One sonar contact was identified, approximately 1.40km southwest of the proposed Beardie-1 location, with dimensions approximately 11m across and 5.0m in height interpreted as a piece of debris. The as found (side scan sonar) position of the contact can be found below.

Datum: AGD66 Projection: AMG Zone 55, CM 147° East

Description	Easting (m)	Northing (m)
Debris	571,357	5,764,451

In the survey area, the accuracy of positioning is estimated at ± 15m and the accuracy of height measured above and below ambient seabed is estimated at ± 0.5m.

- Anchoring conditions across the survey area will be dictated by the geotechnical properties of Units A, B and C below. The sediments of Units A and B are believed to consist of loose/dense medium, to coarse silty sands (see below) overlying bedded consolidated sediments of Unit C. Because Unit B is only found in localised areas Unit C approaches the seabed across the majority of the survey area. Although it is not possible to predict geotechnical properties, it is reasonable to assume that these sediments will become denser with increasing depth below the seabed.

Within the limit of useful acoustic penetration, there is no evidence of shallow faults or any other characteristics of shallow gas in the vicinity of the proposed Beardie-1 location that could be considered hazardous to drilling operations. Using the method of shallow gas risk assessment outlined in section 3.5 of the Beardie-1 Site Survey Report, the risk of shallow gas is defined as slight (gas unlikely) at the proposed Beardie-1 location. The predicted lithology at the proposed Beardie-1 location can be seen below:

Top of Unit	Depth Below Seabed (m)	Unit Thickness (m)	Predicted Lithology
A	0	1.5	Loose to medium dense medium to coarse silty SANDS with some shell fragments.
C	1.5	Beyond limit of useful acoustic penetration	Bedded consolidated sediments.

- Using side scan sonar correlated against the analysis of three (3) drop core samples, seabed sediments within the survey area have been interpreted and classified into the following acoustic and lithological seabed categories:

Low reflectivity seabed interpreted as loose/medium dense, medium to coarse silty SANDS with some shell fragments.

This seabed type occurs ubiquitously across the Beardie-1 site survey area and consists of loose/medium dense, medium to coarse silty SANDS with some shell fragments. It is characterised by a flat, low reflectivity seabed.
Three gravity core samples recovered in this seabed type consist of loose/medium dense, medium to coarse silty SANDS with some shell fragments. The proposed Beardie-1 location lies within this seabed type.

5.0 MOORING EQUIPMENT / ANCHOR HANDLING VESSELS

5.1 OCEAN BOUNTY MOORING EQUIPMENT:

Anchors: 8 x 40 Kip Offdrill II by Vicinay S.A - 37.5° Fluke Angle
Deployed by permanent Chain Chasers (8 x Vicinay)
De-rated Holding Capacity in Sand: 240 kips

4 x 10 ton with 2 ton ballast Stevpris Mark 5
1 x 12 ton Stevpris Mark 5
De-rated Holding Capacity in Sand: 744 kips

Chain: 3-1/4" ORQ4 +20% Diamond Specification Chain
Breaking Strength = 1568 Kips
Proof Test = 1236 Kips
5500' of chain per windlass
Planned set and test 4800' outboard on #6 with a minimum 2500' on the remaining anchors

Following chain lengths are available:

No.1	5000 ft	No.2	5000 ft	No.3	5000 ft	No.4	5000 ft
No.5	5000 ft	No.6	5000 ft	No.7	5000 ft	No.8	5000 ft

These chain lengths allow 500 ft. of 'dead' chain to be left in the lockers.

Windlass: 8- Mitsubishi Single Wildcat Units
Westinghouse 370DZ 1000Hp DC Motors
Stall Tension - 521 Kips; 10 minute tension - 420 Kips
Brake capacity - 1200 Kips
Chain Stopper Capacity -1200 Kips

5.2 ANCHOR HANDLING VESSELS:

Boats:	Pacific Sentinel	Pacific Conqueror
BHP Maximum Continuous	8160	8160
Bollard Pull Tons	90	90
Winch Stall Tons	250	250
Positioning (Thales)	Tug Tracking	Tug Tracking
Tow wire	1200m / 64mm	1200m / 64mm
Work wire	540m / 76mm	540m / 76mm
Operator	Swire Pacific	Swire Pacific

6.0 MANAGEMENT OF CHANGE

1. The following procedures are the minimum requirements. Variations to the procedures due to weather and current will only be allowed if the variation is safe and do not present an increased personnel or operational risk.
2. Esso's Representative and the OIM shall discuss any variation prior to operations commencing.

7.0 PREPARATION FOR RIG MOVE

1. The rig will be released to Esso after completion of drilling services on Santos' Sole-2 well location and the last anchor is racked and bolstered. Esso's spud gear will be loaded on board and Esso's drilling representatives will be on board, prior to commencing the rig move. Pipes on the setback will be laid down and mud pits will be emptied in preparation for the tow.
2. Verify that pre tow stability calculations are complete.

3. Complete materials inventory prior to departure from the Sole-2 location:
   1. Inventory all mud products and additives on board (barite and bentonite).
   2. Inventory all cement, additives and consumables in board.
   3. Inventory all bulks (eg fuel) on the rig and on the workboats.
   4. Sign off the "Statement of Facts" by OMV (as Santos' representative), Diamond and Esso and fax to Esso's Melbourne office.
4. Ensure any loose items are sea fastened.
5. Ensure all Thales Geosolution's positioning system:
   - Skyfix DGPS;
   - Barge Management System; and
   - Tug Tracking system

   are loaded on the rig at the end of the Santos' Sole-2 well when Esso takes over the rig. Thales' personnel should also board the rig at this point to install the positioning equipment on board the rig and both AHVs.
6. Ensure that sufficient spare mooring equipment is provided to cope with any potential problem.
7. All tidal and current data shall be considered prior to and during any rig move operation.
8. Conduct a pre rig move meeting with rig crew and masters of vessels to discuss the rig move and the anchor running procedure. The minimum attendance is:
   - Esso Drilling Supervisor
   - Santos' Representative
   - Diamond Offshore OIM
   - Rig Superintendent
   - Barge Master
   - Thales Geosolution's Surveyor
   - Captains of both AHVs
   - Winch Operators

   During the meeting the rig move procedures, charts, site survey reports, tidal height predictions, near surface current predictions, navigational hazards, radio channels, weather predictions and any other information deemed to be relevant to the operation shall be discussed.
9. Unless the Western Geco's seismic survey vessel the Geco Beta is known to have left the Bass Strait shipping exclusion zone, contact the Western Geco's master on CDMA phone (08) 9420 4680 to advise the tow plan.

8.0 TOW TO BEARDIE-1

NOTE: 1 All tidal and current data shall be considered prior to and during any rig move operation.

1. The tow will proceed to the Beardie-1 location with the one vessel on the 3-inch main tow bridle and the other on the secondary tow bridle. The projected tow route is illustrated on Attachment 1 & 2. The rig will be towed at a transit draft of 32ft. The towing distance is estimated at 64 nm and is expected to take less than 1 day at 4 knots. Thales, using the DGPS equipment, shall monitor the tow from Sole-2 to Beardie-1.

2. The planned course is West on ~270° for 54 nm to Waypoint #1 at Latitude 38° 7' 7.9" S, Longitude 147° 54' 12.9" E, turning SW to a course of on ~210° x 9.7 nm for the run to the Beardie-1 location at Latitude 38° 15' 16.3"S, Longitude 147° 48' 24.6"E. **0** shows the planned tow route.

NOTE: 1 The exact route to Beardie 1 shall be determined by the Survey Representative, DOGC OIM and Barge Master.

NOTE: 2 During the rig move a radar qualified person shall remain in the pilot house to monitor radar contacts.

NOTE: 3 The planned route crosses three (3) Bass Strait to shore pipelines at:

PIPELINE	LATITUDE (S)	LONGITUDE (E)
600mm Oil	38° 7' 05.7"S	147° 58' 54.8"
500mm Gas	38° 7' 06.3"S	147° 57' 33.2"
600mm Gas	38° 7' 40.1"S	147° 53' 50.0"

NOTE: 4 Maintain a minimum distance of 2 nm from all platforms.

NOTE: 5 The tow vessel shall slow down and shorten the tow prior to turning on to the final run-in line.

3. An Esso Representative will provide a quality check for the final the rig positioning at the Beardie-1 location.

4. The first anchor to be deployed from the rig is the No.6 anchor. If weather and currents conditions are not favourable for the planned line of approach the No.7 anchor may be deployed from the rig as the first anchor.

9.0 MOORING PREPARATION

1. All winches to be checked and secondary pump running on rig anchor winch cooling system prior to any anchor operation.

2. It should be noted that the chains have been painted, the white mark at the spurling pipe indicates that the anchor is bolstered. If recovered at drilling draft the anchor will not be bolstered but will be stopped 50 ft below the bolster. The anchor will be bolstered when the rig comes to transit draft. This is to comply with section 9.08.10 of the Marine Operations Manual.

3. All chain markings shall be checked and refreshed where necessary. All personnel directly involved with the anchor chain recovery and deployment operations shall be aware of the markings on the chain.

4. Inspect all pennants and handling slings at rig end. Boats are to be supplied with spare equipment, pennants and shackles as required by vessel masters.

5. All tidal and current data shall be considered prior to and during mooring operations.

6. JSA's will be held prior to commencing anchor handling and pennant handling operations.

7. During anchor deployment operations, the amount of chain payed out shall be called out by the winch operator at 500 feet intervals and checked with the indicated chain deployed from the navigation system in the pilothouse.

NOTE: 1 The "new" system of monitoring needs the winch to be selected into "Haul In" or "Payout" even when free falling as the new system takes its "logic" from this selection for the footage counter.

8. The navigation screen shall always display the distance from the anchor fairlead to the stern of the vessel during anchor running. The OIM or his designee will be in the pilothouse for deployment of primary anchors.
9. During anchor handling operations the drilling operations will only be issued radios with the express permission of the Rig Supt. He shall ensure that radios are not on working frequencies that interfere with the anchor handling operations.

10.0 MOORING AT BEARDIE-1

1. Moor the Ocean Bounty at the Beardie-1 location using **ATTACHMENT 2 ESSO AUSTRALIA PTY LTD OCEAN BOUNTY BEARDIE-1 LOCATION MOORING AND DEMOORING PROCEDURE** developed by CSO Aker Unirig. This procedure comprises an:
   - Introduction;
   - Mooring Configurations;
   - Equipment;
   - Anchor Switchout Procedures;
   - Setout Procedures;
   - Recovery Procedures;
   - Safety;
   - Drawings
2. The water depth at location is ~50 m (164')
3. Mooring pattern is an asymmetric 30/60 pattern with a rig heading of 240°, as follows:

LEG	HEADING	ANCHOR	MINIMUM CHAIN PAYOUT
1	180°	Stevpris Mark 5, 10t	2,500'
2	210°	Stevpris Mark 5, 12t	2,500'
3	270°	Stevpris Mark 5, 10t	2,500'
4	300°	Offdrill 2, 20t, rig anchor	2,500'
5	0°	Offdrill 2, 20t, rig anchor	2,500'
6	30°	Offdrill 2, 20t, rig anchor	4,800'
7	90°	Stevpris Mark 5, 10t	2,500'
8	120°	Stevpris Mark 5, 10t	2,500'

NOTE: 1 Five designated anchors are to be changed out for HHP anchors.

NOTE: 2 The anchor change out procedures as set forth in ATTACHMENT 2 may be used by the AHTS vessels when recovering anchors at Sole-2 or running of anchors at Beardie-1. Timing to be decided by Esso.

NOTE: 3 The 12t anchor designated for the #2 may be run on any anchor designated for a Stevpris.

NOTE: 4 As much chain as possible will be deployed but it is doubtful the above chain length will be reached in this water depth with the Conqueror and Sentinel. The minimum acceptable chain length will be 2500 ft.

4. During the deployment of the primary anchors the OIM or his deputy shall be present in the pilothouse to coordinate operations.

5. Prior to reaching location the OIM shall conduct a radio conference between the rig and vessel masters. Rig personnel to attend shall be the Rig Superintendent, the Rig Barge Master, Company Representative, Survey Representative and the Thales Surveyor. Any variation required to the rig move procedure shall be discussed at this time. It will also be decided at this time when the second AHTS vessel will be removed from the tow arrangement in preparation for running anchors.

6. The rig is to be towed to a position 3 nm at 030° from the No.6 intended anchor drop location where it will be lined up on a bearing of 210° for the run into to the No.6 drop location.

7. Pay out No.6 anchor until the anchor is hanging 50ft off the bottom. Minimum water depth during run in is expected to be 50m (164 ft).

8. Deploy the No.6 anchor as the rig is ~4,950' from the well centre. Continue to tow the rig towards the wellhead location, as chain is paid out. Maximum approach speed will be 3.0 knots once the No.6 anchor has been deployed. Sufficient tension to be held on anchor as running to ensure chain is straight and free of slack.

9. The pilot house and winch operator shall check the chain paid out and tensions of the No.6 anchor as the rig is towed towards the well location.

10. The No.6 anchor winch is braked to stop the rig at the well site. The AHTS vessel will be given ample warning of this operation in order to adjust power as necessary.

11. While the AHTS vessel on the tow bridle holds the rig over the location, pass the no. 2 pennant to the second AHTS vessel that was removed from the tow and run No.2 anchor. If the HHP anchor hasn't been installed do so at this time paying out length of chain designated by AHTS vessel captain prior to decking anchor.

12. Run the No.7 or No.3 anchor depending on the rig position over location. Then run the remaining primary anchor (3 or 7). These are to be HHP anchors and the same applies for the installation as in above step.

13. When the last primary anchor is run, or as decided in step 5., the remaining AHTS vessel on the tow bridle may be removed.

    NOTE: 1 As soon as the primary anchors (#6, #2, #3 & #7) have been run, consider ballasting the rig down to the drilling draft (70ft). If this was decided, when the rig has been ballasted down through the critical transition zone (56.5ft), start running the secondary anchors (#1, #5, #4 & #8) whilst finishing the ballasting of the rig to the drilling draft. Operations in the derrick could commence within the rig safety stability envelope including the making up of the 30" casing string and hanging off once the four primary anchors are run and the rig is ballasted down through the critical transition zone.

    The decision to run the secondary anchors ballasted down shall be determined by the DOGC OIM.

14. Run secondary anchors No.1 at 180°, No.4 at 300°, No.5 at 000° and the No.8 at 120° utilising both AHTS vessels. Install HHP anchors on the No. 1 and No. 8 anchors (same as above in steps 11. and 12.

15. Position rig and test all anchors to 405 kips for a period of 10 minutes.

NOTE: 1 If anchors 4 or 5 fail to test at 405 kips, re-run and re-test to a fairlead tension equivalent to an anchor load of 240 kips (see table below), ie. 373 kips at the fairlead is equivalent to an anchor holding capacity of 240 kips for 2500' of chain deployed.

NOTE: 2 If the Test Loads cannot be achieved, contact the Operations Superintendent and review options.

NOTE: 3 Monitor the fairlead tensions for lines 4 and 5 when operating under northerly metocean conditions. If lines 4 or 5 reach the fairlead tensions below, slack the corresponding leeward line to prevent loads greater than 240 kips at the anchor(s). The table below lists for various chain lengths the fairlead tensions that result in anchor loads of 240 kips.

Length of Chain Deployed (ft)	Fairlead Tension (kips)
2,300	358
2,400	366
2,500	373
2,600	381
2,700	389
2,800	397
2,900	404
3,000	412

16. After all anchors have been satisfactorily set and tested, adjust the tension to the initial operating pretension of 300 kips. Anchor tensions are to be maintained at 300 kips until the BOP stack has been run. Adjust as required to balance the mooring system as close to the location as reasonably possible. The final rig location must be within 5m of the intended call location prior to spudding the well. Deploy ROV to confirm location is free of debris.

17. Fax and mail originals of the following reports to the Drilling Superintendent:

- Well Location Report with the well location in UTM's and in Lat / Long.
- Mooring Operations Summary, including a schematic of the final chain lengths.
- Anchor Running Report

18. Calculated minimum required tensioner setting versus mud weight for drilling mode and for a connected, non-drilling riser is as follows:

	Mud Wgt (ppg)	8.55	10	12
	Stability Limit (kips)	110	120	130
Drilling Mode (when rotating) See Note 1	Tension Setting (kips)	130	140	155
	Limiting Offset (% WD)	1.3	1.3	1.3
Connected, Non-Drilling Mode (when not rotating) See Note 1	Tension Setting (kips)	110	120	130
	Limiting Offset (% WD)	3.4	3.4	3.4

NOTE: 1 Maximum mean vessel offsets analysed are 1.3% of water depth for the drilling mode and 6.0% of water depth for the connected non-drilling mode. These correspond to peak vessel offsets of 3.4% and 6.2%.

19. **ATTACHMENT 3 OCEAN BOUNTY MOORING PLAN FOR BEARDIE-1** shows the mooring pattern and safety zone around the rig.

11.0 ANCHOR RECOVERY

1. A pre-rig move meeting shall be held onboard the rig prior to anchor recovery operations.

   The meeting shall be attended by but not limited to:
   - Company Representatives
   - Rig OIM
   - Rig Superintendent
   - Barge Master
   - Surveyors
   - Vessel Masters
   - Winch Operators
2. During the meeting the rig move procedures, charts, site survey reports, tidal height predictions, near surface current predictions, navigational hazards, radio channels, weather predictions and any other information deemed to be relevant to the operation shall be discussed.
3. The exact sequence for De-Mooring and towing the vessel from the Beardie-1 location will be agreed between Esso and the next operator (Santos).
4. Upon completion of drilling operations and once the PGB is pulled clear of the seafloor and debris survey has been completed by the ROV, the rig may start to de-ballast. Anchor recovery may also start at this time.
5. De-ballasting shall be stopped at 56.5ft draft and shall not continue until all drilling operations are completed.
6. Continue to de-ballast the rig and all operations shall cease while the rig passes through the critical draft from 56.5ft to 32ft.
7. All winches to be checked and secondary (Divers) pump running on rig anchor winch cooling system prior to any anchor operation.
8. Inspect all pennants and handling slings at rig end.
9. **SPECIAL PRECAUTION: Survey equipment to be utilised to monitor wellhead position at all times during anchor recovery. Anchor handling operations not to take place directly above wellhead at any time.**
10. Vessels to be supplied with spare equipment, pennants and shackles as required by vessel Masters.
11. The secondary anchors (#1, #4, #5 & #8) will be retrieved using both AHTS vessels. The change out of the anchors to the DOGC Offdrill 2 will be carried out prior to the anchors being winched in as detailed in ATTACHMENT 2.
12. The Pacific Sentinel will be connected to the main tow bridle after recovering secondary anchors.
13. The Pacific Sentinel being ready to tow, the Pacific Conqueror will resume retrieving primary anchors Nos. 3, 7 & 2. Whilst recovering the #2 anchor the rig will be moved to the port by the AHTS vessels and winched back on the #6 anchor to clear well-site prior to finishing the #2 anchor operation and connection of starboard tow leg.
14. The Pacific Conqueror will rig for tow and connect to the Starboard tow leg.
15. The Rig will finish recovery of the No.6 anchor.
16. To exit the Bass Strait Shipping Exclusion Zone tow on a course of 219°T to Latitude 39° 00' 00.0" S and Longitude 147° 02' 36.0" E where the course will be altered to 250°T as shown in 0.

NOTE: 1 The exact route to Beardie 1 shall be determined by the Survey Representative, DOGC OIM and Barge Master.

NOTE: 2 The planned route crosses one Bass Strait to shore pipelines at:

PIPELINE	LATITUDE (S)	LONGITUDE (E)
BMA to Shore	38° 27' 17.8"	147° 39' 16.0"

NOTE: 3 Maintain a minimum distance of 2 nm from all platforms.

12.0 ATTACHMENTS & DISTRIBUTION

Organisation	Attention	Address	Check
BHP Billiton Petroleum Pty Ltd	Mr David Banks	david.m.banks@BHPBilliton.com	
Esso Drilling Supervisors **Plus 2 copies of the signed program**	Mr. George Sharkey Mr. Brigham Bigby	Internal email	
Diamond Offshore General Company	Mr Jimmy R. Moore Mr Eric Jacobsen	jmoore@dogc.com.au ejacobsen@dodi.com	
Diamond Offshore General Company	Ocean Bounty OIM	bounty_oim@dodi.com	
Thales Geosolutions (Australia) Pty Ltd	Mr Norman McKay Mr Brad O'Brien	norman.mackay@thales-geosolutions.com brad.obrien@thales-geosolutions.com	
Rig Positioning QA	Mr Harry Arrowsmith	hydro@office.net.au	
Swire Pacific Offshore	Mr Sam Pullan	spullan@spopty.com.au	
CSO Aker Unirig	Mr. John Riggs	john.riggs@au.coflexip.com	
EAPL Library **1 copy of signed program**	Librarian	Esso House 3rd floor	
Field Drilling Manager	Daniel L. Whiteman	Internal email	
Operations Superintendent **Plus 1 copy of the signed program**	Frank Kratzer	Internal email	
Engineering Manager	Colin Johancsik	Internal email	
Program Original Copy	Chris Meakin		
Gippsland Geoscience Manager	Glen Nash	Internal email	
Geoscience Team Leader	Andy Zannetos	Internal email	

ATTACHMENT 1. OCEAN BOUNTY RIGMOVE TOW ROUTE TO BEARDIE-1

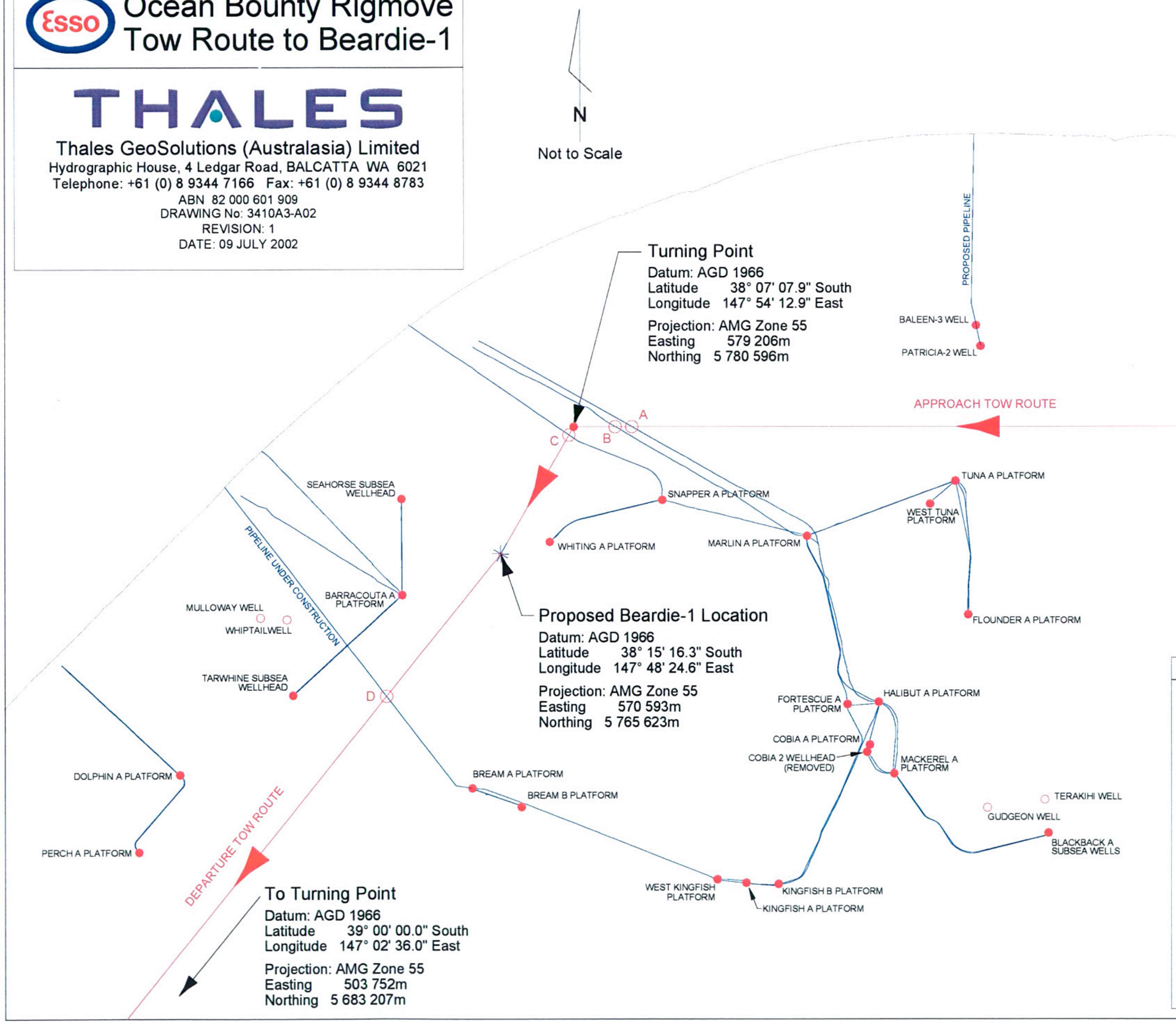
~~PE913711_colour 014~~

913711 158

Ocean Bounty Rigmove Tow Route to Beardie-1

THALES

Thales GeoSolutions (Australasia) Limited
Hydrographic House, 4 Ledgar Road, BALCATTA WA 6021
Telephone: +61 (0) 8 9344 7166 Fax: +61 (0) 8 9344 8783
ABN 82 000 601 909
DRAWING No: 3410A3-A02
REVISION: 1
DATE: 09 JULY 2002



PIPELINE CROSSING POINTS

Datum : AGD 1966
Projection: AMG Zone 55, CM 147° East

PT	Easting (m)	Northing (m)	Latitude (S)	Longitude (E)
A	586 070	5 780 596	38° 07' 05.7"	147° 58' 54.8"
B	584 083	5 780 596	38° 07' 06.3"	147° 57' 33.2"
C	578 637	5 779 610	38° 07' 40.1"	147° 53' 50.0"
D	557 142	5 749 038	38° 24' 17.8"	147° 39' 16.0"

PLATFORM/WELLHEAD CO-ORDINATES

Datum : AGD 1966
Projection: AMG Zone 55, CM 147° East

	Easting (m)	Northing (m)	Latitude (S)	Longitude (E)
Baleen-3	626 676	5 792 541	38° 00' 21.0"	148° 26' 34.4"
Barracouta A	558 998	5 760 887	38° 17' 52.9"	147° 40' 29.0"
Bream A	567 231	5 738 271	38° 30' 04.5"	147° 46' 15.7"
Bream B	573 048	5 736 147	38° 31' 11.8"	147° 50' 16.6"
Blackback A	635 343	5 732 850	38° 32' 32.4"	148° 33' 10.8"
Cobia A	614 121	5 743 329	38° 27' 03.3"	148° 18' 28.2"
Cobia-2	613 800	5 742 510	38° 27' 30.0"	148° 15' 15.5"
Dolphine A	532 808	5 739 865	38° 29' 19.8"	147° 22' 34.3"
Flounder A	625 731	5 758 506	38° 18' 45.4"	148° 26' 17.3"
Fortescue A	611 478	5 748 052	38° 24' 31.3"	148° 16' 36.5"
Halibut A	615 202	5 748 323	38° 24' 20.8"	148° 19' 09.9"
Kingfish A	599 625	5 727 211	38° 35' 52.4"	148° 08' 38.6"
Kingfish B	603 414	5 727 094	38° 35' 54.6"	148° 11' 15.2"
Mackerel A	617 024	5 739 984	38° 28' 50.4"	148° 20' 30.0"
Marlin A	606 727	5 767 743	38° 13' 54.6"	148° 13' 09.9"
Patricia-2	627 208	5 790 099	38° 01' 39.9"	148° 26' 57.8"
Perch A	527 997	5 730 795	38° 34' 14.6"	147° 19' 17.0"
Seahorse	558 930	5 772 170	38° 11' 46.9"	147° 40' 22.8"
Sole-2	676 058	5 780 596	38° 06' 18.6"	149° 00' 29.0"
Snapper A	589 678	5 772 011	38° 11' 42.9"	148° 01' 26.8"
Tarwhine	546 105	5 749 125	38° 24' 17.2"	147° 31' 41.0"
Tuna A	624 246	5 774 228	38° 10' 16.2"	148° 25' 06.3"
West Kingfish	596 155	5 727 616	38° 35' 40.6"	148° 06' 14.9"
West Tuna	621 503	5 771 736	38° 11' 38.4"	148° 23' 15.1"
Whiting A	576 332	5 767 017	38° 14' 29.3"	147° 52' 20.2"

ATTACHMENT 2. ESSO AUSTRALIA PTY LTD OCEAN BOUNTY BEARDIE-1 LOCATION MOORING AND DEMOORING PROCEDURE

913711 160

CSO AKER UNIRIG PTY. LTD.
COFLEXIP STENA OFFSHORE

Esso Australia Pty Ltd

OCEAN BOUNTY
BEARDIE 1 LOCATION

Mooring and Demooring Procedure

Rev 4

			Doc. No.: F-100-01-04			
Rev. No.	**Rev. Date**	**Revision Description**	**Prep. By:**	**CAU Chk'd.:**	**CAU Approved**	**Client Approval**
0	27/06/02	Issued for Review	JR			
1	28/06/02	Reviewed by C. Meakin, F. Kratzer, G. Sharkey	GS			
2	8/07/02	Issued for Review	JR	CO		
3	10/07/02	Issued for Review	JR	CO		
4	12/07/02	Issued for Operation	JR	CO	JR	

TABLE OF CONTENTS

1.0 INTRODUCTION

At the request of Esso Australia Pty Ltd (Esso), CSO Aker Unirig Ptd Ltd, Inc (CAU) has developed recommended procedures to setout and recover the *Ocean Bounty* at an offshore Beardie 1 location. All of the mooring legs will be deployed in their conventional manner at the Beardie 1 Location. The rig will arrive under tow from nearby Sole 2 location after completing the work for the current client.

Due to the high environmental loads that could possibly be encountered at the location, 5 rig anchors will be substituted with HHP anchors for the critical legs. These legs are #1, #2, #3, #7 and #8. The HHP anchors will arrive at the BBMT prior to the commencement of the Beardie 1 program.

This document contains the following information:

- Mooring configuration at Beardie 1 Location
- Equipment for field operations
- Anchor changeout procedures
- Conventional setout and recovery procedures
- Safety
- Drawings

2.0 MOORING CONFIGURATION

The *Ocean Bounty* will be moored at the Beardie 1 location using a 30-60° mooring pattern with a rig heading of 240°. The water depth is approximately 50 meters at the wellhead and the bottom conditions are flat with no obstructions within the mooring pattern. The anchors have the rig's normal mooring spread for this water depth.

The table below configures the mooring spread with a chain payout of 2,500' for all anchors except #6. It also shows the 12t Stevpris anchor on leg #2. The following should be considered;

- The placement of the 12t anchor can be on any leg that has a 10t anchor indicated (they are interchangeable).
- The 2,500' chain payout is a minimum amount. It is desirable to get as much chain out as possible on each leg. It is estimated that the actual chain payouts will be between 2,700' and 3,000'.
- The #6 leg is assumed to be the "run in" leg. It is therefore shown to be with a chain pay out of 4,800'. If, for weather reasons, it is decided to run in on #7 then the HHP anchor would be placed on #6 and the #7 chain payout would be 4,800'.
- The drawing of the Field Layout, Section 8, shows the chain payouts as 3,000'. These anchor coordinates can be used as targets for the vessels with the actual positions calculated after the anchors are on bottom. The corresponding Exclusion Zones can then be plotted in the As Built document.

Table 2.0.1 configures the mooring spread.

Table 2.0-1
Mooring Configuration (Rig Heading 240°)

Leg	Heading	Anchor	Chain Payout
1	180°	Stevpris Mk 5, 10 t	2,500'
2	210°	Stevpris Mk 5, 12 t	2,500'
3	270°	Stevpris Mk 5, 10 t	2,500'
4	300°	Offdrill 2, 20 t, rig anchor	2,500'
5	0°	Offdrill 2, 20 t, rig anchor	2,500'
6	30°	Offdrill 2, 20 t, rig anchor	4,800'
7	90°	Stevpris Mk 5, 10 t	2,500'
8	120°	Stevpris Mk 5, 10 t	2,500'

3.0 EQUIPMENT

The equipment necessary to setout and recover the moorings is summarized in Table 3.0-1. It is assumed that the *Pacific Conqueror* and the *Pacific Sentinel* will perform the offshore operations procedures. The CAU supplied items will be divided between the vessels, determined by how many anchors are to be set by each vessel. Items 8 and 9 will be attached to the HHP anchors before mobilization to the field.

Table 3.0-1
Equipment List (For Each AHTS)

Item	Quantity	Description	Supplied By
1	1 lot	Lead plugs	*Ocean Bounty*
2	1	2,000' x 3"ø work wire	Swire
4	1	Grapple Hook	Swire
5	1	Spares (connectors, shackles, etc.)	Swire
6	3	110 ton D shackle	CAU
7	1 lot	Anchor handling tools, including gas cutting tools	Swire
8	5	#8 Pear links	CAU
9	6	3.25" kenter links	CAU

4.0 ANCHOR SWITCHOUT PROCEDURES

The removal of the rig anchor and connection of the HHP anchor will be done at the earliest convenience. This may be on the Sole 2 location, prior to the Beardie 1 well, during the tow or at the during the setout at the Beardie 1 location. The method for the anchor switchout will be the same regardless of when or where it is undertaken.

At this point in time, it is uncertain how the logistics of the anchor switching will occur. Transport to the rig, storing on the rig or the vessels and when each anchor is switched out are decisions to be made as the date for the Beardie 1 well program nears.

The re-attachment of the rig anchors will be performed in a similar manner as to the initial switching out to the HHP anchors. Some considerations should be remembered;

- There will be sufficient kenter links available so that valuable rig time need not be wasted if the original rig kenters are frozen;
- The orientation of the HHP anchors must be correct (flukes up) when decking or overboarding the anchors;
- The rig chain needs to pass over the anchor, between the flukes, when overboarding the HHP anchors;
- Offdrill anchors are not so sensitive to orientation;
- All kenters must be plugged with lead.

The following details the steps to change out the rig anchor for HHP anchors.

1. Pass the PCC wire to the AHTS;
2. Connect the PCC to the AHTS work wire;
3. Heave the anchor on deck (if the anchor is on the bottom, the normal operations are undertaken to recover the anchor. If the anchor is bolstered, the anchor is handled as if it were to be run. Sufficient chain is paid out, approximately 500', and the anchor is then decked);
4. Secure the chain in the sharks jaws;
5. Relieve the tension on the PCC wire;

6. Move the PCC collar down the chain toward the shark jaw;
7. Disconnect the last kenter link before the anchor shackle. This kenter link may be connected to the anchor shackle or to a #8 pear link. If the kenter link is frozen, cut either the kenter itself or 3 links back from the kenter link. This cutting location decision, if necessary, should be made with the blessing of the rig OIM;
8. Move the rig anchor to the side;
9. Move the HHP anchor to the chain connection;
10. Connect the rig chain to the HHP anchor with the provided 3.25" kenter link (the anchor will come on board, either dockside or at the rig, with the connecting jewelry attached);
11. Insert the lead plug in the kenter link;
12. Heave the PCC wire tight to the anchor;
13. Proceed with the next operation (re-bolster the anchor or run the rig chain to the drop point and set the anchor conventionally).

5.0 SETOUT PROCEDURES

The following procedures detail the recommended steps to setout the moorings at the Beardie 1 location using the two vessels. The order in which the legs will be setout will be determined once the final mooring analysis is performed. At this stage, it is assumed that the #6 anchor will be dropped from the rig at ~4,800' from the wellhead as the rig comes on location. The remaining leg sequence will be determined on site by the OIM and/or rig coordinator. Normally, one towing vessel is needed until four legs are set.

On the approach to the Beardie 1 location, it should be noted that one sonar contact was identified, approximately 1.4 KM southwest of the proposed Beardie 1 location, with dimensions of approximately 11m across and 5m height. The echo was determined to be debris. The position is 571 357mE and 5 764 451mN and is noted on the Field Layout Drawing in Section 8.

1. The *Ocean Bounty* is towed into the location on a heading reciprocal to the #6 anchor (210°);
2. AHTS 1 is on the bridle and AHTS 2 is on the #2 rig chain, having decked the rig anchor and switched it out with a HHP anchor;
3. The #6 anchor is deployed from the rig at approximately 4,950' from the well center;
4. The rig pays out 500' of chain as the rig maintains a course made good of 210°;
5. The rig slows as the anchor sets in the bottom;
6. Once confirmed that the anchor has set, the rig continues down the #6 anchor direction, paying out chain as it goes;
7. When the rig is ~200' short of the location or 4,900' of chain has been paid out, the rig stops paying out and the tow vessels increases power too straighten the #6 rig chain;
8. When the rig movement has stabilized, the #2 anchor is run by AHTS 2;
9. When the maximum amount of rig chain has been paid out; the AHTS 2 overboards the anchor and puts it on the bottom. This amount has been estimated to be approximately 3,000';

10. The rig heaves the chain until the tension comes up, indicating the anchor is set;
11. AHTS 2 chases back to the rig;
12. AHTS 1 is released from the bridle (this is a rig decision based on current weather conditions);
13. AHTS 2 passes the PCC back to the rig;
14. AHTS 2 receives PCC #7 from the rig;
15. The anchor is decked and changed as per the switchout procedures, if not done previously;
16. AHTS 1 receives PCC #3 from the rig;
17. The anchor is decked and changed as per the switchout procedures, if not done previously;
18. Anchors #3 and #7 are run simultaneously, as per steps 9-11;
19. Anchor #4 is run, by the first available AHTS, without switching out anchors, using the above conventional procedures;
20. Anchor #8 is run, switching out the rig anchor for a HHP anchor;
21. Anchor #1 is run, switching out the rig anchor for a HHP anchor;
22. Anchor #5 is run, by the first available AHTS, without switching out anchors, using the above conventional procedures;
23. The rig proof tensions the anchors and comes on location.

6.0 RECOVERY PROCEDURES

The following procedures detail the recommended steps to recover the moorings at the Beardie 1 location using the two vessels. The order in which the legs will be recovered will be determined on site by the OIM and/or rig coordinator. The sequence will also take into account which leg has been the "run in" leg and if that will be the last anchor to be retrieved, depending on weather conditions. Also, it is uncertain if the rig Offdrill anchors will replace the HHP anchors on the recovery.

The mooring legs will be recovered as detailed below:

1. AHTS backs down to rig to receive PCC wire;
2. AHTS connects PCC wire into the work wire;
3. MODU tensions mooring leg to approximately the same load as the proof load during the setout;
4. Once the chaser has been connected, the AHTS begins pays out ~100 meters of work wire as the AHTS will begin chasing to anchor;
5. Once at the anchor, the AHTS will pull against the anchor for 5-10 minutes to ensure the chaser is at the anchor;
6. The MODU will slack the mooring leg tension;
7. The AHTS applies power to unseat the anchor;
8. When the anchor breaks out of the seafloor, heave in work wire until the anchor is off bottom;
9. If the anchor is a HHP anchor, switchout the HHP anchor for the rig anchor, as per procedures;
10. The rig heaves in the rig chain;
11. Once the rig has heaved in all the chain, the anchor is racked on the bolster and the PCC wire is passed back to the rig;
12. When appropriate, put one of the AHTS vessels on the tow bridle;
13. Repeat until all legs, except #6, are recovered;
14. With one AHTS on the bridle, the rig recovers the #6 anchor, without the aid of an AHTS, heaving until the anchor is bolstered.

7.0 SAFETY

All operations shall be performed in a safe manner. All operations will be conducted per DOGC/Swire Safety Manuals as appropriate. Safety has the highest priority of all, and before any work is started, each department manager (i.e., deck foremen, captains, etc.) must ensure all operations are performed in a safe manner. The job should always be organized with safety as the dominant issue. All personnel should be continuously informed and updated as to possible risks involved in the operations. All personnel have the authority to stop the job should a new safety risk be identified.

A Job Safety Analysis (JSA) and a review of the Esso Risk Assessment document shall be conducted for all jobs performed. At the time of task assignment, the supervisor or a trained designee and the personnel performing the task shall analyse the task. Work activities shall not commence until all parties are satisfied that hazards have been identified, and appropriate measures have been taken to protect the task performer(s) from the hazards.

A safety meeting will be held aboard each vessel involved in the operation prior to the commencement of work. This safety meeting will be conducted OIM and will describe the operation to be conducted, describe the type of personal protection equipment to be worn, discuss general safety measures and discuss specific safety measures particular to the operation to be conducted. In addition a meeting will be held aboard *Ocean Bounty* prior to the setout or recovery.

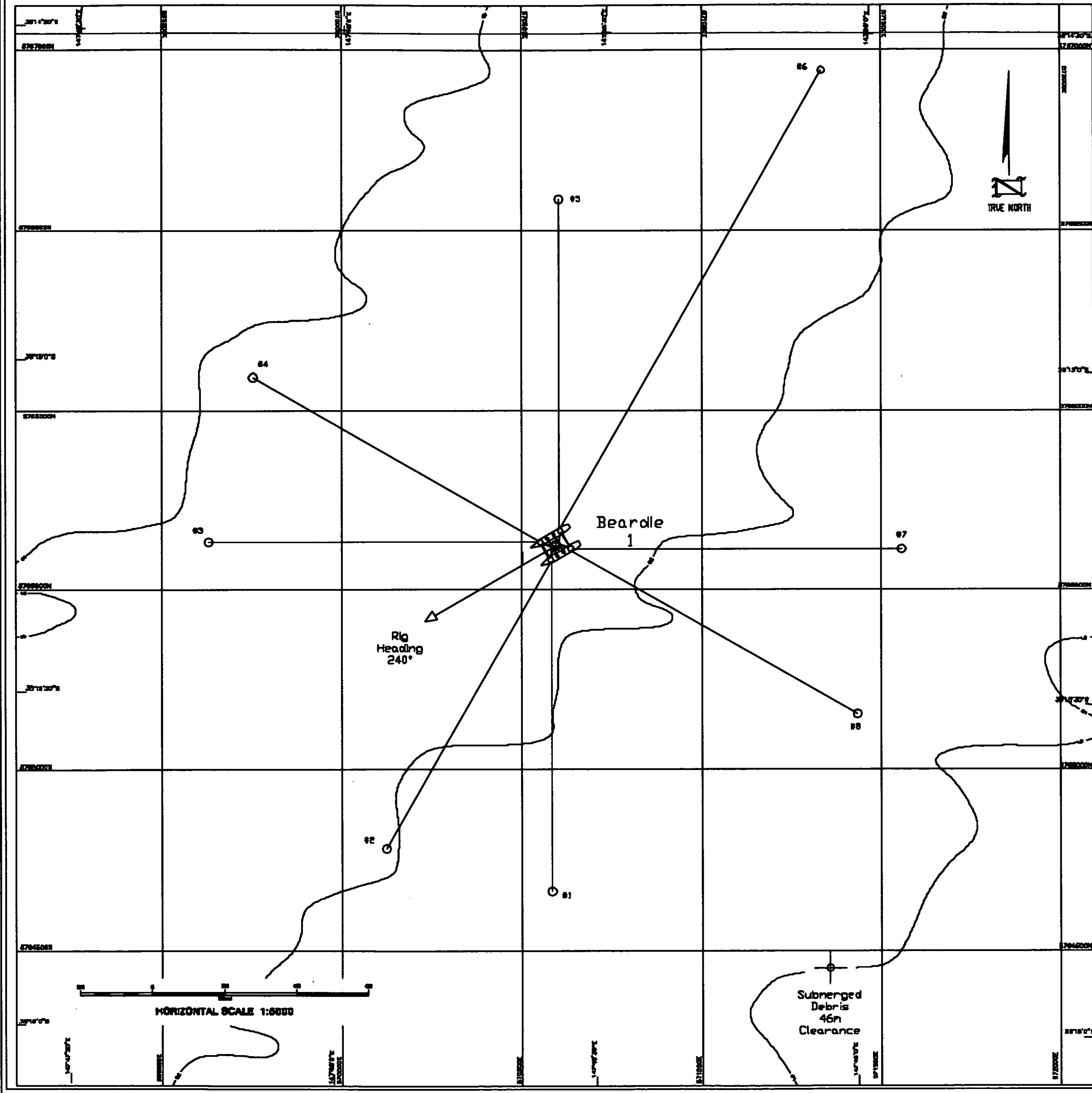
General Briefing

- Running Wires
- AHTS Heaving and Buoy Heave Wires
- Personnel Deck Responsibilities Clearly Defined
- Be Deliberate Throughout Task Execution - If You Aren't Sure, Don't Do It
- Inform Deck Foreman Immediately of Anything that Compromises Safety on Deck

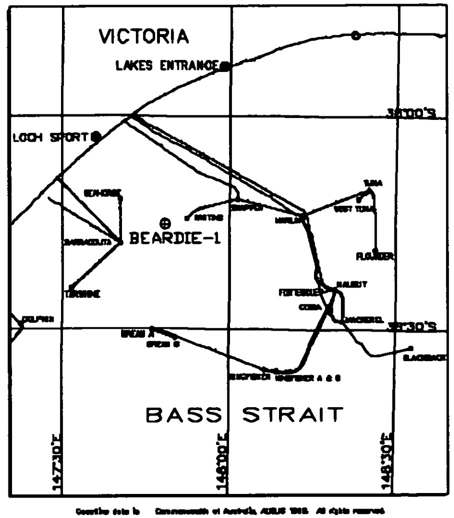
8.0 DRAWINGS

The inserted Drawing is of the Beardie 1 Field Layout. This layout has the mooring legs paid out to 3,000' of rig chain, which is a target, not a requirement. A minimum of 2,500' of rig chain should be outboard the fairlead under working tension when the rig is over location.

913711 172



REGIONAL MAP



BEARDIE 1 MOORING PATTERN

LEG No.	LEG HEADING	FAIRLEAD TO ANCHOR HORIZ. DIST. (FT.)	ANCHOR POSITION (X) M. (Y) M.	WATER DEPTH (FT.)
1	180°	3,000'	X = 570 583.7 Y = 5 764 663.2	-166'
2	210°	3,000'	X = 570 123.8 Y = 5 764 781.9	-165'
3	270°	3,000'	X = 569 629.7 Y = 5 765 833.5	-162'
4	300°	3,000'	X = 569 753.3 Y = 5 766 093.6	-162'
5	0°	3,000'	X = 570 602.7 Y = 5 766 585.1	-163'
6	030°	4,800'	X = 571 333.3 Y = 5 766 941.2	-165'
7	090°	3,000'	X = 571 556.5 Y = 5 765 613.4	-167'
8	120°	3,000'	X = 571 433.0 Y = 5 765 154.8	-167'

PROPOSED BEARDIE 1 (PROVISIONAL COORDINATES)

AMG ZONE 55
X: 570 593.0mE
Y: 5 765 623.0mN

GEOGRAPHICAL GRID
LAT. 38° 15' 16.3" S
LONG. 147° 48' 24.6" E

ESSO AUSTRALIA PTY LTD

CSO AKER UNIRIG PTY LTD.
COFLEXIP STENA OFFSHORE GROUP

BEARDIE 1 FIELD LAYOUT

ATTACHMENT 3. OCEAN BOUNTY MOORING PLAN FOR BEARDIE-1

913711 174

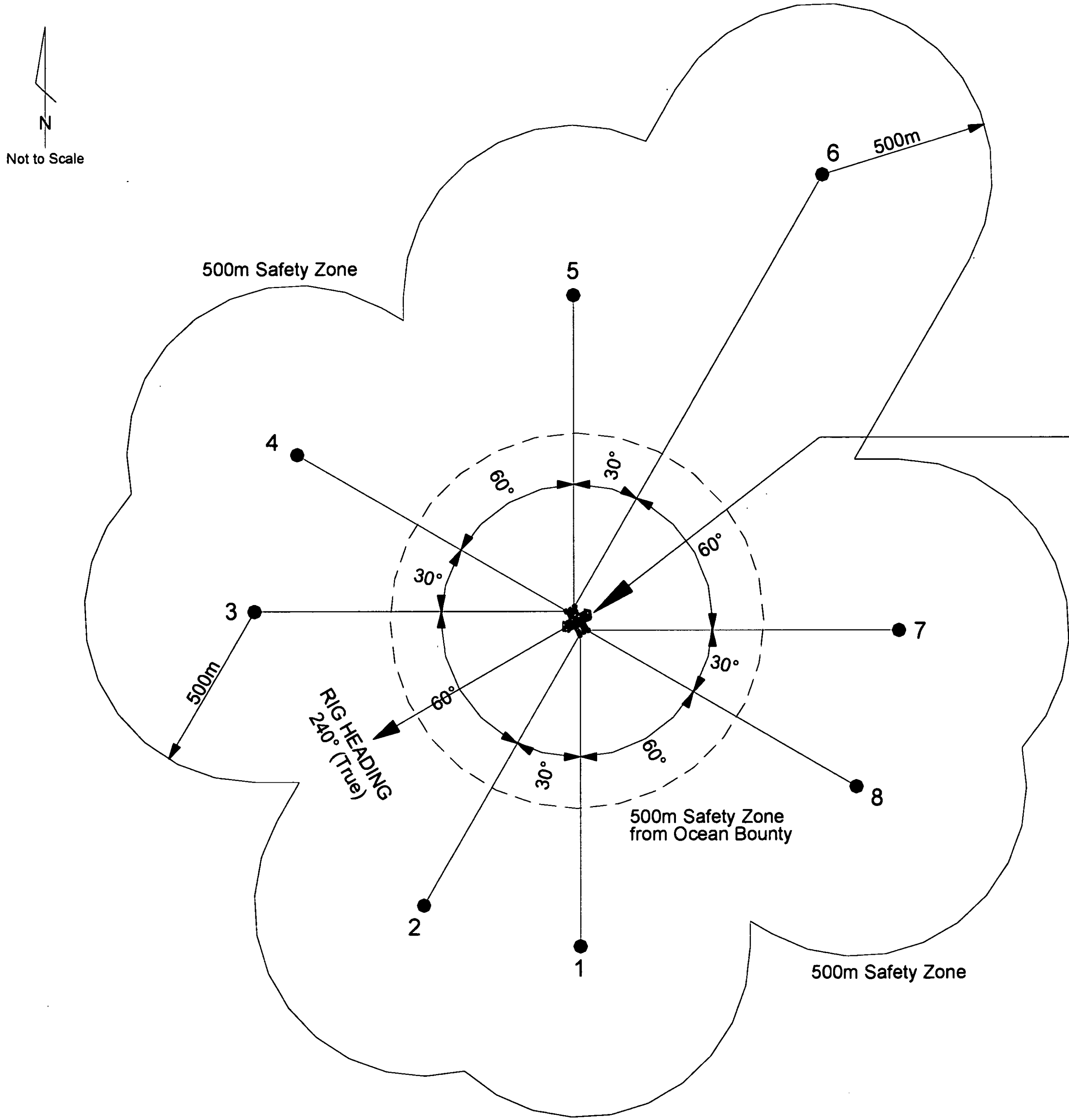
Ocean Bounty Mooring Plan for Beardie-1

Esso

THALES

Thales GeoSolutions (Australasia) Limited
Hydrographic House, 4 Ledgar Road, BALCATTA WA 6021
Telephone: +61 (0) 8 9344 7166 Fax: +61 (0) 8 9344 8783
ABN 82 000 601 909

DRAWING No: 3410A3-A01
REVISION: 1
DATE: 09 JULY 2002



Proposed Beardie-1 Location

Datum: AGD 1966
Latitude 38° 15' 16.3" South
Longitude 147° 48' 24.6" East

Projection: AMG Zone 55
Easting 570 593m
Northing 5 765 623m

ANCHOR	HEADING	DISTANCE (ft)
1	180°	3 000
2	210°	3 000
3	270°	3 000
4	300°	3 000
5	360°	3 000
6	030°	4 800
7	090°	3 000
8	120°	3 000

15. Position rig and test all anchors to 405 kips for a period of 10 minutes.

NOTE: 1 If anchors 4 or 5 fail to test at 405 kips, re-run and re-test to a fairlead tension equivalent to an anchor load of 240 kips (see table below), ie. 373 kips at the fairlead is equivalent to an anchor holding capacity of 240 kips for 2500' of chain deployed.

NOTE: 2 If the Test Loads cannot be achieved, contact the Operations Superintendent and review options.

NOTE: 3 Monitor the fairlead tensions for lines 4 and 5 when operating under northerly metocean conditions. If lines 4 or 5 reach the fairlead tensions below, slack the corresponding leeward line to prevent loads greater than 240 kips at the anchor(s). The table below lists for various chain lengths the fairlead tensions that result in anchor loads of 240 kips.

Length of Chain Deployed (ft)	Fairlead Tension (kips)
2,300	358
2,400	366
2,500	373
2,600	381
2,700	389
2,800	397
2,900	404
3,000	412

16. After all anchors have been satisfactorily set and tested, adjust the tension to the initial operating pretension of 300 kips. Anchor tensions are to be maintained at 300 kips until the BOP stack has been run. Adjust as required to balance the mooring system as close to the location as reasonably possible. The final rig location must be within 5m of the intended call location prior to spudding the well. Deploy ROV to confirm location is free of debris.

17. Fax and mail originals of the following reports to the Drilling Superintendent:

- Well Location Report with the well location in UTM's and in Lat / Long.
- Mooring Operations Summary, including a schematic of the final chain lengths.
- Anchor Running Report

18. Calculated minimum required tensioner setting versus mud weight for drilling mode and for a connected, non-drilling riser is as follows:

	Mud Wgt (ppg)	8.55	10	12
	Stability Limit (kips)	110	120	130
Drilling Mode (when rotating) See Note 1	Tension Setting (kips)	~~130~~175	~~140~~195	~~155~~215
	Limiting Offset (% WD)	1.3	1.3	1.3
Connected, Non-Drilling Mode (when not rotating) See Note 1	Tension Setting (kips)	110	120	130
	Limiting Offset (% WD)	3.4	3.4	3.4

NOTE: 1 Maximum mean vessel offsets analysed are 1.3% of water depth for the drilling mode and 6.0% of water depth for the connected non-drilling mode. These correspond to peak vessel of 3.4% and 6.2%.

913711 176

ESSO AUSTRALIA PTY LTD

SPECIFICATION FOR THE BEARDIE-1 RIG POSITIONING

Revision 0 **March 2002**

REV. NO.	ISSUE	Rev Date	Prepared By:	Signature:	Endorsed By:	Signature:
0	Issue for Contract	7-Mar-02	C.P. Meakin		F.W. Kratzer	

TABLE OF CONTENTS

1 INTRODUCTION

This document outlines the scope of work and defines the minimum technical requirements for the equipment and procedures to be followed for the Beardie-1 Rig Positioning. Attachment 1 shows the location for Beardie-1.

Contractor shall supply all labour, materials, equipment, plant and inspections necessary for the performance of the Services.

2 SCOPE AND GENERAL REQUIREMENTS

2.1 Scope of work

Position the rig within a 5m-radius circle centred on the proposed location below on a heading of approximately 240°.

E. 570 593m N. 5 765 623 m
Note: Co-ordinates to AGD 66

Latitude 38deg 15' 16.3" S
Longitude 148deg 48' 24.6" E

The work will involve

- Preparation of Tow Route Plan and Mooring Plan drawings (Four paper copies and one unprotected PDF file copy);
- Mobilisation and installation of all necessary equipment for rig positioning prior to rig release from the preceding operator, including:
  - Dual DGPS Positioning System, SkyFix/SkyFix Spot;
  - On-line Navigation & Data Logging System;
  - Gyro Compass;
  - Barge Management System (on the Ocean Bounty);
  - Tug Tracking System (on each AHV);
- Rig positioning monitoring and reporting during the tow and mooring;
- Interpret all acquired data a provide four paper copies and one unprotected PDF file copy of a detailed report on the move and final rig positioning, including the position of each anchor (including piggy-back anchors if deployed).

2.2 General Requirements

Esso or its representative may witness and review the rig positioning services to provide a quality check on the rig location. The Contractor shall assist Esso or its representative in providing this quality check.

All equipment shall be maintained to provide the rig positioning services in an efficient manner, and shall be suitable for use in the area.

Contractor shall comply with all Esso work management practices.

Contractor shall provide a Procedure Manual prior to commencement of work for review and acceptance by Esso. The procedures shall detail the rig positioning program, and include but not be limited to mobilisation and demobilisation (as applicable), HSE (health, safety and environment) requirements if applicable, and QA (Quality Assurance). Procedures shall include material safety data sheets (MSDS) and safety and handling procedures if applicable.

All personnel shall have the necessary training and experience to conduct the work to which they have been assigned.

If required Contractor shall supply Esso with details of the qualifications and experience of each person allocated to the Service

2.3 Schedule

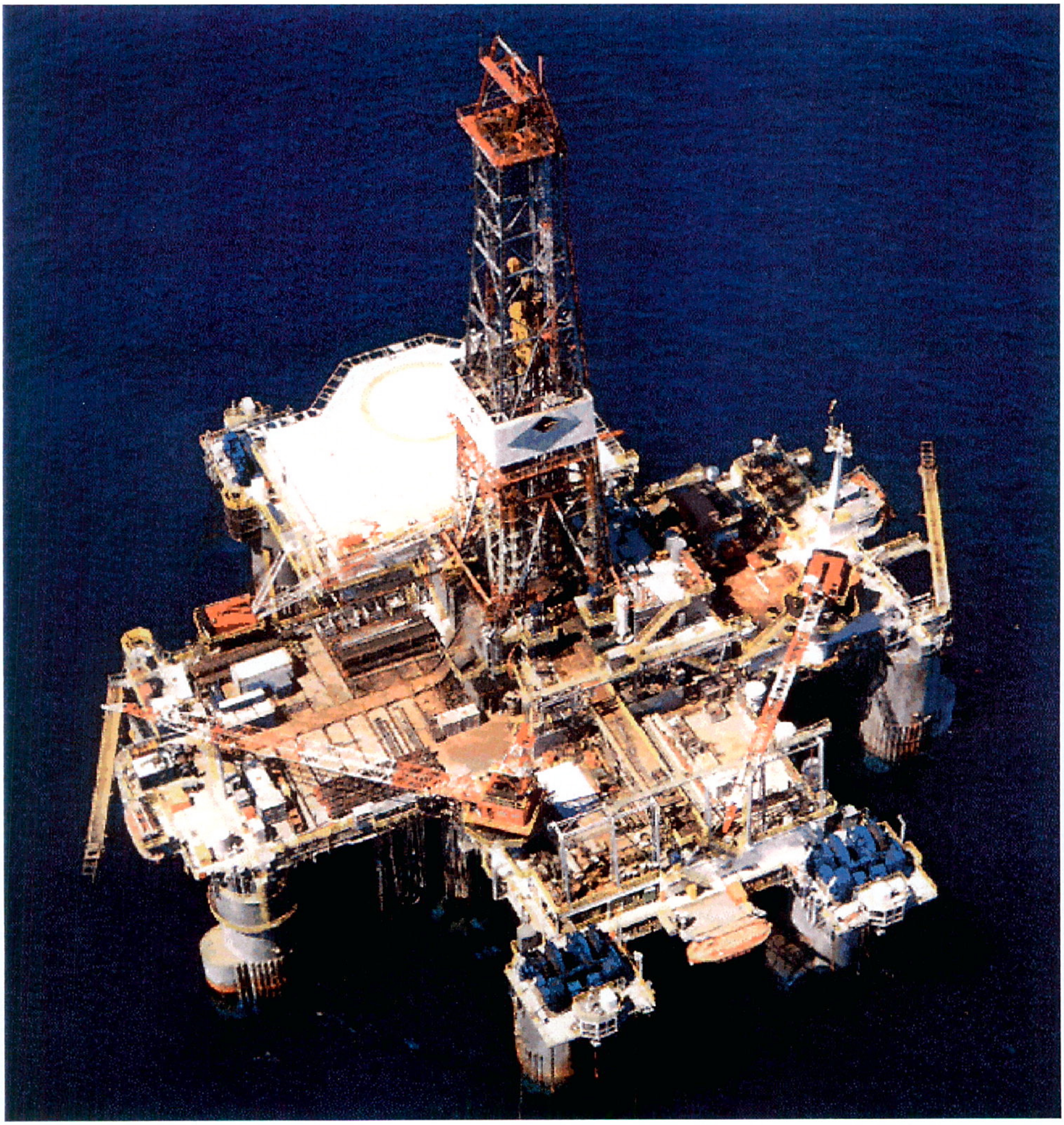
Esso shall advise Contractor estimated time for the rig move at least two weeks prior to commencement.

Esso Australia Pty Ltd

BEARDIE-1

DRILLING PROGRAM

Rev. 0 June 2002



913711 180

DRILLING PROGRAM	WELL: Beardie-1
AFE NO: L.0501B003 RK ORDER: 23000977	JOB: Near Field Wildcat Well

NOTE: 1 Drilling Reporting System (DRS) designation for this well is BEARDIE-1

1.0 PROPOSED WELL OBJECTIVES

- Rig : Diamond Offshore Ocean Bounty
- Water Depth : 50.8 m MSL
  49.9 m LAT (LAT is 0.93 m below MSL)
- RT to MSL : 25 m
- RT to Mudline : 75.8 m
- 30 "Conductor Shoe : 124 m MDRT 124 m TVDRT
- 13-3/8" Surface Casing Depth : 850 m MDRT 850 m TVDRT
- 9-5/8" Production Casing Depth : 1905m MDRT 1905m TVDRT (if required)
- Total Depth : 1905 m MDRT 1905m TVDRT
  with potential to deepen as per the Beardie-1 Geological Program to ±3075 m MDRT ±3075m TVDRT
- Maximum inclination : vertical well
- Pressure / Temperature : 2,750 psi / 88° C ±10° C at 1905m TVDRT
  4,410 psi / 130° C ±10° C at 3075m TVDRT
- Anticipated Start Date : July/August 2002

2.0 TARGET DETAILS

2.1 Basin, Licence

Gippsland Basin, Vic/L2

2.2 Target

PARAMETER	TARGET
Longitude:	147° 48' 24.6" E
Latitude:	38° 15' 16.3" S
Datum and Spheroid	Australian Geodetic 1966 (AGD66) Australian National Spheroid (ANS). AMG Zone 55, CM 147° E
Easting:	570,593m E
Northing:	5,765,623m N
Depth:	1880 m TVDSS / 1905m TVDRT
Size:	100 m radius circle

Engineer	(C.P. Meakin)	12-Jun-02
Drilling Engineering Manger	(C. Johancsik)	June 13/0
Operations Superintendent	(F. Kratzer)	
Drilling Manager	(D.L. Whiteman)	13 Jun 2002

REV: 0

3.0 TABLE OF CONTENTS

4.0 GENERAL WELL INFORMATION

4.1 INTRODUCTION

The Beardie-1 will be drilled with the Diamond Offshore Ocean Bounty semi-submersible in 50m of water. ATTACHMENT 1 Location Map shows the well location.

The well is planned as a straight hole to a dry hole depth of 1880m MDSS/TVDSS, with a possibility of deepening to 3050 m MDSS/TVDSS as detailed in ATTACHMENT 2 Beardie-1 Geological Program. 30" conductor will be set and cemented in 36" hole at 124m MDRT. 13-3/8" surface casing will be set and cemented in 17-1/2" hole at 850m MDRT. The well will be drilled to TD in 12-1/4" hole. The proposed well is shown schematically in ATTACHMENT 3 Wellbore Sketch.

The well is planned to be drilled in a Target time of 18.25 days (20.5 AFE days) to the dry hole AFE depth of 1880m TVDSS, before logging and P&Aing, as shown in ATTACHMENT 4 Well Progress Curve - Beardie-1 Dry Hole Scenario.

Based on the results of the logs run at TD the well may be deepened, and if the well is successful it may be cased and suspended. Otherwise the well will be plugged and abandoned.

Contingent 9-5/8" casing is available if the well is to be suspended. The 9-5/8" casing design has been included as part of this program.

4.1.1 Offset Well Control

Well Name	Distance & Direction	TD (TVDSS)	Max. MW	Analogous Interval to Beardie-1 Target Interval (Formation Name/Depth m TVDSS)	Date Drilled
Whiting-2	4km E	-3529	11.0	P Reservoir (-1429 to -1627)	1985
Wirrah-3	6.3km NNE	-3236	12.3	P Reservoir (-1725 to -1848)	1983
Whiting-1	7.1km ENE	-2990	10.0	P Reservoir (-1437 to -1619)	1983
Wirrah-1	7.2km NNE	-3005	9.8	P Reservoir (-1653 to -1818)	1982
Wirrah-2	8.0km NNE	-3063	10.6	P Reservoir (-1695 to -1828)	1983
Barracouta-1	8.8km WSW	-2642	11.6	N2.5 Reservoir (-1287 to -1400)	1965
Barracouta-4	9.9km SW	-1432	11.2	N2.5 Reservoir (-1247 to -1377)	1977
Harlequin-1	10.3km NWE	-2554	10.0	P Reservoir (-1563 to -1624)	1989

4.1.2 Offset Pressure Data

Well Name	Depth (TVDSS)	Reservoir	Pressure (psi)	Pressure (EMW ppg)	Pressure Data Source
Whiting-2	-3186	T.*longus*	4966	9.2	RFT
Wirrah-3	-2808	T.*longus*	4329	9.0	RFT
	-2915	T.*lilliei*	4787	11.5	RFT
Wirrah-1	-2953	T.*lilliei*	5360	10.5	RFT
Wirrah-2	-2872	P.*mawsonni*	4394	8.9	RFT
	-3020	P.*mawsonni*	4758	9.2	RFT

4.2 SUMMARY DRILLING PLAN

1. Position rig over the Beardie-1 location within 10.0m of call location.
2. Drill 26" x 36" hole to 124m, run and cement 30" structural casing with MS 700 Low Pressure Housing and permanent guide base, with base of PGB ~1.5 - 2m above the mudline.
3. Drill 17-1/2" hole to 850m MDRT, run and cement 20" x 13-3/8" surface casing with 18-3/4" MS-700 High Pressure Housing at 850m MDRT.
4. Run riser and BOP stack. Drill-out and run PIT.
5. Drill 12-1/4" hole to a dry hole TD at 1905m TVDRT.
6. Run wireline logs and evaluate well success.
7. If UNSUCCESSFUL, P&A.
8. Recover anchors and release rig.
9. If SUCCESSFUL, deepen the well as per the Geological program.
10. P&A the lower portion of the well.
11. Run 9-5/8" casing and cement.
12. Suspend the well.

13. Recover anchors and release rig.

4.3 WELL DATA

Well Name:	Beardie-1
Well Type/Depth:	Offshore Near Field Wildcat to 1905m MDRT/TVDRT (100m radius target at 1905m MDRT/TVDRT)
Well Service Category/Partners:	Standard/Esso Resources (50%) & BHPBP (50%)
Objective:	To drill an independent, four-way dip closure in the intra-Latrobe Group section, between the Barracouta Gas Field and Whiting Oil Field. The well will also test the validity of an apparent DHI on the Barracouta G99 3D seismic survey.
Coordinates:	ANS/AGD66 AMG Zone 55, UTM, CM-147° E
	Lat: 38° 15' 16.3" S, Long:147° 48' 24.6" E X: 570,593m E, Y: 5,765,623m N (within 10m)
Water Depth:	49.9m LAT, 50.8m MSL
Rig RT-WL/RT-ML:	25m / 75.8m (with 240° True Rig Heading)
Expected BHST:	88° ± 10° C
Directional Plan:	Straight hole
Key Control Wells:	Whiting-2
Estimate Well AFE Days (Dry Hole/Success Case):	20.5 / 22.0

4.4 CONTROLLING DOCUMENTS

All operations will be conducted in compliance with the Beardie-1 Safety Case Bridging Document and the ExxonMobil Development Company Drilling Operations Manual - Floating Drilling (DOM).

The Safety Case Bridging Document defines the interfaces between the Ocean Bounty Vessel Safety Case and the ExxonMobil Development Company Drilling OIMS.

Geological operations should be carried out in accordance with the Beardie-1 Geological Program. If geological requirements in this program conflict with any in the Beardie-1 Geological Program, then the Beardie-1 Geological Program takes precedence.

4.5 ENVIRONMENTAL MANAGEMENT PLAN

All operations will be conducted in compliance with the Beardie-1 Environmental Plan and EAL's waste management guidelines as referenced in the Esso Waste Management Manual.

EAL's existing plans provide for offshore and onshore waste handling, chemical and materials inventory management, handling of radioactive and explosive materials, fuel transfer management, reporting and documentation guidelines, etc.

The water base mud drilling fluids proposed are approved for ocean discharge in Australia and Victoria. Also approved for discharge are formation cuttings, cement returns, bulk materials, treated rig domestic effluent, wash and ballast waters.

4.6 REPORTING

ATTACHMENT 5 contains the well description for the Drilling Reporting System Well Setup Data.

4.6.1 Daily Reporting

On a daily basis report:

- Drilling activity in the 0500 to 0500 in the Daily Drilling Report (DDR);
- Fuel usage midnight to midnight for the Ocean Bounty and both support vessels.
- Daily cost report;
- Mud report;
- Mooring report;
- Directional Survey report;
- Mud logging report;
- Ocean Bounty Persons on board at midnight (POB);
- Ocean Bounty Daily Report Weather and Figures.

4.6.2 Periodic Reporting

Report after the event:

- Well location report;
- Mooring reports;
- Water depth, RT to MSL and 30" and 18-3/4" wellhead depths below RT;
- Wellhead reports including PGB diagram;
- BHA diagrams;
- Bit reports;
- Final casing tallies;
- Casing reports;
- Cementing reports;
- PIT reports;
- P&A Diagrams;
- Incident reports.

5.0 GEOLOGY AND FORMATION EVALUATION

5.1 WELL OBJECTIVES

1. Complete operations TRI free and without unapproved discharges.
2. Conduct all drilling activities in a safe manner.
3. The Beardie-1 well will drill an independent, four-way dip closure in the intra-Latrobe Group section, between the Barracouta Gas Field and Whiting Oil Field.
4. Obtain quality formation evaluation data through mud logging and WL logging.

5.2 PREDICTED LITHOLOGY/PORE PRESSURES

Formation	Lithology	TVDSS (m)	TVDRT (m)	Estm. Pore Press. (PPG)
Top Gippsland Limestone	Limestone, calcarenite, marl	-50	75	
Base mid-Miocene Channel	Limestone, calcarenitel	-754	779	8.6
Top Lakes Entrance Fm	Marl, claystone, limestone, shale	-1129	1154	8.6
Top Latrobe Group	Sandstone, shale, coal	-1159	1184	8.6
Top N1.6	Sandstone, shale, coal	-1243	1268	8.6
Top N1.7	Sandstone, shale, coal	-1321	1346	8.6
Top N2	Sandstone, shale, coal	-1378	1403	8.6
Top N4	Sandstone, shale, coal	-1440	1465	8.6
Top M1	Sandstone, shale, coal	-1588	1613	8.6
Top *L.balmei*	Sandstone, shale, coal	-1822	1847	8.6
Dry Hole TD		-1880	1905	8.6
Top Volcanics	Basalt, sandstone, shale	-2800	2825	8.6
Success Case TD		-3050	3075	8.6

The expected stratigraphy for Beardie-1 is shown ATTACHMENT 6 Beardie-1 Predicted Stratigraphy. ATTACHMENT 7 Offset Well Stratigraphy compares the expected stratigraphy for Beardie-1 with the offset wells.

5.2.1 Stick Charts

ATTACHMENT 8 Whiting-2 Stick Chart shows drilling data from Whiting-2, drilled in 1985, and located 4.1 km East of the Beardie-1 location.

5.3 FORMATION EVALUATION

5.3.1 Electric Logging

No wireline logging is planned across the 17-1/2" hole section, except for gamma ray and DSI through-casing while logging the 12-1/4" hole.

A full wireline log suite will be run at 1905m MDRT (dry hole TD). A contingent suite will be run if the well is deepened.

The following wireline logging program is planned across the 12-1/4" hole section. The order of logging runs may change based on drilling results. A final program will be sent to the wellsite at TD.

Run No.	Wireline Logs	Comments
1	PEX-HALS-DSI-HNGS-LEHQT	GR and DSI to be run from 13 3/8" casing shoe to seafloor. PEX-HALS to 13 3/8" casing shoe. HNGS to 80m above TOL (~1100mMDRT).
2	FMI-GR-LEHQT	FMI to run to 13 3/8" casing shoe.
3	MDT-GR-LEHQT	Estimated 50 pressure points and 6 samples.
4	DUAL CSAT-VSP	Shot data to be acquired at 15m intervals from TD to 13 3/8" casing shoe.
5	CST-GR	60 shots

Additional Comments

- A continuous sonic log (DSI) will be recorded from TD to seafloor.. This log is to be recorded in dipole mode from TD to 13 3/8" casing shoe. A high resolution Natural Gamma ray Spectra log is to be run in combination with the DSI to 80m above TOL.

- The MDT will be run in either dry hole and success case. In both scenarios pressures will be taken. Samples may be taken in the event that hydrocarbons are found. Equipment to acquire fluid/gas samples is to be available on the rig including Pump Out module, OFA, MRMS and 1 gallon dump chambers. All modules, including the MRMS will have backup tools available on the rig. A detailed depth and sampling program will be prepared by Esso in the office and sent to the wellsite after receipt of the PEX log.

- The VSP is a vertical survey. No walk-away survey is required. A detailed program is contained in Attachment 2 of the Beardie-1 Geological Program. Data is to be processed at the wellsite to provide corrected 2-way time data.

- Two combinable CST's guns (60 bullets) should be available at the wellsite (plus backup tools). CST depths will be selected in Esso's office and sent to the wellsite after the PEX log has been received in the Esso office.

- CST cores require careful attention. The gun and samples shall not be cleaned before the cores are removed. The samples shall be removed from the tool in the presence of the wellsite geologist and shall be handed over to the wellsite geologist. CST's will be fully described for lithology and shows prior to the wellsite geologist leaving the rig.

  The wireline product distribution summary is contained in Section 8 of the Beardie-1 Geological Program.

Notes:

1. A Schlumberger WL logging unit will be on the rig with back-up tools.
2. If the logging program is extensive, a wiper trip may be required to condition the hole.
3. Severing and stuckpipe tools should be available on-site.
4. If sample chambers are emptied into the wellbore, the Drilling Supervisor shall be notified of the volume emptied and the pressure, to allow the hazard of any gas migrating into the riser to be evaluated and mitigated.

5.3.2 Cuttings Samples

Cuttings/Sample Type	Interval	Frequency	Samples per Point
Washed & dried	13-3/8" Shoe to 1125m MDRT	Every 30m	4
Washed & dried	1125m MDRT to TD	Every 5m	4
Lightly Washed and Air Dried*	13-3/8" Shoe to1125m MDRT	Every 30m	1
Lightly Washed and Air Dried*	1125m MDRT to TD	Every 5m	1

* Lightly washed and air dried cuttings may be required for analyses affected by subjecting the cuttings to temperature (i.e. oven drying).

Notes:

1. Cuttings should be shipped as specified in the Beardie-1 Geological Program.

5.3.3 Mud Logging

Normal mud logging services will be utilised for drilling below the 20" x 13-3/8" casing shoe. A fully computerised mud logging unit will be used. The services required are specified in the Beardie-1 Geological Program.

5.3.4 Coring

No coring is planned for this well.

6.0 CRITICAL ISSUES & OFFSET DRILLING EXPERIENCE

6.1 SURFACE HAZARDS

Whiting platform is 5.9 km from the Beardie-1 location on a grid bearing of 76°. Barracouta platform is 12.5 km from the Beardie-1 location on a grid bearing of 248°.

The following conclusions were made from the Beardie-1 Site Survey Report:

- The nearest observable water depth to the proposed Beardie-1 location is 50.8m MSL (49.9m LAT, LAT is 0.93m below MSL). Minimum and maximum water depths over the site are 49.0m MSL (48.1m MSL) 1.9km northwest and 52.0m MSL (51.1m LAT) 2.0km southeast of the proposed Beardie-1 location respectively.

- Overall, the seabed is essentially flat across the site with only a 3.5m variation in seabed height. The seabed within the survey area shows no overall geographic trend but undulates with a very gentle gradient <1° (<1:57). The seabed within a 100.0m radius of the proposed Beardie-1 location appears clear of any topographical features, debris or other obstructions that may be considered hazardous to drilling operations.

- One sonar contact was identified, approximately 1.40km southwest of the proposed Beardie-1 location, with dimensions approximately 11m across and 5.0m in height interpreted as a piece of debris. The as-found (side scan sonar) position of the contact can be found below.

  Datum: AGD66 Projection: AMG Zone 55, CM 147° East

Description	Easting (m)	Northing (m)
Debris	571,357	5,764,451

  In the survey area, the accuracy of positioning is estimated at ± 15m and the accuracy of height measured above and below ambient seabed is estimated at ± 0.5m.

- Anchoring conditions across the survey area will be dictated by the geotechnical properties of Units A, B and C below. The sediments of Units A and B are believed to consist of loose/dense medium, to coarse silty sands (see below) overlying bedded consolidated sediments of Unit C. Because Unit B is only found in localised areas Unit C approaches the seabed across the majority of the survey area. Although it is not possible to predict geotechnical properties, it is reasonable to assume that these sediments will become denser with increasing depth below the seabed.

  Within the limit of useful acoustic penetration, there is no evidence of shallow faults or any other characteristics of shallow gas in the vicinity of the proposed Beardie-1 location that could be considered hazardous to drilling operations. Using the method of shallow gas risk assessment outlined in section 3.5 of the Beardie-1 Site Survey Report, the risk of shallow gas is defined as slight (gas unlikely) at the proposed Beardie-1 location. The predicted lithology at the proposed Beardie-1 location can be seen below:

Top of Unit	Depth Below Seabed (m)	Unit Thickness (m)	Predicted Lithology
A	0	1.5	Loose to medium dense medium to coarse silty SANDS with some shell fragments.
C	1.5	Beyond limit of useful acoustic penetration	Bedded consolidated sediments.

➢ Using side scan sonar correlated against the analysis of three (3) drop core samples, seabed sediments within the survey area have been interpreted and classified into the following acoustic and lithological seabed categories:

Low reflectivity seabed interpreted as loose/medium dense, medium to coarse silty SANDS with some shell fragments.

This seabed type occurs ubiquitously across the Beardie-1 site survey area and consists of loose/medium dense, medium to coarse silty SANDS with some shell fragments. It is characterised by a flat, low reflectivity seabed.
Three gravity core samples recovered in this seabed type consist of loose/medium dense, medium to coarse silty SANDS with some shell fragments. The proposed Beardie-1 location lies within this seabed type.

A ROV will be deployed when the rig is moored to verify the wellhead area is clear of seafloor debris.

The well is located inside the Shipping Exclusion Zone.

6.2 SHALLOW HAZARDS

A shallow hazards data review has been conducted for the area. No shallow gas zones have been identified during drilling of the adjacent wells (Barracouta and Whiting Fields). Total gas units recorded above TOL are low. In Whiting-2 total gas ranged from 5-15 units (background 5 units) above the TOL. In the Barracouta/Whiting area, low impedance seismic anomalies are not associated with elevated levels of drill gas. Thus there is no demonstrated link between seismic amplitudes and shallow gas in the Barracouta/Whiting area.

Although there are seismic amplitudes at the Beardie-1 location that could possibly be associated with shallow gas, these occur at seismic two-way travel times (TWTT) between 265-311ms corresponding to predicted subsea true vertical depth of 272-320m, there is no evidence of any sea-floor hydrocarbon seeps.

The Beardie-1 Site Survey report made the following shallow gas risk assessment:
The limit of penetration reached with the sub-bottom profiler (or limit of useful acoustic penetration) was up to 20.0m below the seabed. Boomer data could not be interpreted below this depth. In places reflector R2 and bedding planes within Unit C exhibit anomalously high amplitude reflections. This has been interpreted as indicating varying degrees of cementation and/or consolidation along some bedding planes and in the upper section of Unit C. This could also be an indication of the presence of shallow gas accumulation in the upper part of Unit C. No other criterion suggesting the presence of shallow gas were observed from the bathymetry, side scan sonar, boomer or seabed sampling data. Using the method of shallow gas risk assessment outlined in section 3.5 of the Beardie-1 Site Survey report, the risk of shallow gas is defined as slight (gas unlikely) at the proposed Beardie-1 location.

6.2.1 Shallow Hazard Precautions

However, not withstanding the above, the following practices will be untertaken to mitigate the consequential impact of any shallow gas:

1. Riserless drilling will be conducted until the 20" x 13-3/8" casing point at about 850m MDRT. The subsea BOP stack and marine riser system will be installed on the 18-3/4" MS-700 High Pressure Housing.

2. Drilling will not commence until a JSA of normal riserless drilling operations has been completed. Periodic shallow gas drills will be conducted. Operational meetings will be held with rig personnel to finalise riserless drilling preparations, emergency response plans and personnel duties.
3. The ROV will be deployed near the wellhead to monitor for indications of gas flow during riserless operations.
4. Preparations will be put in place to move the rig off location should any significant flows be encountered which could effect the drilling unit and onsite personnel.
5. All watertight doors and vent hatches not in use will be closed.
6. Pump pressure will be monitored to check for a sudden change that could indicate the well is flowing.
7. Non-ported drill pipe floats will be used while drilling riserless.
8. Keep any workboat adjacent to the rig in a state of readiness to monitor for gas.
9. No hot work and limited crane activity is to be ongoing while drilling this hole.
10. Walkie-talkies to be ready and available for communications with critical rig staff.
11. Standard tripping practices will be utilised to keep the hole full and prevent swabbing.

6.3 ABNORMAL PRESSURE

Based on the Geologic Prognosis and offset well data, normally pressured systems can be expected from top of Latrobe to the top of the L.*balmei*; ie. ~ 1.4 psi/m (~8.5-8.6 ppg MWE).

It is expected that Beardie will be normally pressured throughout the Latrobe Group section.

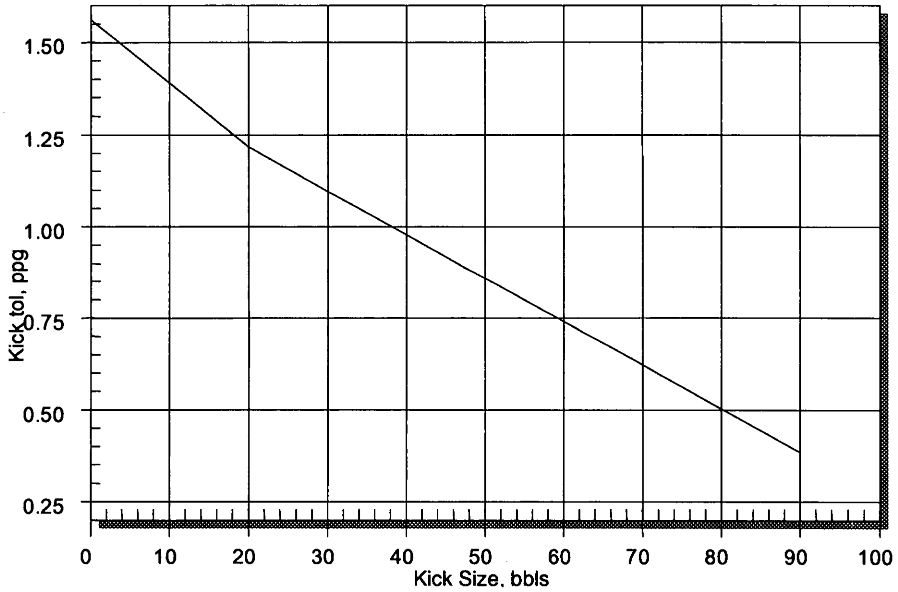
Although abnormal pressure is not expected, all abnormal pressure parameters will be monitored from surface casing to TD. A full service mud-logging unit will monitor and plot parameters. If abnormal pressure trends are identified consult with the Operations Superintendent on possible options, including:

- Mud weight increases;
- Conducting a Phase III open hole leak-off test;
- Running 9-5/8" casing;
- Calling well TD.

The kick tolerance for Beardie-1 for a gas kick with 1 ppg density taken at the 12-1/4" hole TD at 1905m, with 10 ppg mud and a LOT at the 13-3/8" surface casing shoe at 850m of 13.5 ppg MWE is shown below. The kick calculation is based on 75m of 8" collars, 292m of 5" HWDP with a balance of 5" drill pipe to surface.

The Kick Tolerance vs Kick Size graph below shows that the kick tolerance is 1.4 ppg kick for a 10bbl influx, and a 1.1 ppg kick for a larger 30 bbl influx.

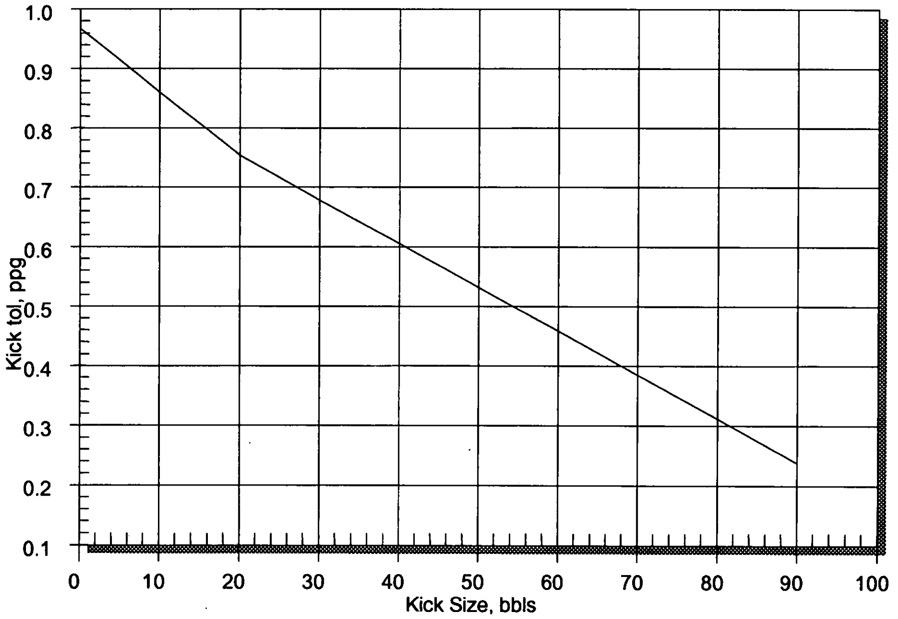
KICK TOLERANCE vs KICK SIZE - 1905m MDRT



The kick tolerance for Beardie-1 for a gas kick with 1 ppg density taken at taken at the 12-1/4" hole TD at 3075m, with 10 ppg mud and a LOT at the 13-3/8" surface casing shoe at 850m of 13.5 ppg MWE is shown below. The kick calculation is based on 75m of 8" collars, 292m of 5" HWDP with a balance of 5" drill pipe to surface.

The Kick Tolerance vs Kick Size graph below shows that the kick tolerance is 0.85 ppg kick for a 10bbl influx, and a 0.65 ppg kick for a larger 30 bbl influx.

KICK TOLERANCE vs KICK SIZE - 3075m MDRT



6.3.1 Over-pressure Precautions

1. A trip book is to be maintained for all trips in and out of the well with the drilling riser in place.
2. On trips in the hole, fill the drill pipe and break circulation at least every 25 stands.

6.4 HYDROGEN SULFIDE

H_2S has not previously been a problem on exploration wells drilled in the Gippsland Basin, as experience to date suggests new fields have very low concentrations that increase over the duration of production life of a field, commonly in response to coning of water. H_2S levels at Barracouta range from 0-18 ppm recorded from gas production (*N.asperus* section) in 1992, yet no detection of H_2S has occurred on any of the initial exploration or production wells. Similarly, gas production from Whiting (*L.balmei* section) produced concentration of 0 ppm (1989-1993) until water coning introduced H_2S levels up to 70 ppm in the east of the field, although the west part of the field had low concentration of 10 ppm. At present the Whiting A6 flowline is reporting H_2S levels of <8 ppm. At Beardie-1 H_2S levels are expected to be in the range of 0-20 ppm for the entire well.

6.4.1 H_2S Precautions

1. Continuous monitoring of H_2S will be done from the 20" X 13-3/8" casing shoe to TD with the mud loggers H_2S detection equipment.
2. Mud engineers will run a Garret Gas Train (GGT), every 12 hours after entering the Latrobe (1184m MDRT), to monitor for H_2S, CO_2 and soluble sulphides.
3. Keep sufficient quantities of NO-SULF (a zinc based H_2S scavenger) on-board to treat H_2S in the mud system.

NOTE: 1 As the H_2S concentration level expected in reservoir fluid is less than 20 ppm, EAL Guidelines do not require the use of H_2S Personnel Protective Equipment.

6.5 CARBON DIOXIDE

Adjacent well control indicates the primary target section at Beardie-1 is expected to have low CO_2 (<5%), with ranges in offset wells at 0-4%. There has been very low amounts of CO_2 produced from the Barracouta field from the M1 reservoir (0-0.8%). There is a small increase in the CO_2 levels below the primary target section, especially in the sub-volcanic section from adjacent well control. In the Whiting L460 reservoir CO_2 levels from gas production of 0-15% have been recorded, while CO2 levels of 7-12% were recorded in the sub-volcanic *T.longus* section from production tests at Whiting-2. In Wirrah-3 CO_2 concentration of 0-8% were recorded from RFT gas samples taken below the volcanics.

6.6 WELLBORE STABILITY

Hole instability problems are not anticipated until penetrating the Lakes Entrance formation. The Lakes Entrance is present across the Gippsland Basin and is characterised as a reactive shale, siltstone and claystone section with moderate surface areas (~150-250m^2/g). It is a highly water and time sensitive section where hole deterioration, mud rings, washouts, tight hole, excessive reaming and hole collapse have been experienced when drilling with WBM. This formation is expected to be only about 25m thick at Beardie-1.

6.6.1 Wellbore Stability Precautions

1. In the shallow hole sections bridging has been experienced in several Gippsland Basin wells while running casing. Normally, these bridges are encountered a short distance below the mudline (0-25m). Wiping the hole completely to the seafloor and displacing the entire wellbore with hi-vis mud in stages (to minimize the mud level drops while POH) is required to help prevent these shallow bridges.
2. Hole instability will be managed by a combined chemical, mechanical and operational approach. The drilling fluid of 9.0-9.5 ppg KCL/PHPA/Polymer/Glycol will be used to inhibit shale and claystone hydration. Mud weight guidelines of 9.0-9.5 ppg and additions of Baracarb will be utilised

to maximise ROP and minimize the likelihood of differential sticking, but at the same time provide hydraulic support to the shales. A flow rate of 800-1000± gpm will be run in the 12-1/4" hole to maximise hole cleaning. A PDC bit is proposed to assist in drilling this section as fast as prudent to minimize open-hole exposure time. Wiper trips will be conducted as required to minimize tight hole events based on true hole indications, with precautions taken to avoid swabbing or BHA sticking tendencies.

3. ATTACHMENT 9 EAL Tripping Practices summarises hole condition monitoring and tripping, connection and wiper trip practices that should be followed while drilling this well.

4. ATTACHMENT 10 Beardie-1 Predicted Drag in 12-1/4" Hole summarises the predicted minimum and maximum drag for this well. The calculated values are based on a 13-3/8" casing shoe at 850m MDRT, a cased hole friction factor (CHFF) of 0.17, an open-hole friction factors (OHFF) ranging from 0.2 to 0.3, and mud weights ranging between the minimum and maximum values specified in the mud program.

6.7 COAL STRINGERS

Sloughing coals have been a problem within the Latrobe Group elsewhere in the basin, however no drilling problems associated with sloughing coals have been reported in the nearby offset wells. Coals in surrounding wells are predominantly 2-20 m thick and these coal thicknesses are expected at the Beardie-1 location..

6.7.1 Coal Stringer Precautions

1. Generally coal stringers may be handled with a combination of mud weight, increased cuttings carrying capacity, reaming and wiper trips. Repeated reaming may be required to break up coal chunks. Exercise caution if coal stringers are encountered. Pyrite stringers are routinely encountered at the top of the Latrobe. PDC bits can be nursed through these stringers by limiting rotary speed (<80) and WOB.

2. Coal stringers are expected/possible in the Latrobe sands. The main danger is stuck pipe from not cleaning excessive amounts of coal from the hole. The primary preventative measure to prevent the coal seams becoming unstable is to drill the coal stringers at a steady controlled ROP. When drilling ahead, coal seams will be indicated by softer drilling. The following is a suggested guideline when coal seams are encountered or suspected:

   - Drill a maximum of 1.5m into the coal.
   - Pick up above the coal and circulate for 5 minutes (at same pump rate as when drilling). Maintain pipe movement and rotation. The intention is to circulate any coal above the BHA before drilling ahead.
   - Prior to making the next connection after drilling through a coal stringer, wipe the stand 2-3 times while maintaining circulation (without rotation).
   - Pull pipe slowly when picking up for any reason or pulling out of hole past the coal seams. Swabbing will cause additional caving of the seams.
   - If coal sloughing becomes severe, consideration should be given to adding 6-10 ppb BARABLOK to plug microfractures and minimise filtrate invasion.

6.8 SUBSEA

Planned actions are given below under each particular challenge:

6.8.1 Wellhead Sinking

A string of 30" Structural Casing will be set at ~124m MDRT and cemented in 36" hole. No wellhead sinking have been noted for PGBs run on recent Bass Strait wells. No shallow water or gas flows have been experienced behind any shallow casing strings. Surrounding well data indicates no instances of formations flowing water and therefore it is not anticipated to occur at the Beardie-1 location.

6.8.2 Shallow Hole Drilling

The well will be drilled riserless down to the 20" x 13-3/8" casing point, taking seawater gel sweeps and cuttings to the seafloor. Basin-wide offset well experience does not indicate a need for pilot hole drilling.

6.8.3 Mooring

The mooring design was based on a computerised mooring analysis. Operating limits are not expected to exceed 50% of the mooring line breaking strength limit of the 3-1/4" RQ4 chain. The maximum anchor holding force expected is well within the predicted holding force of the 40,000 lbs Vicinay S.A Off Drill II anchors and Stevpris Mark 5 anchors that will be deployed. A supplemental mooring procedure will be issued.

6.8.4 Riser Tensioning

A computerised riser analysis was conducted to access the riser-tensioning guidelines required for the well. Riser tensioning will be according to operational guidelines for this shallow water depth.

6.8.5 Well Control

Based on fracture gradient predictions for this site and offset wells, the 13-3/8" casing will be set so that its casing shoe will have formation integrity of at least 13.5 ppg. This is adequate for circulating out a gas kick relevant for Bass Strait area normally pressured formations. Sufficient mud weight will be carried based on the geologic section to be drilled to prevent a gas kick considering historical pore pressures. The BOP stack will be function/pressure tested at the surface before it is run and per P(SL)A and EMDC requirements. The PIT limit above is adequate for cementing the surface casing.

6.8.6 ROV

An ROV will be available on the rig to inspect the BOP stack and riser on a routine basis. The ROV will perform site clearance work and observing the well at the seafloor while drilling without the riser.

6.9 LOST RETURNS

Lost return intervals were recorded from Barracouta-4 at -874mTVDSS and -1210mTVDSS. This occured within a porous sandstone section within the Miocene at this well.

There is a possibility for many small-scale (sub-seismic) faults to be encountered in the reservoir section and also in the section from -810m TVDSS to top Latrobe Group. LCM may be required although no lost circulation has been encountered in offset wells.

The Gippsland Limestone has historically yielded higher fracture pressures than typical marine claystone formations. Based on these factors, no lost returns are anticipated in a conventional sense. However, there may be some seepage losses in the possible drawn down zones and fault breccias. Minimum mud weight overbalances will be utilised when possible and with rheological properties and circulating rates monitored at all times to avoid losses. Mud properties will be run to promote filter cake formation with reasonable fluid loss levels run. LCM (Barofibre and Baracarb) will be kept on location for spotting of any pills that may be required.

6.10 DRAWNDOWN FORMATIONS

Gas production from the N1 reservoir at Barracouta may cause draw down reservoirs at the TOL if reservoirs are continuous across to the Beardie-1 location, as the reservoir is 120psi drawn down at Barracouta. Oil production from the Barracouta M1 sands has drawn down the reservoir 90psi.

Pressure data from the Whiting P240 and P250 reservoirs indicates oil production has drawn down the reservoir 60-70psi. The M1 and L400/500 reservoirs at Whiting have undergone approximately 80psi of draw down.

Similar draw down is expected at equivalent levels at the Beardie-1 location. No draw down would be expected to be observed from the sub-volcanic section.

Drilling into the Top of the Latrobe Group should proceed cautiously when initially penetrating it to evaluate the risk of sticking. Adequate BHA stabilisation should be run, minimum drill collars used and the mud system prepared by the addition of Baracarb.

6.11 ENVIRONMENTAL CONSIDERATIONS

The MetOcean conditions are detailed in the Beardie-1 Safety Case Bridging document.

Storms are typically from the southeast, south and southwest directions.

6.12 DRILLING RISK ASSESSMENT SUMMARY

A Drilling Risk Assessment for this well will be held prior to spud. The primary goal of this risk assessment is to identify significant risk events involved with the entire operation, together with preventative measures and mitigation plans for these identified risks. All actions items should be closed before spud.

Results of the risk assessment will be distributed to key personnel associated with the drilling operations.

7.0 WELL DESIGN & ENGINEERING

7.1 DIRECTIONAL SURVEY PROGRAM

The Beardie-1 well will be drilled as a vertical well. An Andergauge Anderdrift tool will be included in the BHA for the 36", 17-1/2" and 12-1/4" hole sections to take inclinations on every connection. Report these surveys at a constant azimuth on the Drilling Reporting System Daily Drilling Report. Drop a gyro survey prior to POOH to run surface casing. When drilling the 12-1/4" hole section, tie the Anderdrift surveys into the surface hole gyro survey and report these on the Drilling Reporting System Daily Drilling Report. At TD the FMI log, tied into the gyro survey from surface to surface casing TD, will be used to determine the definitive well location. The regulations require depth and inclination be taken at least every 300m or nearest bit change.

Hole Size-Inches	Depth-m MDRT	Survey Interval-m	Survey Instrument
26" x 36"	75-124	Each connection	9-1/2" Anderdrift tool
17-1/2"	124-850m	Each connection and at TD (850m MDRT)	9-1/2" Anderdrift tool & SDI drop gyro at TD
12-1/4"	850m to TD	Each connections and at each trip	8" Anderdrift tool & FMI at 1905m & TD

Notes:

1. The target boundary is a circle with 100m radius. Plot surveys (use a constant azimuth for Anderdrift surveys) to verify that the well path is within the target boundaries.
2. Recent offset wells indicate a straight hole should be within this target radius.

Well	Closure Distance at/near TD
Turrum 3	44.7m
Turrum 4	46.0m
Turrum 5	13.5m
Turrum 6	40.0m
Turrum 7	10.4m

3. Relief well criteria requires that the location of the well be known within 15m. This equates to an inclination error for the Anderdrift survey to the surface hole TD of 850m of 1.0°, 0.76° for the interval 850m to 1905m MDRT when tied into the surface casing shoe location surveyed by gyro, and 0.59° for the interval 1905m to 3075m MDRT when tied into the FMI log data at ~1905m.

7.2 CASING DESIGN

Size	Depth-m MDRT	Nominal ID	Drift ID	Weight ppf	Grade	Conn.	Burst Rating psi w/DF	Collapse Rating Psi W/DF	Tension Rating Pipe-kips w/DF	Tension Rating Con.-kips w/DF	Max. Calc'd Burst psi	Max. Calc'd Collap. psi	Max. Calc'd Tension Kips	Burst Design DF	Coll. Design DF	Tension Design DF PB/Conn.
30"	76-88	26.970"	26.500"	457	X-52	ST-2	3309	4000	5239	1420	N/A	22	49	1.375	1.0	1.333/1.50
30"	88-118	27.500"	26.500"	310	X-52	ST-2	2204	1670	3554	1420	N/A	68	32	1.375	1.0	1.333/1.50
20"	118-124	18.750"	18.562"	129	X-56	Weld	2225	1460	1598	N/A	N/A					
20"	76-87	18.000"	17.750"	203	X-56	Weld	3564	4140	2508	N/A	2516	0	246	1.375	1.0	1.333/1.50
13-3/8"	87-88	12.415"	12.259"	68	L-80	BTC	3651	2260	1167	1030	2500	6	238	1.375	1.0	1.333/1.50
13-3/8"	88-850	12.415"	12.259"	68	K-55	BTC	2509	1950	802	760	2498	483	235	1.375	1.0	1.333/1.50
9-5/8"	76-79	8.535"	8.500"	53.5	L-80	LTC	6344	5884	933	698	3941	133	338	1.25	1.125	1.333/1.50
9-5/8"	79-1905	8.681"	8.525"	47	L-80	LTC	5496	4222	815	595	3941	3244	338	1.25	1.125	1.333/1.50

NOTE: 1 The 30" casing is to be run so that bottom of PGB is 1.5 - 2m above the mudline when landed. Run 4 joints of 30" casing top to bottom as follows: 30" wellhead Jt, 1.5" Wall (w/ST-2 box down), two 30" 1" Wall joints with ST-2 pin up by ST-2 box down, 30" 1" Wall ST-2 pin up with a float shoe on bottom.

NOTE: 2 The 20" x 13-3/8" casing burst design is based on a full column of gas (PSLA Requirement) in 12-1/4" hole, and assumes a conservative 17 ppg leak-off at the 13-3/8" shoe. This results in a maximum net burst pressure at the mudline of 2230 psi. The casing design also satisfies ExxonMobil LRFD design criteria for both production and surface casing.

NOTE: 3 Casing test pressure for 20" x 13-3/8" is 2230 psi.

NOTE: 4 PIT test to be taken on the 20" x 13-3/8" casing shoe to 17.0 ppg EMW. Consult with the Drilling Superintendent if 13.5 ppg EMW is not achieved.

NOTE: 5 Below the 18-3/4" MS700 High Pressure housing (1.62m, 63-3/4") is a 5.18m (31') pup joint of 20" 1" wall X56 pipe, a 0.44m (17-1/2" crossover swedge to 13-3/8" BTC box), and a 1.38m (54-1/2") 13-3/8" 68 lb/ft L-80 pup joint with BTC pin down. Overall length is 8.63m (28' 3-23/32")

7.3 DRILLING FLUIDS REQUIREMENTS

Hole	Depths-m MD	System	MW PPG	PV Cp	YP lb/100ft^2	Funnel Viscosity sec/qt	6 RPM	API WL cc/30 min	HTHP cc/30 min	pH	%LGS
26" x 36"	76-124	SW/with gel sweeps	8.5+	N/R	>40	>100	N/R	N/R	N/R	N/R	N/R
17-1/2"	124-850	SW/with gel sweeps	8.5+	N/R	>40	>100	N/R	N/R	N/R	N/R	N/R
12-1/4"	850-1154	6% KCL/EZ-Mud/Polymer/Glycol	9.0 - 9.5	<30	25 - 45		7 - 10	<6	<15	8.5-9.2	<10
12-1/4"	1154-1184	6% KCL/EZ-Mud/Polymer/Glycol	9.5-10.0	<30	25 - 45		7 - 10	<6	<12	8.5-9.2	<10
12-1/4"	1184-1905	6% KCL/EZ-Mud/Polymer/Glycol	9.5-10.0	<30	25 - 45		7 - 10	<6	<12	8.5-9.2	<10
12-1/4"	1905-3075	6% KCL/EZ-Mud/Polymer/Glycol	9.5-10.5	<30	25 - 45		7 - 10	<6	<12	8.5-9.2	<10

NOTE: 1 Recommend two high vis sweeps per stand (FV>100, YP>40) while drilling and opening 26" hole to 36" with seawater.

NOTE: 2 Run HTHP at 121° C/250° F, 500 psi. Run Garret Gas Train every 12 hours on mud checks below 850m for H_2S, CO_2 and soluble sulphides. Additional mud weight may be required to combat formation instabilities, especially in the Lakes Entrance formation or the possibility of gas cut mud in the Latrobe and Intra-Latrobe sands. Increase mud weight to 10.0 ppg prior to drilling into the volcanics. Contact the Drilling Operations Superintendent if raising the mud weight above 10.5 ppg. Run the finest mesh screens practical on the shakers at all times. All mud checks must conform to the latest edition of API RP 13B-1 and "ExxonMobil Water Base Mud Testing Guidelines". Report "in" and "out" mud properties, corrected for lag time. Run PV, YP and 10-sec/10-min gel strengths at 120° F. Report all mud losses and discharges. Measure and report chlorides and calcium content of the make-up waters. Measure alkalinities/pH with a pH meter and keep calibration references onsite for all mud testing equipment.

NOTE: 3 Add 5 ppb each of Baracarb-25 and Baracarb 100 also, if MBT < 8 ppb, 2-5 ppb of pre-hydrated Aquagel immediately above the Latrobe. These pore throat bridging agents will reduce HPHT fluid loss and reduce the risk of differential sticking in the Latrobe. Regularly add an additional 1 x 25 kg sack of Baracarb-25 and 2 x 25 kg sack of Baracarb-100 for every 10m of new hole drilled below top of Latrobe. Maintain 6% KCl in mud, excess PHPA content >1 ppb in mud and residual sulphite >100 mg/l in mud. If there are indications of hole instability in the Lakes Entrance formation, consider increasing the mud weight, increasing the glycol concentration in 0.5% increments to a maximum of 5%, and increasing the KCl concentration to 8%. Maintain 3%-3.5% Glycol in the mud for fluid loss control and shale stability.

NOTE: 4 If coal sloughing becomes severe, consider adding 6-10 ppb Barablok or 4 ppb Soltex, and HME Energiser, to plug microfractures and minimise filtrate invasion. Check with the Esso Drilling Supervisor as HME Energiser is a surfactant and may alter the wettability of the formation impairing core data.

NOTE: 5 ATTACHMENT 11 Depth vs Mud Weight Plot shows the mud weight requirements versus depth. ATTACHMENT 12 Baroid Drilling Fluid Program - Beardie-1 contains the detailed Baroid mud program.

7.4 BIT AND HYDRAULICS PROGRAM

Hole Size	Interval-m MD	Bit Type	IADC Code	Nozzles (32nds)	WOB Kips	RPM	GPM	Pump Pressure-psi	Open Hole drill pipe AV m/min
26" x 36"	76 - 124	Security 26" XN1 w/-Grant 36" M6980 Hole Opener	111S	4 x 20 (bit) 4 x 14 (36" HO)	0 - 5	50 - 150	250 - 1200	800 - 1000	7
17-1/2"	124 - 850	Hycalog DS34HF+G	S223	8 x 14	5 - 10	130	1000 - 1200	4000 - 3200 @ 1200 gpm	32
12-1/4" (Primary)	850 - 1905	Hycalog DSX195DGN+W	M232	5 x 13	10 - 20	50 - 150	1000 - 900	4200	58 - 52
12-1/4" (Backup)	850 - 1905	Hycalog DSX103DGJN+W	M344	3 x 12 (variable) 4 x 13 (variable) 4 x blank (fixed)	10 - 20	50 - 150	1050 - 1000	4200	58 - 52
12-1/4" (Contingency)	1540 - 1590	Security XL20D	517X	3 x 15	25 - 65	120 - 50	800	4200	48
12-1/4" (Primary)	1905 - 3075	Hycalog DSX103DGJN+W	M344	3 x 12 (variable) 4 x 13 (variable) 4 x blank (fixed)	10 - 20	50 - 150	1000 - 900	4200	58 - 52
12-1/4" (Contingency)	1540 - 1590	Security XL20D	517X	3 x 18	25 - 65	120 - 50	850	4200	48

NOTE: 1 Mud pumps are 3 x National 12P160 and 6" liners are assumed installed, with a max. discharge pressure of 4670 psi and output at rated speed (120 spm) and HP of 529 gpm each (100% volumetric and 90% mechanical efficiency). Max. design WP and output has been assumed to be 4200 psi and 401 gpm for each pump.

NOTE: 2 Bits types and parameters are from offset reviews and service company compressive strength analysis programs and are intended to serve as a guide. Run low WOB to spud and start the well straight. Preliminary nozzle sizes based on the Reed Hydraulics program. Re-size nozzles based on onsite conditions and pump performance, including on bottom loadings. WOB should not exceed the maximum recommended by the manufacturer.

NOTE: 3 Optimise bit weight and rotary speed as prudent using drill-off tests and re-run drill-off tests as needed. When drilling hard dolomitic sandstone with PDC bits, reduce WOB to 8 - 14 kips, and if possible RPM to ~120 rpm. Optimise RPM to prevent damaging vibrations

NOTE: 4 ATTACHMENT 13 Beardie-1 - Longitudinal Drill String Vibration details the critical rotary speeds for the x1, x4 and x9 harmonics with depth

NOTE: 5 The 26" Security XN1 bit is available if required to clean out the 30" casing if the contingent 30" float joint assembly is run.

NOTE: 6 These bits should be successful in drilling hard streaks in excess of 18,000 psi compressive strength. Both the primary Hycalog 12-1/4" DSX195DGN+W (5 bladed, 5 nozzles, 16mm cutters) and backup 12-1/4" DSX103DGJN+W (7 bladed, 7 variable and 4 fixed nozzles, 13mm and 19mm cutters) are contracted on a performance basis. Both feature T-rex cutters and DiamondBack™ features, and with the expectation that the primary DSX195DGN+W PDC will drill the two ~15m thick hard streaks expected between 1540m and 1590m MDRT with one DSX103DGJN+W available on a performance basis as a backup. The second 12-1/4" DSX103DGJN+W is the primary bit to drill the interval from 1905m to TD at 3075m, including numerous hard streaks and any volcanics.

NOTE: 7 The following PDC bits are available as backup. One (1) Smith MRA84PX (M223 ARCS2 bit, 8 blades, 8 nozzles, with 19mm, 16mm & 13mm cutters, Esso owned, used on East Pilchard-1 and refurbished). One (1) Security FS2663 DRC (6 blades, 8 nozzles, with 19mm & 13mm cutters, available on a performance basis for the section 850m to 1550m). Two (2) Security FM2943 DRC (9 blades, 6 nozzles, with 13mm cutters, available on a performance basis to drill 1550m to 3075m, but not the volcanics).

NOTE: 8 Two (3) 12-1/4" Security XL20D (517X), three (3) Reed EHP51HKPR (517) and two (2) XL30D (537) TCIs are available to drill any hard streaks that are not PDC drillable, and also two (2) 12-1/4" Security H77SG (335) junk bits. 12- 1/ 4" XL30Ds should be run with between 35 and 80 kips, at rotary speeds between 80 and 40 rpm.

7.5 CEMENTING DESIGN

Refer to ATTACHMENT 16 Beardie-1 - 30" Conductor Casing and Cementing Requirements, ATTACHMENT 17 Beardie-1 - 13-3/8" Surface Casing and Cementing Requirements and ATTACHMENT 18 Beardie-1 - 9-5/8" Production Casing and Cementing Requirements
Beardie Contact List.

913711 201

7.6 BOTTOM HOLE ASSEMBLY PROGRAM

26" x 36" Hole	17-1/2" Hole	12-1/4" Hole - PDC Bit	12-1/4" Hole - TCI Bit
• 26" Security XN1 Mill Tooth Bit with 20 centre jet and 3 x 20 nozzles • 36" Grant Hole Opener w/ 4 x 14 nozzles • Float Sub 7-5/8" Reg box x 7-5/8" Reg box, w/Solid Float • 9-1/2" Anderdrift Tool 7-5/8" Reg PxB • Totco Ring • 3 x 9-1/2" Spiral Drill Collars, 7-5/8" Reg PxB • Crossover, 6-5/8" Reg box x 7-5/8" Reg pin • 2 x 8" Spiral Drill Collars, 6-5/8" Reg PxB • Crossover, 4-1/2" IF box x 6-5/8" Reg pin • balance 5" HWDP (Do not run jars in this hole section) Estimated Total Length of BHA (not including HWDP) = 56m	• 17-1/2" Security XTC1 Tri-Cone Bit with 20 centre jet and 3 x 20 nozzles • 17-1/2" Near-bit Integral Blade Stabiliser, 7-5/8" Reg BxB, w/Solid Float • 9-1/2" Anderdrift Tool 7-5/8" Reg PxB • Totco Ring • 17-1/2" Integral Blade Stabiliser, 7-5/8" Reg PxB • 2 x 9-1/2" Spiral Drill Collars, 7-5/8" Reg PxB • 17-1/2" Integral Blade Stabiliser, 7-5/8" Reg PxB • 1 x 9-1/2" Spiral Drill Collars, 7-5/8" Reg PxB • Crossover, 6-5/8" Reg box x 7-5/8" Reg pin • 2 x 8" Spiral Drill Collars, 6-5/8" Reg PxB • Crossover, 4-1/2" IF box x 6-5/8" Reg pin • 2 x 5" HWDP • 6-1/2" Jars - Dailey Hydraulic • 30 x 5" HWDP • balance 5" 19.5 ppf S-135 drill pipe	• 12-1/4" PDC Bit • 12-1/4" Near bit Stabiliser 6-5/8" Reg BxB, w/Ported Float • 8" Anderdrift Tool 6-5/8" Reg box x 6-5/8" Reg pin • Totco Ring • 12-1/4" Integral Blade Stabiliser, 6-5/8" Reg PxB • 1 x 8" Spiral Drill Collars, 6-5/8" Reg PxB • 12-1/4" Integral Blade Stabiliser, 6-5/8" Reg PxB • 4 x 8" Spiral Drill Collars, 6-5/8" Reg PxB • Crossover, 4-1/2" IF box x 6-5/8" Reg pin • 2 x 5" HWDP • 6-1/2" Jars - Dailey Hydraulic • 30 x 5" HWDP • balance 5" 19.5 ppf S-135 drill pipe	• 12-1/4" TCI Bit • 12-1/4" Near bit Stabiliser 6-5/8" Reg BxB, w/Ported Float • 8" Anderdrift Tool 6-5/8" Reg box x 6-5/8" Reg pin • Totco Ring • 12-1/4" Integral Blade Stabiliser, 6-5/8" Reg PxB • 1 x 8" Spiral Drill Collars, 6-5/8" Reg PxB • 12-1/4" Integral Blade Stabiliser, 6-5/8" Reg PxB • 13 x 8" Spiral Drill Collars, 6-5/8" Reg PxB • Crossover, 4-1/2" IF box x 6-5/8" Reg pin • 2 x 5" HWDP • 6-1/2" Jars - Dailey Hydraulic • 30 x 5" HWDP • balance 5" 19.5 ppf S-135 drill pipe

NOTE: 1 All nominal full gauge stabilisers are 1/16" undergauge.

913711 202

7.7 OVERPULL DESIGNS

26" x 36" Hole		17-1/2" Hole		12-1/4" Hole to 1905m - PDC Bit		12-1/4" Hole to 1905m - TCI Bit	
Mud Weight 8.6 ppg (seawater)		Mud Weight 8.6 ppg (seawater)		Mud Weight 10.0 ppg		Mud Weight 10.0 ppg	
Buoyed Wgt BHA/HWDP	40 kips	Buoyed Wgt BHA/HWDP	75 kips	Buoyed Wgt BHA/HWDP	66 kips	Buoyed Wgt BHA/HWDP	100 kips
Buoyed Wgt Drillpipe	0 kips	Buoyed Wgt Drillpipe	32 kips	Buoyed Weight Drillpipe	97 kips	Buoyed Weight Drillpipe	91 kips
Buoyed Wgt Drillstring	40 kips	Buoyed Wgt Drillstring	107 kips	Buoyed Wgt Drillstring	163 kips	Buoyed Wgt Drillstring	191 kips
5" HWDP Tensile Yld	415 kips	5" 19.5# S135 Tensile Yld	560 kips	5" 19.5# S135 Tensile Yld	560 kips	5" 19.5# S135 Tensile Yld	560 kips
Remaining Overpull	**375 kips**	**Remaining Overpull**	**453 kips**	**Remaining Overpull**	**397 kips**	**Remaining Overpull**	**369 kips**

12-1/4" Hole to 3075m - PDC Bit		12-1/4" Hole to 3075m - TCI Bit	
Mud Weight 10.0 ppg		Mud Weight 10.0 ppg	
Buoyed Wgt BHA/HWDP	66 kips	Buoyed Wgt BHA/HWDP	100 kips
Buoyed Weight Drillpipe	176 kips	Buoyed Weight Drillpipe	171 kips
Buoyed Wgt Drillstring	242 kips	Buoyed Wgt Drillstring	271 kips
5" 19.5# S135 Tensile Yld	560 kips	5" 19.5# S135 Tensile Yld	560 kips
Remaining Overpull	**318 kips**	**Remaining Overpull**	**289 kips**

NOTE: 1 Premium Class drill pipe is to be used. HWDP/drill pipe/Jars can be run in compression in 12-1/4" hole.

NOTE: 2 Use trip book for all trips.

7.8 DRILL COLLAR PROPERTIES

Tube OD	Tube ID	Wt.-ppf	Wt-31 ft.	Conn. OD	Type	BSR	M/U Torque-ft/lbs	DC1 OD	DC2 OD	Stiffness Ratio
8"	3"	147	4,557	8.00"	6-5/8" Regular	2.50	51,390	8"	5" HWDP	4.61
9-1/2"	3"	216	6,696	9.50"	7-5/8" Regular	2.81	84,440	9-1/2"	8"	1.69

NOTE: 1 ExxonMobil recommended BSR Design: $2.25 \leq BSR \leq 2.75$. TH Hill recommended BSR Range (Drill collars ≥ 8"): $2.5 \leq BSR \leq 3.20$.

NOTE: 2 ExxonMobil recommended Stiffness Ratio: $SR \leq 5.5$.

NOTE: 3 M/U Torque for 7-5/8" Reg. Bits is 34,000-40,000 ft-lbs. M/U for 6-5/8" Reg. Bits is 28,000-32,000 ft-lbs.

NOTE: 4 M/U Torque for 5" HWDP is 29,500 ft-lbs.

7.9 WELL CONTROL EQUIPMENT AND TESTING

Casing	Section	Top Flange	Casing Burst w/- DF (psi)	MASP (psi) @ shoe	Subsea BOP Stack Installed	BOP Size & Rating	Annular Test (k psi)	Pipe Ram Test (k psi)	Blind Ram Test (k psi)	Choke & Kill Lines/ Valves Test (k psi)	Choke Manifold Test (k psi)
30"	Riserless	30" wellhead	2206	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
20" x 13-3/8"	12-1/4"	18-3/4" 10k psi	2509	508	2-Annular 4-Rams	18-3/4"-5k 18-3/4"-10k	5.0/3.5	5.0/5.0	2.23/ 2.23	5.0/5.0	5.0/5.0

NOTE: 1 Refer to the Ocean Bounty Vessel Safety Case for a description of the BOP equipment and method of operation.

NOTE: 2 Pressures shown above are Initial Nipple-Up/Subsequent Test. Precede all high-pressure tests with a 250-psi low-pressure test.

NOTE: 3 The BOP Stack Ram Arrangement is to be, from the top SBR-Blind/Shear, UPR- 3-1/2" to 5" VBR, MPR- 5" VBR, LPR-5" Pipe.

NOTE: 4 ATTACHMENT 14 Beardie-1 Wellhead Stackup shows the interface between the BOP stack and the wellhead. ATTACHMENT 15 Ocean Bounty Shaffer 18-3/4" BOP Stack shows the Ocean Bounty BOP stack.

NOTE: 5 Pressure test frequency: 1) Full test on stump, 2) Connections at nipple-up, 3) Every 14 days, 4) Each new tubular string run.

NOTE: 6 All tests must be held stabilised for a minimum of 10 minutes. Test choke manifold out of the critical path.

NOTE: 7 Test blind rams during the casing test.

NOTE: 8 After installation of the riser, pump through the diverter system and inspect it for leaks.

NOTE: 9 Stump test BOP stack to its full rated working pressures with water prior to running.

NOTE: 10 Pressure testing of the BOP stack to be alternated between subsea control pods and function the stack on the other pod.

NOTE: 11 MASP pressure is based on a 13.5 ppg MWE LOT, 10.0 ppg mud in the well and a surface casing shoe at 850m TVDRT.

913711 203

8.0 DETAILED PROCEDURES - 26"/36" HOLE & 30" CONDUCTOR

8.1 GENERAL INFORMATION

Although shallow gas is not expected, the precautions detailed in Paragraph 6.2 Shallow Hazards will be observed.

8.2 RUNNING TEMPORARY GUIDE BASE (IF REQUIRED)

8.2.1 TGB Running Preparation

1. Inspect the TGB and running tool as per ABB Vetco procedure.
2. Install the four chains using 25 tonne shackles to the TGB, to allow the ROV to connect these to the Permanent Guide Base (TGB) for the simultaneous recovery of both the PGB and TGB.

8.2.2 TGB Running Procedure (if required)

1. Set the temporary guide base on the spider or moon pool beams.
2. Fill the compartments in the TGB with barite or similar weight material.
3. Pick up the running tool with a tugger line and lift the stem through the rotary table. Lower and install the tool into the J-slots inside the temporary guide base by rotating to the left.
4. Install the guidelines onto the four lifting eyes provided.
5. Pick up the TGB. Run and land it on the ocean floor. Slack off the guideline as the TGB is lowered.
6. Rotate to the right to release the running tool.
7. Maintain a little right-hand torque on the drillpipe and pick up the running string slowly, until it is certain that the running tool is free, and retrieve the running assembly.
8. Adjust the tension on the guidelines over the weight of the lines.

   NOTE: 1 Avoid over tensioning the guidelines and lifting the TGB off the ocean floor.

8.3 PREPARATIONS PRIOR TO DRILLING 26" x 36" HOLE SECTION

1. Confirm that the two bulls-eyes (0 to 2° and 0 to 5°) have been installed on the PGB 90° apart. This installation should be made onshore for accurate levelling.
2. Paint numbers 1 through 4 on the base of the guideposts, and paint the cement outlets on the PGB. Pass a sketch of the PGB showing bullseyes, numbered guide posts and cement outlets to the ROV contractor, and forward a copy to town.
3. MU 26" x 36" HO BHA. Paint the 26" bit white. Paint white stripes every 2m on the bottom 2 DCs. MU 5" HWDP in stands to use as a landing string and SLM. Stand it back in the derrick. Based on the 30" conductor tally and planned stickup, mark the BHA to indicate when the correct amount of hole has been drilled. Complete as many items out of the critical path as possible (ie. MU HWDP and drill pipe in stands for top drive use, and SLM. MU cementing head assembly).

   NOTE: 1 Refer to 7.6 Bottom Hole Assembly Program for a description of the BHA assemblies.
4. Make sure at least 450 bbls of hi-vis gel mud is mixed and ready to pump, as needed.

5. Have sufficient 12.0 ppg mud available to prepare 420 bbl of 9.6 ppg kill mud if required for a dynamic kill while drilling riserless. This mud will later be used in the 17-1/2" surface hole.

   NOTE: 1 200% of the open hole volume of the 36" hole from seafloor to 124.8m is 405 bbl.

6. Prior to picking up the cam actuated running tool (CART):

   - Inspect the o-ring on the OD of the cam tool and replace if required. Lightly grease immediately before running the tool.
   - With the stem in the fully unlocked position and the ram dogs pushed back into the tool body, pump general purpose grease through the Alemite fittings until grease extrudes out the body vent holes or the 1/4" relief check valve, if installed. The bottom fitting should be routinely used for grease injection to insure proper and concentrated application of grease around the bearing.
   - Rotate the stem five (5) LH turns to extend the rams. Rotate the stem five (5) RH turns and ensure the rams will move back into the body freely when lightly tapped, using a wooden block and hammer. Reinstall the hex head plug.
   - Check the spring loaded anti-rotation (housing stop) pin on the cam tool to ensure that it moves in and out freely.

7. Each 30" joint has been fitted with horizontal lifting pad eyes and an elevator ring.

8. Clean 30" connector boxes and pins thoroughly. Reinstall protectors. Check condition of the O-ring on each box end and replace if damaged or missing. Lubricate each pin and box with heavy weight oil before make-up. **Do not use pipe dope.** The connections are weight-set to makeup, rotation is not required. An anti-rotation pin and slot prevent rotation after makeup.

9. Paint the 30" shoe white. Paint white stripes on the casing every 1 m on the bottom joint. Paint five white stripes, at 1m intervals, on the 30" wellhead housing extension. Sequentially number the stripes (1, 2, 3, 4 and 5) from the top of the housing down.

10. **Drift 5" DP landing string to 2.625" prior to running this casing.**

11. R/U dual 30" side-door elevators to run the conductor.

    NOTE: 1 30" bowl and slips will be available as back-up.

8.4 DRILLING 26" X 36" HOLE SECTION PROCEDURE

1. Hold JSA meeting to discuss riserless drilling procedures and responses.

2. PU the 26" x 36" hole BHA and RIH to mudline at 75.8m MDRT. Slowly lower the BHA on the compensator, with pumps idling to keep the bit jets clear, until the string begins to take weight. Record the depth when the 26" bit tags the mudline and when 5 kips of weight can be held for 5 minutes (competent mudline). **Mark the drill pipe when the bit is at the mudline, and strap from this mark the required depth calculated from the conductor tally.** Take an inclination survey.

   NOTE: 1 Record tide from tide tables.

   NOTE: 2 Have ROV at the mudline to observe spud and drilling of the entire hole section.

   NOTE: 3 Leave the ROV on bottom to mark the well location. If the ROV is recovered, drop a marker buoy to mark the well location.

3. Drill the first 10-20m with low pump rate (250± gpm), 0-2 kips WOB and 60-80 rpm to avoid excessive washout and to control hole deviation. Pump hi-vis sweeps every 15m or as needed for hole cleaning. **Use very little WOB the first few meters because a near-mudline hard streak exists in some areas of Bass Strait that has caused excessive deviation in past wells.**

   NOTE: 1 Space-out the drillstring so that the first connection will not pull the bit out of hole.

4. Continue drilling to 124m MD (48m BML). **Adjust drilling depth, based on strap of the 30" tubulars and 20" shoe joint, to set pipe on bottom in the 26" hole, with the base of the PGB 1.5 to 2.0m above the seafloor, or 1.0m above the top of the TGB if this was run.** Drill with minimum bit weight (0-5 kips), and 250-1200 gpm, for deviation control. Limit ROP to one stand/hour and pump hi-vis gel sweeps as needed. Monitor sea floor for hole washout, shallow gas and cuttings dispersion using the ROV. Pump a 100-bbl hi-vis sweep. Circulate BU with seawater.

   NOTE: 1 On East Pilchard-1 ~5 kips WOB achieved 50-60 m/hr ROP. Increasing WOB to 15 kips reduced ROP to ~ 20 m/hr from buckling of the unsupported HWDP while drilling riserless.

   NOTE: 2 If the backup 30" float shoe assembly will be run, then the spaceout will be based on strap of the 30" tubulars, to set pipe on bottom in the 36" opened hole (not the 26" hole), with the base of the PGB 1.5 to 2m above the seafloor, or 1m above the top of the TGB if this was run.

5. Take an Anderdrift survey when spudding, on every connection and at TD. **Maximum deviation should not exceed 1.0° of drift.** If this angle is exceeded, consult with the Esso Drilling Operations Superintendent. Prepare to ream the hole until hole angle is within this tolerance.

6. Make a wiper trip to the mudline. **Do not pull the HO above the mudline.** RIH to TD. Circulate the hole clean with a 50-bbl hi-vis gel sweep. Displace hole with hi-vis mud (200% hole volume-±400 bbls) made with seawater, without lime, while POH to 15m BML. Fill hole in stages to mitigate hole collapse. Refill the hole with 100 bbls of hi-vis mud at this point. Finish POH.

8.5 RUNNING 30" STRUCTURAL CASING

1. Conduct JSA to discuss casing running procedures. Casing properties are listed in 7.2 Casing Design. Details of the conductor casing and cementing requirements are contained in ATTACHMENT 16 Beardie-1 - 30" Conductor Casing and Cementing Requirements. Review the EMDC Drilling Operations Manual - Floating Drilling casing running checklist.

   NOTE: 1 The primary float shoe joint assembly comprises a Weatherford 20" Model 303-1 Sureseal stab-in float shoe (P/N 3031020BW00x5600133 on 20" x 0.625" wall X-56 pipe (length 6.10m), a 20" x 30" welded swage with 1" wall (1.07m) and 30" x 1" wall X-52 pipe with ST-2 pin connector on top. The joint is fitted with elevator ring and horizontal lifting padeyes.

   NOTE: 2 The backup float shoe joint assembly comprises a 30" float shoe on 30" x 1" wall X-52 pipe with ST-2 pin up is the backup joint.

2. RU 30" casing running equipment and dual 30" side-door elevators and prepare floor to run casing. Have Vetco serviceman on the rig floor to supervise casing running and connection make-up.

3. Move the PGB onto the spider/moon pool beams.

4. Run the 30" x 20" casing as described below. Use rig slings and shackles and dual side-door elevators to handle the casing.

   - Weatherford 20" Model 303-1 Sureseal stab-in float shoe (P/N 3031020BW00x5600133 on 20" x 0.625" wall X-56 pipe (length 6.10m), a 20" x 30" welded swage with 1" wall (1.07m) and 30" x 1" wall X-52 pipe with ST-2 pin connector on top.
   - Two Intermediate Joints-30", 310#, X-52, ST-2 (box down x pin up)

   NOTE: 1 Cut-off the horizontal lift padeyes while running the intermediate and shoe joints.

5. Verify water will flow through the 30" float shoe, before it passes the waterline, by filling the casing with seawater and observing flow out of the shoe. Fill the remaining joints with seawater, as they are run, using the top drive.

6. PU and run the 30" wellhead Housing with 30' x 30", 457#, X-52 extension joint (30" wellhead Housing up x ST-2 box down).

NOTE: 1 The 30" extension joint below the 30" wellhead Housing is also fitted with an elevator ring.

7. RD casing handling tools. Install a split plate on top of the 30" wellhead housing joint and run the inner cementing string of 5" drill pipe. The bottom of the stinger should be 12±m above the float shoe (planned TOC is 4m above the float shoe). The weight of the 30" casing in 8.5 ppg SW is 44± kips.
8. PU the 30" running tool (CART). MU running tool to the 5" drill pipe cementing stinger.
9. Position running tool in the 30" wellhead housing. Rotate tool stem to the left five (5) turns by hand chain tong as per the ABB Vetco Running Procedure. The top of the cam sleeve should measure 2-1/2"± from the indicator band, on the stem, when the locking dogs are fully engaged into the wellhead housing. Turn the tool stem 1/8 turn back to the right to break any seizing between the tool stem and ram housing. Perform a PU test to ensure the locking dogs are fully engaged.
10. Paint a vertical white stripe on the 30" CART tool joint and wellhead housing to verify proper tool rotation on retrieval.
11. Lock the blocks on the TDS.
12. Lower, land and latch the 30" housing in the PGB.
13. Open the ball valve in the running tool and check that the handle will be easy to remove in the next step. Check that the remaining bull plugs are tight. PU assembly off the moon pool beams.
14. Lower the assembly until the 30" wellhead housing is just below the water line. MU top drive and circulate seawater at 100 spm to displace air out of the casing. Close the ball valve and remove the handle.
15. Run casing to the mudline. The running string should consist of:
    - XO-6-5/8" Reg. Pin Down x 4-1/2" IF Box Up
    - 5", 19.5# DP (4-1/2" IF)
16. Monitor casing descent through the water column with the ROV. Observe casing entry into the 36" hole with the ROV. Approximate weight of the entire assembly (inner string, 30" casing, wellhead, PGB and running string) is 90± kips. The 5" DP tensile yield is 560 kips.
17. Lower the 30" string to 3m above mudline. Record the assembly weight. Check bullseye with the ROV. Lock the blocks to prevent rotation that could back-out the CART.
18. Slowly lower the 30" casing into the well, while observing with the ROV. **Land the casing so that the 20" shoe is at the bottom of the 26" hole, and the PGB base is about 1.5 - 2m above the mudline, or ~1m above the TGB if this was run.** Check the PGB bulls-eyes angles with the ROV. **Maintain an angle of less than 1° on the casing and 30" wellhead assembly. If inclination is more than 1°, notify the Drilling Operations Superintendent before cementing this string in place.**

8.6 CEMENTING 30" STRUCTURAL CASING.

1. Conduct a JSA to discuss casing cementing procedures while circulating. Break circulation using the rig pumps at 6 bpm. Increase pump rate to 14 bpm maximum over the next five minutes. Circulate a minimum of 1.5 string volumes with seawater. RU and test cementing lines to 2000 psi. Review the EMDC Drilling Operations Manual - Floating Drilling cementing checklist.
2. Recalculate cement volume onsite based on actual hole depth and verify with the onsite cementing crew.
3. Pump a 20-bbl seawater pre-flush with fluorescene tracer.

4. Pump 249 bbls of cement slurry (volume required to fill the annulus with 250% excess) and displace with 24.0 bbl[1] of seawater to leave ~4m of cement above the float shoe. Use the ROV to monitor cement returns near the mudline during the job. . Report volume pumped when the fluorescene tracer exits the well.

NOTE: 1 2-7/8" drill pipe stinger should be available on site, with all necessary running tools, to run a top job if required.

5. Proposed cement slurry properties are detailed in ATTACHMENT 16 Beardie-1 - 30" Conductor Casing and Cementing Requirements. Refer to the Halliburton Cementing Laboratory Report for actual properties of the slurry.

6. Capacity values for displacement:
   - 30" casing, 310 ppf: 2.4986 bbl/m
   - 20" casing, 129 ppf: 1.1204 bbl/m
   - 5" 49.3 ppf HWDP: 0.02897 bbl/m
   - 5" 19.5 ppf S-135 drill pipe: 0.05827 bbl/m

7. Shut down pumps. Check float for proper operation. Hold backpressure if required.

8. Slack-off weight of the 30" casing string after the cement is in place. Mark drill pipe at RT. Check bullseyes on the PGB. If less than 1° adjust the heave compensator to support slightly more than the combined weight of the running string, running tool and inner string cementer. Release the 30" wellhead running tool with five (5) right-hand turns. Retrieve the landing string, stinger and CART. Flush the wellhead with the drill pipe stinger when POH. The compensator should stroke closed, when the running tool releases, if the compensator is balanced. Strap pipe and record the wellhead depth on the Daily Drilling Report along with the 30" shoe depth from the RT.

NOTE: 1 If the bullseyes shows greater than 1° inclination, pick-up the weight of the 30" string and WOC about 4 hours, or until the surface samples set up, then release the 30" wellhead running tool and continue.

9. Use the ROV to sweep any wet cement mounds around the wellhead away.

10. Report the 30" shoe depth on the Daily Drilling Report and send in the Drilling Reporting System casing and cementing reports, and 30" casing tally as a spreadsheet..

11. Ensure the following measurements are reported on the next Daily Drilling Report:
    - WD at MSL:
    - Top of the 30" SSWH from RT;
    - Actual RT to ML:
    - Actual RT to MSL.

NOTE: 1 Correct measured depths to MSL using the tide tables provided. Note that the tide tables are relative to LAT, and LAT is 0.93m below MSL.

12. If the 30" backup float joint assemby was run and excessive amounts of cement have been left inside the 30" conductor, RIH and drill-out the cement plug in the bottom of the 30" casing using the 26" Security XN1 bit on the planned 17-1/2" hole BHA. Circulate hole clean and POOH. Paragraph 7.6 Bottom Hole Assembly Program describes the 17-1/2" BHA.

---

[1] 74.3m 5" DP @ 0.05827 bbl/m = 4.33 bbl plus 38.5m of 5" DP stinger @ 0.05827 bbl/m = 2.24 bbl plus 5.9m of 30" conductor (28" ID) @ 2.4986 bbl/m = 14.74 bbl plus 1.1m of 20" conductor (18.750" ID) @ 1.1204 bbl/m = 1.23 bbl plus 1.5 bbl surface volume = 24.0 bbl TOTAL.

9.0 DETAILED PROCEDURES - 17-1/2" HOLE & 20" X 13-3/8" CASING

9.1 GENERAL INFORMATION

Although shallow gas is not expected, the precautions detailed in Paragraph 6.2 Shallow Hazards will be observed.

9.2 PREPARATIONS PRIOR TO DRILLING 17-1/2" HOLE SECTION

1. Make sure at least 450 bbls of hi-vis gel mud is mixed and ready to pump, as needed.
2. Have sufficient 12.0 ppg mud available to prepare 1600 bbl of 9.6 ppg kill mud if required for a dynamic kill while drilling riserless. This mud will later be used in the 17-1/2" surface hole.

   NOTE: 1 The 30" x 20" conductor volume is 118 bbl. 200% of the 17-1/2" openhole volume is 1417 bbl. Total kill weight mud should exceed 1535 bbl.

3. M/U Top Drive Cementing Head to a drill pipe pup joint and drill pipe single and lay out.
4. Paint the 13-3/8" shoe white. Paint 8 white stripes at 1m intervals on the 18-3/4" wellhead housing extension, numbered 1 to 8 from top down.
5. 18-3/4" Wellhead Housing
   - Inspect the 18-3/4" Wellhead Housing as per ABB Vetco Procedures;
   - Verify installation of the reduced bore seat protector (12.340" ID).
6. 18-3/4" Running Tools
   - Inspect the 18-3/4" Running Tools (CART) as per ABB Vetco procedures;
   - Rotate the stem to the left to extend the rams. Rotate the stem to the right approximately 5 turns to ensure the rams will move back into the body freely when lightly tapped, using a wooden block and hammer. Reinstall the guide screws.
   - Check the spring loaded anti-rotation (housing stop) block on the cam tool to ensure that it moves in and out freely.
   - Check all bull plugs are tight.
7. MU a pup joint of 5" drill pipe on top of the 18-3/4" CART tool with at least 9.1m of 5" drill pipe below and the Halliburton SSR Swivel/Equalizer Tool on-bottom. Lay down on the riser deck trolley.

   NOTE: 1 The amount of 5" drill pipe run below the CART should be enough the stab the SSR Cementing plug into the top joint of 13-3/8" casing. The length of the 18-3/4" CART tool is 1.31m (51-1/2"). The length of the MS-700 18-3/4" High Pressure Housing assembly including the 20" extension, swage and 13-3/8" pup joint is 8.63m (339-29/32").

   NOTE: 2 The SSR Swivel/Equalizer Valve Tool is 0.73m long with 4-1/2" IF box by 4" 6 Stud ACME pin connections.

8. Position the running tool in the 18-3/4" wellhead housing. Rotate the tool carefully to the left, by hand, until the anti-rotation pins engage slots in the wellhead housing. MU the tool with five (5) left hand turns as per ABB Vetco procedures. Lay down the 18-3/4" CART and High Pressure Housing pre-assembly on the riser deck trolley.
9. Drift 5" DP casing landing string prior to running casing. The SSR dart nose OD is 1.855" for drill pipe with a minimum diameter of 2.25".
10. Drift 13-3/8" casing to 12.259".

9.3 DRILLING 17-1/2" HOLE SECTION

1. Hold JSA meeting to discuss all riserless drilling procedures and responses.

2. If extensive amounts of cement need to be cleaned out of the conductor PU 26" Bit/17-1/2" stab/3 x 9-1/2" DC/Stab/3 x 8" DCs/5" HWDP, RIH and drill out the 30" shoe. Pump 50 Bbl hi-vis pill, circulate hole clean and POH.

3. PU the 17-1/2" hole BHA, listed in Paragraph 7.6 Bottom Hole Assembly Program, and RIH to TD on 5", 19.5#, S-135 drill pipe. Paint the 17-1/2" bit white and paint a white stripe at +/-860m from the bottom of the bit (adjust this mark based on the actual casing tally). Have ROV at the mudline to observe drilling of the entire hole section. Have ROV swim in and check for flow on connections.

   NOTE: 1 Do not circulate at the 30" shoe. Pull up inside the 30" casing to circulate.

4. Drill ahead at 800-1200 GPMs, 50-150 RPMs, and 5 - 10 kips WOB to 865m MDRT, to provide ~15 m of rathole below the 20" x 13-3/8" casing shoe proposed for 850m MDRT. Pump 20 Bbl hi-vis sweeps every 15m or as needed for adequate hole cleaning while drilling. Monitor mudline for hole washout, shallow gas and cuttings dispersion with the ROV. Adjust the drilling depth based on strap of the 20" x 13-3/8" tubulars. Take a Anderdrift surveys at every connection and at TD.

   NOTE: 1 If a survey is missed repeat surveys are not required. However, ensure that there are surveys at least every 150m.

5. At TD of 865m MDRT, pump a 100 Bbls hi-vis sweep and circulate bottoms up with seawater. Make a wiper trip to the 30" shoe. RIH to TD, pump 100 bbl hi-vis pill and circulate B/U, then displace the hole with 12.0 ppg mud. Drop the SDI gyro survey and SLM out of hole. At the 30" shoe, fill the hole with 110 Bbls of 12.0 ppg gel mud, keeping it full while SLM POH. Wash the 30" wellhead while pulling the bit out of the hole. Using the ROV monitor the hole for flow after the bit is out of it.

9.4 CASING RUNNING PROCEDURE

1. Hold JSA meeting to discuss casing running procedures. Review the EMDC Drilling Operations - Floating Drilling casing running checklist.

2. RU 20" x 13-3/8" casing running equipment and prepare floor to run casing.

   NOTE: 1 Ocean Bounty 20" slips and Master Bushing will be required for handling the 18-3/4" High Pressure Housing with 20" casing extension in the rotary table.

3. Run the 20" x 13-3/8" casing as described below using 150 ton sidedoor elevators and FMS to a depth of 850m MDRT. Have Weatherford on the rig floor to supervise casing running and connection make-up as needed.

   NOTE: 1 Run soft lines on shoe joint to facilitate entering the 30" wellhead and secure these lines properly. Run soft lines at 90° @ 3 m & 5 m above the end of the shoe. Use the ROV to clean the inside of the 30" wellhead for acceptance of the 18-3/4" wellhead profile.

   NOTE: 2 Note that the casing will enter the wellhead on the seventh joint run.

4. Verify water will flow through the 13-3/8" float shoe/collar, before it passes the waterline, by filling the casing with seawater and observing flow out of the shoe. Fill the remaining joints with seawater as they are run.

5. Make-up and run casing as detailed in ATTACHMENT 17 Beardie-1 - 13-3/8" Surface Casing and Cementing Requirements.

6. M/U the 13-3/8" casing using Best-O-Life 2000 thread compound.

7. Make-up the 13-3/8" casing using ExxonMobil Torque position makeup. For 13-3/8" 68ppf K55 BTC casing with phosphatised couplings T-min is 8,500 ft-lbs and T-max is 14,450 ft-lbs. D1 is 4.813" and D2 5.188".

8. Primary float equipment and wiper plugs are PDC-drillable/non-rotating.

9. Use hydraulic tongs to make up the 13-3/8" casings.

10. Slowly lower the 13-3/8" shoe into the well, while observing it with the ROV. Once successfully stabbed in, continue to run casing. Monitor the movement of the casing at the wellhead and do not use more than 50 kips of S/O weight before conferring with the Operations Superintendent. Circulate the casing down if required.

11. Run casing at 20 sec/joint and drill pipe at 40 sec/stand

12. Run the last joint of 13-3/8" casing with the No-Cross™ coupling preinstalled.

13. PU the 18-3/4" MS-700 wellhead Housing Joint w/31' long 20" extension, crossover swedge, and 13-3/8" pup joint BTC pin down on the 18-3/4" CART tool, and make-up to the No-Cross™ coupling.

    NOTE: 1 **The SSR Top Plug is not installed at this step.**

    NOTE: 2 **The 18-3/4" reduced bore seat protector has been installed in the 18-3/4" wellhead housing.**

    NOTE: 3 The 18-3/4" MS-700 wellhead Housing Joint w/31' long 20" extension, crossover swedge, and 13-3/8" pup joint has been made up to the 18-3/4" CART off the critical path and laid down on the riser deck trolley.

14. RD casing handling tools. Install the 20" Master Bushing and the Ocean Bounty 20" slips.

15. Set the 18-3/4" MS-700 wellhead Housing Joint w/31' long 20" extension in the 20" slips. Release the 18-3/4" CART with five (5) right hand turns and PU above 18-3/4" High Pressure Housing.

16. Install the 13-3/8" Halliburton SSR Top Plug to the drillpipe stinger. Sting the SSR plug through the 18-3/4" MS-700 wellhead Housing into the 13-3/8" casing below it.

    NOTE: 1 Check final spaceout of the SSR plug on the stinger before installing into the 18-3/4" MS-700 Wellhead.

    NOTE: 2 The ID through the reduce bore casing protector is 12.340". The SSR Top Plug will pass through this minimum bore.

17. Fill the void between the top of the SSR cement plug and the top of the wellhead with water before finally making up the running tool.

18. Position the running tool in the 18-3/4" wellhead housing. Rotate the tool carefully to the left, by hand, until the anti-rotation pins engage slots in the wellhead housing. MU the tool with five (5) left hand turns as per ABB Vetco procedure.

19. Turn the CART stem 1/8 turn back to the right to break any seizing between the tool stem and ram housing. Perform a PU test to ensure the locking dogs are fully engaged.

20. Lock the blocks to prevent rotation that could back out the CART. Record the assembly weight.

    NOTE: 1 The weight of the 20" x 13-3/8" casing string in 8.5 ppg seawater is 148 kips. The total string including casing, high pressure housing and running string in seawater is estimated to be 178 kips.

21. Paint a white stripe on the 18-3/4" CART tool joint and wellhead housing to verify proper tool rotation on retrieval subsea.

22. The running string should consist of:
    - XO-6-5/8" Reg. Pin Down x 4-1/2" IF Box Up
    - 5" 19.5 ppf S-135 drill pipe pup joint on the 18-3/4" running tool XO.
    - 5" 19.5 ppf S-135 drill pipe (4-1/2" IF)

23. Maintain observation with the ROV from the rig floor to ensure casing movement at the rig floor is consistent with casing movement at the wellhead.

24. Continue to RIH. M/U cement head and connect cement hoses. Prior to 20" swage entering the 30" wellhead, open the compensator. To reduce the potential for lost returns, slow down pipe movement to +/-1 minute stand once the 20" section enters the wellhead. Continue to RIH to land the 18-3/4" wellhead in the 30" wellhead. Make a PU test of the running string. Record the hook weight just prior to the PU test. Land and latch the 18-3/4" wellhead into the 30" wellhead housing and with the 13-3/8" shoe at 850m± MD. Pull test latch-up with 30 kips of overpull and then release the overpull. If latch up does not occur, it may be necessary to pick-up and repeat the process.

9.5 CEMENTING 20" X 13-3/8" SURFACE CASING

1. Conduct a JSA to discuss casing cementing procedures while circulating. Break circulation using the rig pumps at 6 bpm. Increase pump rate to 10 bpm maximum over the next five minutes. Circulate a minimum of 1.5 string volume with seawater to the shoe to ensure the drillstring and floats are clear prior to cementing and densities inside and outside of the casing are similar. RU and test cementing lines to 2500 psi. Rig-Up the Top Drive Cementing head. Review the EMDC Drilling Operations - Floating Drilling Cementing checklist.
2. Recalculate volume onsite based on actual hole depth, and verify with the onsite cementing crew. Use 100% excess on open hole.
3. Pump a 50-bbl seawater pre-flush with fluorescene dye, monitor returns at the sea bed..
4. Pump 560 bbls of 12.5 ppg lead cement slurry followed by 150 bbl of 15.9 ppg tail slurry (volume required to fill the float joints, 30" conductor and 13-3/8" annulus, and 17-1/2" open-hole annulus with 100% excess).
5. Proposed cement slurry properties are detailed in ATTACHMENT 17 Beardie-1 - 13-3/8" Surface Casing and Cementing Requirements
6. Refer to the Halliburton Cementing Laboratory Report for actual properties of the slurry.
7. Drop Top Plug Releasing Dart.

   NOTE: 1 Drift all drillpipe and xovers. The SSR dart nose OD is 1.855" for drill pipe with a minimum diameter of 2.25".

8. Displace cement with nominally 372.9 bbl[2] seawater to bump the top plug with 2230 psi for 2 minutes. Base the actual displacement on the actual lengths of tubulars run, and the calipered casing ID. Monitor for cement returns with ROV near the mudline during the job. Do not cut the volume of the tail slurry short. Displace cement with the rig pump and maintain an 8-10 bpm rate. Reduce pumping rate if necessary, to maintain cement returns at the mudline, or to avoid pumping cement into the formation.

   NOTE: 1 Check the efficiency of the rig pumps.

   NOTE: 2 Pump the total calculated displacement plus a maximum of half the shoe track volume = 372.9 bbl + 6.2 bbl = 379 bbl.

9. Capacity values for displacement:
   - 13-3/8" 68 ppf casing: 0.49737 bbl/m (based on callipered casing used for East Pilchard-1)
   - 5" 19.5 ppf S-135 drill pipe: 0.05827 bbl/m

   NOTE: 1 The 13-3/8" 68 lb/ft K-55 BTC casing for Beardie-1 has been callipered at BBMT. Use the average calliper value to calculate casing capacity and final displacements.

10. Shut down pumps. Check floats for proper operation. Hold back-pressure if required.

---

[2] 77.3m (74.3m + 3m stickup) 5" drill pipe @ 0.05827 bbl/m = 4.5bbl, plus 724m (825.5m - 86.3m) of 13-3/8" 68 ppf casing (drillpipe stinger to float collar) @ 0.49737 bbl/m = 367.7 bbl, plus 12m (86.3m - 74.3m) of 5" drillpipe stinger @ 0.05827 bbl/m = 0.7 bbl. Total = 372.9 bbl.

11. Slack-off weight of the 20" x 13-3/8" casing string after the cement is in place. Mark drill pipe at drill floor. Check the bullseye and report inclination on the Daily Drilling Report. Adjust the heave compensator to support slightly more (2-3 kips) than the combined weight of the running string, running tool and inner cementing string. Release the 18-3/4" wellhead running tool with five (5) right-hand turns. Retrieve the landing string, stinger and CART. The compensator should stroke closed, when the running tool releases, if the compensator is balanced. Monitor for any settling before releasing the CART and discuss with the Operations Superintendent if any is observed before releasing.

    NOTE: 1 Mark an index line on the drill pipe at drill floor elevation prior to POOH, for reference if 9-5/8" casing is run.

12. Use the ROV to inspect the wellhead and sweep away any wet cement mounds around the wellhead.

    NOTE: 1 A wash tool is available to wash inside the wellhead if required.

13. Retrieve the CART and drillpipe stinger out of the hole to get a precise wellhead distance measurement, reporting the distance from the RT-18-3/4" wellhead on the Daily Drilling Report. Examine the wellhead area for any debris or flow with the ROV. Inspect the wellhead area for excessive accumulation that requires jetting prior to running the BOPs. Jet these materials and wellhead as needed.

14. L/D the Vetco CART. Stand back the 5" drill pipe stinger and drill pipe landing string.

15. Report the 13-3/8" shoe depth on the Daily Drilling Report and send in the Drilling Reporting System casing and cementing reports, and 13-3/8" casing tally spreadsheet.

10.0 DETAILED PROCEDURES - 12-1/4" PRODUCTION HOLE

10.1 RUNNING THE 18-3/4" BOP STACK AND RISER

1. Prior to running the BOP and riser confirm that the flex-joint angle indicator is funtional. Move the rig +/- 15m off location. Run the 18-3/4" 10,000 psi BOP stack and riser. Reposition the rig back over the well.

    NOTE: 1 Test the choke and kill lines after running the first riser joint, and again when on-bottom.

2. While observing with the ROV, land and latch the stack. Pull 50 kips to verify the latch. Check the BOP and riser bullseyes. Report inclinations on the Daily Drilling Report (DDR). Notify Esso Drilling Operations Superintendent if either bullseye is over 1.5° of angle. To minimise the chances of damage caused by riser recoil during a disconnect, space out the slip joint at 1/2 stroke. This should place the top of the outer barrel well above the water line.

3. Test the wellhead connector, shear rams and 13-3/8" casing to 250/2230 psi surface pressure while laying down the landing joint. These test pressures are required by P(SL)A regulations. Pressure must not decline by more than 10% in 30 minutes. Notify Esso Drilling Operations Superintendent if pressure test requirements are not met. Function test the blind rams.

4. Adjust riser tensions, unscope slip joint and rig-up the diverter system. Function test the diverter system and pump through it with seawater. Tension guidelines as required.

5. Tension riser per DOGC operational guidelines and increase as required based on actual mud weights.

    NOTE: 1 Observe and monitor mooring tension loads and upper flex joint angle and increase tensioner load as required.

6. Test the BOP stack connections, choke and kill lines against the blind rams and casing shoe to 2230 psi (Phase I PIT).

NOTE: 1 Report results of PITs using the EMDC Drilling PIT spreadsheet on the following daily report. Send original plots for the PITs and a copy of the spreadsheet to the office for the well file.

7. Function test BOP stack against drill pipe using both pods. Before drilling out conduct a choke drill.

RISER PROPERTIES	
Outside Diameter	21"
Wall Thickness	0.625"
Connection Type	Bolted Flange
Material Grade	RMW X-65 & X-80(AISI 4130)
Minimum Yield Strength	65,000 psi & 80,000 psi
Average Length of Each Joint	15.2m (50 ft)
Weight of One Complete Joint in Air	12,750 lb
Collapse Pressure (Note 1)	1315 psi / 955 psi
Minimum Burst Pressure (Note 1)	3385 psi / 3049 psi
Tube Body Tensile Capacity (Note 1)	2,600 kips / 2,349 kips
Tube Body Bending Capacity (Note 1)	1072 kips per foot / 974 kips per foot

NOTE: 1 Values are based on 0.625" wall thickness riser, and riser with 10% uniform wear reducing wall thickness to 0.563"

10.2 PREPARING THE KCL/PHPA/POLYMER/GLYCOL MUD SYSTEM

1. The following is the recommended system formulation (in order of addition) for the KCL/PHPA/Polymer/Glycol mud system. Note that Glycol will not be added to the mud system until after the PIT and drilling ahead.

- Baracide — 0.1 ppb (add to reserve only)
- KCl Brine — 6 - 8% by weight solution
- Drillzan-D Polymer — 1.0 - 1.5 ppb (first polymer to be mixed)
- PAC-L — 1 ppb
- Dextrid-LT — 3 - 4 ppb
- PHPA — 1.5 ppb
- Glycol-CP — 3% by volume (after PIT and drilling ahead)
- Caustic Potash — 0.2 ppb (to pH 9.0)
- Barite: — As Required

2. In new pre-mix, PHPA should be the last polymer added, in order to minimise the inhibitive effect of PHPA on the yield of the other polymers.
3. Drill the cement and casing shoe with seawater. Prior to the PIT, displace the hole to new mud pre-treated with 0.5 ppb each of Citric Acid and Bicarb. Soda. It will be necessary to run coarser screens at first until the new mud shears down sufficiently. Then replace these with finer screens.
4. Add Glycol-CP to the active system after any high pH caused by cement contamination has been treated out with Citric Acid and Bicarb. Soda.
5. Maintain mud properties as listed in ATTACHMENT 12 Baroid Drilling Fluid Program - Beardie-1 program.

10.3 DRILLING 12-1/4" HOLE SECTION

1. While running riser and testing BOPs, prepare the Baroid KCL/PHPA/Polymer/Glycol mud system (and maintain its properties) as detailed in 7.3 Drilling Fluids Requirements and ATTACHMENT 12 Baroid Drilling Fluid Program - Beardie-1 program.

2. PU the 12-1/4" hole BHA, listed in Paragraph 7.6 Bottom Hole Assembly Program and RIH to TD on 5", 19.5#, S-135 drill pipe.

3. Finish TIH to float shoe. Prepare to displace seawater in the well with 9.0 ppg KCL/PHPA/Polymer/Glycol mud system. Note, that Glycol will not be added until after the PIT and while drilling ahead.

   NOTE: 1 Coarse screens should be used on the shakers until the KCL/PHPA/Polymer/Glycol mud is sheared at the bit and increases in temperature. Screens should be the finest possible size that can be used without whole mud losses.

4. Prior to drilling float equipment conduct a Phase I PIT if not obtained in Section 10.1 step (6).

   NOTE: 1 Report results of PITs using the EMDC Drilling PIT spreadsheet on the following daily report. Send original plots for the PITs and a copy of the spreadsheet to the office for the well file.

5. Begin drilling cement while displacing with the KCL/PHPA/Polymer/Glycol mud system.

   NOTE: 1 Dump the seawater returns. At 100 bbls before theoretical displacement, reduce the pump rate and have the mud engineer observe for KCL/PHPA/Polymer/Glycol returns. Divert flow to the active mud system when new mud is observed at the surface.

6. Drill cement and float equipment. Clean out rathole. Drill 3m of new hole. Pull bit into casing.

7. Circulate and condition mud for PIT.

8. Test cement line to 5000 psi. Perform a Phase II PIT by pumping simultaneously down the drill pipe and annulus to leak-off, but not exceeding 17.0 ppg MWE.

   NOTE: 1 Contact the Operations Drilling Superintendent if a PIT greater than 13.5 ppg MWE is not obtained.

   NOTE: 2 Complete the ExxonMobil PIT calculation Excel spreadsheet and send to Town.

9. Optimum drilling parameters are: 800-1000 gpm, 50-220 rpm, and 0-20 kips WOB. Use the maximum flow rate possible while minimising mud losses at the shaker.

10. Drill ahead to the dry-hole TD depth of ~1905m MDRT, determining the final dry hole depth according to ATTACHMENT 2 Beardie-1 Geological Program.

11. Take an Anderdrift survey every connection.

    NOTE: 1 This is a vertical well with a 100m radius target.

    NOTE: 2 Do not repeat a missed survey. Ensure that as a minimum there are surveys every 150m.

    NOTE: 3 Maintain a complete sketch of all BHAs (through HWDP) run to TD, with ODs, IDs and lengths and connections.

12. Additional notes for the 12-1/2" hole section are:

    NOTE: 1 Maintain the mud properties as listed in 7.3 Drilling Fluids Requirements and ATTACHMENT 12 Baroid Drilling Fluid Program - Beardie-1. Raise MW to 9.5 to 10.0 ppg prior to drilling into the Lakes Entrance Formation expected at 1154m MDRT. Immediately prior to drilling into the Latrobe Formation expected at about 1184m MDRT, add 5 ppb each of Baracarb-25 and Baracarb-100. Raise mud weight as hole conditions dictate. Discuss with Operations Superintendent before raising mud weight above 10.5 ppg.

    NOTE: 2 Refer to ATTACHMENT 9 EAL Tripping Practices for recommendations on tripping and wiper tripping practices in Bass Strait.

    NOTE: 3 Coal stringers are expected/possible in the Latrobe sands. Guidelines for drilling coal are contained in 6.7.1 Coal Stringer Precautions.

    NOTE: 4 Run Garret gas train for H_2S every 12 hours on mud checks below 1184m MDRT for H_2S, CO_2 and soluble sulphides. Have Baroid measure and report chlorides and calcium content of the make-up water on the Daily Drilling Report.

NOTE: 5 Break circulation at a minimum every 25 stands when TIH.

NOTE: 6 Monitor flow and cuttings characteristics across the shakers to ensure hole integrity and cleaning.

NOTE: 7 Continue drilling with the blocks strung to 12 lines (1-5/8" EIPS IWRC), depending on current conditions. Drilling guidelines for maximum allowable weight indicator readings are as follows, including the block weights (150 kips for the blocks, motion compensator and top drive):

Routine Operations	**Stuck Pipe-Controlled Pull**
4.0 Safety Factor	3.0 Safety Factor
12 Lines 619 kips	713 kips

These are calculated for 1-5/8" 6 x 19 IWRC EIPS drill line with 264 kips strength. Contact the Esso Drilling Operations Superintendent before pulling in excess of 619 kips. The 5" S drill pipe will be the weak link in the string. The derrick is rated for 1000 kips.

13. At the dry hole TD, pump a 100-bbl hi-vis sweep. Circulate bottoms up at the maximum possible rate. Make a wiper trip to the 13-3/8" shoe. RIH to TD and circulate the hole until the shakers are clean or 2.0 times bottoms up, whichever occurs last. POOH to log.
14. Log the well at ~1905m MDRT according to ATTACHMENT 2 Beardie-1 Geological Program.
15. Depending on the results of the above logs and in accordance with ATTACHMENT 2 Beardie-1 Geological Program the well may be deepened.
16. At the deepened TD, pump a 100-bbl hi-vis sweep. Circulate bottoms up at the maximum possible rate. Make a wiper trip to the 13-3/8" shoe. RIH to TD and circulate the hole until the shakers are clean or 2.0 times bottoms up, whichever occurs last. POOH to log.
17. Log the well at TD according to ATTACHMENT 2 Beardie-1 Geological Program.

11.0 P&A OR CASE & SUSPEND SUPPLEMENTAL PROGRAM

A Supplemental Program will be issued to either P&A the well or to suspend it.

12.0 ATTACHMENTS

BEARDIE-1 DRILLING PROGRAM DISTRIBUTION LIST

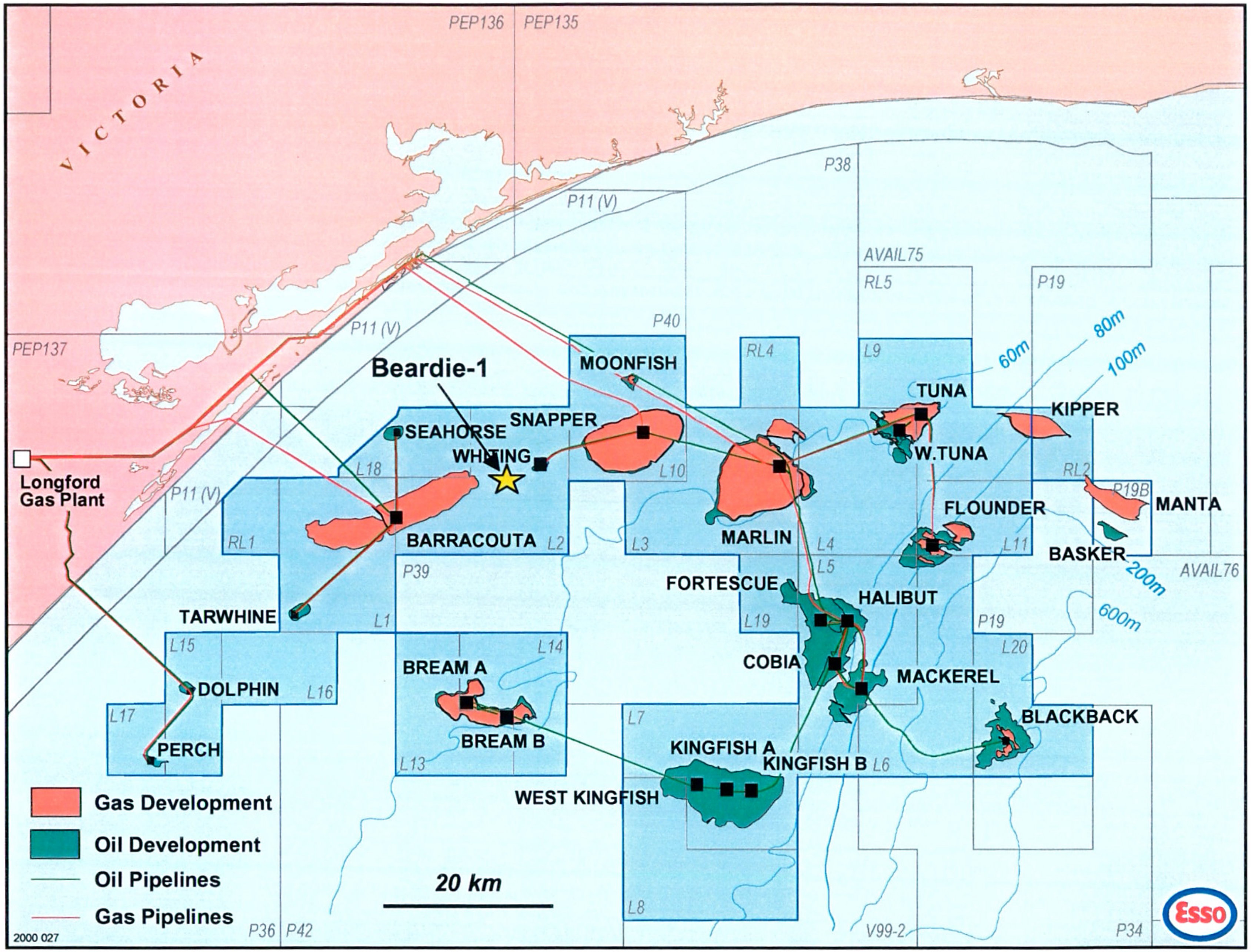
Organisation	Attention	Address	Check
Department of Natural Resources & Environment - Minerals & Petroleum Victoria **Note: 2 copies required with EMDC Operating Manual**	Mr. Bruce Amour	PO Box 500 EAST MELBOURNE VIC 3002	
BHP Billiton Petroleum Pty Ltd (including copy of DNRE letter & EMDC Op. Manual) **Note: 2 copies required with EMDC Operating Manual**	Mr Mel Osborne Geoscience and Unitisation Coordinator	Level 29 600 Bourke Street MELBOURNE VIC 3000 GPO Box 86A, VIC 3001	
SRO Department (+ DNRE letter & EMDC Op. Man)	Mr David Tyler	Esso House Room 10th floor	
Ocean Bounty **Note: 3 copies plus one copy of the EMDC Operating Manual**	Operations Supervisors & Diamond Offshore PIC	Ocean Bounty Mailbag	
ExxonMobil Development Company - Drilling	Mr Joel Kiker Operations Managers	EMDC, GP 4 708 16945 NorthChase Drive HOUSTON TX 77060	
ABB Vetco Gray Australia Pty. Ltd.	Mr Donald Kunath	19 Irvine Drive MALAGA WA 6090	
AIPC (Wellsite Geologists)	Andrew Hodgson	Esso House Room 4.84	
Baker Hughes INTEQ	Mr Ted Rideout	Suite 4, 5 Stoneham Street, BELMONT WA 6104 PO Box 339, BELMONT WA	
Baroid Australia	Mr Nicholas Doust	90 Talinga Road CHELTENHAM VIC 3192	
Halliburton Australia Pty. Ltd.	Mr Richard Taylor	90 Talinga Road CHELTENHAM VIC 3192	
Diamond Offshore General Company	Mr Jimmy R. Moore Operations Manager	Level 9, 225 St Georges Tce, PERTH WA 6000	
Schlumberger SALE	Mr Trevor Speldrich	314 Raglan St. SALE VIC 3850	
Weatherford Australia	Mr Bill Winter	P.O. Box 1154 SALE VIC. 3850	
BBMT Materials Supervisors	Mr Col Walker & Ms Sally McKenzie	BBMT WELSHPOOL VIC	
EAPL Library **Note: 2 copies incld EMDC Op Man**	Librarian	Esso House 3rd floor	
Field Drilling Manager	Daniel L. Whiteman	Esso House Room 6.16	
Operations Superintendent (including EMDC Op. Manual)	Frank Kratzer	Esso House Room 6.23	
Engineering Manager	Colin Johancsik	Esso House Room 6.18	
Program Original Copy (including EMDC Op. Manual)	Chris Meakin	Esso House Room 6.19	
Drilling Engineer	Chris Meakin	Esso House Room 6.19	
Drilling Engineer	Andrew McGregor	Esso House Room 6.35	
Gippsland Geoscience Manager	Glen Nash	Esso House Room 5.53	
Geoscience Team Leader (including EMDC Op. Manual)	Andy Zannetos	Esso House Room 5.57	
Geologist	Paul Owen	Esso House Room 5.54	
Formation Evaluation	Kumar Kuttan	Esso House Room 4.86	
Operations Geologist	Andrew Hodgson	Esso House Room 4.84	

ATTACHMENT 1.

BEARDIE-1 LOCATION MAP

ExxonMobil Exploration

GIPPSLAND 2001



913711 219

ATTACHMENT 2

ESSO AUSTRALIA PTY LTD

BEARDIE-1

GEOLOGICAL PROGRAM

VIC/L2

June, 2002

ESSO AUSTRALIA PTY LTD
12 RIVERSIDE QUAY, SOUTHBANK, MELBOURNE, VIC, 3006.

CONTROLS

Approval, Ownership and Control

	Name	Title	Signature	Date
Prepared By	A. Hodgson	Operations Geologist		11/06/02
Reviewed By	K. Kuttan	Petrophysicist	Kentt	11/06/02
Approved By	G. Nash	Gippsland Geoscience Project Manager		11/6/02
Document Control	EALP Library			

Registration

Document Name	**Beardie-1 Geological Programme - VIC/L2**

Beardie-1 Geological Program Document Distribution

Company / Department	Name / Position	Number of Copies
Esso Australia Pty Ltd		
Gippsland Geoscience Project Manager	G. Nash	1
Well Project Team Leader	Andy Zannetos	1
Well Project Geologist	Paul Owen	1
Operations Superintendant	Frank Kratzer	1
Drilling Well File		1
Senior Drilling Engineer	Chris Meakin	1
Drilling Supervisors (Ocean Bounty)	Brigham Bigby / George Sharkey	1
Wellsite Geologists (Ocean Bounty)	AIPC	1
Schlumberger	Wireline Loggers	1
BHI	Mudloggers	1
Operations Geologist	Andrew Hodgson	1
Formation Evaluation	Kumar Kuttan	1
Reservoir Engineering	Diyar Barzanji	2
Partners		
BHPP		1
Total		**15**

TABLE OF CONTENTS

FIGURES

APPENDIXES

1.0 BEARDIE-1 WELL DATA SUMMARY

Well Name	:	Beardie-1
Location : Primary Target	:	N1.6, N1.7, N2, N4, M1 Reservoirs
Basin, Permit	:	Gippsland Basin, Vic/L2
Seismic Lines	:	Barracouta G99 3D Seismic Survey Inline-684, Crossline-3235
Latitude	:	38 15' 16.3" S
Longitude	:	147 48' 24.6" E
A.M.G.	:	X = 570,593mE Y = 5,765,623mN
Target Depth (N1.6)	:	1268mRT (-1243mTVDSS)
Datum	:	**Australian Geodetic 1966 (AGD66)**
Spheroid	:	Australian National Spheroid (ANS). UTM Zone 55 / **AMG Zone 55** Central Meridian (CM) **147 Degrees East**. False Easting 500,000.0 False Northing 10,000,000.0 Scale Factor at CM 0.9996.
Projection	:	Universal Transverse Mercator (UTM).
Tolerance	:	The drilling target at the depth of -1880mTVDSS should be intersected within a circle of radius 100m.
Block Equity Percentage	:	Esso Australia Pty Ltd (Operator) 50.0 % BHP Billiton Pty Ltd 50.0 %
Type of Well	:	Near Field Wildcat
Anticipated Spud Date	:	July, 2002
Proposed Total Depth	:	1905mRT, -1880mSS (potential to deepen to +/- 3075mMD if required)
Water Depth	:	50m MSL
RT - Sea Level	:	25m
Rig	:	Ocean Bounty
Drilling Contractor	:	Diamond Offshore General Company

2.0 GEOLOGICAL SUMMARY

2.1 Geological Synopsis

The proposed Beardie-1 location is approximately 4 km west of Whiting-2. The location lies in 50 metres of water, within the VIC/L2 licence area of the Gippsland Basin (Figure 1).

The Beardie-1 well is designed to explore for oil in fluvial reservoirs in the Latrobe Group (*N.asperus – L.balmei* age). A four-way dip closure has been mapped on the Barracouta anticlinal trend. This is part of a larger anticlinal feature that extends from Mulloway to Snapper along which have been intersected several intra-Latrobe oil accumulations. The closest of these are the Whiting P and the Barracouta N and M sands with combined production of over 38 mbbls. Traditionally intra-Latrobe prospects have carried a greater risk due to fault seal and top seal integrity issues. In this region proven seals are observed across the Whiting and Barrcouta fields, and have been interpreted, with the aid of high resolution 3D seismic data to extend over the Beardie area as well.

The velocity field across this area is complex with fast lateral velocity changes observed across the Barracouta field. A high velocity Miocene age carbonate filled channel extends across the Beardie prospect and is interpreted to be producing some time pull-up. Each depth conversion technique used in the area produced a closure at Beardie but it should be noted that closure adequacy remains the greatest Prospect risk.

The TD of the well may be deepened to +/-3075mMD if required.

Figure 1: Beardie-1 Location Map

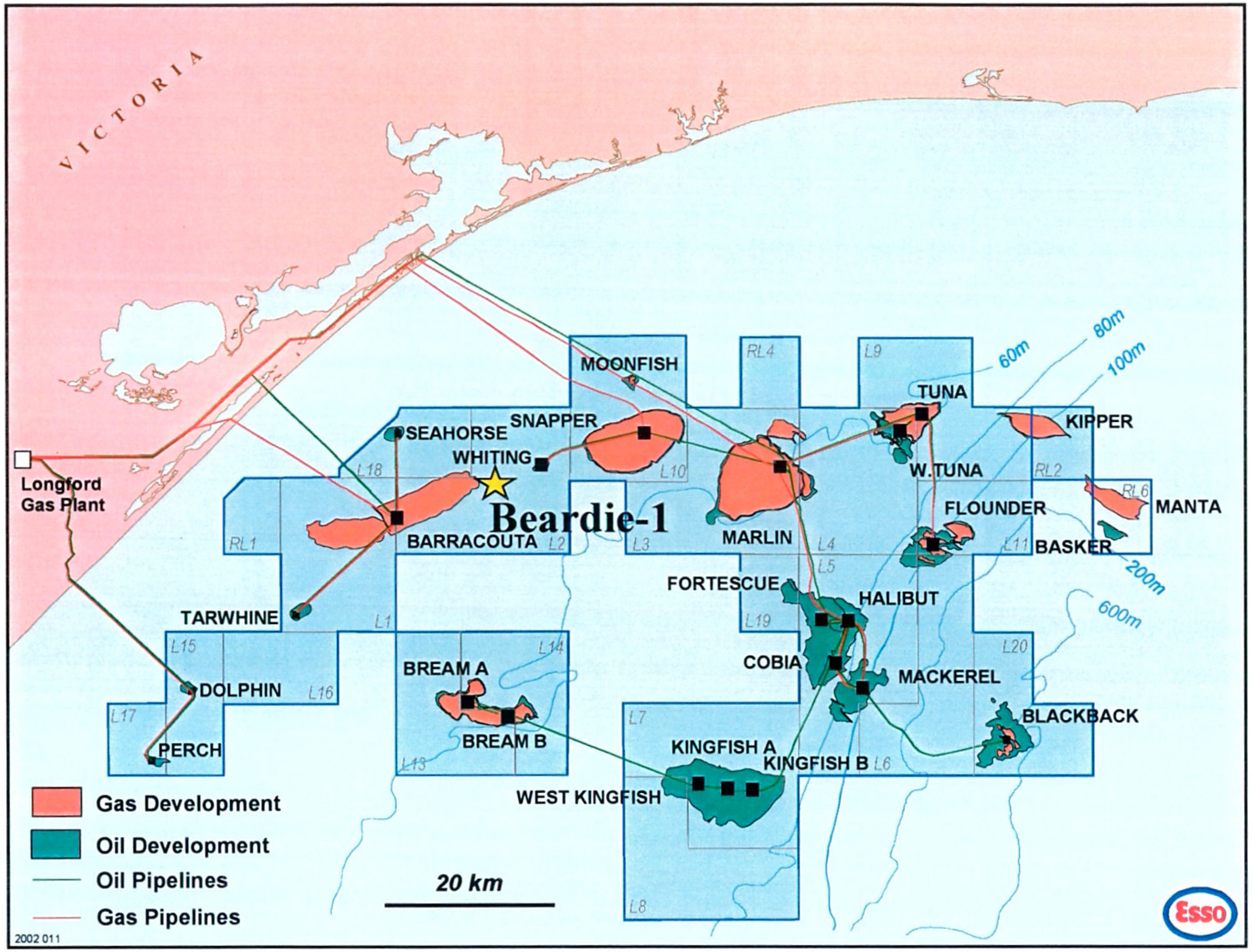


Figure 2: Analogue Wells

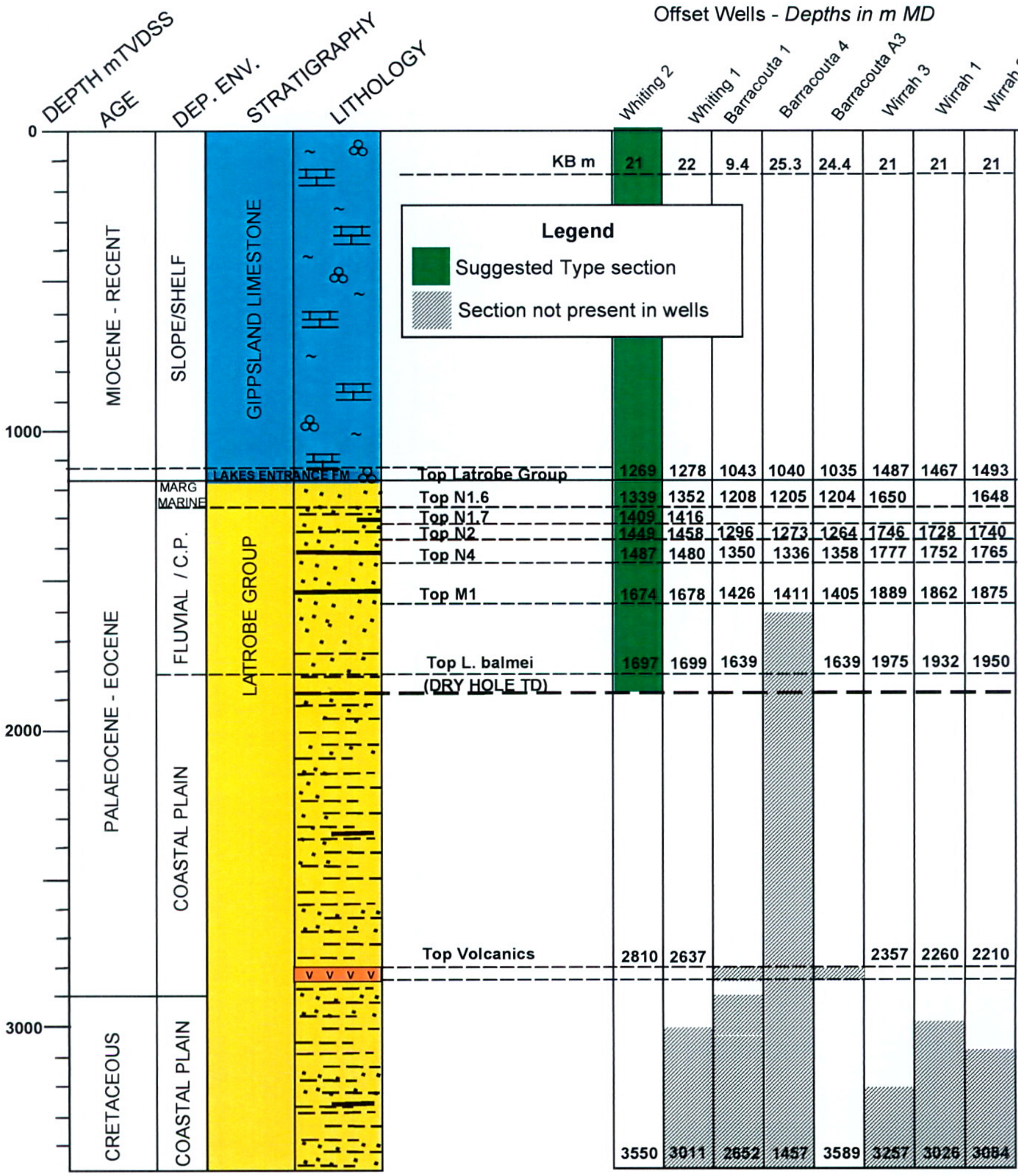
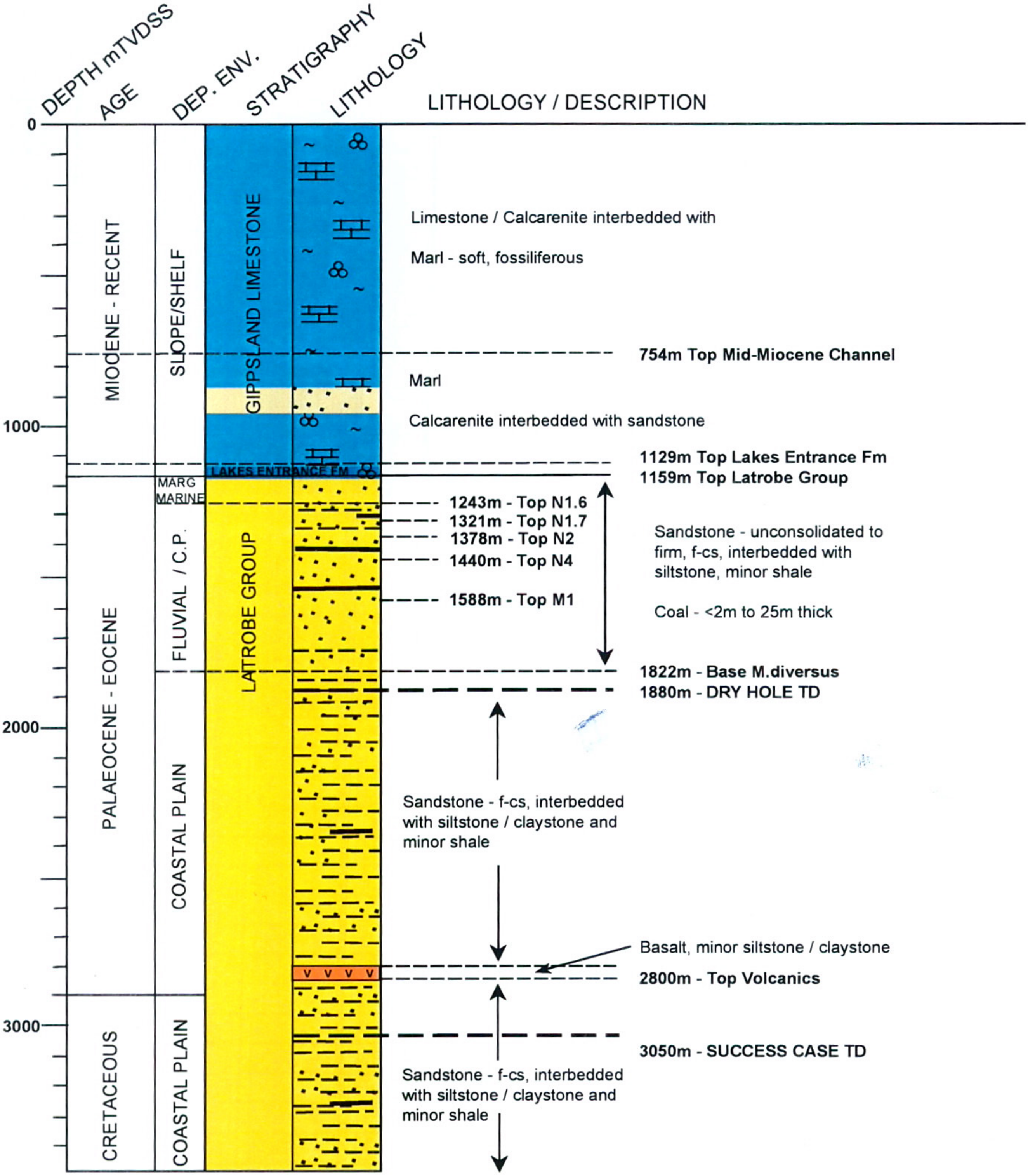


Figure 3: Beardie-1 Predicted Well Section



2.2 Offset Wells

Table 1

Well Name	Distance & Direction	TD (TVDSS)	Max. MW	Analogous Interval	Drilled Date
Whiting 2	4km, E	-3529	11.0	P Reservoirs (-1429 to -1627	1985
Wirrah 3	6.3km, NNE	-3236	12.3	P Reservoirs (-1725 to -1848)	1983
Whiting 1	7.1km, ENE	-2990	10.0	P Reservoirs (-1437 to -1619)	1983
Wirrah 1	7.2km, NNE	-3005	9.8	P Reservoirs (-1653 to -1818)	1982
Wirrah 2	8km, NNE	-3063	10.6	P Reservoirs (-1695 to -1828)	1983
Barracouta 1	8.8km, WSW	-2642	11.6	N2-5 Reservoirs (-1287 to -1400)	1965
Barracouta 4	9.9km, SW	-1432	11.2	N2-5 Reservoirs (-1247 to -1377)	1977
Harlequin 1	10.3km, NW	-2554	10.0	P Reservoirs (-1563 to -1624)	1989

2.3 Geological Prognosis

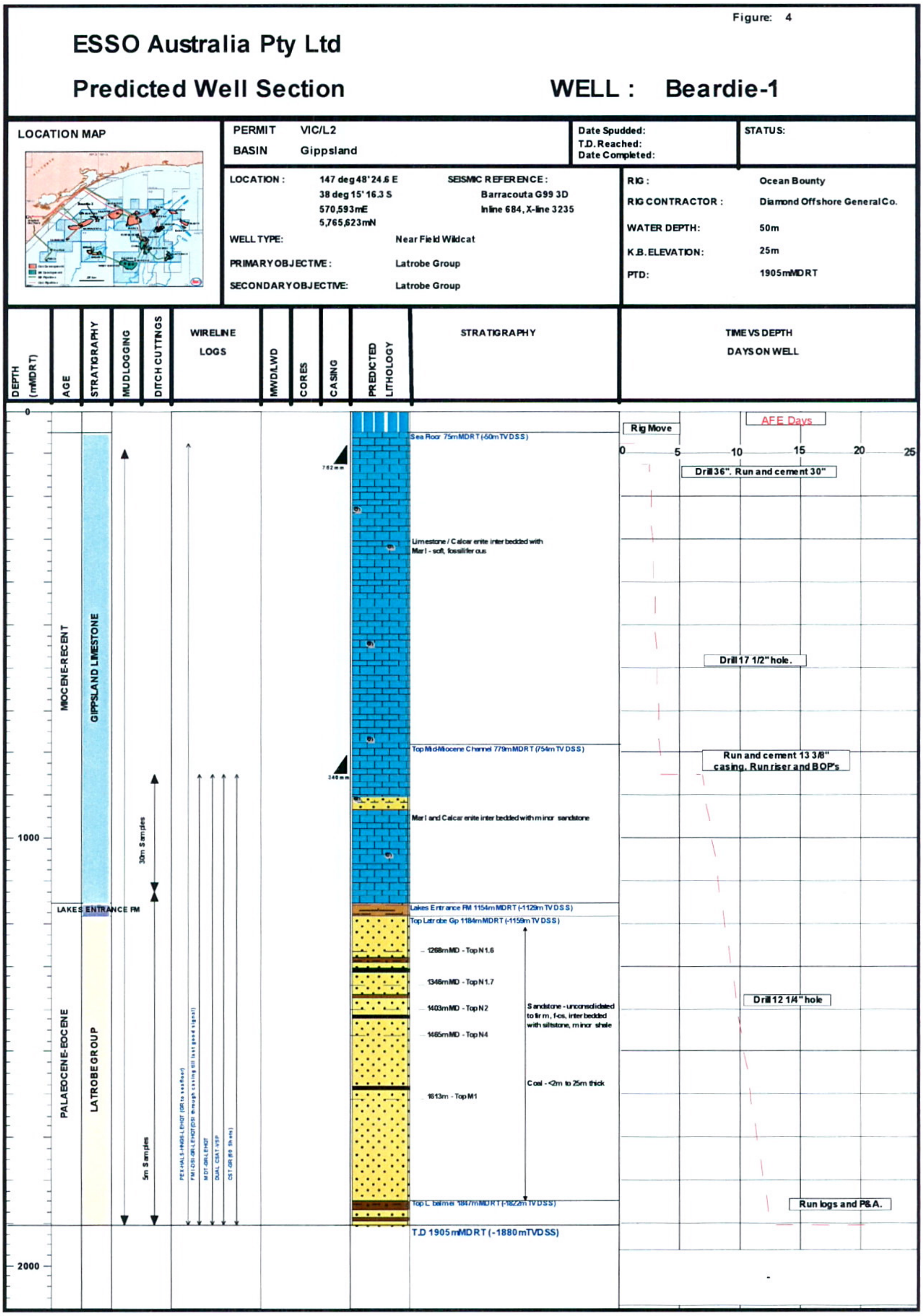
Beardie-1 is a wildcat exploration well which has a primary target in fluvial reservoirs in the Latrobe Group (*N.asperus – L.balmei* age). Table 1 lists offset wells which have intersected these reservoirs. Figure 2 highlights the type section expected in Beardie-1. The prognosed stratigraphy is illustrated in Figure 3. The prognosed formation tops are listed in Table 2 and the predicted well section with predicted time versus depth curve and formation evaluation program illustrated in Figure 4. The seismic line on which the well is to be drilled (Xline 3235) is illustrated in Figures 5.

Table 2

Prognosed Formation Tops			
Formation/Marker	**Thickness (m)**	**MDRT (m)**	**TVDSS (m)**
Top Gippsland Limestone	1079	75	-50
Base Mid-Miocene Channel		779	-754
Top Lakes Entrance Fm	30	1154	-1129
Top Latrobe Group	721	1184	-1159
Top N1.6*		1268	-1243
Top N1.7*		1346	-1321
Top N2*		1403	-1378
Top N4*		1465	-1440
Top M1*		1613	-1588
Top *L.balmei*		1847	-1822
Dry hole TD		**1905**	**-1880**
Top Volcanics		2825	-2800
Success Case TD		**3075**	**-3050**

*Primary Objective

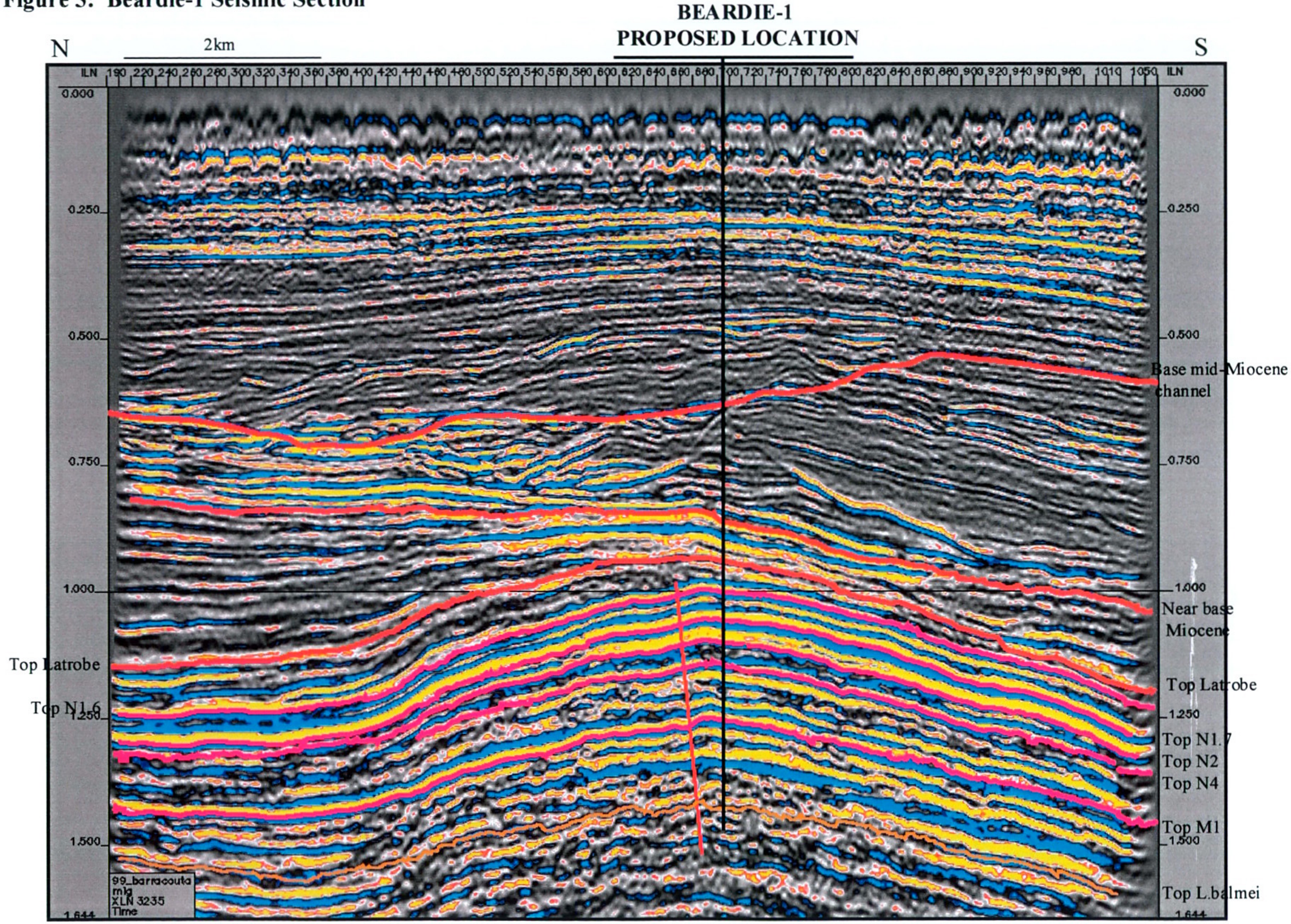
Figure 4: Beardie-1 Formation Evaluation and Time Depth Curve



~~PE913711 colour 014~~

913711 232

Figure 5: Beardie-1 Seismic Section



2.4 Stratigraphy

The prognosed stratigraphy of the Beardie-1 well (summarised in Figure 3 & 4) is based on adjacent well data and regional seismic correlations. The predicted section at Beardie-1 is not intersected in its entirety in any one well, although the section penetrated at Whiting-2 is expected to be similar. Whiting-2, Whiting-1, Barracouta-1, Barracouta-4 and the Wirrah wells provide the main control (Table 1).

The well is expected to penetrate a thick succession of limestones and marls of the Gippsland Limestone, the Lakes Entrance Formation and a thick Latrobe clastic package. The Top Latrobe Coarse Clastics to the Top of the L. balmei (*N. asperus* to the upper *L. balmei* age) section is comprised of thick braided fluvial non-marine deposits and marginal marine estuarine and bayhead delta deposits. Stacked sandstone channel facies sequence are interbedded with thin shales and coals, with laterally continuos coals ranging up to 25m thick. Minor dolomitisation has occurred within sandstones in this section.

The upper Latrobe section thickens from Barracouta-1 to Whiting-2 (west to east) over the Beardie-1 location. Sand packages similar to those seen in the Whiting-2 well are expected (stacked channel sand intervals with up to ~30m net in the upper Latrobe section).

2.5 Reservoir

The primary objective of the Beardie-1 well is to test potential stacked channel sandstone reservoirs within the intra-Latrobe Group. The primary N1.6, N1.7, N2, N4 and M1 reservoirs are expected to range in thickness from 10-30m and are composed of excellent quality, stacked, braided fluvial upper delta plain sands, as seen in the nearby Whiting and Barracouta wells. Intraformational seals are to be provided by thin, coastal plain shales and claystones that are expected to increase in quality over the Beardie-1 location. These shales and claystones have proven to be excellent seals for the neighbouring Barracouta and Whiting oil and gas reservoirs.

2.6 Total Depth

Beardie-1 is predicted to penetrate the deepest of the primary reservoirs at 1610mMD (1585m TVDSS). In order to penetrate and ensure adequate logging of all expected reservoirs, a TD of 1905mMD (1880m TVDSS) is required. The TD of the well may be subsequently deepened to +/-3075mMD (3050mSS), subject to review of results by the Joint Venture.

3.0 Potential Geologically Related Drilling Hazards

3.1 Bore Hole Conditions

i) Brecciated/Sheared Fault Zones

There is a possibility for many small-scale (sub-seismic) faults to be encountered in the reservoir section and also in the section from -810m TVDSS to top Latrobe Group. LCM may be required although no lost circulation related to these fault zones has been encountered in offset wells related to fault zones.

ii) Carbon Dioxide

Adjacent well control indicates the primary target section at Beardie-1 is expected to have low CO_2 (<5%), with ranges in offset wells of 0-4%. There has been very low amounts of CO_2 produced from the Barracouta field from the M1 reservoir (0-0.8%). There is a small increase in the CO_2 levels below the primary target section, especially in the sub-volcanic section from adjacent well control. In the Whiting L460 reservoir CO_2 levels from gas production of 0-15% have been recorded, while CO2 levels of 7-12% were recorded in the sub-volcanic *T.longus* section from production tests at Whiting-2. In Wirrah-3 CO_2 concentration of 0-8% were recorded from RFT gas samples taken below the volcanics.

iii) Hydrocarbon Gas

Large gas columns are present in the Barracouta Latrobe section, but not at Whiting, as there is no independent closure at the Latrobe Group structural level. It is unlikely that gas sands will be encountered at TOL as there is no independent closure at that structural level. Gas columns are present in Whiting at the intra-Latrobe section (*L.balmei* reservoirs), and small gas columns are present in the sub-volcanis reservoirs (*T.lilliei*).

iv) Swelling Shale

The Lakes Entrance Formation is recognised as a potential problem zone for swelling shale. However, at the Beardie-1 location the Lakes Entrance Formation is expected to be only 25m thick.

v) Coal

Sloughing coals have been a problem within the Latrobe Group elsewhere in the basin, however no drilling problems associated with sloughing coals have been reported in the nearby offset wells. Coals in surrounding wells are predominantly 2-20 m thick and these coal thicknesses are expected at the Beardie-1 location.

vi) Hydrogen Sulphide Gas

H_2S has not previously been a problem on exploration wells drilled in the Gippsland Basin, as experience to date suggests new fields have very low concentrations that increase over the duration of production life of a field, commonly in response to coning of water. H_2S

levels at Barracouta range from 0-18 ppm recorded from gas production (*N.asperus* section) in 1992, yet no detection of H_2S has occurred on any of the initial exploration or production wells. Similarly, gas production from Whiting (*L.balmei* section) produced concentration of 0 ppm (1989-1993) until water coning introduced H_2S levels up to 70 ppm in the east of the field, although the west part of the field had low concentration of 10 ppm. At present the Whiting A6 flowline is reporting H_2S levels of <8 ppm. At Beardie-1 H_2S levels are expected to be in the range of 0-20 ppm for the entire well.

3.2 Over Pressure

i) Abnormal Pressures

Latrobe Group: Normally pressured systems can be expected from TOL to the top of the L.*balmei*; ie. ~ 1.4 psi/m (~8.5-8.6 ppg MWE).

***L.balmei* to *T.lilliei* section**: Pressure data in the *L.balmei* and sub-volcanic section from offset wells in the area can be summarised as follows:

The Wirrah exploration wells and Whiting-2 are normally pressured in most of the lower intra-Latrobe section (8.5-8.8ppg). Wirrah-2 has a sub-volcanic *P.mawsonni* section that has slighty elevated pressures of 8.9 - 9.2ppg, as does *T.longus* sands in Wirrah-3 and Whiting-2. Wirrah-1 and -3 have the highest pressure readings in the immediate area of 10.5 ppg and 11.5ppg respectively (*T.lilliei* section). The Whiting and Barracouta wells are probably the most likely analogues for Beardie-1 ie. similar reservoirs at similar depths.

It is expected that Beardie will be normally pressured throughout the Latrobe Group section.

ii) Sea Floor Hydrocarbon Seeps

There is no evidence of any sea-floor hydrocarbon seeps.

iii) Flowing Formation

Surrounding well data indicates no instances of formations flowing water and therefore it is not anticipated to occur at the Beardie-1 location.

iv) Shallow Production

Shallow production not present from nearby Barracouta and Whiting Field.

v) Shallow Gas

No shallow gas zones have been identified during drilling of the adjacent wells (Barracouta and Whiting Fields). Total gas units recorded above TOL are low. In Whiting-2 total gas ranged from 5-15 units (background 5 units) above the TOL. In the Barracouta/Whiting area, low impedance seismic anomalies are not associated with elevated levels of drill gas.

Thus there is no demonstrated link between seismic amplitudes and shallow gas in the Barracouta/Whiting area.

However, there are seismic amplitudes at the Beardie-1 location that could possibly be associated with shallow gas. These occur at seismic two-way travel times (TWTT) between 265-311ms corresponding to predicted subsea true vertical depth of 272-320m.

3.3 Under Pressure

i) Drawn Down Reservoir

Gas production from the N1 reservoir at Barracouta may cause drawn down reservoirs at the TOL if reservoirs are continuous across to the Beardie-1 location, as the reservoir is 120psi drawn down at Barracouta. Oil production from the Barracouta M1 sands has drawn down the reservoir 90psi.

Pressure data from the Whiting P240 and P250 reservoirs indicates oil production has drawn down the reservoir 60-70psi. The M1 and L400/500 reservoirs at Whiting have undergone approximately 80psi of draw down.

Similar draw down is expected at equivalent levels at the Beardie-1 location.

ii) Lost Returns

Lost return intervals were recorded from Barracouta-4 at -874mTVDss and -1210mTVDSS. This occurred within a porous sandstone section within the Miocene at this well. Based on seismic correlation a similar high porosity high permeability section is expected at Beardie-1 below the 13 3/8" casing shoe but above the Lakes Entrance Formation.

3.4 Formation Temperatures

The predicted static bottom hole temperature at this location is approximately 90 +/- 10 deg C.at 1905mMD.

4.0 EVALUATION PROGRAM

4.1 Mudlogging

Mudlogging and data engineering services will be provided by BHI.

Full mudlogging services are to commence from spud. Sampling will commence after first returns after setting the 340mm (13 3/8") casing and will continue to T.D. Hardcopies and digital copies (.PDF format) of the mudlog, drilling data log, pressure log and gas ratio log are required on a **daily basis updated to 05:00hrs and 15:00hrs** for the wellsite geologist to send to the office. Further updates are to be supplied when required.

A finalised Mudlog (scale 1/500), Formation Pressure log (1/1000), Gas Ratio Log (1:500) and Drilling Data log (1/1000) in hard copy paper form are to be supplied at the end of the well to the wellsite geologist and forwarded to the Operations Geologist as a check print prior to finalisation of the End of Well Report.

BHI Inteq will be notified when final prints are to be made of the mudlogs and End of Well Report after QC of field prints.

4.1.1 Data Engineering Services

Data engineering services will include gas detection and monitoring of drilling parameters as follows:

Gas Detection

- FID total gas
- FID chromatographic analysis
- Report Background gas, Circulating gas, Connection gas and Trip gas
- Continuous H_2S detection - ditch gas line, active mud pits and shakers
- Report any H_2S associated with the above
- Continuous CO2 detection
- Draeger portable detector for H_2S, CO_2 and SO_2

Monitoring Drilling Parameters

- Rate of penetration
- Depth
- Weight on bit
- Rotary and bit RPM
- Mud pit levels
- Pump strokes
- Calculation of lag time
- Formation pressure analysis and prediction
- Drill string torque and drag
- Casing shut in pressure
- Standpipe pressure
- Mud density (in/out)

- Mud temperature (in/out)
- Mud conductivity (in/out)
- Mud flow (in/out)

4.1.2 Formation Sampling and Analysis

Formation sampling requirements are outlined in Table 3.

The sampling interval will relate to rate of penetration and importance of the interval in question. All cutting samples will be described and monitored for hydrocarbon fluorescence,

Interval (mMDRT)	Hole Size	Formation	Sample Interval *
850 – 925	311mm (12 1/4")	Gipps Limestone	30m
925 - TD	311mm (12 1/4")	Gipps Lts - Latrobe Gp.	5m

* To be increased or decreased at the discretion of the Esso Wellsite Geologist, and subject to Drilling rate and returns.

Table 3

Formation and Mud Samples				
Type	**No. of Sets**	**Quantity**	**Set No**	**Destination**
Lightly washed and dried (Palynology)	1	200gm	A	EAPL
Type	**No. of Sets**	**Quantity**	**Set No**	**Destination**
Washed and Dried Cuttings	1	100gm	B	EAPL
	1	100gm	C	BHPB
	1	100gm	D	DNRE
	1	100gm	E	DNRE
Type	**No. of Sets**	**Quantity**		**Destination**
Mud Samples (TD)	1	1 litre		EAPL*

* Hold till the end of well before decision to transport or dispose.

All samples are to be boxed and labelled and dispatched as directed by the Wellsite Geologist. All sample suites are to be accompanied by a full manifest located (separately) externally in plastic on the first box of the suite. An additional back-up manifest should be included inside the first box. *(See **Section 8.3** for distribution)*

4.1.3 Other Mudlogging Services

Fluid sample receptacles: BHI are to supply both plastic and glass screw-top bottles, and 4 litre cans for oil samples.

Fluid hydrometers and thermometers to be supplied for oil API determination.

4.2 MWD / LWD Logging Services

MWD / LWD tools will not be run in Beardie-1.

4.3 Wireline Logging Services

No wireline logging is planned across the 445mm (17 ½") hole section, except for gamma ray and DSI through 13 3/8" casing.

A full wireline log suite will be run at +/-1905mMD with a contingent suite to be run if the well is subsequently deepened to +/-3075mMD.

The following wireline logging program is planned across the 311mm (12 1/4") hole section at +/-1905mMD. (Table 4 and Figure 4.) The order of logging runs may change based on drilling results and a finalised program will be issued to the wellsite at TD.

Table 4.

Run No.	Wireline Logs	Comments
1	PEX-HALS-HNGS-LEHQT	GR from TD to seafloor. PEX-HALS-HNGS to 13 3/8" casing shoe.
2	FMI-DSI-GR-LEHQT	FMI to run to 13 3/8" casing shoe. DSI though casing until last good signal
3	MDT-GR-LEHQT	Estimated 50 pressure points and 6 samples.
4*	DUAL CSAT-VSP	Shot data to be acquired at 15m intervals from TD to 13 3/8" casing shoe and through casing up to 250m. If signal lost then checkshots at 100m levels to 250m
5*	CST-GR	60 shots

*Note: Runs 4 and 5 may be deferred to Suite-2 if the well is subsequently deepened.

Additional Comments

- The density and neutron logs will be run in high resolution mode from TD to 80m above TOL and in standard mode to 13 3/8" shoe. A high resolution Natural Gamma ray Spectra log is to be run in combination with the PEX log.
- The FMI will be run in Full Image mode to 80m above TOL and then in Dipmeter mode up to the 13 3/8" casing shoe.
- A continuous sonic log (DSI) will be recorded from TD to seafloor or until the last good signal is lost. This log is to be recorded in P&S & upper dipole mode in open hole and in compressional mode only inside casing.
- The MDT will be run in both dry hole and success cases. In both scenarios pressures will be taken. Pressures will also be taken in any clastic section encounterd in the Miocene. Samples may also be taken in the event that hydrocarbons are found. Extended buildups may be taken after consultation with the Esso petrophysicist. Equipment to acquire fluid/gas samples is to be available on the rig including Pump Out module, OFA, MRMS, 1 gallon dump chambers and large hole kit. All modules, including the MRMS and

chambers will have backup tools available on the rig. Note: the big hole kit will only be run after the PEX log has been evaluated by the Esso petrophysicist and approval has been given directly to the rig. A detailed depth and sampling program will be prepared by Esso in the office and sent to the wellsite after receipt of the PEX log. The MDT protocol is contained in Appendix 1. **Note: Schlumberger are to record and report to the Company drilling supervisor all pump outs into the well bore prior to the end of the MDT program.**

- Schlumberger will be required to clearly label, securely pack and manifest MRMS chambers for shipment to Petrolab in Adelaide.

- The VSP is a vertical survey. No walk-away survey is required. A detailed program is contained in Appendix 2. Data is to be processed at the wellsite to provide corrected 2-way time data. The VSP will be QC'd onsite by Hydrosearch personnel. This log may be deferred to the deeper suite of logs should the well be deepened.

- Two combinable CST's guns (60 bullets) should be available at the wellsite (plus backup tools). CST depths will be selected in Esso's office and sent to the wellsite after the PEX log has been received. This log may be deferred to the deeper suite of logs should the well be deepened.

- CST cores require careful attention. The gun and samples shall not be cleaned before the cores are removed. The samples shall be removed from the tool in the presence of the wellsite geologist and shall be handed over to the wellsite geologist. CST's will be fully described for lithology and shows by the wellsite geologist prior to leaving the rig.

- The wireline product distribution summary is contained in Section 8.

4.4 Coring Program

4.41 Conventional Cores

No conventional cores are planned in Beardie-1.

4.42 Sidewall Cores (CST's)

Sidewall cores will be taken for reservoir identification and micropaleontological and palynological analysis.

4.5 Well Testing Services

No Drill Stem Test is planned. Wireline MDT samples will be taken in the success case.

5.0 DATA DISTRIBUTION SUMMARY

5.1 Distribution Summary

Well data (daily reports, logs etc) will be transmitted from the rig to the Esso office in Melbourne via the Esso LAN by the Esso wellsite geologist. A complete set of field prints of all logs and sidewall cores will be hand carried to Esso House by the wellsite geologist or the Schlumberger engineer, where possible at the conclusion of the well.

5.2 Wireline Data Distribution

Table 5 Field Data via Wellsite Geologist direct to Esso Office

Log	Format	Media	Interval	Order of Importance
Run 1:				
PEX-HALS	.PDS (1:200)	Esso LAN	TD to 80m ATOL	A.S.A.P
	.PDF (1:200)	Esso LAN	TD to 80m ATOL	A.S.A.P
	FAX (1:200)	Cont. Fax	TD to 80m ATOL	If required*
	LAS ASCII	Esso LAN	TD to 13 3/8" Shoe	A.S.A.P**
	Rmf, Rmc, Rm and BHT	Esso LAN		A.S.A.P
Run 2:				
FMI	ASCII Dip/Azimuth	Esso LAN	TD to 13 3/8" Shoe	A.S.A.P***
SONIC LOG	.PDS (1:200)	Esso LAN	TD to 13 3/8" Shoe	A.S.A.P
	.PDF (1:200)	Esso LAN	TD to 13 3/8" Shoe	A.S.A.P
Run 3:				
MDT	WSG Field Spreadsheet	Esso LAN	Updated and forwarded to Esso Ops as required	A.S.A.P
	Opened chamber fluid descriptions	Esso LAN	A/A	A.S.A.P
Run4:				
VSP	TWT ASCII	Esso LAN	Final survey	Upon completion
Run 5:				
SWC	Descriptions	Esso LAN	Full core suite	Upon completion.
Field Prints				
All logs	One set of prints	Paper	Full suite	At the end of well

* Fax logs will only be required in the event that the Esso LAN is down or at the request of the Operations Geologist

** Field ASCII LAS file should contain all basic curves over the entire open hole logged interval.

*** ASCII Dip/Azimuth data is required by Drilling for the full open borehole.

After return of corrected QC prints the following final logs will be generated in Schlumberger's Sale base and forwarded to Esso in Melbourne, marked Attention: Andrew Hodgson, Operations Geologist.

Table 6 Final Wireline Data Distribution List

Distribution	Prints*	Films*	CD ROM**
DNRE, Melbourne	1	-	1
AGSO, Canberra	-	-	1
BHPP, Melbourne	-	-	1
Esso, Melbourne	3	1	1
Total	**4**	**1**	**4**

* Prints
Paper and film prints (1:200 and 1:500 scale, Hi and Low Res where appropriate) for each logging suite.

** Digital Data On CD
All non proprietary log data to be provided in DLIS format as separate, high and low resolution files. All .PDS and PDF image files.

5.3 Mudlog Cuttings Sample Distribution

Table 7 Final Cuttings Sample Distribution List

Distribution	Lightly Washed & Air Dried	Washed / Dried Cuttings
Esso, Melbourne	1 (Set A)	1 (Set B)
BHPP, Melbourne		1 (Set C)
DME, Melbourne		2 (Sets D&E)
Total	**1**	**4**

At the conclusion of drilling all cuttings will be forwarded directly to Kestrel marked *Attention: Diana Giodano*. All boxed sets should be clearly marked for their final destination after redistribution from Kestrel.

5.4 Mudlog Data Distribution

At the conclusion of the well a QC copy of the mudlogging end of well report (completed up to the point of the WSG departure) and the mudlog, drilling log, gas log and pressure log should be handed to the wellsite geologist to hand carry to the Esso office. A finalised QC copy of the end of well report should be forwarded to Esso, care of Andrew Hodgson, Operations Geologist.

After the QC copies have been returned to BHI the following final products should be produced and forwarded to Esso in Melbourne, marked Attention: Andrew Hodgson, Operations Geologist.

Final data distribution will be as follows:

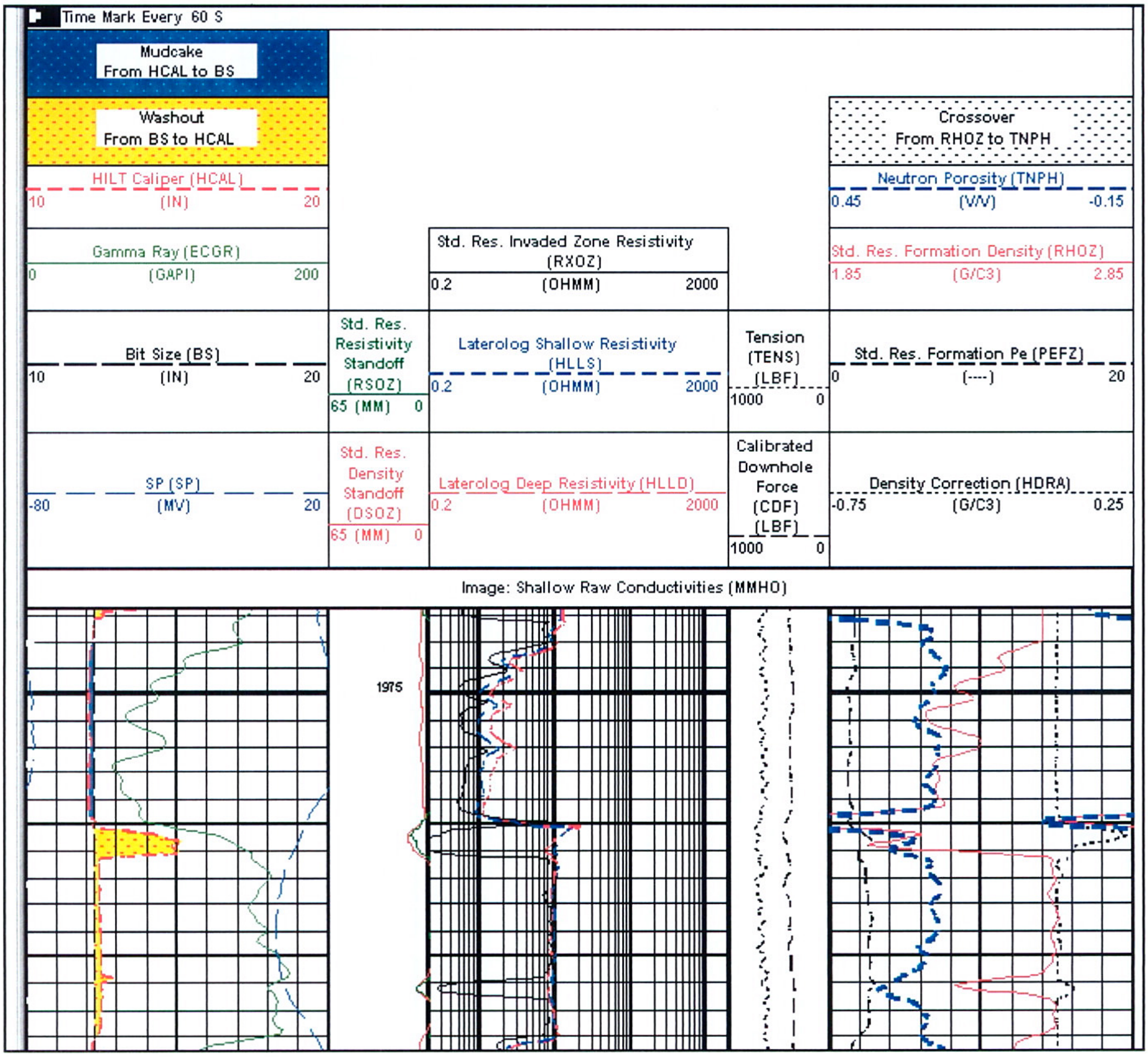
Distribution	**CD***	**Sepia Logs**	**Paper Logs**	**EOWR Reports**
Esso, Melbourne	1	1	3	4 bound, 1 unbound
BHPP, Melbourne	1	-	-	
DME, Melbourne	1	-	1	
BRS, Canberra	1	-	-	
Total	4	1	4	

*CD's containing digital versions of the final well report, logs (.PDF or Word 97 files) and ascii files of the complete recorded drilling data for the well.

6.0 Log Formats

6.1 PEX Log

The standard PEX log header formats should be as shown.

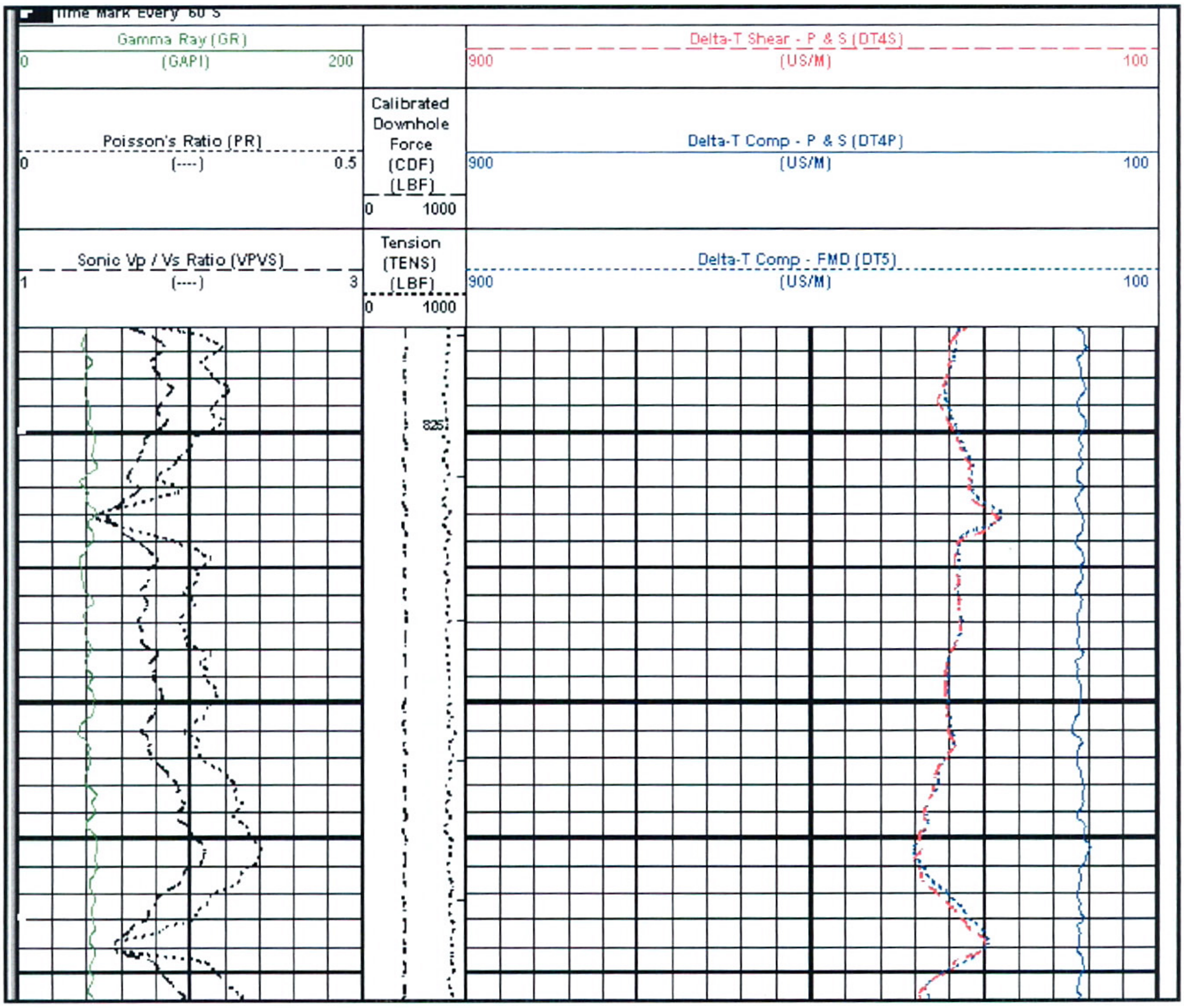


~~PE913711 colour 021~~

913711 245

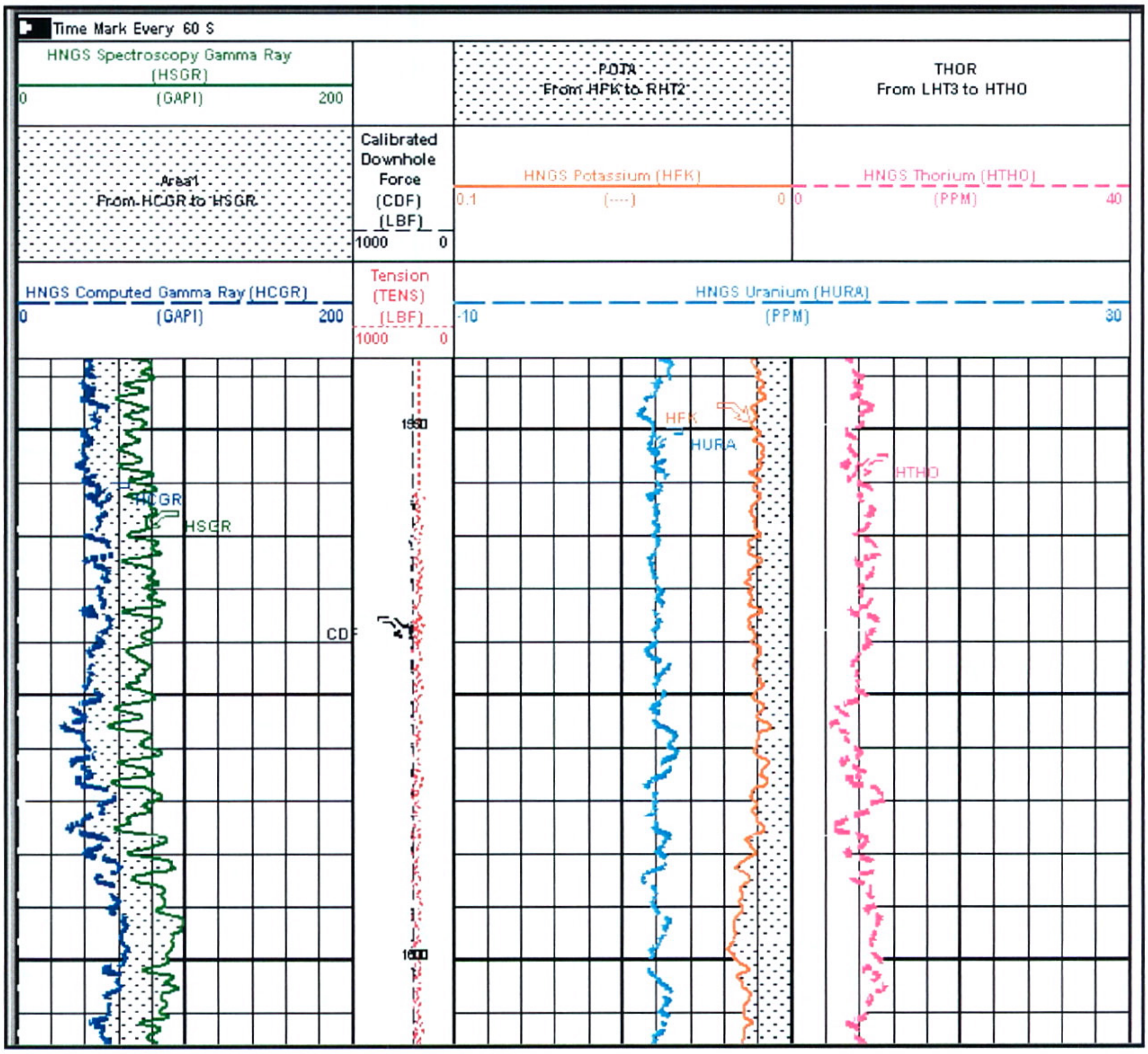
6.2 SONIC Log

The standard Sonic log header formats should be as shown.



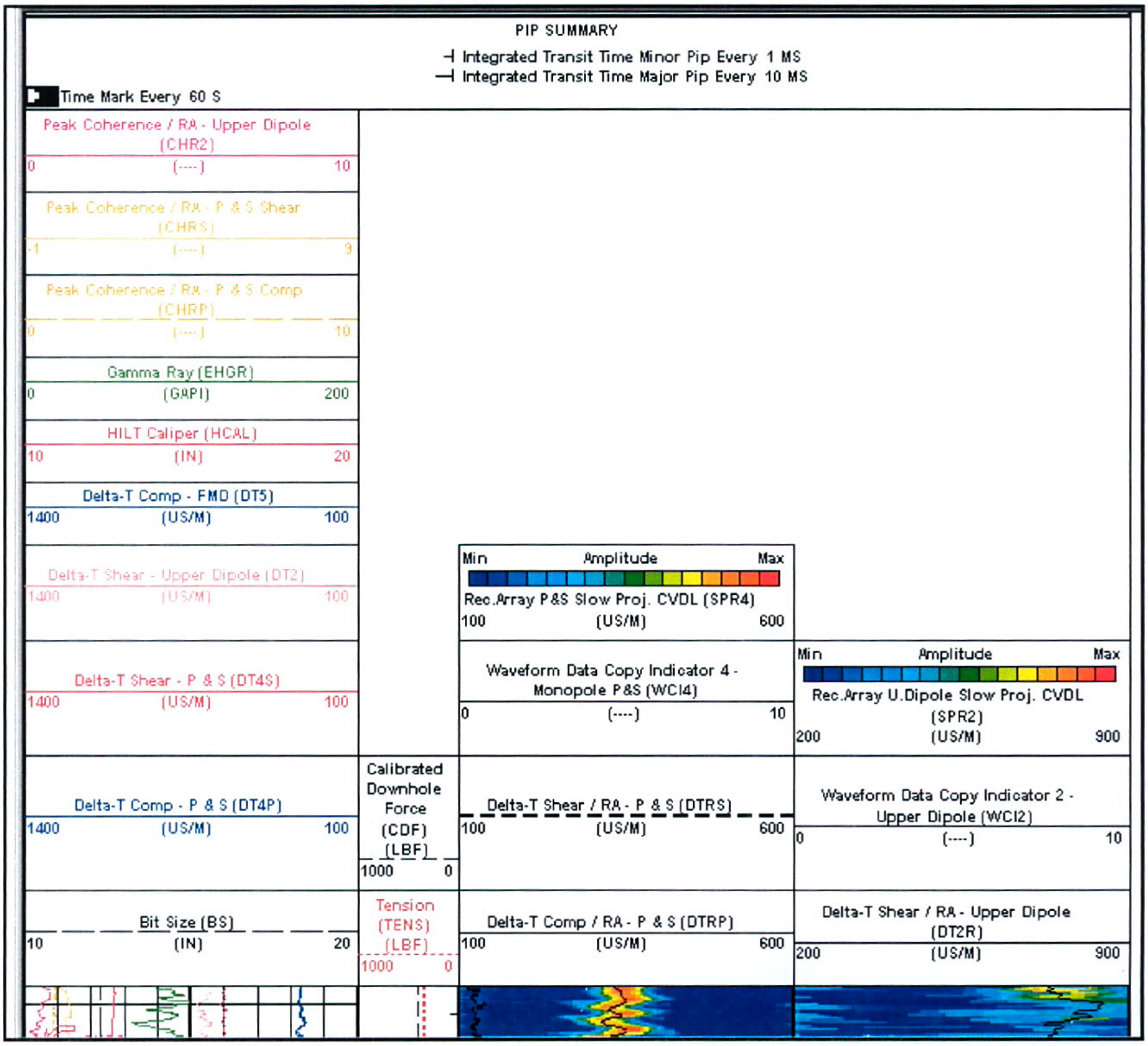
6.3 HNGS Log

The standard HNGS log header formats should be as shown.



6.4 DSI Log

The standard DSI log header formats should be as shown.



913711 248

6.5 Mudlog

The standard mudlog header is shown below.

BAKER HUGHES

INTEQ

ESSO

Company	ESSO AUSTRALIA PTY LTD
Well	East Pilchard-1
Permit	Vic/L9
Region	Gippsland Basin, Offshore Victoria
Designation	Vertical Exploration
Coordinates	038° 11' 54.184" S Lat 148° 33' 42.825" E Long
Datum	AGD 66
Spud Date	03 July 2001
Spud Depth	116.0 mMDRT
Ref Elevation	RT 25 m above Sealevel MSL
Total Depth	3138 mMDRT
Contractor	Diamond Offshore General Co.
Rig	MODU Ocean Bounty
Type	Semi-Submersible

LOG INTERVAL

Depth	116 mDRT to 3138 mMDRT
Date	03 July 2001 – 01 August 2001
Scale	1:500
Data Engineers	R. Tadiar, J. Wilson, J. Bardelosa, R. Tena
Logging Geologists	M. Ronan, E. Spence, D. Pickering, R. Graafhuis

INTEQ LOG SUITE

Formation Evaluation	1: 500	Drilling Data Plot	1:1000
Pressure Data Plot	1:1000	Gas Ratio Plot	1: 500
Pressure Summary Plot	1:7500		

ABBREVIATIONS

NB	New Bit	C	Carbide Test
RR	Rerun Bit	GPM	Gallons per Minute
CB	Core Bit	SPP	Pump Pressure
WOB	Weight on Bit	MW	Mud Weight sg
RPM	Revs per Minute	FV	Funnel Viscosity
FLC	Flow Check	F	Filtrate - API
CBU	Circulate Returns	FC	Filter Cake
PR	Poor Returns	PV	Plastic Viscosity
NR	No Returns	YP	Yield Point
LAT	Logged After Trip	Sol	Solids %
BG	Background Gas	Sd	Sand %
TG	Trip Gas	Cl	Chlorides
STG	Short Trip Gas	RM	Mud Resistivity
CG	Connection Gas	RMF	Filtrate Resistivity
POG	Pumps Off Gas	TVD	True Vertical Depth

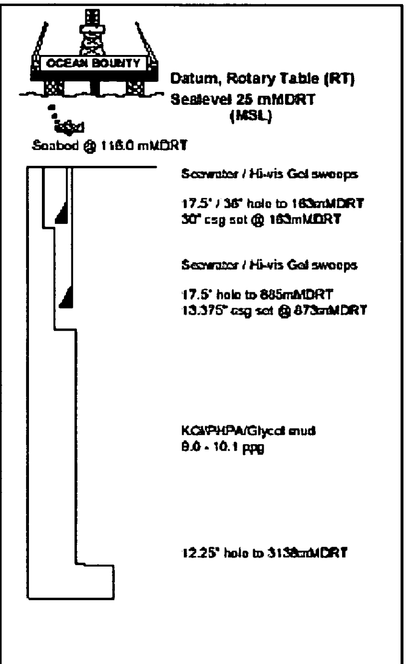
LITHOLOGY SYMBOLS

Limestone Lst; Calcisiltite Cs; Calcilutite Cl; Dolomite Dol

Marl Mrl; Calcareous Claystone Calc Clyst; Claystone Clst; Siltstone Sltst

Sandstone Ssl; Conglomerate Cgl; Coal C; Volcanics Volc

Mica Mic; Cement Cmt; Pyrite Pyr; Glauconite Glauc

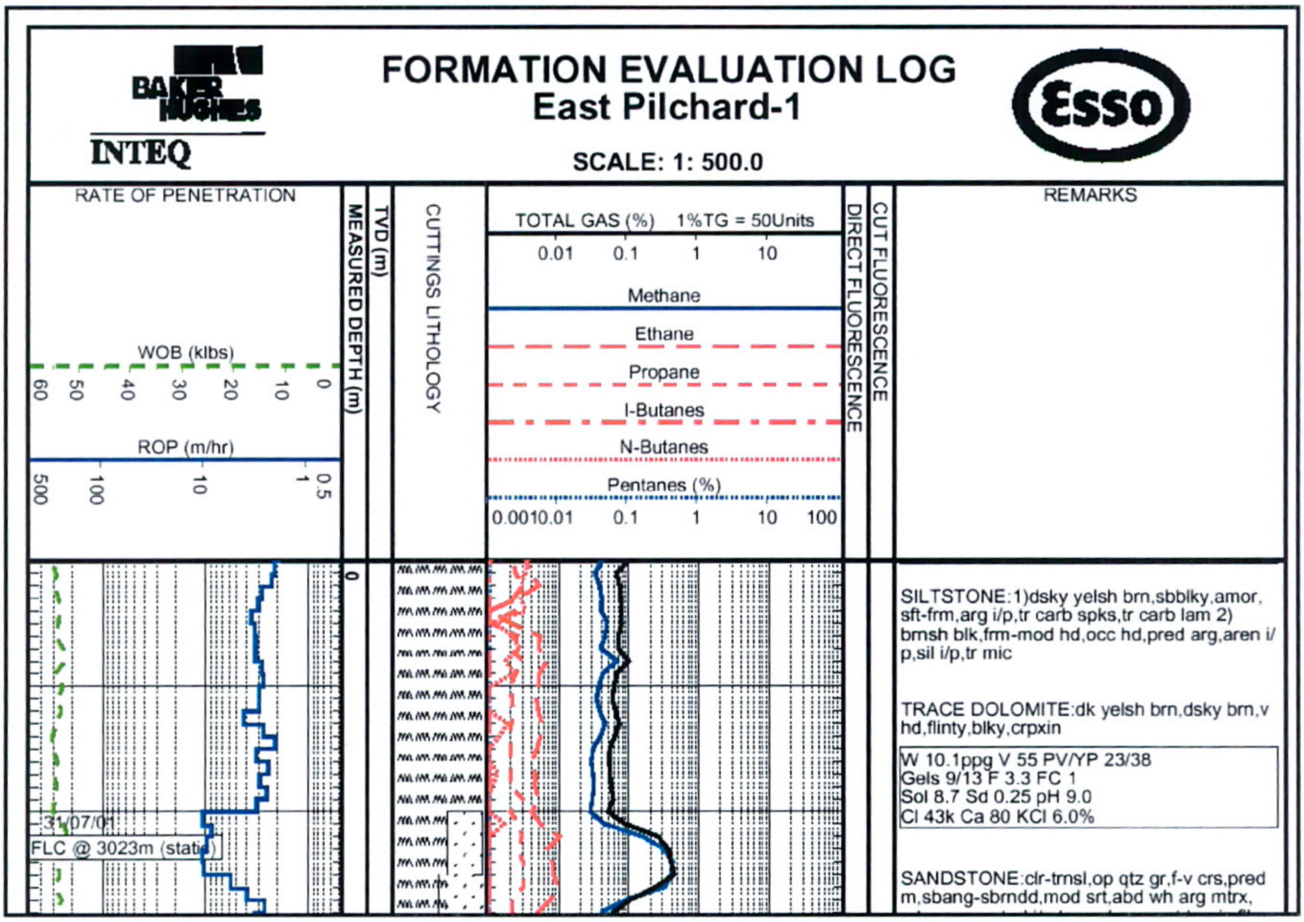


Casing Seat; Liner Hanger; Cored Interval; Unrecovered; Test Interval; Mechanical Sidewall Core; Wireline Logs; Formation Test; Sidewall Core; No Recovery; M No Recovery

913711 249

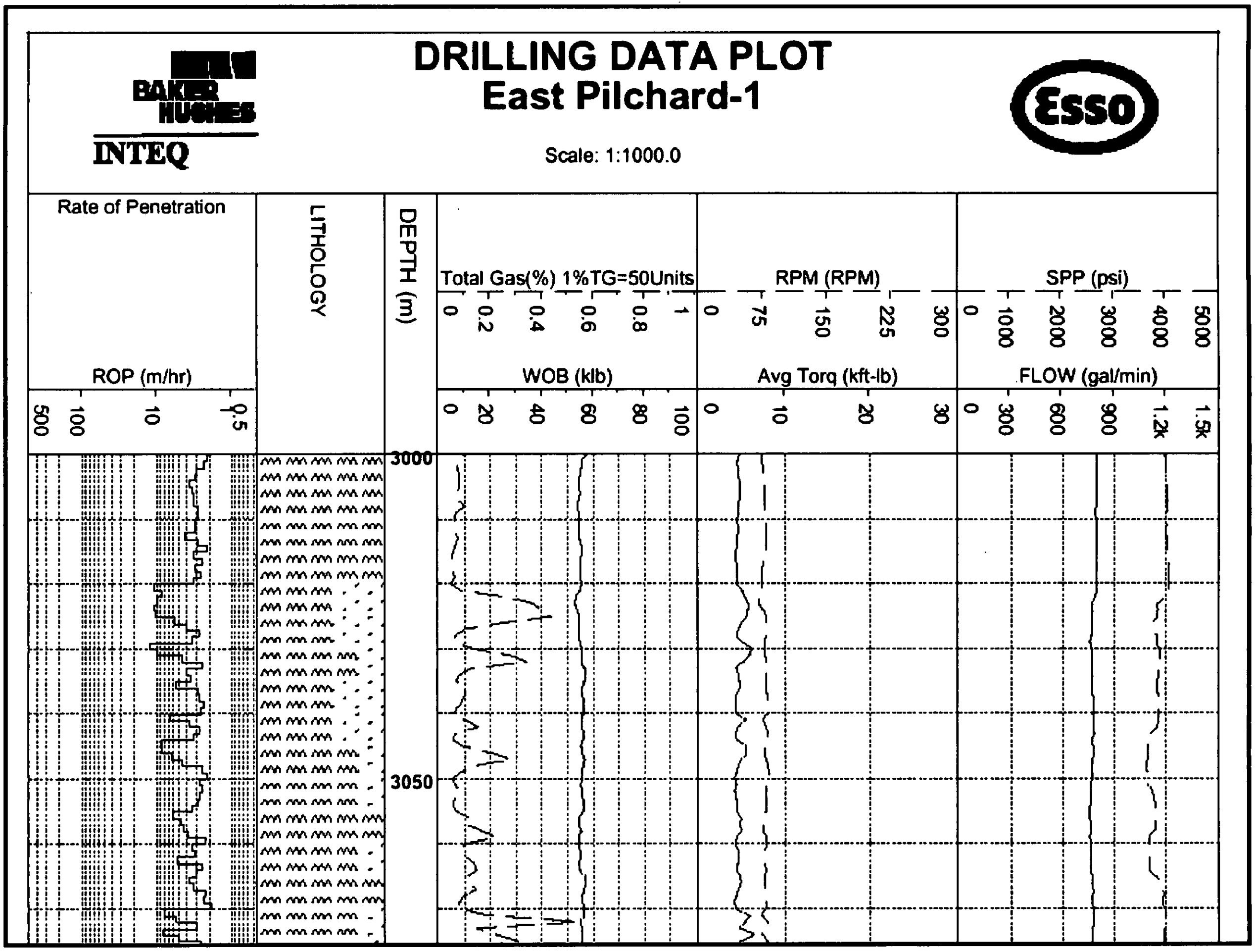
6.6 Mudlog Format

The standard Esso mudlog format is shown below



6.7 Drill Log

The standard Esso drill log format is shown below.

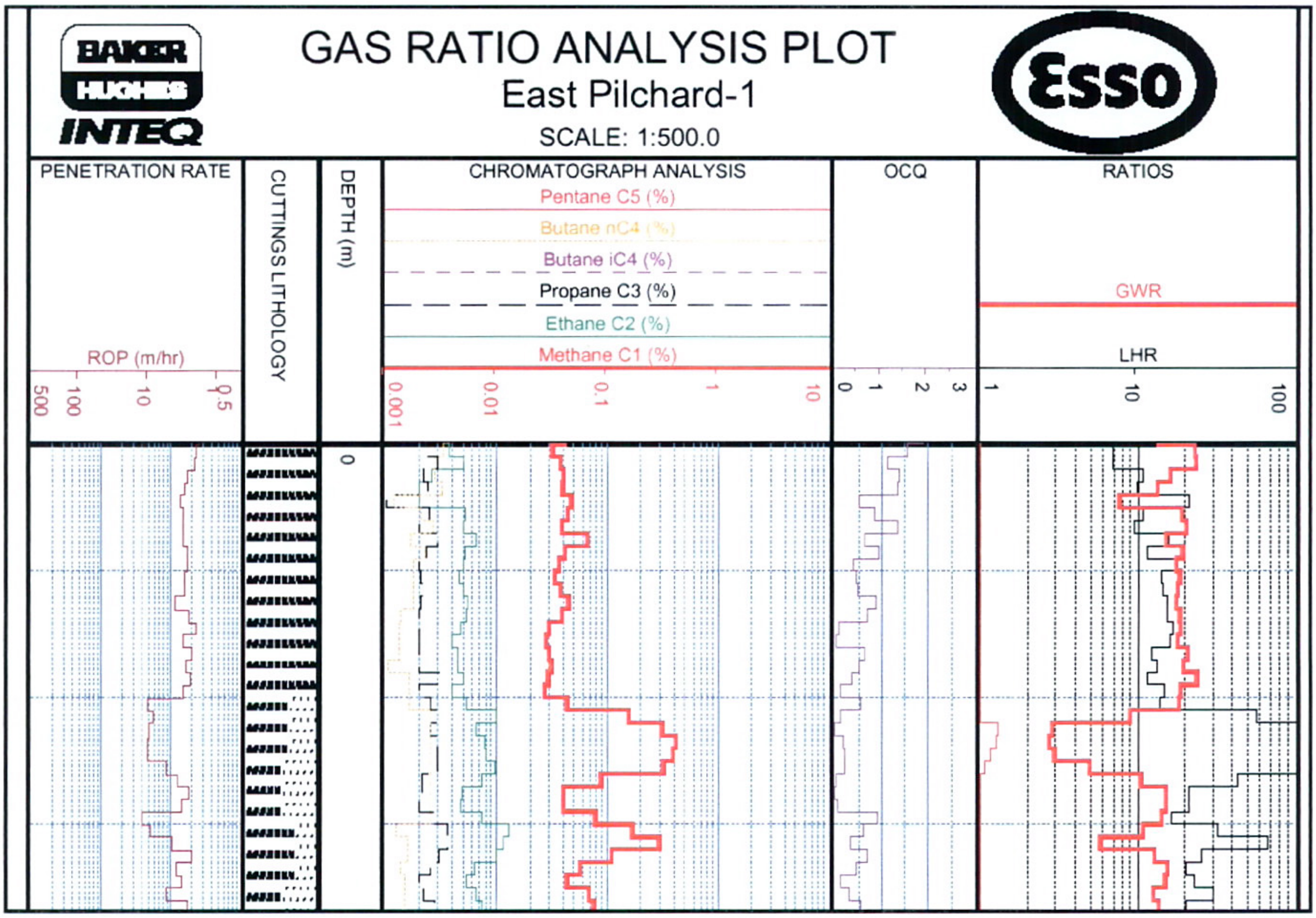


~~PE913711 colour Ø 25~~

913711 251

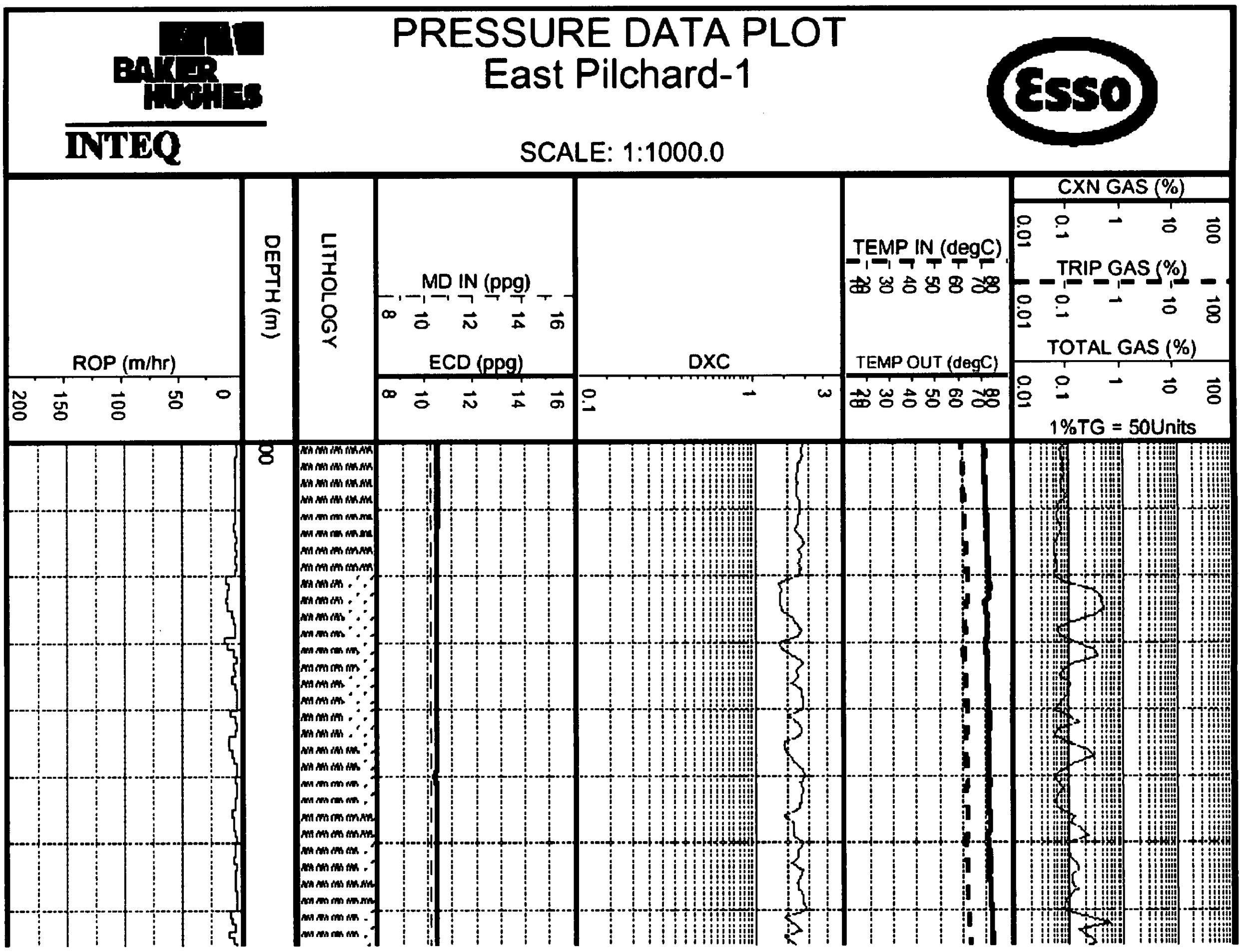
6.8 Gas Ratio Log

The standard Esso gas ratio log format is shown below.



6.9 Pressure Log

The standard Esso pressure log format is shown below.



7.0 CONTACTS

7.1 Esso Australia Pty Ltd

Esso Australia Pty Ltd
12 Riverside Quay, Southbank, MELBOURNE, VICTORIA, 3006
GPO Box 400C, Melbourne, VIC, 3001.

Primary Contact
Operations Geologist - ANDREW HODGSON

Telephone:	(03) 9270 3047	(Work)
Mobile:	0417 359 234	
Fax:	(03) 9270 3944	(Work)
Email:	andrew.j.hodgson@exxonmobil.com	

Secondary Contact
Petrophysicist FE - KUMAR KUTTAN

Telephone:	(03) 9270 3514	(Work)
Mobile:	0417 349 370	
Fax:	(03) 9270 3944	(Work)
Email:	kumar.kuttan@exxonmobil.com	

Petrophysicist FE (Alternative) - ANDY MILLS

Telephone:	(03) 9270 3802	(Work)
Mobile:	0401 033 432	
Fax:	(03) 9270 3944	(Work)
Email:	andrew.a.mills@exxonmobil.com	

Drill Well Coordinator - ANDY ZANNETOS

Telephone:	(03) 9270 3731	(Work)
Mobile:	0407 383 942	
Fax:	(03) 9270 3895	(Work)
Email:	andy.zannetos@exxonmobil.com	

Project Geologist - PAUL OWEN

Telephone:	(03) 9270 3310	(Work)
Mobile:	0410 322 957	
Fax:	(03) 9270 3895	(Work)
Email:	paul.b.owen@exxonmobil.com	

Gippsland Geoscience Project Manager - GLEN NASH

Telephone:	(03) 9270 3919	(Work)
Fax:	(03) 9270 3895	(Work)
Mob:	0418 356 392	
Email:	glen.a.nash@exxonmobil.com	

Esso Australia Pty Ltd Drilling
Operations Superintendant - FRANK KRATZER

Telephone:	(03) 9270 3540	(Work)
Fax:	(03) 9270 3593	
Mob:	0417 368 772	
Pager:	132222 # 54816	
Email:	frank.w.kratzer@exxonmibil.com	

Drilling Engineer Melbourne - CHRIS MEAKIN

Telephone:	(03) 9270 3536	(Work)
Fax:	(03) 9270 3593	
Mob:	0411 127000	
Pager:	132222 # 46423	
Email:	chris.p.meakin@exxonmobil.com	

7.2 Partners and Government Bodies

BHP Petroleum Pty Ltd
Level 29, 600 Bourke St, Melbourne, Vic, 3000
GPO Box 86A, Melbourne, Vic, 3001
Geoscience and Unitisation Coordinator -MEL OSBORNE

Telephone:	(03) 9652 6239 Work
Telephone:	(03) 8500 2915 Home
Mobile:	0419 309 252
Fax:	(03) 9652 6112
Email:	osborne.mel.mi@bhpbilliton.com.au

DEPARTMENT NATURAL RESOURCES AND ENERGY (VIC)
Level 7 250 Victoria Pde, East Melbourne 3002
ATTN:
Resource Manager - MR KOUROSH MEHIN

Telephone:	(03) 9412 5082 Work
Telephone:	(03) 9840 1079 Home
Fax:	(03) 9412 5156
Email:	kourosh.mehin@nre.vic.gov.au

Core and Cuttings Samples
DNRE Core Sample Library
South Rd, Werribee
Off Sneydes Rd
Melway Ref: P 206, E8.
Call first Dave Murfitt - DNRE: (03) 9742 8688

7.3 Contractor Personnel

SCLUMBERGER

Location Manager - TREVOR SPELDRICH

Telephone:	(03) 5143 2242
Fax:	(03) 5143 2450
Mobile:	0417 865 397
Email:	speldrich1@slb.com

BHI

BHI Inteq Manager - TED RIDEOUT

Telephone:	(08) 9478 0500
Fax:	(08) 9478 6155
Email:	ted.rideout@inteq.com

AIPC

Director - GREG CLOTA

Telephone:	(03) 6239 1409
Fax:	(03) 6239 1509
Email:	gclota@trump.net.au

KESTREL CORE STORE (Cuttings)

Kestral Information Management Pty Ltd
596-600 Somerville Rd, Sunshine Vic 3020
Core/Archive Supervisor - Diana Giodano

Telephone:	(03) 03 9311-0391

PETROLAB

Manager - JAN BON
47 Woodforde Rd
Magill, South Australia 5072
P.O. Box 410
Magill, South Australia 5072

Telephone	(08) 8364 1500
Fax:	(08) 8364 1500
Email:	adelaide@petrolab.net

APPENDIX 1: BEARDIE-1 MDT PROGRAM PROTOCOL (TD +/-1905mMD)

Objectives:

- To obtain pressure data in any Miocene age clastic intervals that are intersected.
- To obtain pressure data in *N.asperus – L. balmei* age sands to establish hydrocarbon column height and reservoir drive mechanisms
- To obtain samples in the *N.asperus – L. balmei* age sands which have the potential to be economically viable in a future Beardie development

Pressure Testing:

- A total of 50 Pressure readings have been allowed for in the Drilling and Formation Evaluation program. More or less readings may be required to achieve the program objectives. The exact number and depth of pressure readings will be identified after evaluation of the open-hole logs.

- In hydrocarbon bearing intervals, sufficient pressure data will be collected so that hydrocarbon gradients can be determined (a minimum of 3 pressure readings will be required in most cases to confirm the pressure gradient). Similarly, in water bearing intervals, sufficient pressure data are to obtained so that water gradients can be clearly defined. They should include pressure data from above and below any hydrocarbon bearing zones. Repeat measurements may be carried out as required to achieve conclusive data on pressure gradients.

- The base plan is to obtain pressures and samples with one trip of the MDT. Pressure data is to be obtained while logging down before any samples are taken The plan is to use one large area probe to obtain pressure data and samples. Only if the large area probes fails to acquire pressure data or samples of sufficient quality, will the running of the long nose probe and or the Martineau probe be considered.

- Time spent on individual MDT pressure points will be left up to the discretion of the wellsite geologist, however an endeavour should be made to take no more than 5 minutes in each case.

- A large hole kit will be available onboard, but will not be used in the first instance.

Hydrocarbon Sampling:

A total of 6 MRMS samples have been allowed for in the Drilling and Formation Evaluation Programs. More or less samples may be required to achieve the program objectives. The number and location of these samples will be confirmed after evaluation of the open-hole logs. A 1 gallon dump chamber may be used to collect a non PVT quality sample which will be opened at surface.

Note: Schlumberger are to record and report to the Company drilling supervisor all pump outs into the well bore prior to the end of the MDT program.

Execution of Plan

After receipt of logs (resistivity-density-neutron), a team (office team) consisting of the petrophysicist, project geologist and reservoir engineer will select pressure and potential sample points. The program will be communicated to the wellsite geologist by the Operations Geologist. The program will be modified as appropriate depending on the results of the pressure data. All data from the rig will be communicated to the office team via the Operations Geologist. Except for any major deviation to the program the **running of the MDT program will be managed by the Petrophysicist.**

Authority Levels:

Pressure Testing	**Action Authorised By**
Point Selection (including repeats)	Petrophysicist, Reservoir Engineer & Project Geologist
Program Abandonment (without achieving objectives)	Gippsland Project Manager
Wiper Trip	Drilling Supervisor
Test duration (if significant risk of differential sticking)	Deputy Production Manager with Drilling Superintendent endorsement
Hydrocarbon Sampling	
Point Selection	Petrophysicist, Reservoir Engineer & Project Geologist
Repeat run to satisfy ATD objectives	Petrophysicist, Reservoir Engineer & Project Geologist
Program abandonment (without achieving objectives)	Gippsland Project Manager
Wiper Trip	Drilling Supervisor
Test duration (if significant risk of differential sticking	Deputy Production Manager with Drilling Superintendent endorsement

APPENDIX 2: BEARDIE-1 VSP PROGRAM (TD +/-1905mMD)

Borehole seismic survey

The proposed borehole seismic program in the Beardie-1 well is as follows:

1. Acquire a zero-offset VSP over whole well using a rig source. The objectives are to obtain:
   - Accurate time-depth conversion table for surface seismic events intersecting the well
   - Good interval, average, RMS velocities within the VSP interval
   - Good quality corridor-stack subsurface imaging

2. Acquire a zero-offset checkshot survey using a rig source when signal is poor /lost through casing. The objectives are to obtain:
   - Accurate time-depth conversion table for surface seismic events intersecting the well
   - Good interval, average, RMS velocities within the checkshot interval

The final acquisition will depend on the signal quality in casing, but as a minimum :
- 1905 m (TD) to 850 m. i.e TD to 13 3/8"casing shoe. The receiver depth interval will be 15 m and therefore the total number of levels will be 71.
- Up from 850 m (13 3/8" shoe), either continuing VSP levels at 15m and/or, in case signal through casing is lost/poor, checkshots at 100 m spacings with additional checkshots at significant interval velocity boundaries.

The VSP corridor stack will be a good-quality image of the subsurface.

The borehole seismic program will be accomplished with a dual CSAT. The advantage of using a dual CSAT will be the significant saving in the acquisition time.

Air Supply Requirement

Beardie-1 will be drilled using the Ocean Bounty, a semi-submersible rig. The compressed air will come from the rig. There will be no issues regarding the supply of compressed air when using the standard 2x150 cu in G-Gun source cluster. However, standard safety procedures should will be followed.

Survey Duration

Logging time estimates for the Dual CSAT is tabled below. The VSP locations of the downhole toolstring for the borehole seismic program are yet to be determined. The time estimates are based on the current given assumptions.

VSP + Checkshot Case:

VSP interval: 1905 m (TD) to 850 m. The receiver depth interval will be 15 m and therefore the total number of levels will be 71. Checkshot interval: 850 m to 250 m. The receiver depth interval will be 100 m and the total number of levels will be 6. In total, the number of levels will be 77.

Dual CSAT

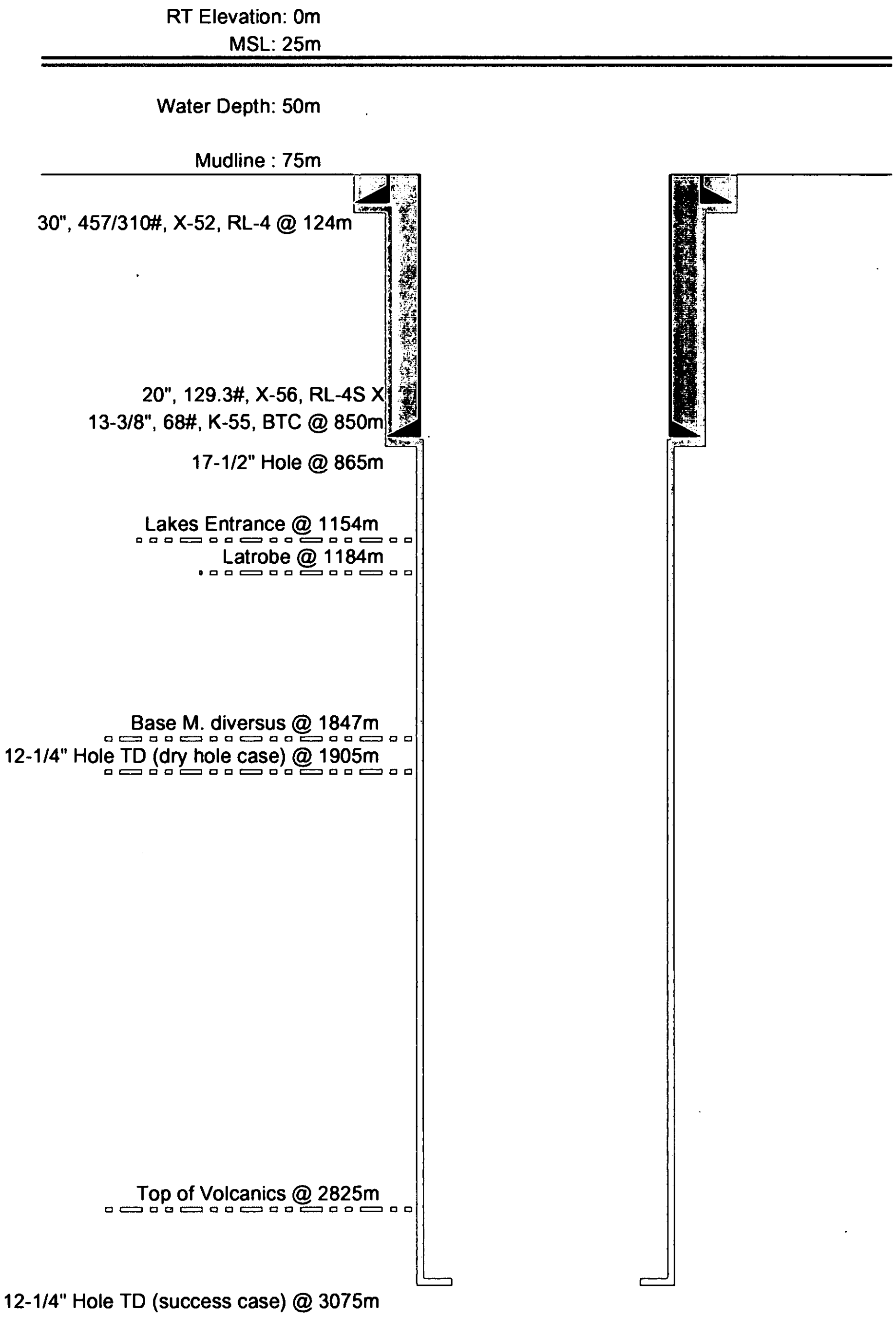
Seq	Operations	Rate	Time	Cumulative Time
1	Rig up sheaves and dual- CSAT tool		0:20	0:20
2	Shoot repeat levels while RIH (2sets)		0:20	0:40
3	Tool calibrat'n and tool quality checks at 1905 m		0:10	0:50
4	RIH to 1905 metres	9000 ft/hr	0:45	1:35
5	**Shoot VSP levels** 71 levels,	5 shots/level, 16 lvls/hr	4:25	6:00
6	**Shoot Checkshot levels** 6 levels	3 shots/level, 7 lvls/hr	0:50	6:50
7	Pull out	9000 ft/hr	0:10	7:00
8	Rig down dual-CSAT tool and sheaves		0:20	7:20
	Total Time **7:20**			

913711 260

ATTACHMENT 3

BEARDIE-1 WELLBORE SKETCH

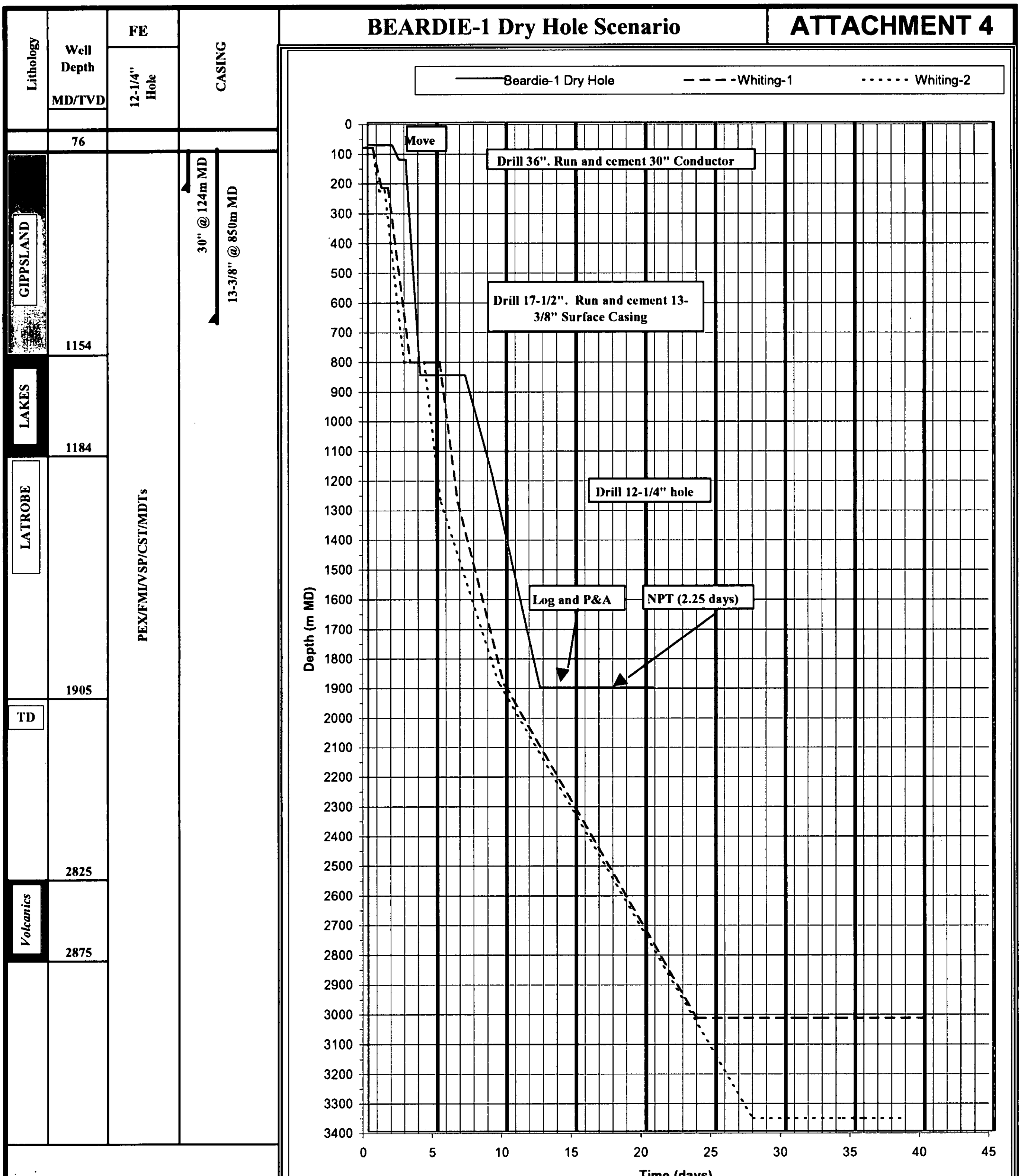
PLANNED



Well Progress Curve

BEARDIE-1 Dry Hole Scenario

ATTACHMENT 4



Target days	18.25
AFE days	20.5

	Near-Field Wildcat	
TD	1905	m MDRT
	1905	m TVDRT
Max Tangent angle:	vertical	
Target Location (AMG Zone 55):	570,593 mE	
	5,765,623 mN	
Target Depth & Size:	1905m TVDRT, 100m radius target.	

Summary Beardie-1 Dry Hole:
Accept rig from previous Operator. Move to Beardie-1 location. Moor & rig-up. Drill 8-1/2" pilot hole if required. Drill 17-1/2" x 36" hole. Run and cement 30" conductor. Drill 17-1/2" surface hole riserless and run and cement 13-3/8" surface casing with PGB. Drill 12-1/4" hole to 1905m MDRT. Log and P&A. Release rig.

913711 262

* Customise individual well information, where Red color is shown.

ATTACHMENT 5

DRS Well Setup Information Form

DRS Well ID	BEARDIE-1	**U.S. Only**	
Office Code	AUSTRALIA - SE	Location Code	--
Spud Time (dd-mm-yy hh:mm)	01-Jul-02 12:00	Sub-Code	--
Tight Hole (Y/N)	N	PRISM ID	--
Country	AUSTRALIA	OCSG Number	--
Province	VICTORIA	MMS District	--
Field	GIPPSLAND BASIN	API State Code	--
Unit/Lease	VIC/L2	API County Code	--
Platform	--	API Well Code	--
Quadrant	--		
Block	--		
Slot	--		
License	--		

Water Depth	50.8	Surface Location	
Ground Elevation	--	North (+) / South (-)	0.00
Bradenhead Height (from MSL)	--	East (+) / West(-)	0.00
Rotary Table Height (from MSL)	25	Vertical Section Correction	0
Riser Used? (Y/N)	Y	**U.S. Only**	
Latitude (DMS) South	38 deg 15 min 16.3.1 sec S	Section	--
Longitude (DMS) East	147 deg 48 min 24.6 sec	Township	--
Lambert Zone	ANS/AMG Zone 55, CM 147	Range	--
Y-Coordinate (mN)	5,765,623.00	Benchamrk	--
X-Coordinate (mE)	570,593.00	Reference Corner	--

DRS Job Information Form

Start Date (dd-mm-yy hh:mm) (Start of move)	01-Jul-02 12:00	**Drilling Jobs Only**	
End Date (dd-mm-yy hh:mm)		Wellbore Code (O, R, G, L, U)	O
Job Type (D, S, C, W)	D	**Lateral and Multilaterals Only**	
Daylight Only (Y/N)	N	Lateral ID	--
Report Time (05:00)	Fixed	Branch ID	--
Data Source	DRS Network	Branch Number	--
Engineering Telephone Number	tba	**U.S. Only**	
Formal Well Name	BEARDIE-1	Release to Public (Y/N)	--
Well Number		API sidetrack code (00, 01, 02 ..)	--
Client	Esso Australia Resources Pty Ltd		
Operator	Esso Australia Resources Pty Ltd		
ExxonMobil's Working Interest %	50%		

Currency	$A	**Drilling Jobs Only**	
Exchange Rate	A$1.9231 = US$1	Planned Wellbore Length	1830
AFE/OFR Number	L0501B003	AFE Amount - Dry (Aus$)	14,680,000
Project Type	Capital	AFE Amount - Suspended (Aus$)	0
Account Code	--	AFE Days - Dry	20.5
Budget Category	Production NFW	AFE Days - Suspended	0.0
AFE Total Amount (Aus$)	14,680,000		
AFE Days - Total	20.5		
AFE Amount - Completion (Aus$)	--		
AFE Days - Completion	--		

Rig Contractor	Diamond Offshore General Company	Mud Company	Baroid
Rig Name	OCEAN BOUNTY	MWD Company	No MWD
Wireline/Coiled Tubing Unit (Y/N)	N	Real-Time Company	--
		Real-Time Data (Y/N)	N
		Planned Measured Depth	1905
Drilling Jobs Only		Planned True Vertical Depth	1905
Objective Code (O, G, O&G)	O	Target North (+) / South (-)	0
Permit Date	--	Target East (+) / West (-)	0

LIST OF PERSONNEL FOR REPORT/REALTIME TIGHT HOLE ACCESS	
Drilling Superintendent:	Frank Kratzer
Drilling Supervisors:	Brigham Bigby, George Sharkey, Steve Felstead
Engineers:	Chris Meakin, Andrew McGregor
Others:	

E-MAIL DAILY DRILLING REPORTS ONLY (PARTNER VERSION)	
Parnter Name and Contact #1:	N/A
Parnter Name and Contact #2:	N/A

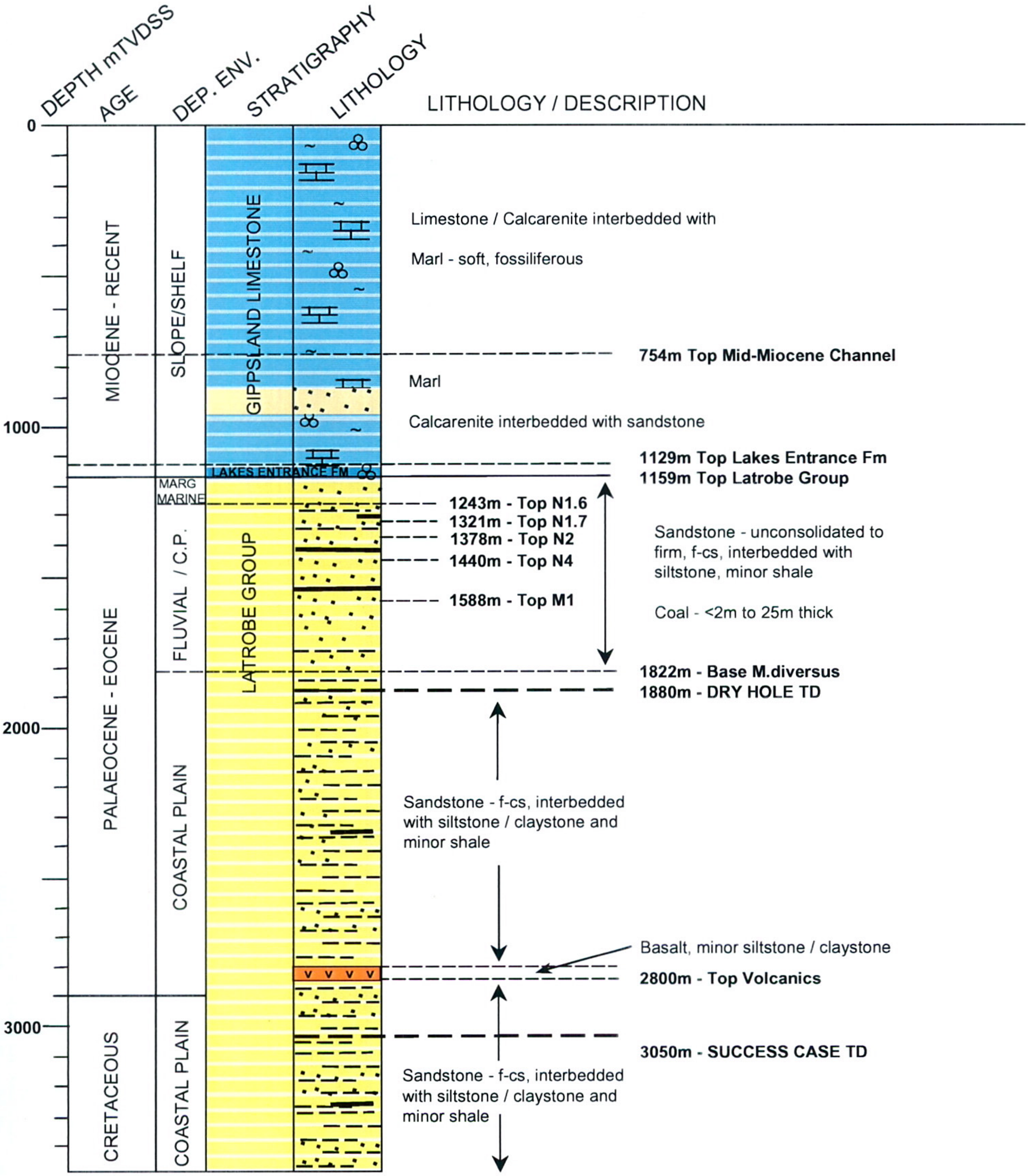
FAXED DAILY DRILLING REPORTS (PARTNER VERSION)	
Parnter Name and Contact #1:	N/A
Parnter Name and Contact #2:	N/A

~~PE913711 colour 026~~

913711 263

ATTACHMENT 6

BEARDIE-1
PREDICTED STRATIGRAPHY

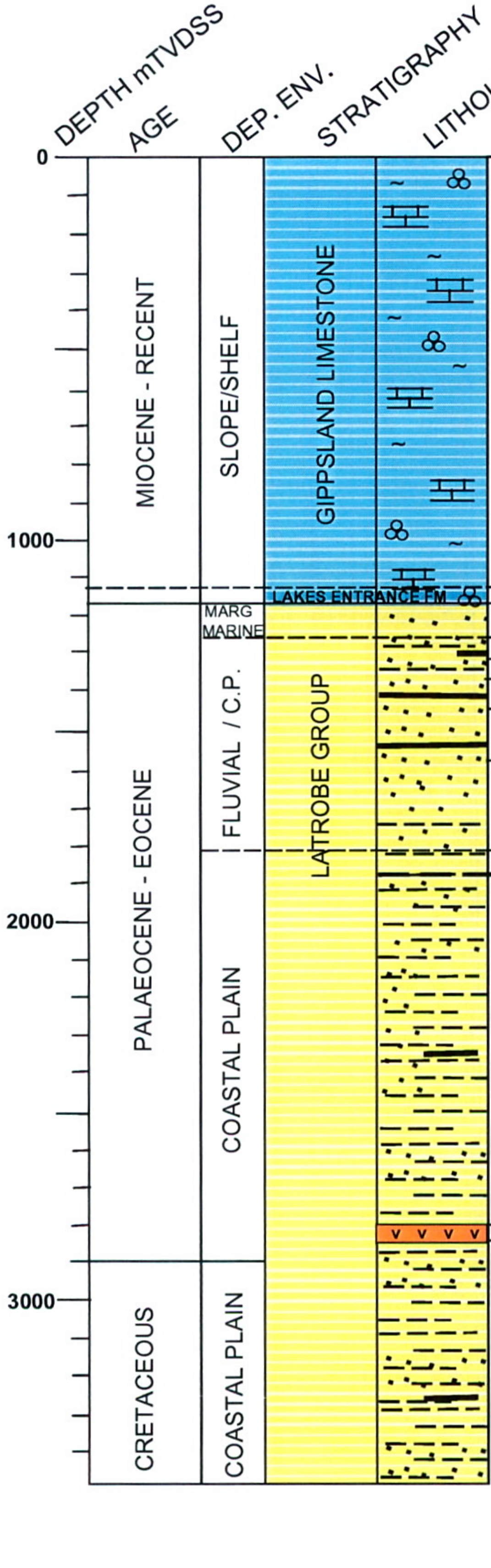


~~PE913711 - colour Ø27~~

913711 264

ATTACHMENT 7

BEARDIE-1
OFFSET WELL STRATIGRAPHY



Offset Wells - *Depths in m MD*

	Whiting 2	Whiting 1	Barracouta 1	Barracouta 4	Barracouta A3	Wirrah 3	Wirrah 1	Wirrah 2
KB m	21	22	9.4	25.3	24.4	21	21	21
Top Latrobe Group	1269	1278	1043	1040	1035	1487	1467	1493
Top N1.6	1339	1352	1208	1205	1204	1650		1648
Top N1.7	1409	1416						
Top N2	1449	1458	1296	1273	1264	1746	1728	1740
Top N4	1487	1480	1350	1336	1358	1777	1752	1765
Top M1	1674	1678	1426	1411	1405	1889	1862	1875
Top L. balmei	1697	1699	1639		1639	1975	1932	1950
(DRY HOLE TD)								
Top Volcanics	2810	2637				2357	2260	2210
	3550	3011	2652	1457	3589	3257	3026	3084

Legend

- Suggested Type section
- Section not present in wells

Whiting-2 Stick Chart

ATTACHMENT 8

WHITING - 2 **Rig - Southern Cross** **Total Days: 50.92** **Start: 13:00 hr 22-Apr-85**

RKB:MSL 21m Water Depth 53m

Report	TVDKB	MDKB	Inc	MW (ppg)	Mud Type	Formation	Bits		Comments
1	0	0	0.0	0.0		0	0		Move to location. 4.25 hrs, 0.18 days
2	224	224	0.0	8.6	Seawater with high viscosity gel slugs		#1RR - OSC3AJ (1 1 I) 146m, 7hrs, 20.85m/hr.	**26" hole**	Run with 26" HO. WOB = 0-10, RPM = 50-90.
								20" csg	Cmt with 750sx 'G' with 2.2% Gel, 13.3ppg followed by 350 sx 15.8 ppg tail.
						Gippsland		**204m**	Run and test BOPs
									Calc TOC @ 300m
3	436	436		9.0	Seawater gel mud system			**17-1/2" hole**	WOB = 10-20, RPM = 120-150.
4	815	815	1.0	9.0			#2 - OSC3AJ (2 2 I)		Run ISF/Sonic/GR logs, 2.75 hr.
						Gippsland	591m, 23.25hrs, 25.4m/hr.	**13-3/8" csg**	Run 13-3/8" casing.
5	821	821		9.0				**799.89m**	WOB = 20, RPM = 75.
	958					**Top Lakes**			Phase II PIT (LOT - 17.9ppg EMW).
6	1175	1175	0.5	9.0			#3 - J1 (4 3 I)		Phase III Open Hole PIT 17.1ppg EMW at shoe
		1269			The 12-1/4" hole was drilled with to 1175m with 9 ppg seawater/gel mud. Mud wgt was increased to 9.5 ppg to drill Latrobe with a 300 psi overbalance. Other than reaming 6 hr through coal from 1646m to 1877m, no hole problems occurred. However washouts increased below 3100m. At 3171.5m mud wgt was increased to 10.0 ppg on anticipation of abnormal pressure. Due to increases in gas units which would necessitate increasing the mud weight, 9-5/8" casing was run to 3339m and cemented in two stages.	**Top Latrobe**	360m, 28.25hrs, 19.7m/hr.		Calc TOC Stage 2 @ 1100m
		1478				**P. asp Mkr**			
7	1489	1489	0.0	9.6			#4 - J22 (2 2 I)		Phase III Open Hole PIT 11.6ppg EMW at 1489.
8	1595	1595	0.0	9.6			314m, 14.25hrs, 22.7m/hr.	**12-1/4" hole**	Cut Core #1 & #2, 3.3% & 20% recovery
9	1668	1668	0.5	9.5			#7 - J22 (8 6 1/4) 155m, 26.25hrs, 5.9m/hr.		
10 & 11	1668	1668							Logging, 32.25 hr. WO crew 26-1/4 hr
		1766							**Stage cement collar**
12	1809	1809		9.5					Gas 100-300 thru coals. Max 600 units @ 1695m
13	1942	1942		9.6					
14	2074	2074		9.5					
15	2147	2147	1.5	9.6			#8 - J44 (2 4 I) 479m, 74.75hrs, 6.41m/hr.		WOB = 60, RPM = 50
16	2268	2268		9.6					
17	2340	2340	1.0	9.5			#9 - J22 (6 4 1/16)		WOB = 60, RPM = 50
							193m, 40.75hrs, 4.74m/hr.		One stab. blade lost hard face, 1-1/4" under gauge
18	2420	2420		9.5					
19	2514	2514		9.5				**12-1/4" hole**	
	2537	2537	4.0				#10 - J33 (3 5 1/8)		WOB = 60, RPM = 50
20	2565	2565		9.5			201m, 43.75hrs, 4.6m/hr.		
21	2648	2648		9.6					
22	2716	2716		9.5					
	2736	2736					#11 - J44 (3 4 1/8)		WOB = 50, RPM = 50.
23	2755	2755		9.6			198m, 60hrs, 3.3m/hr.		
24	2855	2855		9.6					
25	2921	2921	6.0	9.6			#12 - J33 (2 5 1/8) 185m, 47.25hrs, 3.92m/hr.		WOB = 50, RPM = 50
26 & 27	2921	2921							Run intermediate logs, 48.75 hrs
28	2959	2959		9.6					
29	3034	3034		9.6					
30	3135	3135		9.5					
31	3169	3169	3.8	9.5			#13 - J22 (6 6 1/8)		WOB = 60, RPM = 50
32							248m, 58.25hrs, 4.26m/hr.		Run intermediate logs, 36.00 hrs
33	3185	3185		10.0					
34	3266	3266		10.0					
	3288	3288		10.0			#14 - J22 (8 4 1/8)		WOB = 50-55, RPM = 50
35	3296	3296					120m, 38.5hrs, 3.12m/hr.		
	3317.1	3317.1					#15 - J44 (1 1 I)		WOB = 50-60, RPM = 40-50
36	3324	3324		10.0			29.1m, 11hrs, 2.65m/hr.		Cut Core #3, 36% recovery
37	3350	3350					#17 - J44 (1 1 I)		WOB = 55, RPM = 60
38 - 42	3350	3350					24m, 7.5hrs, 3.2m/hr.	**9-5/8" csg**	Log (59 hr) & run and cement csg (58.25hr)
	3355	3355					#19 - J7 (7 5 I)	**3339m**	Phase II PIT (JUG - 17.9ppg EMW).
43	3371	3371		9.9			5m, 3.25hrs, 1.33m/hr.		WOB = 30-40, RPM = 60-70
44	3463	3463		10.0					
	3470	3470		10.0			#20 - J33 (7 4 I)	**8-1/2" hole**	WOB = 30-35, RPM = 50-60
45	3473	3473		10.0			115m, 30.25hrs, 3.8m/hr.		Cut Core #4, 13% recovery
46	3489	3489		10.5					
47	3550	3550		11.0			#22 - J33 (3 4 I) 78m, 22.75hrs, 3.4m/hr.		WOB = 30-35, RPM = 50-60
								TD @ 3550m	
48 - 71									Log, Production test, P&A

Location:	
Latitude:	38° 15' 4.676" S
Longitude:	147° 51' 14.541"E
Easting:	574,727m E
Northing:	5,765,943m N

EAL TRIPPING PRACTICES

Contents

Hole Condition Monitoring

Torque and Drag Monitoring, in conjunction with careful observance of cuttings return, and other drilling parameters, is referred to as "Hole Condition Monitoring".

Hole condition monitoring is used for the following (as a minimum) :

- Confirm that maximum achievable ROP is within hole cleaning capability. This is especially important when drilling large diameter hole (12-1/4" and larger), or when GPM and RPM are significantly limited.
- If maximum achievable ROP does exceed hole cleaning capability, hole condition monitoring is used to maximise the ROP (so that an arbitrary ROP is not defined).
- To flag the need for remedial hole conditioning measures (such as reduced ROP, circulate bottoms up, short wiper trips, etc.).
- To quantify the improvements / detrimental effects of parameter changes (such as flow rate, RPM, rheology changes, sweeps, wiper trips, etc.).

Tripping In

Precautionary wash & ream the final 2 stands prior to tagging bottom in open hole.

Tripping Out

Hole Clean-up

Prior to coming off-bottom to trip :

- Circulate at maximum flow rate and maximum RPM of drill string (depends on motor) until the shakers are clean, or 1.5 times bottoms up (whichever occurs later). Note that it may take up to 3-4 times bottoms up for shakers to clean up, depending on hole cleaning conditions.

- POOH without pumping or rotating.

- If any tight sections of hole are encountered while POOH, RIH 2-3 stands (to get the BHA out of the tight section), and repeat first step (i.e. circulate at maximum GPM and RPM until hole cleans up).

- POOH without pumping or rotating. If the hole is tight in the same spot, then the tight spot is likely to be "tight hole" or key-seating, and so back-reaming may be required.

The above points apply in all circumstances, except for the final trip out of the Latrobe which shall require back-reaming of the Latrobe interval. See Subject 2.5 (Drilling Intermediate/Production Hole) for details. This is to improve the quality of the cement job across the pay zone.

The points made above do not apply if there is a suspected washout in the drillstring.

It is up to the Drilling Supervisor's discretion to circulate the hole clean, if there has been only a marginal amount of hole made.

Connection Practices

The following are considered to be the "baseline" connection practice:

a) Drill connection down with prescribed rotary speed and pump rate.
b) Increase pump and rotary speed to maximum allowable.
c) Ream one full joint out and back into the hole. Monitor hole condition. If hole is "tight" repeat by reaming one full stand out and back into hole until hole pulls freely.
d) Pick-up off of bottom and obtain rotating torque & drag numbers.
d) Reciprocate one full joint without rotation. Monitor hole condition. If hole is "tight" repeat until hole pulls freely. Obtain pick-up weight on way up and slack-off weight on the way back in.
c) Shut down the pump and make a connection.

Connection practices are dependent upon a number of parameters:

1) <u>Drilling Mode</u> - if slide drilling, then the hole will be poor. Connections immediately following slide drilling should endeavour to move cuttings away from the BHA. Reaming a couple of times up into the derrick may be warranted using maximum GPM and RPM (motor dependent) allowable to stir the hole.

2) ROP - Hole cleaning may be inadequate at very high ROP's (especially in large diameter hole - such as 12-1/4"). If this is the case, then some time may need to be spent moving the cuttings up the hole prior to making connections.

3) Drilling Parameters - it may be necessary to slow down the pumps or the rotary speed for directional reasons. If this is the case, then when the pipe is pulled off of bottom the parameters should be brought back up to maximum allowable levels while the pipe is worked prior to a connection.
Do not continue to drill long sections with reduced pump rates or rotary for directional control, consider a BHA change to allow drilling parameters to be brought back to program targets.

It may not always be necessary to work the pipe prior to a connection given a favourable combination of the above factors.

Hole Cleaning Practices

Optimum Drilling Practices

Unless directed by the drilling program, or limited by mechanical issues (such as tool and equipment limits, or surface equipment failures), endeavour to drill within the following guidelines for optimum hole cleaning. Note that issues such as directional drilling may require operating outside of these guidelines. This should be minimised if possible.

- Pump at maximum allowable flowrate.
- Drill with maximum allowable pipe RPM. Note that if a steerable BHA is being used, the off-bottom RPM limit may be higher than the drilling (on-bottom) RPM limit. If so, then when circulating off bottom, the higher limit should be used. Refer to Section 2.7 Engineering Design Considerations for recommended pipe RPM limits for common motor configurations. *Generally, a significant increase in cuttings return occurs above 110 rpm, with improvement again above 150 rpm.*
- Maximise rotary drilling, when drilling with steerable BHAs.
- Drill at maximum ROP, provided that hole condition monitoring does not indicate that ROP is exceeding hole cleaning capability. Torque and Drag monitoring will then be required to match maximum allowable ROP with hole cleaning capacity.
- Carefully monitor cuttings return, and character, to ensure that hole integrity and cuttings flow are as expected.

Wiper trips

Gippsland & Lakes Entrance Formations

Wiper trips should not be conducted, unless hole condition monitoring (in particular torque and drag monitoring) indicates that the hole is loading up with cuttings. Wiper trips should not be based on time or metreage since last trip.

If hole condition monitoring indicates that remedial hole conditioning is required, wiper trips should be considered as a last resort. Wiper trips should generally not be considered unless alternate actions (such as modified parameters, lower ROP, or simply circulating the hole clean) are ineffective at cleaning the hole up.

Prior to tripping off bottom, the hole should be cleaned up beforehand (as per earlier tripping practices). Torque and drag measurements should be recorded before and after circulation, to quantify the improvement due to circulating, and to confirm if a wiper trip is / isn't required.

Precautionary ream the bottom 2 stands when RIH.

Latrobe Formation

Wiper trips will be conducted in the Latrobeif hole conditions indicate a wiper is necessary. Torque & drag monitoring has not been as reliable for hole condition monitoring in the Latrobe, therefore close attention should be paid to changes in readings. Torque & drag monitoring should still be utilised when drilling the Latrobe, however.

For wiper trips in the Latrobe :

1) Prior to commencing to POOH, circulate 1.5 x ***Latrobe Open*** *Hole Volume* with maximum RPM and flow rate.
2) Kelly-up top drive and pump out of hole for two stands. **(no rotary unless necessary)**
3) If hole pulls tight only on connections, then POOH with elevators minimising time between connections.
4) If hole pulls tight throughout the stand, then pump out of hole to TOL.
5) At TOL, circulate with maximum RPM and flowrate until shakers clean up (at least 1.5 x bottoms-up).
6) POOH with elevators only.

When at TOL and ready to RIH to TD:

1) If the Trip-out was good, then RIH to bottom with elevators only
2) If the Trip-out was tight, then pump into the hole every stand to TD **(no rotary unless necessary).**

Note Avoiding the use of rotary when tripping is meant to minimise the amount of filter cake that is removed from the low side of the hole by the stabilisers and bit.

Sweeps

Generally it is Esso's practice that sweeps (for hole cleaning) should not be pumped. This is due to inconsistency of results, and the detrimental effect on the mud system. If a sweep is used it should be discharged overboard if the mud properties are ideal at that time.

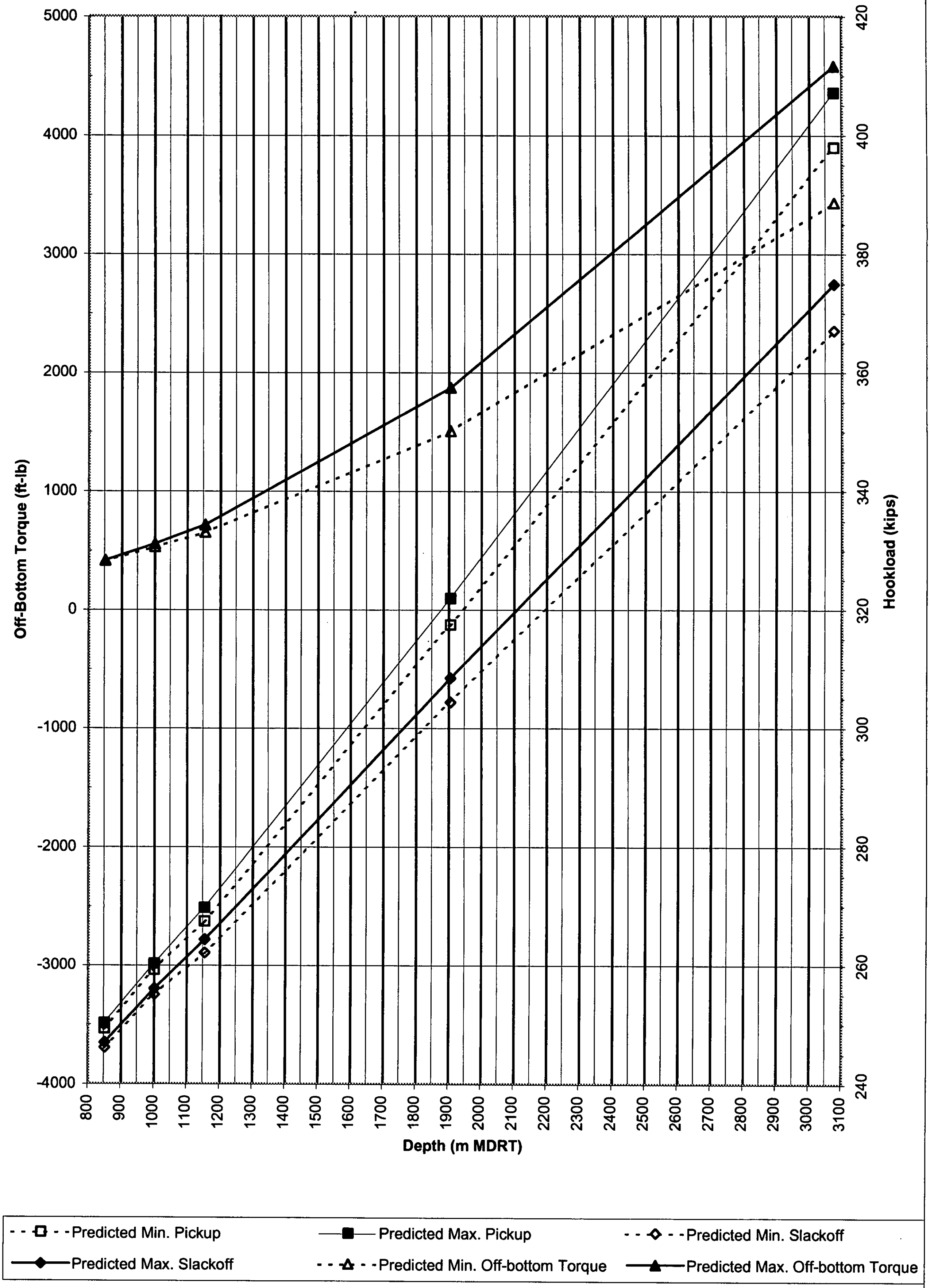
If a sweep has to be pumped, it should be of a suitable size (say 50-100 bbls). If a viscous mud system (>45 sec) is being used, then a tandem sweep should be used (a thin pill, immediately followed by a heavy hi-vis (100+ sec) pill). The idea of the thin pill first is to initiate turbulent flow, stirring the cuttings bed prior to the hi-vis sweep.

If a thin mud system (<45 sec) is in use, then a hi-vis (100+ sec) only sweep should be used.

Block weight 150,000 lb
Mud Weight per Program Limits
13-3/8" Csg @ 850m
CHFF 0.17 OHFF 0.2/0.3
Wellpath has 1 deg/100m tortuosity

ATTACHMENT 10

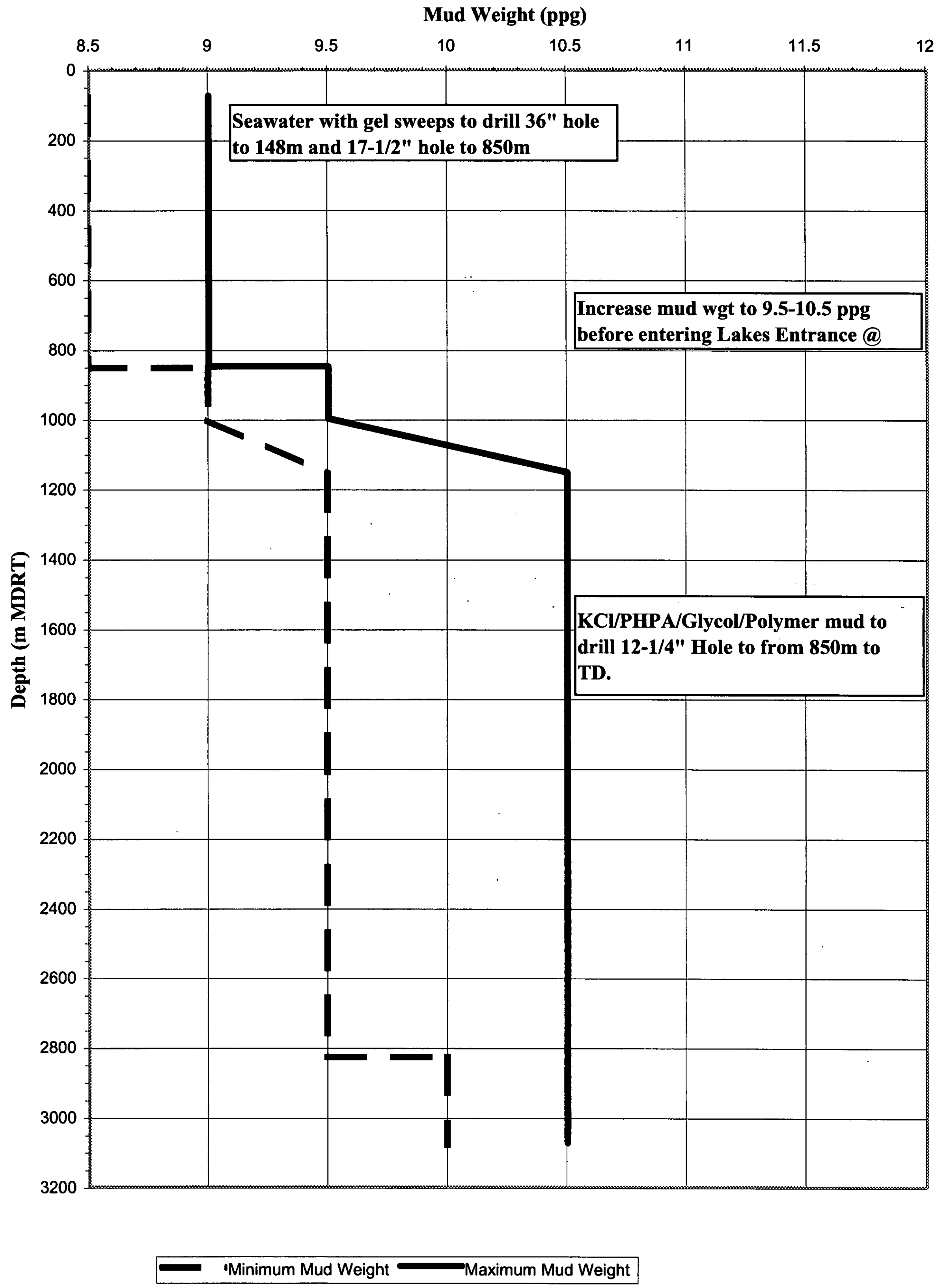
Beardie-1
Predicted Drag in 12-1/4" Hole



913711 272

BEARDIE-1
Mud Weight Curve

ATTACHMENT 11



913711 273

ATTACHMENT 12

ESSO AUSTRALIA LTD
DRILLING FLUID PROGRAM
BEARDIE - 1
BASS STRAIT, VICTORIA

Prepared by	:	Nicholas Doust
Date	:	April 2002
Revision	:	5

"All information, recommendations and suggestions herein concerning our products are based on tests and data believed to be reliable. However, it is the user's responsibility to determine the safety, toxicity and suitability for their own use of the products described herein."

913711 274

TABLE OF CONTENTS

INTRODUCTION

Well Summary

Operator	:	Esso Australia Ltd
Project	:	Beardie Exploration Well
Well Name	:	Beardie-1
Location	:	Bass Strait, VIC/L2, Victoria
Well Designation	:	Exploration
Rig	:	Ocean Bounty
Well Depth (TD) option	:	1,905m MDRT with option to extend to 3,075 mTD
Inclination & Direction	:	Vertical
Horizontal Displacement	:	0 m MD

Well Profile

Beardie-1 has been programmed as a vertical exploration well, penetrating targets in the P reservoir as well as the deeper M1 sand secondary objectives. The 36" and 17-1/2" intervals will be drilled riserless with seawater and high viscosity bentonite sweeps pumped at regular intervals to keep the hole clean. Returns will be to the seabed. The 36" hole will be drilled from the mud line at 75 m MDRT to 124 m with a 17-1/2" bit and 36" hole opener. 30" conductor casing will be set at 124 m. The $17^1/_2$" hole section will be drilled from 124 m to 850 m where 13-3/8" surface casing will be set. $12^1/_4$" hole will be drilled to the production targets from the $13^3/_8$" surface casing shoe to a total depth of 1,905 m MD using a KCl/PHPA/Polymer/Glycol-CP system. If the well is successful then the option to drill deeper through the volcanics to 3,075 m TD may be exercised.

Well Parameters and Potential Hazards

- Beardie-1 will drill approximately 25 - 30 m of reactive Lakes Entrance Formation.
- Reservoir pressures are expected to be normal (8.6 equivalent) above the Volcanics.
- Deeper sub-volcanic wells have occasionally encountered overpressured zones between 9 – 11.5 ppg EMW.
- Some reservoir pressure draw down of approximately 80 psi as seen in the Whiting Field is possible.
- Seismic amplitudes are present at Beardie-1 that could be associated with shallow gas. However, no shallow gas zones have been identified during drilling on adjacent Barracouta and Whiting Fields.
- H_2S has not previously been a problem in exploration wells in this field. Small but significant levels have been recorded (up to 70 ppm in Whiting 2 P240 reservoir and 0 – 18 ppm in Barracouta reservoir). However these levels are considered to be due to coning of water over the duration of the production life of a field. H_2S levels of less than 20 ppm are expected in Beardie-1.
- The primary target section at Beardie-1 is expected to have low CO_2 (below 5%), levels in offset wells in the 0 to 4% range. Small amounts of CO_2 have been produced from the M1 reservoir in the Barracouta field (0 to 0.8%). Below the primary target section, offset wells suggest the possibility of a small increase in CO_2 in the sub-volcanic section (0-15% in the Whiting L460 reservoir).
- Hard drilling is likely in the Intra-Latrobe section due to dolomitised sandstone and volanics.
- The Intra-Latrobe volcanics may contain weathered reactive clay bands.
- Fault zones exist in the Latrobe Formation, which increases the possibility of mud losses. Small scale fault zones are also possible from ~810 m to TOL.
- 2 – 20 m coal beds were seen in offset wells and are expected at this location. Sloughing is not expected to be a problem in this vertical well.
- Differential sticking has occurred on offset wells.
- Anticipated BHT is approximately 90° C at 1,905 m TD, climbing to 128° C at 3,075 m TD based on the standard Bass Strait temperature gradient.

913711 276

Well Parameters and Potential Hazards

Interval	Hazard/Concern	Action
36" / 17.1/2"	• Lost circulation / hard ledges • Unstable hole • Shallow Gas	• Drill with seawater pumping hi-vis bentonite sweeps. • Displace hole to pre-hydrated bentonite on trips and prior to running casing. • Ensure enough kill mud is stored in mud pits.
12.1/4"	• Overpressure in volcanics • Poor hole cleaning • Hole instability in reactive Lakes Entrance Formation. • Mud Losses in faults of Latrobe. • Differential Sticking in Latrobe Formation. • H_2S in reservoir. • CO_2 in reservoir. • Coal Sloughing	• Maintain sufficient barite stock and adequate mud weight. • Maintain Yield Point at 25 – 45 lb/100ft^2 , increase pump rate & limit ROP. • Keep constant monitoring on mud weight, hole cleaning, flow rates and rheology. • Consider stopping drilling to circulate the hole clean. • Limit ROP's. • Make a wiper trip to the shoe. • Run an inhibitive mud system. Maintain KCl concentration and fluid loss control. • Maintain adequate LCM supplies of BAROFIBRE, calcium carbonate and Kwik-Seal (non-reservoir LCM). • Add sized BARACARB bridging agent. Maintain tight filtration control. Have EZ-SPOT and ester supplies.on location. • Maintain adequate supplies of NO-SULF, BARACOR-129 and caustic potash on rig. • Treat with caustic soda. • Add BARABLOK active system or spot pill across coals.

Formation Tops

Formation	Formation Tops		Thickness (m MD)
	MD/TVD (m)	Est PP (EMW)	
Sea level	25		
Gippsland Limestone	75	-	760
Base Mid-Miocene Channel	835	8.6	319
Lakes Entrance Formation	1154	8.6	30
Latrobe Group	1184	8.6	721
Top HD/P Reservoir	1268	8.6	
Top LD/P Reservoir	1346	8.6	
Top P240 equiv.	1403	8.6	
Top P250 equiv.	1465	8.6	
Top M-1 equiv.	1613	8.6	
Base M.diversus	1847	8.6	
Dry Hole TD	1905	8.6	
Top of Volcanics	2825	8.6	
TD	3075	8.6	

Mud Systems

36" Hole Seawater/Bentonite Sweeps

- Seawater and high viscosity sweeps pumped at regular intervals will provide sufficient hole cleaning to drill the 36" interval.

- Lost circulation and harder ledges may occur in this interval.

17$^1/_2$" Hole Seawater/Bentonite Sweeps

- Seawater and high viscosity sweeps pumped at regular intervals will provide sufficient hole cleaning to drill the 17$^1/_2$ " interval.

- This section will be displaced with high viscosity pre-hydrated Bentonite prior to running casing. Sufficient drill water and pre-hydrated Bentonite will be needed to displace this large hole section twice.

- If required, Guar Gum can be used to supplement or replace bentonite in sweeps.

12$^1/_4$" Hole

- A fully specified 6% KCl/PHPA/Glycol-CP system should be used from the surface casing shoe to interval TD. This fluid will provide good hole stability in reactive claystone, prevent differential sticking in the high permeability sands, and provide maximum penetration rates in the Gippsland and Lakes Entrance Formations.

- An initial mud weight of 9.0 ppg is required. Raise the mud weight to 9.5 ppg by the top of the Lakes Entrance Formation. A maximum mud weight of 10.5 ppg is suggested if hole problems occur in the Lakes Entrance Formation. The mud weight should be at least 10.0 ppg prior to drilling into the volcanics.

- Differential sticking and seepage losses through faults are a potential danger in the Latrobe Formation. The differential sticking tendency will be highest opposite the most permeable sands penetrated in this section.

- Sized calcium carbonate should be added immediately prior to entering the Latrobe Formation. These pore throat bridging agents will reduce HPHT filtrate loss and reduce the risk of differential sticking in the Latrobe.

- A yield point value of 25-45 lb/100ft^2 is the primary rheology specification. This will provide optimum lift factors, as well as excellent cuttings suspension and carrying capacity at the high drilling rates expected.

- Hole cleaning is not expected to be a problem in this vertical well. Ensure maximum drillpipe rotation is used in conjunction with programmed low-shear rate rheology values and adequate circulation before connections and trips.

- The glauconitic Gurnard Formation is usually present at the top of the Latrobe Formation. It may contain minor amounts of abrasive pyrite.

DRILLING FLUID PERFORMANCE INDICATORS

Drilling fluid performance should be based on achieving the following targets and Performance Indicators. The hole condition targets are considered much more important than the drilling fluid targets, as these relate directly to savings in rig time. Note that rig cost/day far exceeds mud cost/day.

HOLE CONDITION TARGETS

- No time lost to hole problems (flowing sand or hole collapse) in 36" hole
- No time lost due to lost circulation, hole instability or mud rings in $17^1/_2$" hole
- Minimal reaming or back-reaming (<15 hours) due to hole instability or inadequate hole cleaning
- No differential sticking problems in the Latrobe
- Wireline logs successfully run to bottom and retrieved
- All casings successfully run

913711 280

INTERVAL 1

36" Hole	:	**75 - 124 m (49 m drilled)**
Formations	:	**Sand/Shell**
Drilling Fluid	:	**Seawater with Hi-Vis Bentonite Sweeps**

INTRODUCTION
The 36" interval contains predominantly soft chalky limestone and marl. Shell beds, sands, calcarenite and calcilutite are possible. Potential hole problems include lost circulation and harder ledges.

The interval will be drilled with seawater and high viscosity gel sweeps pumped at regular intervals to keep the hole clean. Returns will be to the seabed. No shallow gas is expected in the 36" interval.

Fluid volumes have been estimated on the basis of 40 - 50 bbl sweeps every half-stand. Approximately 1.5 x hole volume of pre-hydrated bentonite will be displaced at the interval TD and then a short trip made and the hole once again displaced, as above prior to pulling out to run 30" casing. Mud displaced into the hole should not be flocculated with Lime.

RECOMMENDED PROPERTIES (Hi-Vis Sweeps)

Funnel Viscosity (sec/qt)	:	> 100
YP ($lb/100ft^2$)	:	> 40

FORMULATION
35 - 40 ppb bentonite should be pre-hydrated in treated drillwater and allowed to yield for at least 8 hours. If a shearing device is available this period may be reduced. The pre-hydrated mixture can then be diluted by 1/3 with seawater to give a final concentration of about 25 ppb bentonite. Lime and caustic should be added just prior to pumping to further flocculate the fluid. The actual dilution rate and the use or quantity of Lime can be adjusted to achieve the desired viscosity. Formulate sweeps with:

Soda Ash	:	0.1 - 0.2 ppb
Bentonite	:	35 - 40 ppb (hydrate 8 hours)
Seawater	:	1/3 initial volume
Caustic Soda	:	0.5 ppb (add before pumping)
Lime	:	0.5 ppb (add before pumping)

MAINTENANCE
- At casing depth, the hole should be displaced with 1.5 x the open hole volume of undiluted high viscosity pre-hydrated bentonite. After a wiper trip the hole will again be displaced 1.5 times with undiluted pre-hydrated bentonite to ensure the hole is full, including any overgauge sections.

- The hole should be spudded at a reduced pump rate to avoid washing out the seabed.

- Maintain enough bentonite and drillwater on the rig and boat to ensure a steady supply. Make sure the mud pits are full of pre-hydrated gel while drilling.

INTERVAL 2

$17^1/_2$" Hole	:	**124 - 850 m (626 m drilled)**
Formations	:	**Upper Gippsland**
Drilling Fluid	:	**Seawater with Hi-Vis sweeps**

INTRODUCTION
The 17-1/2" interval will be drilled with seawater and high viscosity sweeps pumped at regular intervals to keep the hole clean. Returns will be to the seabed. No shallow gas is expected in the $17^1/_2$" interval, however kill mud will be built as a precaution. If required a 8-1/2" pilot hole will be drilled as a safety measure to determine if there is shallow gas. If there is no shallow gas then 17-1/2" hole will then be drilled over the existing 8-1/2" hole.

Fluid volumes have been estimated on the basis of 40 - 50 bbl sweeps every half-stand. To conserve drill water and ensure sufficient pre-hydrated Bentonite is available for two displacements at interval TD, high viscosity Seawater/Guar sweeps can be used alternately with Bentonite sweeps when drilling. Seawater/Guar should not be used to displace the hole at interval TD.

Approximately 1.5 – 2.0 x hole volume of 12 ppg pre-hydrated Bentonite will be displaced at the interval TD. After a short trip, the hole should be once again displaced with 12 ppg pre-hydrated Bentonite prior to pulling out to run $13^3/_8$" casing. Mud displaced into the hole should not be flocculated with Lime. In the event of shallow gas the 12.0 ppg mud can be diluted to 9.6 ppg with seawater and displaced into the hole to be used as kill mud.

RECOMMENDED PROPERTIES (Hi-Vis Sweeps)

Funnel Viscosity (sec/qt)	:	> 100
YP (lb/100ft^2)	:	> 40

FORMULATION
Formulate pre-hydrated Bentonite and high viscosity Bentonite sweeps as per the 36" interval.

Formulate Seawater Guar Gum hi-vis sweeps as follows to minimise mixing time, conserve drill water and maximise Guar yield:

Seawater			
ALDACIDE G	:	0.05 – 0.1	ppb
Citric Acid	:	~ 0.1	ppb (Reduce pH to ~ 5 to maximise Guar dispersion)
Guar Gum	:	3 – 4	ppb
Caustic Soda	:	~ 0.1	ppb (Increase pH to 9 to maximise Guar yield)

- Guar gum will not yield in the presence of hydroxyl ions, hence dry product should not be added to any fluid containing Caustic Soda, including pre-hydrated Bentonite. Check the pH of the mix water is < 7.5 and if necessary, reduce the pH with Citric Acid before mixing Guar Gum.

Displacement Mud Formulation

Approximately 1540 bbls of 12.0 ppg displacement mud will be required to fill the conductor 100% and the 17-1/2" open hole 200%. **This mud must be built prior to drilling the 17-1/2" section as it may also be used as kill mud if required.**

To make 1 bbl of displacement mud add:

Soda Ash	:	0.1	ppb
Caustic Soda	:	0.1	ppb
Bentonite	:	20	ppb (pre-hydrated)
PAC-L	:	0.2	ppb
Barite	:	185	ppb (to 12.0 ppg)

- Initial 10 second gel must be bigger than 3 lbs/100ft^2 to prevent barite settling.
- Keep agitator on at all times.
- Keep salt out of mud, or flocculation may occur, resulting in barite settling.

Kill Mud Formulation

In the event that shallow gas is encountered it is unlikely that the sand could exceed 9.3 ppg due to the limited overburden. Hence a kill mud weight of 9.6 ppg will be sufficient to kill the well. If kill mud is required then the 12.0 ppg displacement mud should be diluted to 9.6 ppg with seawater.

To dilute the 12.0 ppg displacement mud to 9.6 ppg to a total volume of 1540 bbls kill mud add 470bbls of 12.0 ppg to 1070 bbls of seawater i.e. add 2.27 bbls of seawater to each 1 barrel of 12.0 ppg.

MAINTENANCE

- Drill with seawater and 40 – 50 bbl sweeps of high viscosity mud each half stand (60 bbl per stand). Sweeps may be alternately Seawater-Bentonite and Seawater-Guar to conserve drill water and Bentonite supplies if required.

- The first 10 m below the conductor shoe should be drilled with spud mud at reduced pump rate to avoid washing out poorly consolidated sediment.

- If shallow gas is encountered then the 12.0 ppg displacement fluid can be diluted to achieve a kill mud weight of 9.6 ppg. Dilute the 12.0 ppg mud to 9.6 ppg with addition of seawater at a ratio of 1 bbl 12.0 ppg: 2.27 bbl seawater.

- At casing depth, the hole should be displaced with 1.5 –2.0 x the open hole volume of undiluted 12 ppg high viscosity (non-flocculated) pre-hydrated Bentonite.

- Prior to pulling out of hole after a wiper trip to run casing, the hole will be displaced with 12.0 ppg unflocculated gel mud to help maintain borehole stability and optimum cuttings suspension.

- Blending of concentrated fluids, plus drill water dilution, may be required to prepare the required large volume of fluid without incurring any down time.

- It is assumed that cement for the $13^3/_8$" casing job will be displaced with seawater, and that seawater will be used to drill out the casing shoe. If not, it may be necessary to retain some salvaged mud after cementing to drill out cement before displacing to new KCl/PHPA/Polymer/Glycol mud.

- Partial lost circulation is possible in the upper Gippsland Formation. This should not be a problem, as the formations are usually soft and hence unlikely to fall back and stick the pipe when the pumps are shut off. Any losses usually self-heal with pre-hydrated Bentonite sweeps and drill solids over time.

- Bentonite and drillwater requirements are high on this section. Make sure the mud pits are full of pre-hydrated gel while drilling. Ensure the rig and boats are topped up at every opportunity. This reduces the risk of non-productive downtime while waiting on the boat due to adverse weather.

INTERVAL 3

$12^1/_4$" Hole	:	**850 m to 1,905 m (1,055 m to drill)**
Formations	:	**Lower Gippsland, Lakes Entrance and Latrobe**
Drilling Fluid	:	**6% KCl/PHPA/Polymer/Glycol-CP**

A 6 – 8 % KCl/PHPA/Polymer system should be used from the 13-3/8" surface casing shoe to interval TD to provide good hole stability in reactive claystone, prevent differential sticking in the sands, and provide maximum penetration rates in the Gippsland and Lakes Entrance Formations. This fluid has been used successfully on numerous Bass Strait wells.
This fluid will provide effective borehole stability, due to the following mechanisms:

- Sufficient KCl to provide adequate osmotic inhibition (salinity balance) and sufficient Potassium ion to convert reactive clay to non-reactive clay.
- The KCl will provide osmotic inhibition and reduce pore pressure penetration.
- Inhibiting polymers, particularly PHPA, and filtration control polymers such as PAC and DEXTRID-LT will provide additional clay inhibition and retard pore pressure penetration.
- Careful control of pH will also help minimise clay swelling.
- Bridging of the reservoir with sized calcium carbonate to reduce pore pressure penetration.

Target Properties

Mud Weight	Initially 9.0	ppg (see Esso chart)
	Incr. to 9.5	ppg By Top of Lakes Entrance Fm.
Yield Point	25 – 45	$lb/100ft^2$
API Filtrate	< 6	ml/30 min
HPHT Filtrate	< 15	ml/30 min @ 250°F (Lakes Entrance Fm.)
	< 12	ml/30 min @ 250°F (Latrobe Fm.)
pH	8.5 - 9.2	
KCl Content	6	% by wt soln
Excess PHPA Content	1	ppb
Low Gravity Solids	< 10	% by vol
Glycol Content	3	% by gross mud volume

Recommended System Formulation (in order of addition)

BARACIDE	0.1	ppb (added to mix water)
KCl Brine	6 – 8	% by wt soln
Drillzan D	1.0 - 1.5	ppb (first polymer to be mixed)
PAC-L	1	ppb
DEXTRID-LT	3 – 4	ppb
PHPA	1.5	ppb
Glycol-CP	3	% by volume (added after displacement)
Caustic Potash	0.2	ppb (To pH 9.0)
Barite	As Req'd.	

Mixing & Maintenance

- In new pre-mix, PHPA should be the last polymer added, in order to minimise its' inhibitive effect on the yield of the other polymers.

- Drill the cement and casing shoe with seawater. Prior to the PIT, displace the hole to new mud pre-treated with 0.5 ppb each of Citric Acid and Bicarb. Soda. It will be necessary to run coarser screens at first until the new mud shears down sufficiently. Then replace these with finer screens.

- Add Glycol-CP to the active system after any high pH caused by cement contamination has been treated out with Citric Acid and Bicarb. Soda.

- Maintain a constant mud formulation from the initial displacement. This will provide full inhibition for improved hole conditions and cuttings integrity for the entire section, thus avoiding any initial period of reduced mud performance.

- New mud will weigh approximately 8.7 ppg. The mud weight will increase with the incorporation of drill solids, reaching 9.6 ppg at about the maximum recommended low gravity solids content of 10% by volume.

- Raise the mud weight steadily to reach 9.5 ppg by the top of the Lakes Entrance Formation. Use regular additions of Barite to maintain mud weight while keeping within the programmed low gravity solids range.

- Add Glycol-CP directly to the active system after displacement to maintain the required glycol concentration. Base all glycol additions on any new volume added to the active system. Keep extra glycol on board as the concentration may be increased to 5% in response to any hole problems.

- Use the finest shaker screens practicable to avoid stripping out too much calcium carbonate bridging agent. It is advisable to use slightly coarser shaker screens, eg 120 mesh, when calcium carbonate is in use. The Ocean Bounty has 4 shakers so aim to run as fine as possible to reduce solids content and dilution requirements.

- Keep additional **drill water** based 6-8% KCl/PHPA/Polymer/Glycol-CP system pre-mixed in the reserve pits.

- Perform four complete mud checks per day while drilling. These should comprise two pairs of lagged checks on mud in the suction pit and the same mud returning at the flowline. Additional partial mud checks should be performed as necessary to ensure all critical mud properties remain within specification.

Borehole Stability/ Differential Sticking

- If there are indications of hole instability in the short section of the Lakes Entrance Formation, consideration should be given to increasing the mud weight, increasing the glycol content in 0.5% increments towards a maximum of 5% and increasing the KCl concentration to 8%.

- Immediately prior to drilling into the top of the Latrobe Formation, pretreat the entire circulating system with the addition of 5 ppb each of calcium carbonate-25 & calcium carbonate -100. This will increase the mud weight by 0.2 ppg. These are to act as pore throat bridging agents to reduce the likelihood of differential sticking and seepage losses in the high permeability sands.

- Regularly add an additional 2 X 25 kg sacks of calcium carbonate-100 and 1 sack of calcium carbonate-25 for every 10 m of new hole drilled in the Latrobe Formation, to replace losses to the solids control equipment and wall cake.

- Differential sticking is possible opposite the most permeable sands. If differential sticking of the drill string occurs, a stuck pipe spotting fluid can sometimes assist in freeing the string. Spotting fluids are designed to penetrate and break up the filter cake. Stuck pipe pills can be formulated with EZ-SPOT, ester and barite if required. To mix the EZ-SPOT pill, start with the required volume of ester, add EZ-SPOT, water and barite (weight to same as active mud system) in that order.

  For a 50 bbl pipe freeing pill at 10 ppg add the following (in order of addition):
  - 29 bbls of ester
  - 3 drums of EZ-SPOT
  - 13 bbls of water
  - 140 ppb barite

  Note: It is critical to have spotting fluid readily available and applied as soon as possible after the stuck pipe occurrence to increase the probability of success.

- Coal sloughing is not expected to be a problem in this vertical hole however it expected that coal beds will be drilled. If coal sloughing occurs, consideration should be given to adding 6 - 10 ppb BARABLOK to plug microfractures and minimise filtrate invasion. Care should be taken to avoid any swabbing or mud weight reduction. A gradual increase in mud weight may also be required. BARABLOK Gilsonite bridging agent and HME Energiser water wetting surfactant should be kept on the rig for contingency purposes when drilling the Intra-Latrobe coals. **Check with the Esso drilling supervisor prior to adding BARABLOK and HME Energiser. HME Energiser is a surfactant; hence it may alter the wettability of the formation and impair core tests.**

Hole Cleaning
- Hole cleaning should not be a problem in this vertical well, although the larger hole size will require additional circulation time to clean. Maximum high-speed pipe rotation should be used while drilling and when circulating before connections and trips.

- Vary the amount of Drillzan D or BARAZAN-D PLUS xanthan gum viscosifier added to the premix, in order to maintain the yield point value at the specified 25- 45 lb/100ft^2 required for hole cleaning. Avoid adding Drillzan D or BARAZAN-D PLUS directly to the active system, as PHPA will inhibit the hydration and yield of xanthan gum.

- The shakers should be circulated clean of cuttings before trips. Rapid pipe rotation and a circulation time of at least 2 x bottoms up will be necessary to completely clean the hole.

Lost Circulation/Seepage Losses
- BAROFIBRE should be kept on board as a contingency item and used if there are indications of significant seepage losses. Seepage losses are possible in the dawn down zones of the reservoir and across small scale fault zones.

- In the event of seepage losses in the permeable Latrobe Formation, then:
  1. Drill ahead and sweep the hole with 20 ppb of Calcium Carbonate 25/100 combination plus 5 – 10 ppb BAROFIBRE.
  2. If unacceptable losses persist then stop drilling, reduce pump rate and spot a 25 ppb Calcium Carbonate 25, 25 ppb Calcium Carbonate 100 and 10 ppb BAROFIBRE pill across the formation.

Note that non-degradable LCM such as KWIK-SEAL should not be used in the Latrobe Formation as it may damage the reservoir.

Bit Balling

- If apparent bit balling occurs in the Lakes Entrance Formation, pump 30 bbl sweeps of KCl brine or KCl brine with 5% glycol, instead of seawater sweeps. While drilling the Lakes Entrance have sufficient KCl brine mixed for sweeps if required. Also WALL-NUT or coarse calcium carbonate may be added to a sweep to abrade sticky clay from the bit and BHA. Slugging the pipe during a connection with EZ-MUD L (liquid PHPA) may also eliminate bit balling. Bit balling should not occur in the sandy Latrobe Formation.

- If SAPP or CONDET is available then they may be used in a pill format to fix bit balling. SAPP pills should be made at a concentration of 1 to 3 lbs/bbl. Do not use SAPP in high Calcium environments. SAPP is a dispersant so should be used sparingly to prevent dispersing clay solids and also prevent possible borehole washout. Condet is a detergent which reduces surface tension and the sticking tendency of clay. Add 3 – 5% of CONDET in pill of active mud. CONDET may cause foaming of the mud system.

Corrosion, H_2S & CO_2 Control

- Due to the possibility of H_2S, the Garret Gas Train (GGT) test for H_2S should be run twice daily and the results reported in the mud treatment section of the mud report. Also check for CO_2. For a quick test of soluble sulfides use the HACH test method.

- Keep sufficient quantities of NO-SULF on board. NO-SULF is a blend of zinc compounds used to treat out H_2S in the mud system. If H_2S is detected then treat the mud system with 1 – 4 lb/bbl NO-SULF. The reaction of zinc and sulfide compounds forms an insoluble and unreactive precipitate of zinc sulfide.

- BARACOR-129 oxygen scavenger will be used when drilling or circulating with a closed system. The residual sulphite concentration should be maintained at > 100 mg/l at the flowline. BARACOR-129 oxygen scavenger solution should be added as close to the pump suction as possible. Ensure hoppers and non-essential solids control equipment is switched off when not in use in order to minimise aeration of the mud.

- BARAFILM / Ester pre-blended corrosion inhibitor should be used to coat the inside of the pipe before trips. Pour 20 - 40 litres per 1000 m of pipe of BARAFILM / Ester blend down the inside of the pipe after a heavy slug has been pumped. APPROPRIATE PROTECTIVE CLOTHING MUST BE WORN WHEN HANDLING CORROSION INHIBITORS.

- Mud left behind casing should be treated with extra BARACIDE and Caustic Potash to help prevent corrosion.

$12^1/_4$" Hole	:	**1,905 to 3,075 m**	**(1,170 m to drill)**
Formations	:	**Intra Latrobe Volcanics**	
Drilling Fluid	:	**6% KCl/PHPA/Polymer/Glycol-CP**	

Target Properties

Mud Weight	Incr. to 10	ppg By Top of Volcanics
Yield Point	25 – 45	lb/100ft^2
API Filtrate	< 6	ml/30 min
HPHT Filtrate	< 12	ml/30 min @ 250°F (Latrobe Fm.)
pH	8.5 - 9.2	
KCl Content	6	% by wt soln
Excess PHPA Content	1	ppb
Low Gravity Solids	< 10	% by vol
Glycol Content	3	% by gross mud volume

Recommended System Formulation (in order of addition)

BARACIDE	0.1	ppb (added to mix water)
KCl Brine	6 – 8	% by wt soln
Drillzan D	1.0 - 1.5	ppb (first polymer to be mixed)
PAC-L	1	ppb
DEXTRID-LT	3 – 4	ppb
PHPA	1.5	ppb
Glycol-CP	3 - 4	% by volume (added after displacement)
Caustic Potash	0.2	ppb (To pH 9.0)
Barite	As Req'd.	

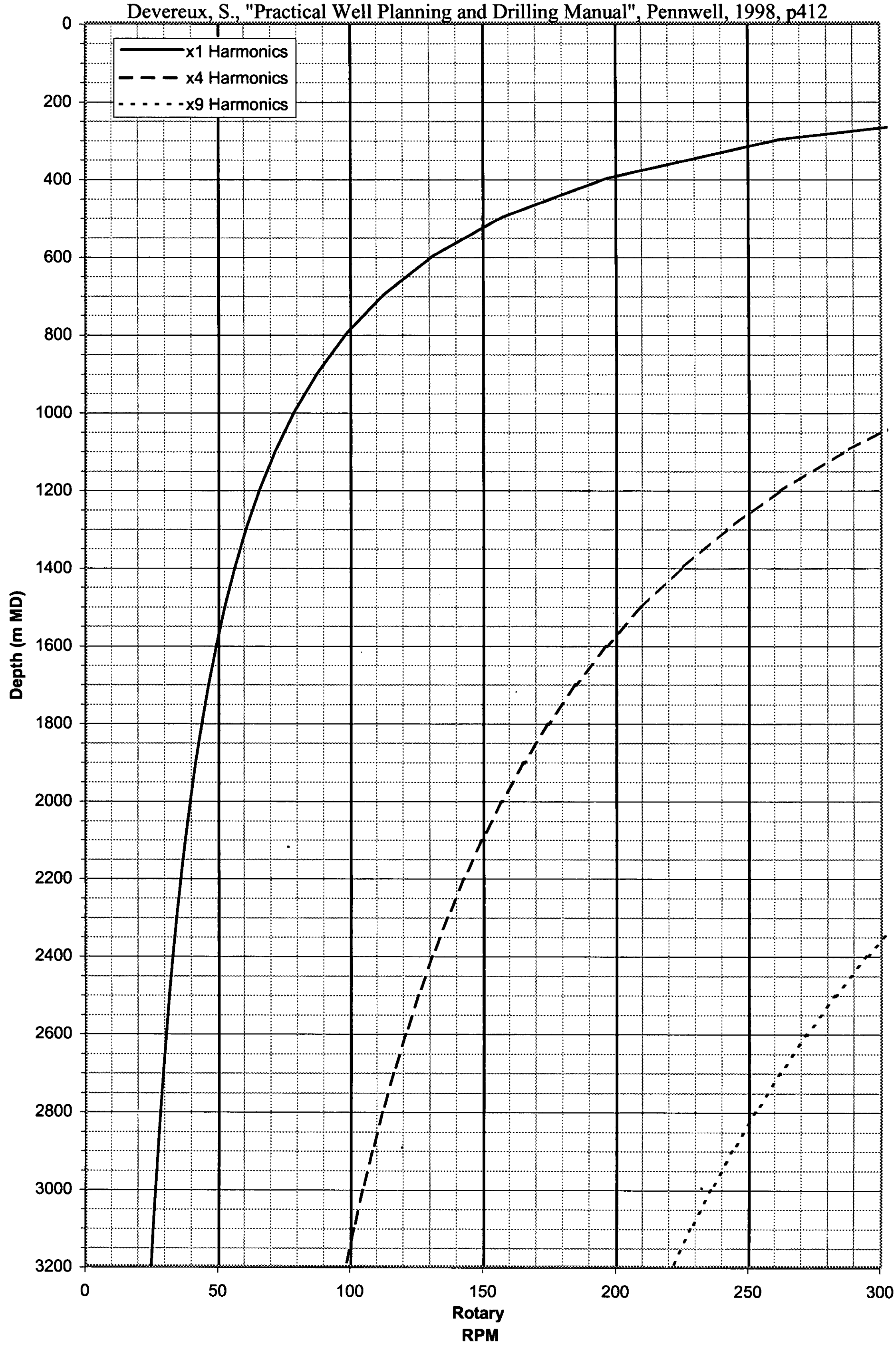
MAINTENANCE

- The mud system should be 10.0 ppg prior to drilling into the volvanics. If borehole instability is evident or there is evidence of gas on connections then raise the mud weight accordingly. Previous offset wells required mud weights of up to 12.3 ppg while drilling through the volcanics.
- All other mud properties should be maintained as in the previous section of the Latrobe Interval.
- Seepage losses are possible while drilling the volcanics as experienced in East Pilchard. It is recommended to pump sweeps of sized calcium carbonate and BAROFIBRE to reduce losses (see 12-1/4" section 850 – 1905 m)
- The static bottom hole temperature is expected to be close to 262ºF at TD. If required to maintain HPHT control, the glycol-CP concentration can be increased towards 3 – 4 % v/v.

ATTACHMENT 13

BEARDIE-1 - Longitudinal Drill String Vibration

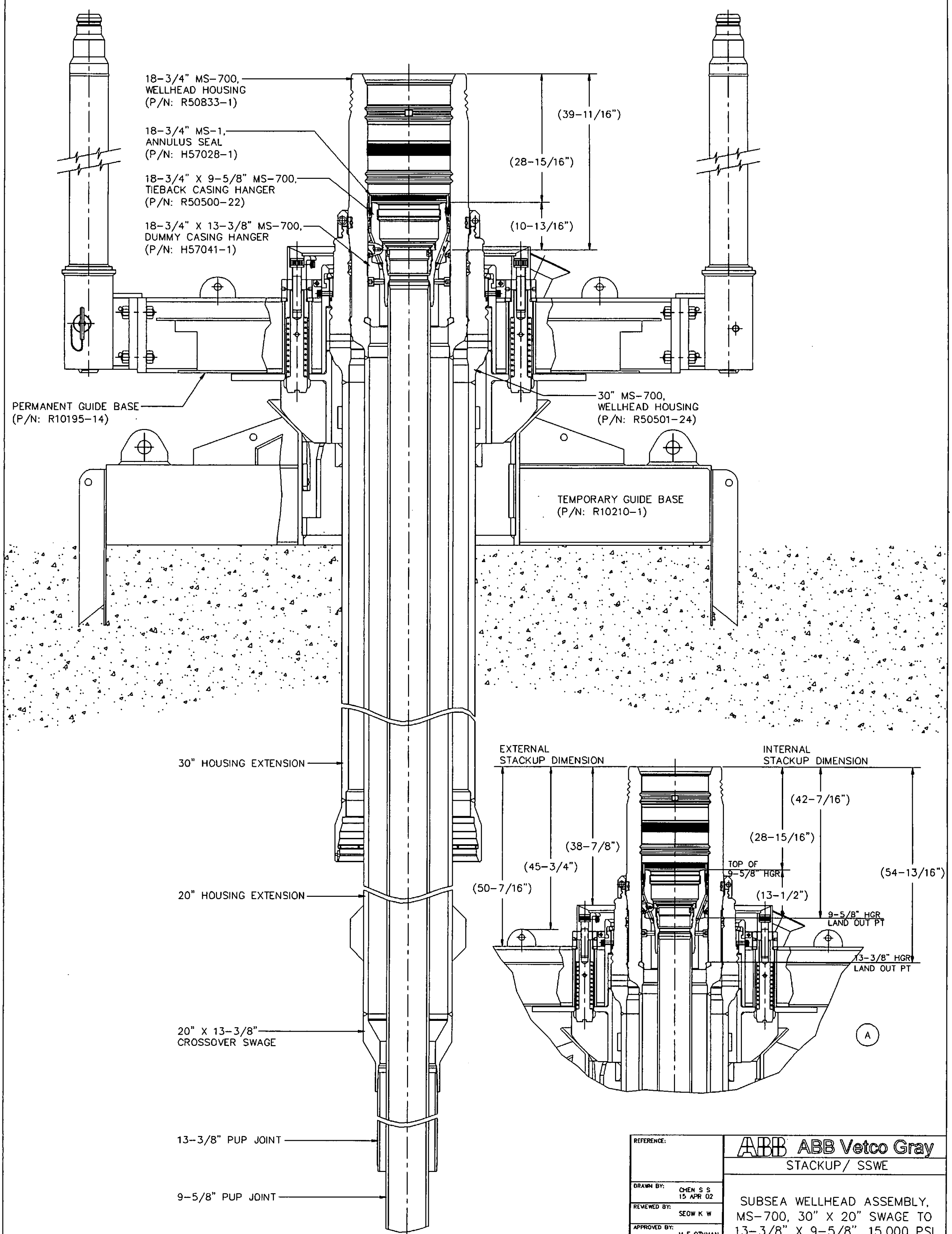
Devereux, S., "Practical Well Planning and Drilling Manual", Pennwell, 1998, p412



913711 290

REVISIONS						
REV.	REV. CODE	DESCRIPTION	DWN BY	REVD BY	APPD BY	RELEASE DATE
A	111	PER CUSTOMER'S REQUEST	JK	MFO	MFO	22APR02

ATTACHMENT 14



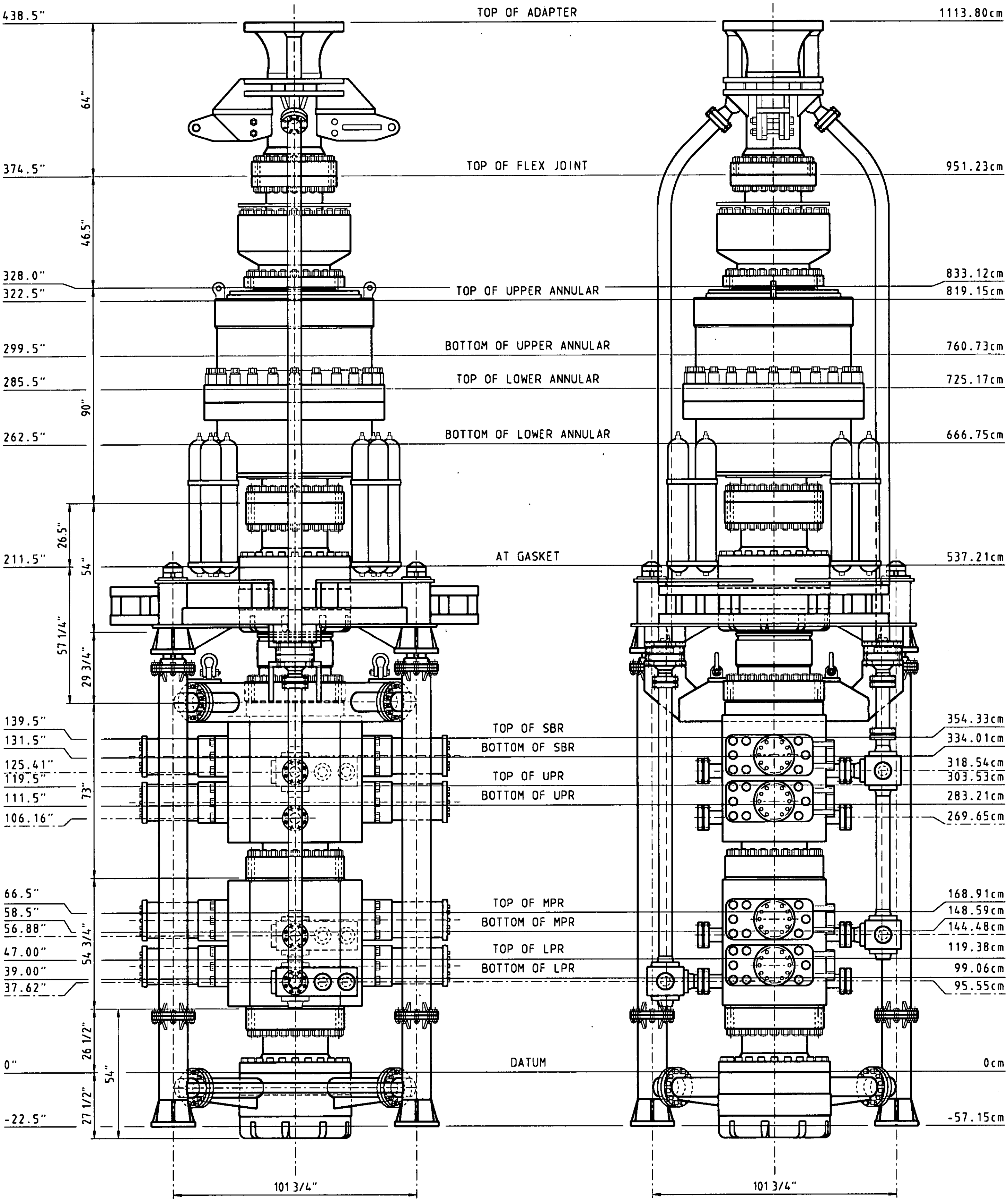
REFERENCE:	ABB Vetco Gray
	STACKUP/ SSWE
DRAWN BY: CHEN S S 15 APR 02	SUBSEA WELLHEAD ASSEMBLY, MS-700, 30" X 20" SWAGE TO 13-3/8" X 9-5/8", 15,000 PSI
REVIEWED BY: SEOW K W	
APPROVED BY: M F OTHMAN	
RELEASE DATE: 17 APR 02	
THIRD ANGLE PROJECTION	SIZE D · DRAWING NUMBER R602031-1 · REV. A
DO NOT SCALE DRAWING	DIST. CODE · WEIGHT (LBS.) · SHEET 1 OF 2

NOTES: ALL DIMENSIONS SHOWN ARE FOR REFERENCE ONLY.

FILE NAME-R602031-1S1 JK/22APR02/A1 PROJECT ID NO.- SALES ORDER- CB3036 RIG CUSTOMER ESSO ACAD

ATTACHMENT 15

913711 291



NOTES:

RAM CONFIGURATION
(FROM TOP CAVITY DOWN)

- SHEAR RAMS
- 3.5"-5" VARIABLE RAMS
- 5" PIPE RAMS
- 5" PIPE RAMS

DIAMOND OFFSHORE P O BOX 4558 HOUSTON, TEXAS 77210	**OCEAN BOUNTY**			
	10,000 PSI SHAFFER 18-3/4" MSP BOP STACK WITH VETCO H4 CONNECTOR			
	ENG: E. JACOBSEN	CHKD:	DATE: 27.02.2002	DRAWING NUMBER **144-GA-008**	REV **B**
	DRN: C. HUXTABLE	APRVD:	SCALE: NTS		

913711 292

BEARDIE-1 | **CONDUCTOR CASING** | **ATTACHMENT 16**

Casing Type : 30", 1" & 1-1/2" wall, X-52, ABB Vetco ST-2 | Centraliser type : None required

Nominal Casing setting depth : 125 m MDRT | 125 m TVDRT

String (Bottom to Top)	Length (m)	Joints (no.)	Casing O.D.	Conn	Weight (lb/ft)	Grade	Central's (no./jt)	Total No. Central's	Stop rings (no/jt)	Burst (psi) SF=1.375	Collapse (psi) SF=1.0
Float shoe joint. 30"x 20" (see Note 1)	11.28	1	30"/20"	ST-2	310/129	X-52/X-56	-	-	-	2204/2225	1670/1460
Intermdiate Conductor joints	24.00	2	30"	ST-2	310	X-52	-	-	-	2204	1670
Wellhead Conductor joint	12.85	1	30"	ST-2	457	X-52	-	-	-	3309	4000
String length	48.13	4						0	0		
RT - Wellhead	73.80										
Planned Total String Depth	**121.93** m MDRT										

(1) - The float shoe joint comprises a Weatherford 20" Model 303-1 Sureseal stab-in float shoe (P/N 3031020BW00x5600133 on 20" x 0.625" wall X-56 pipe (length 6.10m), a 20" x 30" welded swage with 1" wall (1.07m) and 30" x 1" wall X-52 pipe with ST-2 pin connector on top. The joint is fitted with elevator ring and horizontal lifting padeyes.
(2) - Ensure all o-rings are run in the ABB Vetco Gray ST-2 connectors. Make-up the ST-2 connectors as per ABB Vetco Gray manual.
(3) - Maximum allowable hookload on conductor casing is 1,570 kips (df = 1.5). This includes 150 kips for the weight of the travelling equipment. This far exceeds derrick capacity of 1,000 kips.
(4) - Land the 30" casing so that the base of the PGB is 1.5 to 2.0m above the mudline.
(5) - Record casing and cementing data in the Drilling Reporting system, and send the final Casing Tally spreadsheet to Melbourne office.

Cement Job Type	Slurry Vol (bbl)	No. sx (sx)	Total Fluid Required		Additives		Slurry Yield cu ft/sx	Slurry Density (ppg)	Max Job Time (hrs)	Thick'ning Time (hrs)	Displace. Vol (bbl)
			Type	Qty gal/sx	Type	Qty (gal/10 bbl)					
Conductor Slurry	249	1,197	Seawater	5.00	NF-5 $CaCl_2$	0.5 1% (bwoc)	1.17	15.9	2hr:05min	2hr:30min to 2hr:55min	24.0

Slurry Volume assumes 250% excess on 36" gauge hole with cement back to mudline. Recalculate volumes based on actual hole depths.

Special Requirements
(1) - Pump the cement through a inner 5" drillpipe cementing string positioned so that the end of the 5" drill pipe is ~14m above the float shoe.
(2) - Displace with seawater leaving ~4m of cement above the float shoe.
(3) - BHST 16° C. BHCT 27° C.
(4) - Estimated 12hr compressive strength at 13° C is 1000 psi.

12/06/20021:22 pm

BEARDIE-1 **SURFACE CASING** **ATTACHMENT 17**

Casing Type : 13-3/8", 68ppf, K-55 and L-80 BTC

Centraliser type : Davis Lynch - Stock No. 01804687
13-3/8" by 17-1/2"

Nominal Casing Setting Depth : 850 m MDRT 873 m TVDRT

Stop Collar : Weatherford 13-3/8" JSH - Stock No. 01161404

String	Length (m)	Joints (no.)	Casing O.D.	Conn	Weight (lb/ft)	Grade	Central's (no./jt)	Total No. Central's	Stop rings (no/jt)	Burst SF=1.375	Collapse SF=1.0
Float shoe jt.	12.50	1	13-3/8"	BTC	68	L-80	1	1	1	3651 psi	2260 psi
Float joint	12.00	1	13-3/8"	BTC	68	L-80	1	1	1	3651 psi	2260 psi
Float collar jt.	12.50	1	13-3/8"	BTC	68	L-80	1	1	1	3651 psi	2260 psi
Centralised Casing	95.20	8	13-3/8"	BTC	68	K-55	1	8	8	2509 psi	1950 psi
Uncentralised Casing	630.70	53	13-3/8"	BTC	68	K-55	0	0	-	2509 psi	1950 psi
Pup joint	1.38	1	13-3/8"	BTC	68	L-80	0	0	-	3651 psi	2260 psi
High pressure housing and 20" Casing	10.11	1	20"	welded	203	X-56	-	-	-	3564 psi	4140 psi
String length	774.39	66						11	11		
RT - Top 18-3/4" HP Housing	72.74										
Planned Casing Shoe Depth	**847.1** m MDRT										

(1) - Run all casing using Best-O-Life 2000 thread compound.
(2) - Confirm that all float equipment is PDC drillable.
(3) - Make-up the connections using ExxonMobil Torque position makeup. For 13-3/8" 68ppf K55 BTC casing with phosphatised couplings T-min is 8,500 ft-lbs and T-max is 14,450 ft-lbs. D1 is 4.813" and D2 5.188".
(4) - Maximum allowable hookload on surface casing is 910 kips (df = 1.5). This includes 150 kips for the weight of the travelling equipment.
(5) - High pressure housing and 20" casing comprises the ABB Vetco 18-3/4" MS700 High Pressure housing (1.60m, 63") with a 9.45m (31') pup joint of 20" 1" wall X56 pipe below, a 0.44m (17-1/2" crossover swedge to 13-3/8", and a 1.38m (54-1/2") 13-3/8" 68 lb/ft L-80 pup joint with BTC pin down on bottom.
(6) - Record casing and cementing data in the Drilling Reporting system, and send the final Casing Tally spreadsheet to Melbourne office.

Cement Job Type	Slurry Vol (bbl)	No. sx (sx)	Total Fluid Required Type	Total Fluid Required Qty gal/sx	Additives Type	Additives Qty (gal/10 bbl)	Slurry Yield cu ft/sx	Slurry Density (ppg)	Max Job Time (hrs)	Thick'ning Time (hrs)	Displace. Vol (bbl)
Lead Cement Slurry	560	1,423	Seawater Total Fluid	12.99 12.54	Econolite NF-5	14.6 0.5	2.21	12.5	4hr:05min	4hr:55min to 5hr:45min	-
Tail Cement Slurry	150	726	Freshwater	5.15	NF-5	0.5	1.16	15.8	2hr:20min	2hr:50min to 3hr:15min	372.9

Slurry Vol assumes 100% excess on 17-1/2" gauge holewith cement back to mudline. Recalculate volumes based on actual hole depths.

Special Requirements
(1) - Pump a 50 bbl of seawater spacer in front of the cement. Monitor returns at the sea bed.
(2) - Use SSR Top Plug set to wipe the casing.
(3) - Displace with the seawater/gel mud used to drill surface hole. Pump the displacement capacity plus 1/2 the shoe track volume.
(4) - BHST 50° C. BHCT 45° C.
(5) - Maximum MWE at the 13-3/8" casing shoe for cement back to the mudline is 13.3 ppg MWE for gauge hole. With 150m height of 15.8 ppg tail cement around the casing this reduces to 12.5 ppg MWE.
(6) - Estimated 24hr compressive strength for the lead slurry at 35° C is 500 psi. Estimated 18hr compressive strength for the tail slurry at 35° C is 2,600 psi.

913711 294

BEARDIE-1 — **9-5/8" CASING (Single Stage Cement job)** — **ATTACHMENT 18**

Casing Type : 9-5/8" 47 & 53.5 ppf, L80, LT&C.

Centraliser type : Weatherford ST A3. Max. OD 14.583". Min. OD 10.883". Esso S/No. 01161234

Stop collar: Weatherford JSH. Esso S/No. 01161398

Hole Depth: 3075.0 m MDRT 3075.00 m TVDRT

String (Bottom to Top)	Length (m)	Joints (no.)	Casing O.D.	Conn	Weight (lb/ft)	Grade	Central's (no./jt)	Total No. Central's	Stop rings (no/jt)	Burst SF=1.25	Collapse SF=1.125
Float shoe joint	12.0	1	9-5/8"	LTC	53.5	L80	2	2	2	6344	5884
Intermediate Float Joint	11.9	1	9-5/8"	LTC	53.5	L80	1	1	1	6344	5884
Float collar joint	12.0	1	9-5/8"	LTC	53.5	L80	2	2	2	6344	5884
Casing	23.8	2	9-5/8"	LTC	47	L80	0	0		5496	4231
Sandblasted Casing	653.4	55	9-5/8"	LTC	47	L80	0.5	28		5496	4231
Top of Latrobe Marker Joint	11.4	1	9-5/8"	LTC	47	L80	0	0		5496	4231
Sandblasted Casing to top of Latrobe	95.0	8	9-5/8"	LTC	47	L80	0.5	4		5496	4231
Casing to 100m above Latrobe	1,009.8	85	9-5/8"	LTC	47	L80	0	0		5496	4231
Wellhead Casing Crossover Pup Joint	3.0	1	9-5/8"	VamTop x LTC	53.5	L80	0	0		6344	5884
String length	1,832.3	155						37	5		

RT - Top Casing 72.7

Casing Shoe Depth **1,905.0** m MDRT

Special Requirements

(1) - Use Bestolife 2000 on all connections not already threadlocked.
(2) - Threadlock the joint above the float shoe to the float shoe joint. Threadlock the joint below the float collar, the float collar joint and the next two joints run above the float collar joint.
(3) - Place centralisers across stop rings for the float joints, and across couplings at every second joint for the remaining casing to top of cement at 1084m.
(4) - Make-up the connections using ExxonMobil Torque position makeup. For 9-5/8" 47ppf L80 LTC casing with phosphatised couplings T-min is 9,600 ft-lbs and T-max is 14,400 ft-lbs. For 9-5/8" 53.5 ppf L80 LTC casing T-=min is 12,100 ft-lbs and T-max is 18,200 ft-lbs.
(5) - Maximum allowable pull on production casing is 595 kips (DF = 1.5, connection) for the 9-5/8" 47 ppf L-80 LT&C casing.
(6) - Wellhead casing crossover pup joint is supplied by ABB Vetco Gray. It is 9-5/8" 53.5 ppf L-80 Vam Top pin to screw into the 9-5/8" casing hanger by LTC pin down.
(7) - Record casing and cementing data in the Drilling Reporting system, and send the final Casing Tally spreadsheet to Melbourne office.

Cement Job	Slurry Vol (bbl)	No. sx (sx)	Total Fluid Required Type	Total Fluid Required Qty gal/sx	Additives Type	Additives Qty (gal/10 bbl)	Slurry Yield cu ft/sx	Slurry Density (ppg)	Max Job Time (hrs)	Thick'ning Time (hrs)	Displace. Vol (bbl)
SINGLE SLURRY	490	2,373	Drill Water	4.75	Halad 413L	32	1.16	15.8	3hr:55min	4hr:40min to 5hr:30min	712.4
					SCR-100L	2					
		(Class "G")	Total Fluid	5.17	NF-5	0.25					

Slurry Volume assumes 0.24451 bbl/m casing capacity for 9-5/8" 47 lb/ft casing and is based on 12.5" effective hole diameter with 20% excess in open-hole.

Special Requirements

(1) - Prior to the cement job check the strokes needed for the job, and the efficiency of the pumps for the liner installed.
(2) - Pump a 60 bbl of seawater spacer in front of 60 bbl of 11.0 ppg weighed Dual Spacer. Monitor returns.
(3) - Cement additives and quantities may very based on Laboratory testing. Refer to Halliburton Cementing Laboratory Report for actual additives and slurry properties.
(4) - Cement to 150m above any zone containing fluid hydrocarbons, using calipered hole annular volume with 20% excess.
(5) - Use top and bottom SSR plugs.
(6) - Displace the production casing with inhibited mud at 12 bbl/min.
(7) - Do not overdisplace by more than 3 bbl.
(8) - Pressure test the casing to 2000 psi immediately after bumping the plug.

12/06/20021:22 pm

ATTACHMENT 19

Beardie-1 Contact List

(All phone numbers are Victorian [ISD +613, STD 03] unless otherwise noted).

Service	Company	Company Contact	Office Phone	Office Fax	Mobile	Email Address	Company Address
AHV/Supply Vessels	Swire Pacific Offshore	Mr Sam Pullan	08 9430 5434	08 9430 7849	0411 430 669	spullan@ spopty.com.au	2nd Floor, Queensgate Center, Cnr William & Newman Streets, FREMANTLE WA 6160
Anchors & Moorings	CSO Aker Unirig	Mr John Riggs	08 9431 8707	08 9430 8520	0413 626 914	john.riggs@ au.coflexip.com	10 Sparks Road, HENDERSON WA 6166
Bits	Halliburton - Security DBS	Mr Errol Smeaton	9581 7534	9585 4723	0414 909 647	errol.smeaton@ halliburton.com	90 Talinga Road, CHELTENHAM VIC 3192
Bits	Reed Hycalog	Mr Denis Karsten	08 9420 4823	08 9322 3110	0419 277 201	denis@ perth.oilfield.slb.com	Level 5, 256 St George's Terrace, PERTH WA 6000
Casing Running Services	Weatherford Australia	Mr Bill Winter	5143 2772	5143 2770	0427 989 237	billyw@ netspace.net.au	145 Pattern St, SALE VIC 3850
Cementing Equipment	Weatherford Completion Systems	Mr Doug Gillespie	08 9212 4600	08 9226 3133	0419 447 564	doug.gillespie@ weatherford.com	Weatherford Australia Pty Ltd Level 1, 225 St. Georges Terrace, PERTH WA 6000
Cementing Services	Halliburton Australia Pty Ltd	Mr Bill Power	9581 7526	9583 7588	0412 378 032	Bill.Power@ halliburton.com	90 Talinga Road, CHELTENHAM VIC 3192
Cementing Services	Halliburton Australia Pty Ltd	Mr Richard Taylor	9581 7513	9583 7588		Richard.Taylor@ halliburton.com	90 Talinga Road, CHELTENHAM VIC 3192
Cementing Services	Halliburton Australia Pty Ltd	Mr John Hargreaves	9583 7522	0414 710 881	0414 710 881	John.Hargreaves@ halliburton.com	90 Talinga Road, CHELTENHAM VIC 3192
Communications	British Aerospace (BAE Systems)	Mr Errol Blanch	03 5143 2784			errol.blanch@ baea-sale.com.au	312 Raglan St, SALE VIC 3850
Directional Drilling	Pathfinder Resources Aust. Pty. Ltd.	Mr John Grullis	08 9242 8522	08 9242 8533	0409 075 572	pathfinder@ andergauge.com	24 Walters Drive, HERDSMAN BUSINESS PARK WA 6017
Directional Drilling	Schlumberger Anadrill	Mr David DeFreitas	9696 6266	9690 0309	0412 746 347	defreitas@ melbourne.oilfield.slb.com	SOUTH MELBOURNE VIC 3205
Directional Drilling	Scientific Drilling International Inc.	Mr Bob Lampert	9769 9778	9769 9483	0419 191 719	rlampert@ scientificdrilling.aust.com	47-49 Caserta Drive, BERWICK VIC 3806
Directional Drilling	Scientific Drilling International Inc.	Mr Simon Garantini	9769 9776	9769 9483	0419 890 229	simongar@ scientificdrilling.aust.com	47-49 Caserta Drive, BERWICK VIC 3806
Drilling Contractor	Diamond Offshore General Company	Mr Jimmy R. Moore	08 9481 8333	08 9481 8103	0413 443 140	jmoore@ dogc.com.au	Level 9, 225 St Georges Terrace, PERTH WA 6000
Drilling Fluids	Baroid Australia	Mr Nicholas Doust	9581 7541	9585 4723	0414 456 437	nicholas.doust@ halliburton.com	90 Talinga Road, CHELTENHAM VIC 3192

ATTACHMENT 19

Beardie-1 Contact List

(All phone numbers are Victorian [ISD +613, STD 03] unless otherwise noted).

Service	Company	Company Contact	Office Phone	Office Fax	Mobile	Email Address	Company Address
Fishing Services	Baker Oil Tools	Mr Peter Wilson	03 5144 3966	03 5144 2426	0419 895 863	peter.wilson@ bakeroiltools.com	1-5 Dawson Street, SALE VIC 3850
Geologists	AIPC	Mr Greg Clota	03 6239 1409	03 6239 1509		ggclota@trump.net.au	74 Summerleas Road, FERNTREE TAS 7054
Hole Opener	Smith Services	Mr Greg Watkins	08 9455 5311	08 9455 5322	0407 987 437	gwatkins@smith.com	48 Magnet Road, CANNING VALE WA 6155
Jars	Weatherford Drilling & Intervention Services	Mr Jason Kent	08 9249 7900	08 9249 8200	0419 447 559	jason.kent@ weatherford.com	17 Truganian Road, MALAGA WA 6062
Logging Services	Schlumberger	Mr Trevor Speldrich	03 5143 2242	03 5143 2450	0417 865 397	speldrich1@ slb.com	314 Raglan Street, SALE VIC 3850
Mud Logging Services	Baker Hughes INTEQ	Mr Ted Rideout	08 9478 0500	08 9478 6155	0407 776 123	ted.rideout@inteq.com	Suite 4, 5 Stoneham Street, BELMONT WA 6104
PVT Analysis	Petrolab	Ms Jan Bon	08 8364 1500	08 8364 1500		adelaide@petrolab.net	47 Woodforde Road, MAGILL SA 5072
Rig Positioning Services	Thales Geosolutions	Mr Norman Mackay	08 9344 7166	08 9344 8783		norman.mackay@ thales-geosolutions.com	Hydrographic House, 4 Ledgar Road, BALCATTA WA 6021
ROV Services	Total Marine Technology	Mr Tom Pado	08 9433 1126	08 9433 1127	0417 998 926	yank@total.com.au	4 Rous Head Road, NORTH FREMANTLE WA 6159
Weather Forecasts	Bureau of Meteorolgy	Duty Forecaster	03 9669 4965	03 9669 4979			150 Lonsdale Street, MELBOURNE VIC 3000
Well Abandonment	Weatherford Drilling & Intervention Services	Mr Jason Kent	08 9249 7900	08 9249 8200	0419 447 559	jason.kent@ weatherford.com	17 Truganian Road, MALAGA WA 6062
Wellheads	ABB Vetco Gray	Mr Donald Kunath	9248 6801	08 9248 6805	0417 948 937	don.kunath@ sq.abb.com	19 Irvine Dr, MALAGA W A 6090

MEMORANDUM
EMDC DRILLING, AUSTRALIA OFFSHORE

TO:	Frank Kratzer	**DATE:**	26-July-2002
FROM:	Chris Meakin	**REFERENCE:**	Beardie-1
c.c.:	Distribution	**SUBJECT:**	Pre-Spud Minutes

PARTICIPANTS:

Diamond Offshore "OCEAN BOUNTY"			
Brigham Bigby	Esso Drlg Supv.	Ian Couch	DOGC Subsea Eng.
George Sharkey	Esso Drlg Supv.	Matt Wort	DOGC Safety Adviser
Anthony Bassett	Esso Drlg Supv.	Cliff Giles	ABB Vetco Service Eng
Colin Johancsik	Esso Engineering Mgr	Rod Stares	Howco Cementer
Chris Meakin	Esso Drlg Engineer	Jeff Wilson	BHI
David Deron	DOGC OIM	Tony Kowalski	Halliburton - Baroid
Steve Andrews	DOGC Rig Supt	Dan Cotter	Halliburton - Baroid
Esso Office, Southbank			
Frank Kratzer	Esso Drlg Superintendnt	Eric Jacobsen	DOGC Rig Engineer
Andy Zannetos	Esso Drill Well Coord.	Andrew Hodgson	Operations Geologist
Paul Owen	Esso Geologist	Bruce Menzel	Wellsite Geologist
Rudolf Furchtenicht	Esso Drilling Engineer		

DISTRIBUTION:

Ocean Bounty Drilling Supervisors
Ocean Bounty OIM
Ocean Bounty Notice Board
DOGC - Jimmy R. Moore
Richard Taylor (Halliburton)
Nicholas Doust (Baroid)

Frank Kratzer (Esso Operations Superintendent)
Colin Johancsik (Esso Drilling Engineering Mgr)
Andy Zannetos (Esso Exploration Dept.)

Beardie-1 Well Data File
Beardie-1 Well Surveillance File

The Beardie-1 Pre-Spud Meeting was held on the Ocean Bounty at the Beardie-1 location on Friday July 26, 2002, at 0700 hrs, with a teleconference link to Esso's Southbank office.

Brigham Bigby opened the pre-spud meeting and Frank Kratzer spoke on the need for a safe operation. A successful well is one that is drilled in an efficient manner without getting anyone hurt.

Chris Meakin reviewed the prospect location and the seismic profile across the location, followed by the Drilling Program generally to ensure everyone was familiar with the various sections in the program. The following changes to the program were noted:

1. The well location was revised by 1m to:

Longitude:	147° 48' 24.63" E
Latitude:	38° 15' 16.27" S
Easting:	570,593.8m E
Northing:	5,765,622.4m N

2. Paragraph 7.1 Directional Survey Program in the Drilling Program was modified as LWD/MWD will now be run in the 12-1/4" hole. This section is changed to read as follows:
"When drilling the 12-1/4" hole section, tie the MWD surveys into the surface hole gyro survey and report these on the Drilling Reporting System Daily Drilling Report. The regulations require depth and inclination be taken at least every 300m or nearest bit change".

12-1/4"	850m to TD	Each connections and at each trip	8" MWD tool

3. Running LWD/MWD in 12-1/4" hole has changed the BHA for this hole section. Attachment 1 details the change. It also corrects the planned bit for the 17-1/2" hole to a Hycalog DS34HF+G.
4. The increase pressure drop across the MWD tool to be run in the 12-1/4" hole section results in a increase in nozzle TFA for the 12-1/4" Hycalog DSX195DGJN+W from 5 x 13 to 5 x 14, and to 3 x 16 for any 12-1/4" XL20D bit run higher than 1905m MDRT.
5. With the change in the 12-1/4" BHA there was a small change to Paragraph 7.7 Overpull Design. For the12-1/4" hole section at 1905m the remaining overpull in the revised PDC BHA decreased from 397 kips to 396 kips, and for a TCI bit from 369 kips to 368 kips. At 3075m the remaining overpull increasesby 5 kips for both the PDC and TCI BHAs
6. In Paragraph 7.9 Well Control Equipment and Testing Note: 3 was corrected. The BOP Stack RAM configuration is, from the top, SBR-Blind/Shear, UPR- 3-1/2" to 5" VBR, MPR- 5" Pipe, LPR-5" Pipe.
7. The calculated casing capacity from measured IDs of the 13-3/8" 68 lb/ft K-55 casing assigned for Beardie-1 is 0.49767 bbl/m.

POST-MEETING CLARIFICATIONS.

- Drill solid produced in the section immediately below the 13-3/8" surface casing shoe can be used in place of barite to achieve 9.0 ppg mud weight in place of barite. Note that in Barracouta-4 lost returns occurred at -874m TVDss.
- In place of Garrett Gas Train (GGT) analyses for H2S every 12 hours after entering Latrobe (1184m MDRT) to monitor for H2S, the Hagh test will be run on every mud test, and GGT analyses will be run every 24 hours.

Original signed by Chris Meakin 26-Jul-2002

A copy of the signed original is on file at the Sender's location.

Prepared: Chris Meakin

7.6 Bottom Hole Assembly Program

ATTACHMENT 1

26" x 36" Hole	17-1/2" Hole	12-1/4" Hole - PDC Bit	12-1/4" Hole - TCI Bit
• 26" Security XN1 Mill Tooth Bit with 20 centre jet and 3 x 20 nozzles • 36" Grant Hole Opener w/ 4 x 14 nozzles • Float Sub 7-5/8" Reg box x 7-5/8" Reg box, w/Solid Float • 9-1/2" Anderdrift Tool 7-5/8" Reg PxB • Totco Ring • 3 x 9-1/2" Spiral Drill Collars, 7-5/8" Reg PxB • Crossover, 6-5/8" Reg box x 7-5/8" Reg pin • 2 x 8" Spiral Drill Collars, 6-5/8" Reg PxB • Crossover, 4-1/2" IF box x 6-5/8" Reg pin • balance 5" HWDP (Do not run jars in this hole section) Estimated Total Length of BHA (not including HWDP) = 56m	• 17-1/2" Hycalog DS34HF+G 8 x 14 nozzles • 17-1/2" Near-bit Integral Blade Stabiliser, 7-5/8" Reg BxB, w/Solid Float • 9-1/2" Anderdrift Tool 7-5/8" Reg PxB • Totco Ring • 17-1/2" Integral Blade Stabiliser, 7-5/8" Reg PxB • 2 x 9-1/2" Spiral Drill Collars, 7-5/8" Reg PxB • 17-1/2" Integral Blade Stabiliser, 7-5/8" Reg PxB • 1 x 9-1/2" Spiral Drill Collars, 7-5/8" Reg PxB • Crossover, 6-5/8" Reg box x 7-5/8" Reg pin • 2 x 8" Spiral Drill Collars, 6-5/8" Reg PxB • Crossover, 4-1/2" IF box x 6-5/8" Reg pin • 2 x 5" HWDP • 6-1/2" Jars - Dailey Hydraulic • 30 x 5" HWDP • balance 5" 19.5 ppf S-135 drill pipe	• 12-1/4" PDC Bit • 12-1/4" Near bit Stabiliser 6-5/8" Reg BxB, w/Ported Float • 8" x 10' Pony Drill Collar 6-5/8" Reg box x 6-5/8" Reg pin • Totco Ring • 12-1/4" Integral Blade Stabiliser, 6-5/8" Reg PxB • 1 x 8" Spiral Drill Collars, 6-5/8" Reg PxB • 12-1/4" Integral Blade Stabiliser, 6-5/8" Reg PxB • 8" ARC tool • 8" MWD tool • 3 x 8" Spiral Drill Collars, 6-5/8" Reg PxB • Crossover, 4-1/2" IF box x 6-5/8" Reg pin • 2 x 5" HWDP • 6-1/2" Jars - Dailey Hydraulic • 30 x 5" HWDP • balance 5" 19.5 ppf S-135 drill pipe	• 12-1/4" TCI Bit • 12-1/4" Near bit Stabiliser 6-5/8" Reg BxB, w/Ported Float • 8" x 10' Pony Drill Collar 6-5/8" Reg box x 6-5/8" Reg pin • Totco Ring • 12-1/4" Integral Blade Stabiliser, 6-5/8" Reg PxB • 1 x 8" Spiral Drill Collars, 6-5/8" Reg PxB • 12-1/4" Integral Blade Stabiliser, 6-5/8" Reg PxB • 8" ARC tool • 8" MWD tool • 12 x 8" Spiral Drill Collars, 6-5/8" Reg PxB • Crossover, 4-1/2" IF box x 6-5/8" Reg pin • 2 x 5" HWDP • 6-1/2" Jars - Dailey Hydraulic • 30 x 5" HWDP • balance 5" 19.5 ppf S-135 drill pipe
	Estimated distance bit to : Resistivity Gamma Ray MWD	 19.8m 19.9m 25.1m	 19.8m 19.9m 25.1m

NOTE 1: All nominal full gauge stabilisers are 1/16" undergauge.

913711 299

DRILLING PROGRAM		WELL: Beardie-1
AFE NO: L0501B003.	RK ORDER: 23000977	JOB: P&A SUPPLEMENTAL PROCEDURE

NOTE: 1 Drilling Reporting System (DRS) designation for this well is BEARDIE.1

NOTE: 2 All depth are relative to Lowest Astronomical Tide (LAT).

1.0 PROPOSED WELL OBJECTIVES

- Rig : Diamond Offshore Ocean Bounty
- Water Depth - LAT : 51.23 m
- RT to SL : 25 m
- 30 "Conductor Shoe : 122.0 m MDRT 122.0 m TVDRT
- 13-3/8" Surface Casing Depth : 849.1 m MDRT 849.1 m TVDRT
- Total Depth : 1905 m MDRT 1905m TVDRT
- Maximum inclination : 1.19°
- Pressure / Temperature : 2,750 psi / 88° C ±10° C at 1905m TVDRT
- Anticipated Start Date : August 2002

NOTE: This program is to be used in conjunction with the Beardie-1 Drilling Program and the EMDC Drilling Operations Manual - Floating Drilling.

2.0 TABLE OF CONTENTS

3.0 GENERAL WELL INFORMATION

3.1 WELL DATA

Well Name:	Beardie-1
Water Depth:	51.23 m
RT to SL:	25.0 m
RT to Mud Line:	76.23 m
RT to top 18-3/4" HP Housing:	72.18 m
30" Casing Shoe:	122.0 m
13-3/8" Casing Shoe:	849.1 m
12-1/4" Hole TD:	1905 m
Drilling Fluid:	KCl, PHPA, glycol polymer water -based mud.

Engineer	(C.P. Meakin)	[signature]	6-Aug-02
Drilling Engineering Manger	(C.A. Johancsik)	[signature]	06/08/02
Operations Superintendent	(F.W. Kratzer)	[signature]	06/08/02

REV: 0

3.2 Zones Requiring Isolation

ZONE	TOP (m MDRT)	BASE (m MDRT)	COMMENT
Miocene sands	1077	1135	High salinity sands requiring isolation from the lower salinity aquifer within the Latrobe
N2 Sand	1406	1423	Significant hydrocarbons

3.3 Plug and Slurry Summary

Plug No.	Interval (m)	Length (m)	Volume (bbl) *	Sacks	Displace (bbl)	Slurry Recipe	Tag Plug Above
1a	1460-1325	135	67	325	74.4	A	N/R
1b	1325-1190	135	67	325	66.6	A	N/R
1c	1190-1055	135	67	325	58.7	B	N/R
1d	1055-920	135	67	325	50.8	B	N/R
1e	920-785	135	67	325	43.0	C	819
2	160-100	60	30	145	6.7	D	Test @ 1000 psi

NOTE: 1 Cement volumes based on 12.50" open hole. Base actual volumes on calipered hole size.

NOTE: 2 Displacements include 1 bbl for surface volume and stickup.

3.4 Slurry Recipes

	A	B	C	D
Depth (m)	1450	1184	850	125
Cement Type	Class "G"	Class "G"	Class "G"	Class "G"
Density (ppg)	15.8	15.8	15.9	15.9
Yield (cfs)	1.16	1.16	1.16	1.16
Water Type	Drillwater	Drillwater	Seawater	Seawater
Mixing Water (gps)	4.88	4.90	5.15	5.15
Total Mixing Fluid (gps)	5.15	5.15	5.15	5.15
SCR-100L (gal/10 bbl)	1	-	-	-
Halad 413L (gal/10 bbl)	20	20	-	-
NF-5 (gal/10 bbl)	0.25	0.25	0.25	0.25
CaCl2 (%)	-	-	-	1
BHST (°C)	88	60	50	15
BHCT (°C) (Squeeze)	64	46	37	20
Thickening Time Reqd (hrs.)	2:25-2:50	2:20-2:45	1:55-2:15	1:45-2:00
Thickening Time Pilot Test (70 BC)	3:08	2:29	1:56	2:00

3.5 CAPACITY DATA

12-1/2" open hole	0.15178 bbl/ft	0.49797 bbl/m
3-1/2", 13.3 ppf, Gr E	0.007421 bbl/ft	0.024347 bbl/m
3-1/2" drill pipe x 12-1/2" open hole annulus	0.13988 bbl/ft	0.45893 bbl/m
5", 19.5# DP	0.01776 bbl/ft	0.05827 bbl/m
5" DP x 12-1/2" open hole annulus	0.12750 bbl/ft	0.41829 bbl/m
13-3/8" 68 ppf casing	0.15169 bbl/ft	0.49767 bbl/m
5" DP x 13-3/8" casing annulus	0.12740 bbl/ft	0.41799 bbl/m
20" 202.92 ppf casing	0.31473 bbl/ft	1.03259 bbl/m
5" DP x 20" casing annulus	0.29045 bbl/ft	0.95292 bbl/m
17-1/2" open hole	0.29749 bbl/ft	0.97602 bbl/m
5" DP x 17-1/2" open hole annulus	0.27321 bbl/ft	0.89635 bbl/m

NOTE: 1 13-3/8" 68 lb/ft casing capacity is based on callipered joint IDs.

4.0 PLUGBACK PROCEDURE

1. P/U ~240m of 3-1/2" drillpipe with the lowest joint modified to divert cement, on 5" drillpipe and RIH to 1560m MDRT. Circulate and condition mud while rotating the drillpipe. Circulate a minimum of one bottoms up.
2. Spot a 50 bbl hi-vis pill, weighted to 10.2 ppg, from 1560m to 1460m to support Plug 1.
3. Prior to cementing, reciprocate one stand to ensure pipe is free
4. RU and pressure test cementing equipment to 5000 psi.
5. Pump Plug 1a as an open-hole balanced plug as follows:
   - 38 bbls fresh water spacer;
   - 325 Sacks (67 bbls) cement mixed per Slurry Recipe A;
   - 2 bbls fresh water spacer;
   - Spot a balanced cement plug;
   - Pick up 135m and circulate bottoms up. Circulate hole clean. Flush BOPs through choke and kill lines while circulating bottoms up. Rotate and circulate the DP while circulating hole clean.
6. Repeat paragraph 5 setting plugs 1b, 1c, 1d and 1e as described in Paragraph 3.3 Plug and Slurry Summary.

   NOTE: 1 Plug 1e uses seawater for lead and tail spacers.
7. After setting plug 1e, pick up 5 stands, circulate bottoms-up. WOC 4 hours or until surface samples are hard. Rotate and circulate the drill pipe while WOC. Consider laying down excess drillpipe, BHA or picking up MOST Tool BHA while WOC.
8. TIH slowly, wash down and tag TOC with 15k WOB while circulating. TOC must be no lower than 819m MDRT. Record TOC on DDR. If TOC is below 819m MDRT, spot additional cement as required, WOC and verify TOC.

   NOTE: 1 P(SL)A Schedule of Specific Requirements Clause 514 (1) requires in the uncased portions of a well, cement plugs shall be placed such as to provide a minimum of 30 metres of cement above and a minimum of 30 metres of cement below any significant oil, gas or fresh water zones.

NOTE: 2 P(SL)A Schedule of Specific Requirements Clause 514 (2) requires where there is open hole immediately below the casing string, there shall be placed in the casing string:

(a) a cement plug placed by displacement method so as to extend at least 30 metres above and at least 30 metres below the casing shoe; or

(b) a cement retainer with effective back pressure control set at least 10 m, but not more than 30 m, above the casing shoe with a cement plug calculated to extend at least 30 metres below the casing shoe and at least 15 metres above the retainer; or

(c) where lost circulation conditions exist or are anticipated, a permanent type bridge plug set within 45 metres above the casing shoe with at least 15 metres of cement on top of the bridge plug.

NOTE: 3 P(SL)A Schedule of Specific Requirements Clause 514 (8) requires that the location and integrity of cement plugs shall be verified in an approved manner.

9. Displace mud in the hole from 785m to 260m with 261 bbl of inhibited mud. Inhibit the mud by adding:
   - 0.35 ppb Baracide (Biocide);
   - Caustic soda or caustic potash to a pH of 10.5+;
   - 0.5 ppb Baracor 129 (oxygen scavenger) just prior to pumping the mud.

NOTE: 1 P(SL)A Schedule of Specific Requirements Clause 514 (9) requires any intervals of cased hole in a well between cement plugs shall be filled with mud fluid of appropriate density suitably inhibited to prevent the corrosion of the casing string.

10. POOH and L/D 3-1/2" drillpipe.

11. P/U 13-3/8" EZSV and RIH on drillpipe to 160m MDRT and set. Pick-up out of the EZSV and circulate bottoms-up. Sting into the EZSV and set-down 5 kips to verify the location. Record location and tag weight for the EZSV on the Daily Report.

12. Pick up out of the EZSV and pump the following (Plug 2):
    - 10 bbls sea water spacer
    - 145 Sacks (30 bbls) Class G cement mixed per Slurry Recipe D.
    - Displace with 6.7 bbl of seawater (this includes 1 bbl for surface volume and stickup) to leave a 60m balanced plug from 100m to 160m MDRT.

NOTE: 1 P(SL)A Schedule of Specific Requirements Clause 514 (6) requires a surface plug extending at least 45 metres in height shall be placed in the innermost casing string which extends to the seabed with the top of the plug at a depth no greater than 45 metres below the seabed.

13. POOH to 90m and circulate the casing and riser clean with seawater. POOH to BOPs with diverter tool and flush BOP and riser. Function rams and flush BOPs with diverter tool again.

14. Pressure test the cement plug to 1000 psi for 5 minutes to confirm the integrity of the plug and record the results on the daily report.

5.0 WELLHEAD REMOVAL PROCEDURE

1. Remove the flex joint wear bushing and reduced bore nominal seat protector.
2. After WOC about 5 hours (or until surface samples are hard), RU and RIH and tag TOC with rig's 0.092" slickline and sinker bar. TOC must be no deeper than 121m (45m below the mud line). Report depth of TOC on the morning report. POOH with slickline.
3. POOH with riser and BOPs.
4. Prepare to cut the casing at or below 77.73 m MDRT (at least 1.5m below the mudline) with the Weatherford MOST Tool. Cut the 20" casing above the centraliser fins on the 20 inch which are between 82.6 m to 83.0 m. Confirm that DNRE approval has been obtained for cutting casing at this depth.

NOTE: 1 RT to:Mudline = 76.23m.

NOTE: 2 P(SL)A Schedule of Specific Requirements Clause 514 (10) requires all casing string and piling shall be severed and removed at least 5 metres below the seabed and the well location shall be cleared of any debris or obstructions. Dispensation has been sought from the regulator to cut the 30" and 20" shallower.

- Check casing cutter upon arrival on the rig (it should be painted white for subsea observation of wellhead entry, and should be dressed with 20" knife arms and set for 42" sweep). Dressed for Vetco wellhead profile.
- Gauge all stabilizers and check against wellhead dimensions.
- Measure and caliper all tools and check depth of cut.

5. The following BHA is recommended. Consult with Weatherford servicemen.
   - Bullnose stabilizer 12-1/4" OD w/6-5/8" Reg Pin
   - 12" OD cutter w/6-5/8" Reg Box
   - Spacer sub, 6-5/8" w/Reg Box x Pin (space out to cut 20" as close to x-over as possible)
   - Non-rotating stabilizer sleeve, 17-1/4" OD w/6-5/8" Reg Pin
   - MOST Tool, 6-5/8" w/Reg Box x Pin
   - Marine Swivel, w/6-5/8" Reg Box x Pin.
   - 2 stands of 8" OD drill collars, 6-5/8" Reg Box x Pin
   - Crossover, 6-5/8" Reg Pin x 4-1/2" IF Box
   - HWDP to surface

   NOTE: 1 Space out is critical. The 20" needs to be cut as close to the 13-3/8" as possible.

   NOTE: 2 Spacer subs lengths available are 8", 12" and 18".

6. Cut the 30" and 20" casing with the assistance of the Weatherford service representative in accordance with Weatherford's guidelines. Latch onto wellhead. Pull and recover casing stubs, wellheads & PGB to spider beams.

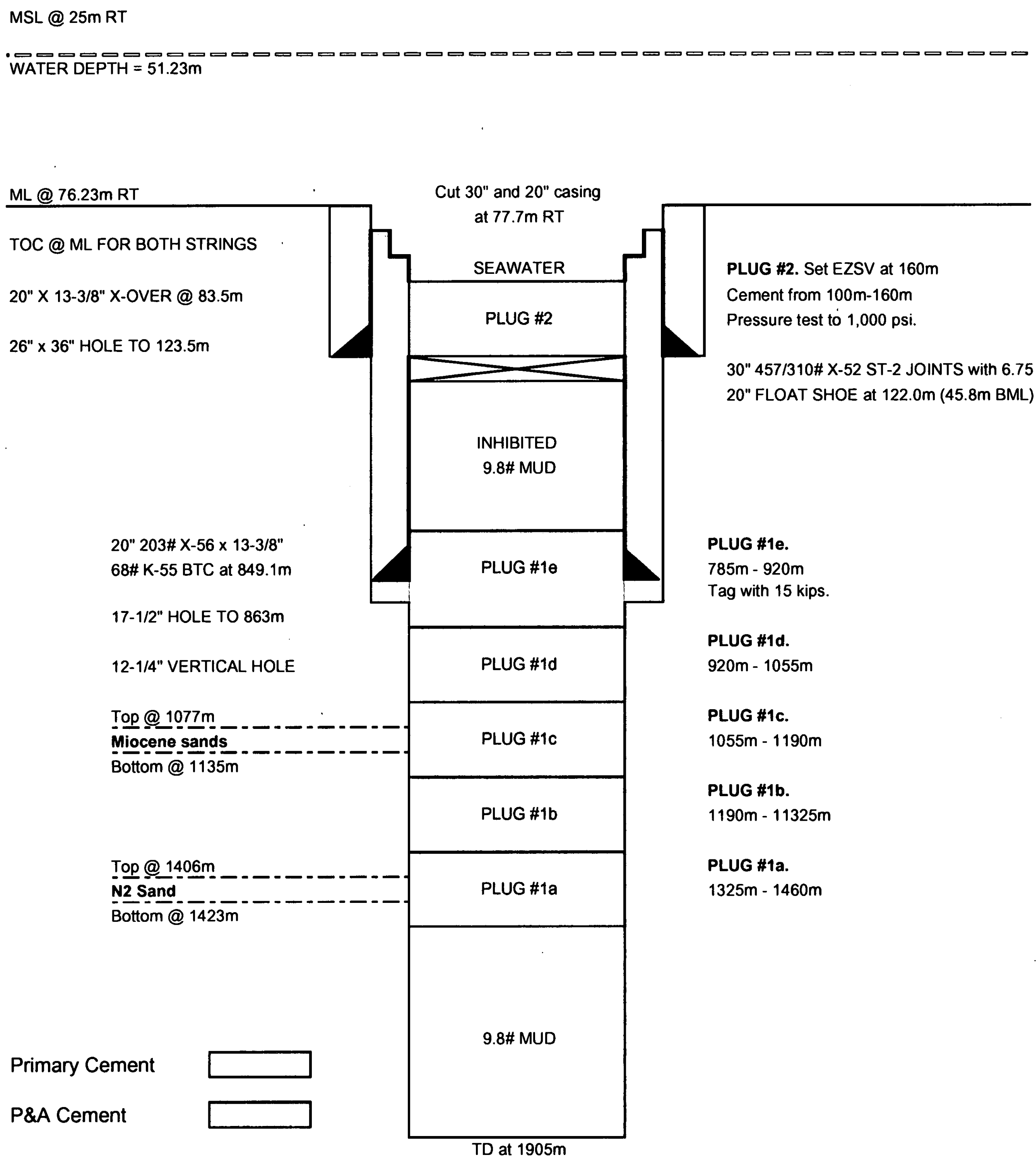
6.0 DEMOORING

1. Conduct a seabed survey with rig ROV prior to departing location out of the critical path. Visually survey and record a 100m square area around the wellhead. Use the ROV sonar to scan out from the extremities of the square on a range of 100m. Request Total Marine Services fill out a written report on survey and fax into office.
2. The mud system is approved for discharge into the Bass Strait.
3. Consider mobilizing Thales to locate anchor positions and probably speed up anchor recovery.
4. Deballast rig, pull anchors and release rig. The Beardie-1 Move & Mooring Program details demooring, anchor recovery and changeout (if required), and the departure tow route.

PROPOSED P&A WELLBORE SKETCH
DIAMOND OFFSHORE OCEAN BOUNTY
BEARDIE-1

LOCATION: AGD 1966. Latitude 38° 15' 16.745" S. Longitude 147° 48' 23.421" E.
AMG Zone 55 Easting 570,564.32m, Northing 5,765,608.05m
Rig on Location 0800hr 25-Jul-02.

ALL DEPTHS ARE LAT IN METERS FROM ROTARY TABLE (MD=TVD)



913711 306

Daily Drilling Reports
Incl. Drilling Logs

Daily Drilling Reports,
Including Drilling Logs

Drilling DETAILED DAILY REPORT 25-Jul-2002

Beardie-1

```
DRS Well ID: BEARDIE.1                      AFE L0501B003     Planned | Actual
Units      : Mixed Oilfield                 MD            m: 1905.00 |     .00
Office     : Australia SE                   TVD           m: 1905.00 |     .00
Client     : ExxonMobil Development         Days                     |
Drill Team : Australia Offshore              - if Dry        :   20.5 |
                                             - if Suspended:     .0 |
Budget Cat : WILDCAT--PRODUCTIVE AND DRY HO  - to Complete :   20.5 |
Contractor : DIAMOND                         - Susp + Comp :   20.5 |      .5
Rig Name   : Ocean Bounty                    - Ahead/Behind:          |     N/A
Operator   : ExxonMobil                      - from Spud   :          |      .0
Field      : Gippsland Basin                Spud Date      :        26-Jul-2002
Country    : Australia                      Progress      m:                .00
Latitude   :  38d 15' 16" South             Drilling Hours :                .00
Longitude  : 147d 48' 25" East              ROP        m/hr:
Water Depth:   51.23 m                      Percentage NPT :                 .0
RKB Height :   25.00 m                      Depth Reference:   Rig Floor (RKB)
Ground Elev:     .00 m
Phone      : 61 428 308 600

Superintendent     : F.W. Kratzer
Engineers          : A. McGregor
                     C.P. Meakin
Formation Desc     :
Deepest Casing Run: NO CASING REPORTED YET
Next Casing        : 30.000 inches at 124.000 meters MD
Leakoff Test       : .00 ppg
```

Current: Rig under tow

Planned: Tow rig to Beardie location. Moor rig.

Start	Elpsd	End MD		Description
17:00	12.00	.00	MOB	Rig released to Esso at 1700 hrs. Prepare Statement of Fact. All anchors bolstered except #7 which is stored on deck of M/V Pacific Sentinel (pendant connected to end of #7 chain; PCC on pipe rack). Start tow from: Lat. 38ø 06' 18.6" South Long 149ø 00' 29.0" East Ocean Bounty being towed by M/V Pacific Sentinel on primary bridle and M/V Pacific Conqueror on starboard column bridle. Tracking of rig and tow vessel positions provided by Thales GeoSolutions. Rig has full time radar watch. Esso communications operational are two CDMA telephones. Ground to air radio watch on 122.35 MHz AM (Esso helicopters) Position at 0500 hrs: Lat. 38ø 06' 50.8" South Long 147ø 58' 58.4" East Distance traveled 48.6 nautical miles. Distance to Beardie 13.3 nautical miles. Average tow speed 4 knots. Pressure test choke and kill manifold, safety valve, and IBOP to 250/5,000 psi. Prepare spud equipment. Do end of well maintenance on shale shakers.

Total 12.00

INSPECTIONS, DRILLS, AND CITATIONS

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		
BOP Pressure Test	No		
Fire Drill	No		
Abandon Ship Drill	No		
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	No	0	
BOP System Inspection (Minicheck)	No	0	

PERSONNEL

Personnel : N/A
Supervisors : Bigby, Brigham E.
Sharkey, George K.
Total Head Count: 79
Total Hours : 948.00

HEAD COUNTS

Contractor	62	ExxonMobil	2
Contractor Short Service (SSE)	0	Service Company	15

MANAGEMENT SUMMARY

Tow rig from the Sole 2 well location towards the Beardie 1 well location.

COST DATA (Australian Dollar)

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	6,197,465	0	6,197,465	0
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	6,197,465	0	6,197,465	0
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	6,197,465	0	6,197,465	0

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	0	1182	1182	Fuel	0	380800	380800
Cement	0	332	332	Gel	0	662	662
Drill Water	0	498	498				

MUD ADDITIVES

Function	Name	Unit	Size	Amount

BIT RECORD

No bit report was entered for this date.

HYDRAULICS

Pump Displaces bbl/st — Rate str/min

No hydraulics calculations were performed because no bit report was entered.

Pump Rate 0 str/min
Flow Rate .00 gpm
Pressure 0 psi

SURVEYS

No surveys have been entered.

```
================================= WELL CONTROL =================================
Pump    Rate      Pressure      MD
        str/min     psi       meters        Burst (70%)               0 psi
                                            Formation Strength       N/A
                                            Kick Tolerance           N/A
                                            Pore Pressure            .00 ppg
                                            MASP                     N/A

                                            Background Gas            .0
Density                .00 ppg              Connection Gas            .0
ECD                ******* ppg              Trip Gas                  .0
   at                 .000 meters
   with bit at        .000 meters

============================== DAILY DRILL STRING ==============================
               -------- Weights --------    --- Torques ---    Cumulative Time On
WOB       0    Pick-up                 0    Off-TD       .0    BHA            .00
RPM       0    Slack-off               0    On-TD        .0    Shock Sub      .00
               Off-TD, Rotating        0                       Jars           .00
==================================== CASING ====================================
  Section    O.D.      Grade    Wt/Lng    Thread   Joints     Top       Bottom

*** End 25-Jul-2002 report for BEARDIE.1      Run 14-Nov-2002 18:12 Central Time
```

913711 310

Drilling — DETAILED DAILY REPORT — 26-Jul-2002

Beardie-1

DRS Well ID:	BEARDIE.1	AFE L0501B003	Planned	Actual
Units :	Mixed Oilfield	MD m:	1905.00	.00
Office :	Australia SE	TVD m:	1905.00	.00
Client :	ExxonMobil Development	Days		
Drill Team :	Australia Offshore	- if Dry :	20.5	
		- if Suspended:	.0	
Budget Cat :	WILDCAT--PRODUCTIVE AND DRY HO	- to Complete :	20.5	
Contractor :	DIAMOND	- Susp + Comp :	20.5	1.5
Rig Name :	Ocean Bounty	- Ahead/Behind:		N/A
Operator :	ExxonMobil	- from Spud :		.0
Field :	Gippsland Basin	Spud Date :		26-Jul-2002
Country :	Australia	Progress m:		.00
Latitude :	38d 15' 16" South	Drilling Hours :		.00
Longitude :	147d 48' 25" East	ROP m/hr:		
Water Depth:	51.23 m	Percentage NPT :		.0
RKB Height :	25.00 m	Depth Reference:	Rig Floor (RKB)	
Ground Elev:	.00 m			
Phone :	61 428 308 600			

Superintendent : F.W. Kratzer
Engineers : A. McGregor
C.P. Meakin

Formation Desc :
Deepest Casing Run: NO CASING REPORTED YET
Next Casing : 30.000 inches at 124.000 meters MD
Leakoff Test : .00 ppg

Current: Prepare to change anchor # 8 to HHP anchor and set
Planned: Continue to change out anchors to HHP anchors and complete mooring rig.

Start	Elpsd	End MD		Description
05:00	3.00	.00	MOB	Continue to tow rig to the Beardie 1 location turning to a heading of 210ø for the final course.
08:00	.75	.00	MOB	Drop anchor # 6 and continue towing rig paying out # 6 anchor chain.
08:45	2.75	.00	MOB	Disconnect gob chain and tow wire from Pacific Conqueror and prepare deck for anchor handling. Lady Elizabeth arrived at the Beardie 1 location with five Stevpris Mark V anchors.
11:30	1.75	.00	MOB	Pacific Conqueror ran Offdrill II anchor # 2.
13:15	1.25	.00	MOB	Transferred two Stevpris anchors from the Lady Elizabeth to the rig and one Stevpris anchor from the Lady Elizabeth to the Pacific Conqueror.
14:30	2.25	.00	MOB	Passed pendant connected to the end of # 7 anchor chain to the Pacific Conqueror. Connect Stevpris anchor. Run and set anchor # 7.
16:45	3.50	.00	MOB	Changed # 3 mooring leg from Offdrill II anchor to Stevpris Mark V anchor. Pacific Sentinel ran and set same. Continue to offload Lady Elizabeth. Pacific Sentinel shortening tow line in preparation to be released.
20:15	3.75	.00	MOB	Ballast down rig to 56« feet.
00:00	2.00	.00	MOB	Continue to ballast down rig from 56« feet to 70 feet drilling draft. Connect hose to Pacific Sentinel to transfer cement to rig. Back load OMV material to Pacific Sentinel. Transfer anchors to/from Pacific Conqueror. Skid rig towards anchor # 2.
02:00	2.75	.00	MOB	Changed # 1 mooring leg from Offdrill II anchor to Stevpris Mark V anchor. Pacific Sentinel ran and set same.

04:45	.25	.00 MOB	Pacific Sentinel moved from starboard aft (cement hose) to bow (bentonite hose) and connected hose to discharge bentonite. Pacific Conqueror had Offdrill II anchor lifted off deck to rig.

Total 24.00

==================================== REMARKS ====================================

Longford Aviation made helideck inspection and reviewed helicopter operations procedures with appropriate personnel on Ocean Bounty.
71.5 MHz radio is functional.
At 0300 hrs. observed seafloor with ROV. Excellent visibility estimated at 15 meters with « knot current. Decision made to not run temporary guide base
All Stevpris anchors connected to chain with D shackle, pear link, and kenter link. All Offdrill anchors connected to chain with swivel.
While mooring rig, pick up drill string and prepare permanent guide structure.

====================== INSPECTIONS, DRILLS, AND CITATIONS ======================

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		
BOP Pressure Test	No		
Fire Drill	No		
Abandon Ship Drill	No		
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	No	0	
BOP System Inspection (Minicheck)	No	0	

================================== PERSONNEL ==================================

Personnel : Colin Johancsik, Chris Meakin, David McAlister
Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.
Total Head Count: 85
Total Hours : 1020.00

================================= HEAD COUNTS =================================

Contractor	61	ExxonMobil	7
Contractor Short Service (SSE)	0	Service Company	17

============================ MANAGEMENT SUMMARY ============================

Complete tow to Beardie. Start mooring rig. Change selected anchors from 18 tonne Offdrill IIs to 10/12 tonne Stevpris Mark Vs.

====================== COST DATA (Australian Dollar) ======================

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	351,577	0	351,577	0
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	6,549,042	0	6,549,042	0
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	6,549,042	0	6,549,042	0

=============================== SOLIDS CONTROL ===============================

Hours on Centrifuge: .00 Dilution Rate: .00

=============================== SUPPLIES DATA ===============================

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	0	0	1182	Fuel	4800	0	376000
Cement	0	0	332	Gel	0	0	662
Drill Water	13000	0	-12502				

=============================== MUD ADDITIVES ===============================

Function	Name	Unit	Size	Amount

================================= BIT RECORD =================================

No bit report was entered for this date.

================================== HYDRAULICS ==================================

Pump	Displaces bbl/st	Rate str/min

No hydraulics calculations were performed because no bit report was entered.

Pump Rate 0 str/min
Flow Rate .00 gpm
Pressure 0 psi

==================================== SURVEYS ====================================

No surveys have been entered.

================================== WELL CONTROL ==================================

Pump	Rate str/min	Pressure psi	MD meters

Burst (70%)	0 psi
Formation Strength	N/A
Kick Tolerance	N/A
Pore Pressure	.00 ppg
MASP	N/A
Background Gas	.0
Connection Gas	.0
Trip Gas	.0

Density .00 ppg
ECD ******* ppg
at .000 meters
with bit at .000 meters

============================== DAILY DRILL STRING ==============================

		-------- Weights --------		--- Torques ---		Cumulative Time On	
WOB	0	Pick-up	0	Off-TD	.0	BHA	.00
RPM	0	Slack-off	0	On-TD	.0	Shock Sub	.00
		Off-TD, Rotating	0			Jars	.00

===================================== CASING =====================================

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom

*** End 26-Jul-2002 report for BEARDIE.1 Run 14-Nov-2002 18:12 Central Time

Drilling | DETAILED DAILY REPORT | 27-Jul-2002

Beardie-1

DRS Well ID: BEARDIE.1	AFE L0501B003		Planned	Actual
Units : Mixed Oilfield	MD	m:	1905.00	122.50
Office : Australia SE	TVD	m:	1905.00	122.50
Client : ExxonMobil Development	Days			
Drill Team : Australia Offshore	- if Dry	:	20.5	
	- if Suspended	:	.0	
Budget Cat : WILDCAT--PRODUCTIVE AND DRY HO	- to Complete	:	20.5	
Contractor : DIAMOND	- Susp + Comp	:	20.5	2.5
Rig Name : Ocean Bounty	- Ahead/Behind	:		N/A
Operator : ExxonMobil	- from Spud	:		.0
Field : Gippsland Basin	Spud Date	:		26-Jul-2002
Country : Australia	Progress	m:		122.50
Latitude : 38d 15' 16" South	Drilling Hours	:		2.00
Longitude : 147d 48' 25" East	ROP	m/hr:		61.25
Water Depth: 51.23 m	Percentage NPT	:		4.2
RKB Height : 25.00 m	Depth Reference	:		Rig Floor (RKB)
Ground Elev: .00 m				
Phone : 61 428 308 600				

Superintendent : F.W. Kratzer
Engineers : A. McGregor
C.P. Meakin
Formation Desc :
Deepest Casing Run: 20.000 inches at 122.000 MD, 122.000 TVD
Next Casing : 30.000 inches at 122.000 meters MD
Leakoff Test : .00 ppg

Current: Attempt to straighten 30 inch conductor to 1ø .
Planned: Cement 30 inch conductor. Drill 17«" hole.

Start	Elpsd	End MD		Description
05:00	3.25	.00	MOB	Offload Offdrill II anchor from Pacific Conqueror. Change anchor # 8 from Offdrill II to Stevpris Mark 5. Run and set same.
08:15	1.75	.00	MOB	Position rig over location. Pacific Conqueror ran and set anchor # 4.
10:00	.50	.00	MOB	Repaired survey equipment on Pacific Conqueror.
			NPT	See Event 1 (MOB)
10:30	1.00	.00	MOB	Pacific Conqueror ran and set anchor # 5.
11:30	3.25	.00	MOB	Pacific Conqueror recovered anchor # 2, changed the Offdrill II to a Stevpris Mark 5 anchor, and reset same. Changed out the 85 tonne shackle on the No 2 PCC.
14:45	2.25	.00	MOB	Tension test all anchors to 430 kips. Cross tension and take final position fix. Final position is 1.79 m on a bearing of 10.8ø T from the intended location. Anchor chain out on each mooring leg is No 1 2,608 feet, No 2 2,902 feet, No 3 2,600 feet, No 4 2,752 feet, No 5 2,683 feet, No 6 4,994 feet, No 7 2,827 feet, No 8 2,587 feet.
17:00	2.00	123.50	DRLG	Hold spud JSA. Tag seafloor at 76.23 meters RT. RT to sea level 25 meters. Drill 26"/36" hole to 122.54 m. Pump high vis sweeps. Monitor returns w/ ROV. Anderdrift surveys 0ø.
19:00	.50	123.50	CIRC	Sweep hole w/ 100 bbl guar pill. Spot 400 bbls high vis mud in hole.
19:30	.50	123.50	TRIP	Short trip (not to surface) -- Make wiper trip to 84 meters. RIH to TD. No fill on bottom.
20:00	.50	123.50	CIRC	Spot 400 bbl high vis pill.
20:30	.50	123.50	TRIP	Pull string out of hole -- POOH
21:00	1.25	123.50	TBLR	Held casing running JSA. Rig up to run 30 inch conductor.

```
22:15   .25    123.50 TBLR Run shoe joint which has 20" float shoe on a 6.67
                           meter long 20" section swaged to 30".
22:30  2.00    123.50 TBLR Fill shoe joint with seawater - no flow out of float
                           shoe. Dump seawater out of shoe joint and check float.
                           No visible debris on top of float shoe and float
                           plunger appears OK from below. Some fisheyes in
                           casing. Make up intermediate joint and fill both
                           joints with sea water - no flow out of float shoe. RIH
                           with star guide stinger on stand of drill pipe and
                           wash out inside of 20" float shoe. Float shoe cleared
                           and circulated freely.
                      NPT  See Event 2 (TBLR)
00:30  3.50    123.50 TBLR Continue to run 30 inch (shoe joint, two intermediate
                           joints, housing joint).  Run with double elevators on
                           50 ft slings. Land elevators on split bowl (ST 2
                           connectors would not pass through - had to split bowl
                           to pass connectors). Make up stinger below cam running
                           tool and make up running tool in 30 inch housing. Snap
                           30" housing in permanent guide structure and pick up
                           off beams. Both bullseyes (2ø and 5ø) at 0ø.
04:00  1.00    123.50 TBLR Run and set 20" shoe on bottom. No difficulty entering
                           hole and no drag while running. Observed bullseyes at
                           1¬ø.
Total 24.00
========================= PROBLEM EVENTS AND MILESTONES =========================
Event:   1    NPT: Yes   Hours:    .50    Responsible Party: Thales GeoSolutions
Start: 26-Jul-02 10:00   MOB  Rig mobilization or rig up/down problem
End  : 26-Jul-02 10:30        Repaired survey equipment on Pacific Conqueror.
                              Replaced interface box between the antenna and
                              computer.

Event:   2    NPT: Yes   Hours:   2.00    Responsible Party: Operator
Start: 26-Jul-02 22:30   TBLR Casing equipment problem
End  : 27-Jul-02 00:30        Blockage in 20 inch float shoe of 30" conductor
                              string.
=================================== REMARKS ====================================
Held JSA prior to spud.
Held pre-spud meeting on 26 July
===================== INSPECTIONS, DRILLS, AND CITATIONS =======================
                                         Occurred?  Count  Most Recently Reported
BOP Control Function Test (BCFT)           No
BOP Pressure Test                          No
Fire Drill                                 No
Abandon Ship Drill                         No
Operations Superintendent Inspection       No
Regulatory Agency Citation                 No
BOP Drill (Pit or Trip Drill)              No        0
BOP System Inspection (Minicheck)          No        0
================================== PERSONNEL ===================================
Personnel        :  Colin Johancsik, Chris Meakin, David McAlister, GJ
Supervisors      :  Basset, Anthony A.
                    Bigby, Brigham E.
                    Sharkey, George K.
Total Head Count:     90
Total Hours     :    1080.00
================================= HEAD COUNTS ==================================
Contractor                              60     ExxonMobil                      7
Contractor Short Service (SSE)           0     Service Company                23
============================== MANAGEMENT SUMMARY ==============================
Complete changing anchors to Stevpris and running anchors. Spud well and drill
26"/36" hole to 122.54 meters.  Run 30 inch conductor.
```

COST DATA (Australian Dollar)

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	548,973	182,370	731,343	0
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	7,098,015	182,370	7,280,385	0
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	7,098,015	182,370	7,280,385	0

MUD REPORT

Time	18:30	Flowline Temp	.0 deg C	% Solids	.0
Mud Type	WBM	Filtrate	.0 cc	% LGS	.0
Sample From	Pit	Filter Cake	.0 32nd"	% Sand	.00
		HTHP Temp	.0 deg C	% Water	.0
MD	.00 meters	Filtrate	.0 cc	% Oil	.0
Density	12.00 ppg				
Viscosity	120 sec	Elec Stab	0 volts	Ca++	0
PV	.0 cp	MBT	.0 lb/bbl	Cl-	0
YP	.0 phsf	Excess Lime	.00 lb/bbl	CaCl2	0
Gels	0./ 0. phsf			pH	.0
		Circ Volume	107.6 barrel	Pf/Mf	.0/ .0
		Vol Hole Dr	506.0 barrel	Pm	.0

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	511	0	671	Fuel	9500	0	366500
Cement	0	4226	4558	Gel	751	1422	1333
Drill Water	408000	803000	382498				

MUD ADDITIVES

Function	Name	Unit	Size	Amount
ALKALINITY (PH)	Caustic Soda	BKT	25	6
ALKALINITY (PH)	Lime	KGS	20	3
CALCIUM REMOVER	Soda Ash	KGS	25	5
FILTRATION REDUCER	Mil Pac Low	KGS	25	2
VISCOSIFIER	Bentonite Bulk	SAX	100	780
VISCOSIFIER	Guar Gum	KGS	25	21
WEIGHTING MATERIAL	Barite Bulk	SAX	100	495

BIT RECORD

Bit/Run Numbers	Size	Cd	Mfg	Type	Depth In	Length	Rotary Hours	Lng/Hour Today	Lng/Hour Cum	Grade T	B	G	Cost /Lng
RR 1 1	36.000	HO	GOT		76.23	46.3	2.00	23.16	23.16	2-2	3	0	0

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	80
2	.1018	80
3	.1018	80

Nozzle Sizes 32nd": 14.0 14.0 14.0 / 14.0 14.0 .0 / .0 .0

Total Flow Area .7517 in2
Nozzle Velocity 133.50 m/sec
Hole Diameter 36.000 inches
Bit Pressure Drop 1458 psi
153 % of SPP
Impact Force 1981 lbf
Hydraulic HP .858 hp/in2

Annular Velocities ft/min
DC (Max) 37.
DP (Min) 37.
(Min OH) ******
Riser (Min) 38.

Pump Rate 240 str/min
Flow Rate 1026.14 gpm
Pressure 952 psi

SURVEYS

No surveys have been entered.

913711 316

=================================== WELL CONTROL ===================================

Pump	Rate str/min	Pressure psi	MD meters
1	0	0	.000
2	0	0	.000
3	0	0	.000

Burst (70%)	2316 psi
Formation Strength	N/A
Kick Tolerance	N/A
Pore Pressure	.00 ppg
MASP	N/A
Background Gas	.0
Connection Gas	.0
Trip Gas	.0

Density	8.50 ppg
ECD	8.50 ppg
at	122.500 meters
with bit at	121.920 meters

=============================== WEATHER REPORT ===============================

	23:59	Max	
Bar Pressure	1024	1024	mm Hg
Heave	.00	.00	meters
Pitch	.30	.80	degree
Roll	.30	.80	degree
Swell Height	.90	.90	meters
Period	12	12	second
Direction	310	190	degree
Visibility	16.0	16.0	km

	23:59	Max	
Wind Speed	15.0	18.0	knot
Direction	300	180	degree
Wave Height	.60	.90	meters
Period	2	3	second
Direction	300	180	degree
Air Temperature	14.0	15.0	deg C
Sea Temperature	14.0	14.0	deg C
Cloud Cover	3	6	

=============================== ANCHOR TENSIONS ===============================

Anchor	Tension at 23:59	24-Hr Maximum
1	360	0
2	380	0
3	250	0
4	290	0
5	260	0
6	250	0
7	370	0
8	350	0

=================================== RISER DATA ===================================

Riser Tension: 0 Flex Joint Rotation: .0 Hole Position, Offset: .00
Angle : .0 Angle : 0

================================== DRILL STRING ==================================

Date Run:	26-Jul-02	Date Pulled:	26-Jul-02	Length of BHA :	57.010
Time Run:	17:00	Time Pulled:	21:00	BHA Weight in Air :	.0
Depth In:	76.230	Depth Out :	122.540	Above Jars:	.0
				Below Jars:	.0
				In Mud :	.0

26" bit, 36" hole opener, float sub, Anderdrift, three 9«" drill collars, crossover, two 8¬" drill collars, crossover

Tp	OD	ID	Grd	Connections Size	Type	Nom Wt/Len	Stab Blade OD In	OD Out	Length To Ctr	Bend	Section Length
XO	8.250	2.687	????	6.625	REG	.0					59.210
DC	8.250	2.875	????	6.625	REG	.0					9.410
DC	8.250	2.937	????	6.625	REG	.0					9.410
XO	9.500	2.937	????	7.625	REG	.0					1.800
DC	9.500	3.125	????	7.625	REG	.0					18.540
DC	9.500	3.000	????	7.625	REG	.0					9.320
SV	9.500	3.000	????	7.625	REG	.0					7.430
FS	9.500	3.500	????	7.625	REG	.0					4.210
HO	36.000	3.125	????	7.625	REG	.0					2.650
BT	26.000	.000	????	7.625	REG	.0					.560

=============================== DAILY DRILL STRING ===============================

		-------- Weights --------		--- Torques ---		Cumulative Time On	
WOB	10	Pick-up	290	Off-TD	3000.0	BHA	2.00
RPM	60	Slack-off	290	On-TD	3000.0	Shock Sub	.00
		Off-TD, Rotating	290			Jars	.00

==================================== CASING ====================================

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990

*** End 27-Jul-2002 report for BEARDIE.1 Run 14-Nov-2002 18:12 Central Time

Drilling DETAILED DAILY REPORT 28-Jul-2002

Beardie-1

DRS Well ID: BEARDIE.1	AFE L0501B003		Planned	Actual
Units : Mixed Oilfield	MD	m:	1905.00	533.00
Office : Australia SE	TVD	m:	1905.00	533.00
Client : ExxonMobil Development	Days			
Drill Team : Australia Offshore	- if Dry	:	20.5	
	- if Suspended:		.0	
Budget Cat : WILDCAT--PRODUCTIVE AND DRY HO	- to Complete	:	20.5	
Contractor : DIAMOND	- Susp + Comp	:	20.5	3.5
Rig Name : Ocean Bounty	- Ahead/Behind:			.0
Operator : ExxonMobil	- from Spud	:		1.0
Field : Gippsland Basin	Spud Date	:		26-Jul-2002
Country : Australia	Progress	m:		410.50
Latitude : 38d 15' 16" South	Drilling Hours	:		10.75
Longitude : 147d 48' 25" East	ROP	m/hr:		38.19
Water Depth: 51.23 m	Percentage NPT	:		7.1
RKB Height : 25.00 m	Depth Reference:			Rig Floor (RKB)
Ground Elev: .00 m				
Phone : 61 428 308 600				

Superintendent : F.W. Kratzer
Engineers : A. McGregor
C.P. Meakin
Formation Desc :
Deepest Casing Run: 20.000 inches at 122.000 MD, 122.000 TVD
Next Casing : 13.375 inches at 849.000 meters MD
Leakoff Test : .00 ppg

Current: Drilling 17«" hole
Planned: Drill to 864 m. Run 13 3/8" Casing

Start	Elpsd	End MD		Description
05:00	2.50	123.50	TBLR	Circulate 1« time the string volume with sea water. Reposition rig to decrease permanent guide structure bullseye to ¬ø
07:30	1.00	123.50	CMT	Cement 30 inch conductor with 1,228 sacks Class G cement mixed to 15.9 ppg w/ seawater and 1% CaCl2
08:30	3.50	123.50	CMT	Float shoe did not hold. Hold pressure on landing string.
			NPT	See Event 3 (TBLR)
12:00	1.25	123.50	TBLR	Release 30" running tool. POOH and lay down same. 30 inch shoe at 122 meters RT. Top of 30 inch housing 72.96 m.
13:15	.75	123.50	TRIP	Break and lay down string, BHA or tools -- Lay down 36" bottom hole assembly.
14:00	4.00	123.50	TRIP	Pick up or make up string, BHA, or tools -- Make up 17«" BHA and TIH to 30" housing. Reposition rig to stab into housing. Tag cement at 117 meters.
18:00	.25	123.50	DRLG	Drill cement and float shoe at 122 meters.
18:15	10.75	533.00	DRLG	Drill 17«" hole from 123 m to 533 m. Monitor returns with ROV. Swire Pacific vessels on watch down current. Observe moonpool. Kill mud prepared. Survey with Anderdrift tool. Surveys: 158 m 1.5ø 185 m 0ø 242 m 0ø 297 m 0.5ø 353 m 1ø 412 m 0ø 470 m 1.5ø 500 m 1.5ø

Total 24.00

PROBLEM EVENTS AND MILESTONES

Event: 3 NPT: Yes Hours: 3.50 Responsible Party: Weatherford
Start: 27-Jul-02 08:30 TBLR Casing equipment problem
End : 27-Jul-02 12:00 Float in float shoe failed to hold after displacing cement.

INSPECTIONS, DRILLS, AND CITATIONS

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		
BOP Pressure Test	No		
Fire Drill	No		
Abandon Ship Drill	No		
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	No	0	
BOP System Inspection (Minicheck)	No	0	

PERSONNEL

Personnel : Colin Johancsik, Chris Meakin, Gordon Jarritt
Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.
Total Head Count: 84
Total Hours : 1008.00

HEAD COUNTS

Contractor	60	ExxonMobil	6
Contractor Short Service (SSE)	0	Service Company	18

MANAGEMENT SUMMARY

Cement 30" conductor. RIH w/ 17«" bit and drill to 533 m.

COST DATA (Australian Dollar)

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	324,594	0	324,594	0
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	7,422,609	182,370	7,604,979	0
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	7,422,609	182,370	7,604,979	0

MUD REPORT

Time	03:30	Flowline Temp	.0 deg C	% Solids	.0
Mud Type	WBM	Filtrate	.0 cc	% LGS	.0
Sample From	Pit	Filter Cake	.0 32nd"	% Sand	.00
		HTHP Temp	.0 deg C	% Water	.0
MD	498.00 meters	Filtrate	.0 cc	% Oil	.0
Density	8.55 ppg				
Viscosity	124 sec	Elec Stab	0 volts	Ca++	0
PV	.0 cp	MBT	.0 lb/bbl	Cl-	0
YP	.0 phsf	Excess Lime	.00 lb/bbl	CaCl2	0
Gels	0./ 0. phsf			pH	.0
		Circ Volume	507.6 barrel	Pf/Mf	.0/ .0
		Vol Hole Dr	400.7 barrel	Pm	.0

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	2581	2978	1068	Fuel	8400	0	358100
Cement	1263	0	3295	Gel	500	0	833
Drill Water	376000	770000	776498				

MUD ADDITIVES

Function	Name	Unit	Size	Amount
ALKALINITY (PH)	Caustic Soda	BKT	25	8
CALCIUM REMOVER	Soda Ash	KGS	25	2
FILTRATION REDUCER	Mil Pac Low	KGS	25	2
TEMPERATURE STAB'TY	Calcium Chlorid	KGS	25	25
VISCOSIFIER	Bentonite Bulk	SAX	100	471
VISCOSIFIER	Guar Gum	KGS	25	39
WEIGHTING MATERIAL	Barite Bulk	SAX	100	2619

BIT RECORD

Bit/Run Numbers	Size	Cd	Mfg	Type	Depth In	Length	Rotary Hours	Lng/Hour Today	Cum	Grade T	B	G	Cost /Lng
1 1	17.500	BT	RRB	DS34HF	122.54	410.0	10.75	38.14	38.14	1-1	X	0	0

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	90
2	.1018	90
3	.1018	90

Nozzle Sizes 32nd": 14.0 14.0 14.0 / 14.0 14.0 14.0 / 14.0 14.0

Total Flow Area 1.2026 in2
Nozzle Velocity 93.86 m/sec
Hole Diameter 17.500 inches
Bit Pressure Drop 721 psi
27 % of SPP
Impact Force 1567 lbf
Hydraulic HP 2.019 hp/in2

Pump Rate 270 str/min
Flow Rate 1154.41 gpm
Pressure 2650 psi

Annular Velocities ft/min
DC (Max) 130.
DP (Min) 38.
(Min OH) 100.
Riser (Min) 40.

SURVEYS

No surveys have been entered.

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	0	0	.000
2	0	0	.000
3	0	0	.000

Burst (70%)	2316 psi
Formation Strength	N/A
Kick Tolerance	N/A
Pore Pressure	.00 ppg
MASP	N/A
Background Gas	.0
Connection Gas	.0
Trip Gas	.0

Density 8.50 ppg
ECD 8.50 ppg
at 533.000 meters
with bit at 532.790 meters

WEATHER REPORT

	23:59	Max	
Bar Pressure	1023	0	mm Hg
Heave	.00	.00	meters
Pitch	.20	.00	degree
Roll	.20	.00	degree
Swell Height	.90	.00	meters
Period	12	0	second
Direction	225	0	degree
Visibility	15.0	.0	km

	23:59	Max	
Wind Speed	20.0	.0	knot
Direction	20	0	degree
Wave Height	.60	.00	meters
Period	2	0	second
Direction	20	0	degree
Air Temperature	13.0	.0	deg C
Sea Temperature	.0	.0	deg C
Cloud Cover	0	0	

ANCHOR TENSIONS

Anchor	Tension at 23:59	24-Hr Maximum
1	360	0
2	330	0
3	230	0
4	220	0
5	240	0
6	260	0
7	305	0
8	220	0

RISER DATA

Riser Tension: 0 Flex Joint Rotation: .0 Hole Position, Offset: .00
Angle : .0 Angle : 0

================================ DRILL STRING ================================

Date Run:	27-Jul-02	Date Pulled:	28-Jul-02	Length of BHA :	361.020
Time Run:	17:00	Time Pulled:	23:45	BHA Weight in Air :	55.2
Depth In:	122.540	Depth Out :	863.000	Above Jars:	8.0
				Below Jars:	40.0
				In Mud :	48.0

17«" bit, 17«" NBS, 9«" Anderdrift, 17«" stabilizer, 9«" dc, xo, 8¬" dc, xo, HWDP, 6«" jars, HWDP

Tp	OD	ID	Grd	Connections Size	Type	Nom Wt/Len	Stab OD In	Blade OD Out	Length To Ctr	Bend	Section Length
DP	5.000	4.276	????	4.500	IF	.0					501.940
HW	5.000	3.125	????	4.500	IF	.0					274.910
JR	6.250	2.750	????	4.500	IF	.0					9.810
HW	5.000	3.125	????	4.500	IF	.0					17.500
XO	8.250	2.687	????	4.500	IF	.0					1.100
DC	8.250	2.875	????	6.625	REG	147.0					18.820
XO	9.500	2.937	????	6.625	REG	.0					1.800
DC	9.500	3.125	????	7.625	REG	216.0					9.110
ST	17.500	3.500	????	7.625	REG	.0	.000	17.500	.000		1.770
DC	9.500	3.125	????	7.625	REG	216.0					18.790
ST	17.500	3.500	????	7.625	REG	.0	.000	17.500	.000		2.100
MS	9.500	3.000	????	7.625	REG	.0	.000	.000	.000		3.220
ST	17.500	3.500	????	7.625	REG	.0	.000	17.500	.000		1.700
BT	17.500	3.000	????	7.625	REG	.0					.430

============================ DAILY DRILL STRING ============================

		-------- Weights --------		--- Torques ---		Cumulative Time On	
WOB	10	Pick-up	0	Off-TD	3000.0	BHA	12.75
RPM	135	Slack-off	0	On-TD	10000.0	Shock Sub	.00
		Off-TD, Rotating	240			Jars	10.75

==================================== CASING ====================================

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990

============================ CEMENT INFORMATION ============================

Start Date :	27-Jul-02	Reciprocation?:	N	Number of Plugs :	0
Time :	07:28	Rotation? :	N	Did Plug Bump? :	N
Finish Date:	27-Jul-02	% Returns :	100	Did Float(s) Hold?:	N
Time	08:40	Top of Cement :	76.23	Casing Size :	30.000

	Density	Yield	Amt	Volume	Rate	Composition
Pref	8.50			20.0	6.0	Seawater w/ Fluorozene
Flsh	.00			.0	.0	
Lead	15.90	1.2	1228	256.0	5.0	
Tail	.00	.0	0	.0	.0	
Post	.00			.0	.0	
Disp	8.50			18.0	5.0	Seawater

	Class	Additives
Lead	G	Seawater w/ 1% CaCl2
Tail		

Cement 30 inch conductor

*** End 28-Jul-2002 report for BEARDIE.1 Run 14-Nov-2002 18:12 Central Time

Drilling | DETAILED DAILY REPORT | 29-Jul-2002

Beardie-1

DRS Well ID:	BEARDIE.1	AFE L0501B003	Planned	Actual
Units :	Mixed Oilfield	MD m:	1905.00	863.00
Office :	Australia SE	TVD m:	1905.00	863.00
Client :	ExxonMobil Development	Days		
Drill Team :	Australia Offshore	- if Dry :	20.5	
		- if Suspended:	.0	
Budget Cat :	WILDCAT--PRODUCTIVE AND DRY HO	- to Complete :	20.5	
Contractor :	DIAMOND	- Susp + Comp :	20.5	4.5
Rig Name :	Ocean Bounty	- Ahead/Behind:		.0
Operator :	ExxonMobil	- from Spud :		2.0
Field :	Gippsland Basin	Spud Date :		26-Jul-2002
Country :	Australia	Progress m:		330.00
Latitude :	38d 15' 16" South	Drilling Hours :		10.25
Longitude :	147d 48' 25" East	ROP m/hr:		32.20
Water Depth:	51.23 m	Percentage NPT :		5.6
RKB Height :	25.00 m	Depth Reference:		Rig Floor (RKB)
Ground Elev:	.00 m			
Phone :	61 428 308 600			

Superintendent : F.W. Kratzer
Engineers : A. McGregor
C.P. Meakin
Formation Desc :
Deepest Casing Run: 13.375 inches at 849.100 MD, 849.100 TVD
Next Casing : 13.375 inches at 849.000 meters MD
Leakoff Test : .00 ppg

Current: Running 13 3/8" casing
Planned: Run 13 3/8" casing to 849 m. Cement casing. Run BOP stack.

Start	Elpsd	End MD		Description
05:00	10.25	863.00	DRLG	Drill 17«" hole from 533 m to 863 m. Monitor returns with ROV. Swire Pacific vessels on watch down current. Observe moonpool. Kill mud prepared. Survey with Anderdrift tool. Surveys: 528 m 0.5ø 557 m 0ø 586 m 0ø 644 m 0ø 673 m 0.5ø 731 m 1.0ø 787 m 1.0ø 845 m 1.0ø
15:15	.75	863.00	CIRC	Sweep hole with 100 barrels of high vis mud. Spot 800 bbls high vis mud.
16:00	2.50	863.00	TRIP	Short trip (not to surface) -- Make wiper trip to 323 m. No overpull. TIH to TD. No fill.
18:30	1.75	863.00	CIRC	Pump 300 bbls sea water. Drop Scientific Drilling 2 1/8" Keeper Drop-Gyro. Pump 12.0 ppg mud at 70 spm, then slow pumps to 30 spm before gyro lands. Continue pumping 12 ppg mud at 812 gpm. Total mud pumped 1,200 bbls.
20:15	2.00	863.00	TRIP	Pull string out of hole -- POOH from 863 m to 121 m. SLM drill pipe. No overpull.
22:15	.50	863.00	CIRC	Spot 110 bbls 12 ppg mud. Jet 30" wellhead.
22:45	2.00	863.00	TRIP	Pull string out of hole -- Continue POOH. Retrieve Gyro survey. Break off bit and lay down lower two stabilizers.
00:45	.75	863.00	TBLR	Hold JSA meeting on running casing. Rig up to run casing.

01:30 3.50 863.00 TBLR Run 13 3/8", K 55, 68 ppf, buttress casing. Thread lock first four joints. Run centralizers 4 meters above shoe and on next ten joints. PGB bullseye «ø forward port.

Total 24.00

REMARKS

Current meter functional. Lawson and Treloar personnel collecting metrological, anchor tension, and current meter readings at all peak currents and every two hours during the day.

Boats:

Sentinal:- Standby at Ocean Bounty

Conqueror:- BBMT

INSPECTIONS, DRILLS, AND CITATIONS

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		
BOP Pressure Test	No		
Fire Drill	Yes		
Abandon Ship Drill	Yes		
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	No	0	
BOP System Inspection (Minicheck)	No	0	

PERSONNEL

Personnel : Chris Meakin, Gordon Jarritt

Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.

Total Head Count: 81

Total Hours : 972.00

HEAD COUNTS

Contractor	60	ExxonMobil	5
Contractor Short Service (SSE)	0	Service Company	16

MANAGEMENT SUMMARY

Drill 17«" hole from 533 m to 863 m. Wiper trip. Drop Gyro. Displace hole w/ mud. POOH. Start to run 13 3/8" casing.

COST DATA (Australian Dollar)

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	335,268	0	335,268	12,263
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	7,757,877	182,370	7,940,247	12,263
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	7,757,877	182,370	7,940,247	12,263

MUD REPORT

Time	20:00	Flowline Temp	.0 deg C	% Solids	.0
Mud Type	WBM	Filtrate	.0 cc	% LGS	.0
Sample From	Pit	Filter Cake	.0 32nd"	% Sand	.00
		HTHP Temp	.0 deg C	% Water	.0
MD	863.00 meters	Filtrate	.0 cc	% Oil	.0
Density	12.00 ppg				
Viscosity	120 sec	Elec Stab	0 volts	Ca++	0
PV	.0 cp	MBT	.0 lb/bbl	Cl-	0
YP	.0 phsf	Excess Lime	.00 lb/bbl	CaCl2	0
Gels	0./ 0. phsf			pH	.0
		Circ Volume	401.1 barrel	Pf/Mf	.0/ .0
		Vol Hole Dr	322.1 barrel	Pm	.0

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	0	0	1068	Fuel	18000	0	340100
Cement	0	0	3295	Gel	561	500	772
Drill Water	265000	256000	767498				

MUD ADDITIVES

Function	Name	Unit	Size	Amount
ALKALINITY (PH)	Caustic Soda	BKT	25	11
VISCOSIFIER	Bentonite Bulk	SAX	100	561
VISCOSIFIER	Guar Gum	KGS	25	60

BIT RECORD

Bit/Run Numbers	Size	Cd	Mfg	Type	Depth In	Length	Rotary Hours	Lng/Hour Today	Lng/Hour Cum	Grade T	Grade B	Grade G	Cost /Lng
1 1	17.500	BT	RRB	DS34HF	122.54	740.0	21.00	32.20	35.24	1-1	X	0	0

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	90
2	.1018	91
3	.1018	90

Nozzle Sizes 32nd": 14.0 14.0 14.0 / 14.0 14.0 14.0 / 14.0 14.0

Total Flow Area 1.2026 in2

Nozzle Velocity 94.21 m/sec

Hole Diameter 17.500 inches

Bit Pressure Drop 726 psi

24 % of SPP

Impact Force 1579 lbf

Hydraulic HP 2.042 hp/in2

Annular Velocities ft/min

DC (Max) 444.

DP (Min) 219.

(Min OH) ******

Riser (Min) ******

Pump Rate 271 str/min

Flow Rate 1158.69 gpm

Pressure 3050 psi

SURVEYS

MD	Angle	Azimuth	TVD	Vert Sec		N+/S-		E+/W-	Dogleg
103.700	.15	148.92	103.700	-.031	-	.031	+	.019	.161
130.500	.12	223.02	130.500	-.082	-	.082	+	.018	.184
157.500	.05	236.77	157.500	-.109	-	.109	-	.011	.079
184.200	.05	297.06	184.200	-.110	-	.110	-	.031	.054
212.200	.07	153.34	212.200	-.120	-	.120	-	.035	.120
240.400	.04	159.19	240.400	-.144	-	.144	-	.023	.030
268.600	.09	144.59	268.600	-.172	-	.172	-	.007	.056
296.300	.07	298.19	296.300	-.181	-	.181	-	.009	.169
324.100	.10	212.83	324.100	-.194	-	.194	-	.038	.126
351.700	.24	245.32	351.700	-.238	-	.238	-	.103	.180
380.500	.37	241.18	380.499	-.308	-	.308	-	.239	.137
409.600	.36	254.31	409.599	-.378	-	.378	-	.410	.087
438.600	.38	243.71	438.598	-.445	-	.445	-	.584	.074
467.200	.30	227.88	467.198	-.538	-	.538	-	.724	.128
496.300	.40	206.80	496.297	-.679	-	.679	-	.827	.167
525.200	.41	205.20	525.196	-.863	-	.863	-	.916	.021
553.900	.44	205.99	553.896	-1.055	-	1.055	-	1.008	.036
583.200	.45	201.04	583.195	-1.263	-	1.263	-	1.099	.041
612.100	.42	202.70	612.094	-1.467	-	1.467	-	1.180	.036
641.100	.48	206.49	641.093	-1.674	-	1.674	-	1.275	.071
669.800	.46	203.26	669.792	-1.887	-	1.887	-	1.375	.036
698.800	.48	202.05	698.791	-2.107	-	2.107	-	1.466	.029
727.900	.50	195.89	727.890	-2.342	-	2.342	-	1.547	.061
757.000	.52	180.34	756.989	-2.596	-	2.596	-	1.582	.144
786.200	.52	176.91	786.187	-2.861	-	2.861	-	1.576	.035
814.700	.58	177.65	814.686	-3.134	-	3.134	-	1.563	.066
843.600	.55	168.87	843.585	-3.416	-	3.416	-	1.530	.096
852.700	.56	173.86	852.684	-3.503	-	3.503	-	1.517	.160

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	0	0	.000
2	0	0	.000
3	0	0	.000

Burst (70%) 2495 psi

Formation Strength N/A

Kick Tolerance N/A

Pore Pressure .00 ppg

MASP N/A

Background Gas .0

Connection Gas .0

Trip Gas .0

Density 8.50 ppg

ECD 8.50 ppg

at 863.000 meters

with bit at 862.889 meters

WEATHER REPORT

	23:59	Max			23:59	Max	
Bar Pressure	1022	1023	mm Hg	Wind Speed	20.0	25.0	knot
Heave	.00	.00	meters	Direction	225	225	degree
Pitch	.20	.30	degree	Wave Height	.60	.90	meters
Roll	.20	.30	degree	Period	3	3	second
Swell Height	.90	1.20	meters	Direction	225	225	degree
Period	12	12	second	Air Temperature	13.0	15.0	deg C
Direction	225	225	degree	Sea Temperature	14.0	14.0	deg C
Visibility	12.0	15.0	km	Cloud Cover	6	8	

ANCHOR TENSIONS

Anchor	Tension at 23:59	24-Hr Maximum
1	360	0
2	335	0
3	230	0
4	225	0
5	245	0
6	250	0
7	310	0
8	220	0

RISER DATA

Riser Tension: 0 Flex Joint Rotation: .0 Hole Position, Offset: .00
Angle : .0 Angle : 0

DRILL STRING

Date Run:	27-Jul-02	Date Pulled:	28-Jul-02	Length of BHA :	361.020
Time Run:	17:00	Time Pulled:	23:45	BHA Weight in Air :	55.2
Depth In:	122.540	Depth Out :	863.000	Above Jars:	8.0
				Below Jars:	40.0
				In Mud :	48.0

17«" bit, 17«" NBS, 9«" Anderdrift, 17«" stabilizer, 9«" dc, xo, 8¬" dc, xo, HWDP, 6«" jars, HWDP

Tp	OD	ID	Grd	Connections Size	Type	Nom Wt/Len	Stab Blade OD In	OD Out	Length To Ctr	Bend	Section Length
DP	5.000	4.276	????	4.500	IF	.0					501.940
HW	5.000	3.125	????	4.500	IF	.0					274.910
JR	6.250	2.750	????	4.500	IF	.0					9.810
HW	5.000	3.125	????	4.500	IF	.0					17.500
XO	8.250	2.687	????	4.500	IF	.0					1.100
DC	8.250	2.875	????	6.625	REG	147.0					18.820
XO	9.500	2.937	????	6.625	REG	.0					1.800
DC	9.500	3.125	????	7.625	REG	216.0					9.110
ST	17.500	3.500	????	7.625	REG	.0	.000	17.500	.000		1.770
DC	9.500	3.125	????	7.625	REG	216.0					18.790
ST	17.500	3.500	????	7.625	REG	.0	.000	17.500	.000		2.100
MS	9.500	3.000	????	7.625	REG	.0	.000	.000	.000		3.220
ST	17.500	3.500	????	7.625	REG	.0	.000	17.500	.000		1.700
BT	17.500	3.000	????	7.625	REG	.0					.430

DAILY DRILL STRING

		Weights		Torques		Cumulative Time On	
WOB	10	Pick-up	255	Off-TD	3000.0	BHA	23.00
RPM	130	Slack-off	255	On-TD	8000.0	Shock Sub	.00
		Off-TD, Rotating	255			Jars	21.00

CASING

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990
6	20.000	X56	203.000	H 4	1	72.180	83.380
7	13.375	L80	68.000	WELD	1	83.380	84.940
8	13.375	K55	68.000	BUTT	63	84.940	849.150

*** End 29-Jul-2002 report for BEARDIE.1 Run 14-Nov-2002 18:13 Central Time

913711 326

Drilling DETAILED DAILY REPORT 30-Jul-2002
Beardie-1

DRS Well ID:	BEARDIE.1	AFE L0501B003	Planned	Actual
Units	Mixed Oilfield	MD m:	1905.00	863.00
Office	Australia SE	TVD m:	1905.00	863.00
Client	ExxonMobil Development	Days		
Drill Team	Australia Offshore	- if Dry :	20.5	
		- if Suspended:	.0	
Budget Cat	WILDCAT--PRODUCTIVE AND DRY HO	- to Complete :	20.5	
Contractor	DIAMOND	- Susp + Comp :	20.5	5.5
Rig Name	Ocean Bounty	- Ahead/Behind:		.0
Operator	ExxonMobil	- from Spud :		3.0
Field	Gippsland Basin	Spud Date :		26-Jul-2002
Country	Australia	Progress m:		.00
Latitude	38d 15' 16" South	Drilling Hours :		.00
Longitude	147d 48' 25" East	ROP m/hr:		
Water Depth:	51.23 m	Percentage NPT :		5.3
RKB Height :	25.00 m	Depth Reference:		Rig Floor (RKB)
Ground Elev:	.00 m			
Phone	61 428 308 600			

Superintendent : F.W. Kratzer
Engineers : A. McGregor
C.P. Meakin
Formation Desc :
Deepest Casing Run: 13.375 inches at 849.100 MD, 849.100 TVD
Next Casing : 9.625 inches at 1905.000 meters MD
Leakoff Test : .00 ppg

Current: Prepare to land BOP stack
Planned: Test BOP stack. Make up 12¬" BHA and drill ahead

Start	Elpsd	End MD		Description
05:00	6.00	863.00	TBLR	Run 13 3/8", K 55, 68 ppf, buttress casing. Casing made up using torque position. Top joint is swaged from 13 3/8" to 20" w/ 18 3/4" MS 700 housing. String run with single top SSR wiper plug on stinger inside 13 3/8". Housing run with reduced bore nominal seat protector installed. Make up cement head on landing string. Latch 18 3/4" housing in 30" housing and overpull test 50,000 lbs.
11:00	1.00	863.00	CMT	Nodeco top drive cement head leaked at the side flange. Service same.
			NPT	See Event 4 (CMT)
12:00	1.00	863.00	CIRC	Circulate casing with seawater.
13:00	2.25	863.00	CMT	Cement casing with 1335 sx Class G cement mixed with Econolite in seawater to 12.5 ppg followed by 726 sx Class G cement mixed in freshwater to 15.8 ppg. HOWCO pump 5 bbls freshwater, release dart from Cement head, displace dart and sheared wiper plug w/ 2,450 psi.
15:15	.75	.00	CMT	Displaced cement with 374 bbls-700 psi seawater. Pumped full displacement and 1/2 shoe track. Did not bump plug. Bleed off pressure. Floats held. Casing shoe @ 849 meters RT.
16:00	1.00	.00	TRIP	Pull string out of hole -- Release housing running tool and POOH washing wellhead area and permanent guide structure.
17:00	.75	863.00	TRIP	Pull string out of hole -- Move rig 15 meters off location. Service break cement head and lay out same.
17:45	2.50	863.00	BOP	Make up three joints of riser: two 50 ft joints and one 5 ft joint.

20:15	2.25	863.00	BOP	Skid BOP stack below rotary. Skid lower marine riser package below rotary and latch riser connector. Install guide lines. Bolt riser to flex joint. Function test stack on both pods.
22:30	1.50	863.00	BOP	Move rig over location. Run BOP stack on riser. Clamp hose to pod messenger lines.
00:00	.75	863.00	BOP	Pressure test riser integral choke and kill lines to 250/5000 psi for 10 minutes each.
00:45	.75	863.00	BOP	Make up slip joint to riser. Fill choke and kill lines with water.
01:30	1.00	863.00	BOP	Make up landing joint and run stack. Ballast rig up five feet. Connect choke and kill goosenecks to slip joint.
02:30	.50	863.00	BOP	Pressure test riser integral choke and kill lines to 250/5000 psi for 10 minutes each.
03:00	1.25	863.00	BOP	Connect six riser tensioner rucker lines to slip joint.
04:15	.75	863.00	BOP	Lay control hoses in saddles. Prepare to land BOP stack on wellhead.

Total 24.00

======================== PROBLEM EVENTS AND MILESTONES ========================

Event: 4 NPT: Yes Hours: 1.00 Responsible Party: Weatherford Completi
Start: 29-Jul-02 11:00 CMT Cementing or cementing systems problem
End : 29-Jul-02 12:00 Equipment: Nodeco top drive cement head type TDH w/ dual dart releasers, cementing manifold, swivel ball release, and indicator sub w/ 4« IF box x pin rented from Weatherford Completion Systems. Problem: Side flange leaked. The allen screws were found to have not been tightened. Removed flange, clean, replace O-ring, and tighten same. Leaked slightly but were able to finish cement job.

===================================== REMARKS =====================================

ERP Desk Top exercise - crew change helicopter crashed in vicinity of Ocean Bounty
Boats:-
Sentinel:- Stanby Ocean Bounty
Conqueror:- BBMT

===================== INSPECTIONS, DRILLS, AND CITATIONS =====================

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		
BOP Pressure Test	No		
Fire Drill	No		29-Jul-2002
Abandon Ship Drill	No		29-Jul-2002
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	No	0	
BOP System Inspection (Minicheck)	No	0	

==================================== PERSONNEL ====================================

Personnel : Chris Meakin, Gordon Jarritt
Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.
Total Head Count: 86
Total Hours : 1032.00

=================================== HEAD COUNTS ===================================

Contractor	60	ExxonMobil	6
Contractor Short Service (SSE)	0	Service Company	20

============================ MANAGEMENT SUMMARY ============================

Finish running 13 3/8" casing swaged to 20" w/ 18 3/4" housing. Land w/ shoe at 849 m. Cement casing w/ 1,335 sx lead slurry, 726 sx tail slurry. Run BOP stack

COST DATA (Australian Dollar)

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	336,348	138,513	474,861	44,866
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	8,094,225	320,883	8,415,108	57,129
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	8,094,225	320,883	8,415,108	57,129

MUD REPORT

Time	20:00	Flowline Temp	.0 deg C	% Solids	.0
Mud Type	WBM	Filtrate	.0 cc	% LGS	.0
Sample From	Flowline	Filter Cake	.0 32nd"	% Sand	.00
		HTHP Temp	.0 deg C	% Water	.0
MD	.00 meters	Filtrate	.0 cc	% Oil	.0
Density	8.50 ppg				
Viscosity	0 sec	Elec Stab	0 volts	Ca++	0
PV	.0 cp	MBT	.0 lb/bbl	Cl-	0
YP	.0 phsf	Excess Lime	.00 lb/bbl	CaCl2	0
Gels	0./ 0. phsf			pH	.0
		Circ Volume	401.1 barrel	Pf/Mf	.0/ .0
		Vol Hole Dr	.0 barrel	Pm	.0

Mixing KCl/PHPA/Polymer fluid for displacement. Will charge off chemical usage on tomorrow's report.

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	0	1500	2568	Fuel	72000	62500	330600
Cement	2270	0	1025	Gel	0	0	772
Drill Water	275000	49502	542000				

MUD ADDITIVES

Function	Name	Unit	Size	Amount

BIT RECORD

No bit report was entered for this date.

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	0
2	.1018	0
3	.1018	0

No hydraulics calculations were performed because no bit report was entered.

Pump Rate 0 str/min
Flow Rate .00 gpm
Pressure 0 psi

SURVEYS

MD	Angle	Azimuth	TVD	Vert Sec	N+/S-	E+/W-	Dogleg
814.700	.58	177.65	814.686	-3.134	- 3.134	- 1.563	.066
843.600	.55	168.87	843.585	-3.416	- 3.416	- 1.530	.096
852.700	.56	173.86	852.684	-3.503	- 3.503	- 1.517	.160

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	0	0	.000
2	0	0	.000
3	0	0	.000

Burst (70%)	2495 psi
Formation Strength	N/A
Kick Tolerance	N/A
Pore Pressure	.00 ppg
MASP	N/A
Background Gas	.0
Connection Gas	.0
Trip Gas	.0

Density .00 ppg
ECD ******* ppg
at 863.000 meters
with bit at .000 meters

WEATHER REPORT

	23:59	Max			23:59	Max	
Bar Pressure	1029	1029	mm Hg	Wind Speed	4.0	22.0	knot
Heave	.00	.00	meters	Direction	225	225	degree
Pitch	.20	.30	degree	Wave Height	.60	.60	meters
Roll	.20	.30	degree	Period	3	3	second
Swell Height	.90	.90	meters	Direction	225	225	degree
Period	8	12	second	Air Temperature	12.0	14.0	deg C
Direction	225	225	degree	Sea Temperature	14.0	14.0	deg C
Visibility	14.0	15.0	km	Cloud Cover	6	8	

ANCHOR TENSIONS

Anchor	Tension at 23:59	24-Hr Maximum
1	395	0
2	340	0
3	250	0
4	270	0
5	235	0
6	290	0
7	335	0
8	240	0

RISER DATA

Riser Tension: 0 Flex Joint Rotation: .0 Hole Position, Offset: .00
Angle : .0 Angle : 0

DAILY DRILL STRING

		Weights		Torques		Cumulative Time On	
WOB	0	Pick-up	0	Off-TD	.0	BHA	.00
RPM	0	Slack-off	0	On-TD	.0	Shock Sub	.00
		Off-TD, Rotating	0			Jars	.00

CASING

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990
6	20.000	X56	203.000	H 4	1	72.180	83.380
7	13.375	L80	68.000	WELD	1	83.380	84.940
8	13.375	K55	68.000	BUTT	63	84.940	849.150

CEMENT INFORMATION

Start Date :	29-Jul-02	Reciprocation?:	N	Number of Plugs :	1
Time :	12:45	Rotation? :	N	Did Plug Bump? :	N
Finish Date:	29-Jul-02	% Returns :	100	Did Float(s) Hold?:	Y
Time	16:00	Top of Cement :	76.23	Casing Size :	13.375

	Density	Yield	Amt	Volume	Rate	Composition
Pref	8.50			50.0	7.0	Seawater
Flsh	.00			.0	.0	
Lead	12.50	2.2	1335	526.0	8.0	
Tail	15.80	1.2	726	150.0	5.0	
Post	8.34			10.0	5.0	Drill water
Disp	8.50			369.0	14.0	Seawater

	Class	Additives
Lead	G	Seawater, Econolite 14.6 gal/10 bbl
Tail	G	Fresh water,

Used top wiper plug only. Dart sheared plug w/ 4.9 bbls at 2450 psi. Cement 13 3/8" casing.

*** End 30-Jul-2002 report for BEARDIE.1 Run 14-Nov-2002 18:13 Central Time

Drilling DETAILED DAILY REPORT 31-Jul-2002
Beardie-1

DRS Well ID: BEARDIE.1	AFE L0501B003		Planned	Actual
Units : Mixed Oilfield	MD	m:	1905.00	884.00
Office : Australia SE	TVD	m:	1905.00	884.00
Client : ExxonMobil Development	Days			
Drill Team : Australia Offshore	- if Dry	:	20.5	
	- if Suspended:		.0	
Budget Cat : WILDCAT--PRODUCTIVE AND DRY HO	- to Complete :		20.5	
Contractor : DIAMOND	- Susp + Comp :		20.5	6.5
Rig Name : Ocean Bounty	- Ahead/Behind:			.0
Operator : ExxonMobil	- from Spud :			4.0
Field : Gippsland Basin	Spud Date :			26-Jul-2002
Country : Australia	Progress m:			21.00
Latitude : 38d 15' 16" South	Drilling Hours :			2.00
Longitude : 147d 48' 25" East	ROP m/hr:			10.50
Water Depth: 51.23 m	Percentage NPT :			4.5
RKB Height : 25.00 m	Depth Reference:			Rig Floor (RKB)
Ground Elev: .00 m				
Phone : 61 428 308 600				

Superintendent : F.W. Kratzer
Engineers : A. McGregor
C.P. Meakin
Formation Desc :
Deepest Casing Run: 13.375 inches at 849.100 MD, 849.100 TVD
Next Casing : 9.625 inches at 1905.000 meters MD
Leakoff Test : 14.70 ppg

Current: Drilling 12¬" hole
Planned: Drill 12¬" hole to 1905 m.

Start	Elpsd	End MD		Description
05:00	.50	863.00	BOP	Land BOP stack on wellhead. Observe H4 latch indicator w/ ROV. Overpull test 50,000 lbs
05:30	1.00	863.00	BOP	Pressure test casing, wellhead connector, and shear rams down choke and kill lines to 250 psi for 5 minutes and 2,230 psi for 30 minutes. Run as Phase I PIT. No pressure drop during 30 minutes shut-in.
06:30	2.50	863.00	BOP	Lay down landing joint and stroke out slip joint. Install diverter and make a 30 kip overpull. Rig down riser handling equipment and prepare drill floor
09:00	1.50	863.00	TRIP	Pick up or make up string, BHA, or tools -- Pick up and service break MWD. Lay out three 9«" drill collars.
10:30	.50	863.00	DRLG	Install sensor for MWD on standpipe in derrick.
11:00	1.50	863.00	BOP	Make up hangoff tool and stand back in derrick. Spaceout will allow hangoff tool to land on nominal seat protector, close the middle pipe ram on the hangoff tool, and close the shear rams.
12:30	3.50	863.00	TRIP	Pick up or make up string, BHA, or tools -- Make up 12¬" BHA w/ Reed Hycalog DSX195DGN+W bit. Test MWD tools.
16:00	2.00	863.00	TRIP	Run string in hole -- RIH to 741 meters. Do trip drill.
18:00	.50	863.00	RIG	Service blocks and dollies of top drive system.
18:30	3.00	863.00	BOP	Tag cement at 820 m. Pressure test LMRP connector against 13 3/8" casing to 250 psi for 5 minutes and to 2,230 psi for 10 minutes. Function test BOP operations on blue and yellow pods. Function test and pump through diverter. Conduct choke drill by trapping pressure in casing and bringing pump on keeping casing pressure constant.

21:30	4.00	863.00	DRLG	Drill cement in casing from 820 m. Occasionally torquey while drilling wiper plug. While drilling at 840 m, start displacing hole with 8.9 ppg KCl/PHPA mud. Drill to 863 m; no indication of cement from 856 m down
01:30	.50	866.00	DRLG	Drill from 863 m to 866 m
02:00	.50	866.00	CIRC	Circulate mud to consistent 8.9 ppg.
02:30	1.00	866.00	TEST	Run Phase II PIT to 14.7 ppg equivalent. Conducted PIT with 8.9 ppg KCL PH/PA mud. Pressured up to 902 psi, pressure broke over at 838psi. (EMW 14.7 ppg) Take slow circulating rate pressures.
03:30	1.50	884.00	DRLG	Drill 12¬" hole from 866 m to 884 m.
Total	24.00			

==================================== REMARKS ====================================

Held general weekly safety meetings. Ray Wyld, Esso safety advisor, addressed all personnel on board concerning complacency and bad habits.

Boats:

Conqueror: Standby at Rig

Sentinal: Standby at Rig

====================== INSPECTIONS, DRILLS, AND CITATIONS ======================

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	Yes		
BOP Pressure Test	Yes		
Fire Drill	No		29-Jul-2002
Abandon Ship Drill	No		29-Jul-2002
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	Yes	1	
BOP System Inspection (Minicheck)	No	0	

=================================== PERSONNEL ===================================

Personnel : Frank Kratzer, Gor Jarritt, Jenny Selway, Ray Wyld

Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.

Total Head Count: 90

Total Hours : 1080.00

================================== HEAD COUNTS ==================================

Contractor	59	ExxonMobil	9
Contractor Short Service (SSE)	0	Service Company	22

============================== MANAGEMENT SUMMARY ==============================

Land BOP stack and pressure test connector. RIH w/ 12¬" BHA. Drill out cement in casing. Change out mud to KCl/PHPA mud. Run PIT test. Drill to 884 m.

====================== COST DATA (Australian Dollar) ======================

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	375,505	13,878	389,383	1
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	8,469,730	334,761	8,804,491	57,130
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	8,469,730	334,761	8,804,491	57,130

MUD REPORT

Time	23:59	Flowline Temp	.0 deg C	% Solids	.0
Mud Type	WBM	Filtrate	.0 cc	% LGS	.0
Sample From	Flowline	Filter Cake	.0 32nd"	% Sand	.00
		HTHP Temp	.0 deg C	% Water	.0
MD	863.00 meters	Filtrate	.0 cc	% Oil	.0
Density	.00 ppg				
Viscosity	0 sec	Elec Stab	0 volts	Ca++	0
PV	.0 cp	MBT	.0 lb/bbl	Cl-	0
YP	.0 phsf	Excess Lime	.00 lb/bbl	CaCl2	0
Gels	0./ 0. phsf			pH	.0
		Circ Volume	404.4 barrel	Pf/Mf	.0/ .0
		Vol Hole Dr	10.0 barrel	Pm	.0

Mixed an initial total of 1633 bbls of 8.9 ppg KCl/PHPA/Polymer mud containing 0.6 ppb PHPA. 560 bbls of this was fluid pre-treated with 0.5 ppb citric acid and sodium bicarbonate as a precaution against possible cement contamination. 230 bbls of mud prepared with 1.5 ppb PHPA. Also mixed 110 bbls of 1.0 ppb DRILLZAN D in drill water as a basis for an LCM pill.

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	159	0	2409	Fuel	8400	0	322200
Cement	0	0	1025	Gel	0	0	772
Drill Water	74000	385000	853000				

MUD ADDITIVES

Function	Name	Unit	Size	Amount

BIT RECORD

Bit/Run Numbers	Size	Cd	Mfg	Type	Depth In	Length	Rotary Hours	Lng/Hour Today	Lng/Hour Cum	Grade T	B	G	Cost /Lng
2 1	12.250	BT	RRB	DSX195	863.00	21.0	2.00	10.50	10.50	5-8	X	1	0

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	76
2	.1018	77
3	.1018	76

Nozzle Sizes 32nd": 14.0 14.0 14.0 / 14.0 14.0 .0 / .0 .0

Total Flow Area	.7517 in2
Nozzle Velocity	127.38 m/sec
Hole Diameter	12.250 inches
Bit Pressure Drop	1390 psi
	57 % of SPP
Impact Force	1889 lbf
Hydraulic HP	6.739 hp/in2

Annular Velocities	ft/min
DC (Max)	292.
DP (Min)	185.
(Min OH)	******
Riser (Min)	******

Pump Rate 229 str/min
Flow Rate 979.11 gpm
Pressure 2460 psi

SURVEYS

MD	Angle	Azimuth	TVD	Vert Sec	N+/S-	E+/W-	Dogleg
814.700	.58	177.65	814.686	-3.134	- 3.134	- 1.563	.066
843.600	.55	168.87	843.585	-3.416	- 3.416	- 1.530	.096
852.700	.56	173.86	852.684	-3.503	- 3.503	- 1.517	.160

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	0	0	.000
2	0	0	.000
3	0	0	.000

Burst (70%)	2495 psi
Formation Strength	14.70 ppg
Kick Tolerance	5.23 ppg
Pore Pressure	8.40 ppg
MASP	840 psi
Background Gas	.1
Connection Gas	.0
Trip Gas	.0

Density	8.90 ppg
ECD	8.97 ppg
at	884.000 meters
with bit at	883.920 meters

WEATHER REPORT

	23:59	Max			23:59	Max	
Bar Pressure	1024	1029	mm Hg	Wind Speed	12.0	12.0	knot
Heave	.20	.20	meters	Direction	60	260	degree
Pitch	.20	.30	degree	Wave Height	.60	.60	meters
Roll	.20	.30	degree	Period	3	3	second
Swell Height	.90	.90	meters	Direction	60	260	degree
Period	7	8	second	Air Temperature	12.0	14.0	deg C
Direction	245	225	degree	Sea Temperature	14.0	14.0	deg C
Visibility	16.0	18.0	km	Cloud Cover	2	6	

ANCHOR TENSIONS

Anchor	Tension at 23:59	24-Hr Maximum
1	341	0
2	324	0
3	256	0
4	260	0
5	253	0
6	295	0
7	334	0
8	245	0

RISER DATA

Riser Tension: 0 Flex Joint Rotation: .0 Hole Position, Offset: .00
Angle : .8 Angle : 0

DRILL STRING

Date Run:	30-Jul-02	Date Pulled:	1-Aug-02	Length of BHA :	364.940
Time Run:	12:00	Time Pulled:	21:15	BHA Weight in Air :	89.6
Depth In:	863.000	Depth Out :	1579.000	Above Jars:	43.1
				Below Jars:	33.3
				In Mud :	76.4

12¬ DS195 bit, NB stab, 8" pony, stab, dc, stab, ARC, MWD, 3 x dc, xo, HWDP, jars, HWDP

Tp	OD	ID	Grd	Connections Size	Type	Nom Wt/Len	Stab Blade OD In	OD Out	Length To Ctr	Bend	Section Length
DP	5.000	4.276	S135	4.500	IF	19.5					1214.059
HW	5.000	3.125	????	4.500	IF	50.0					274.910
JR	6.250	2.750	????	4.500	IF	.0					9.810
HW	5.000	3.125	????	4.500	IF	50.0					17.500
XO	8.250	2.687	????	4.500	IF	.0					1.100
DC	8.250	2.875	????	6.625	REG	147.0					28.220
MW	8.250	4.250	????	6.625	REG	.0	.000	.000	.000		8.520
LW	8.375	5.875	????	6.625	REG	.0					5.730
ST	12.250	2.750	????	6.625	REG	.0	8.062	12.250	1.110		2.350
DC	8.250	2.750	????	6.625	REG	147.0					9.420
ST	12.250	2.750	????	6.625	REG	.0	8.000	12.250	1.110		2.340
DC	8.000	2.750	????	6.625	REG	.0					3.250
ST	12.250	2.500	????	6.625	REG	.0	7.938	12.250	.470		1.470
BT	12.250	3.000	????	6.625	REG	.0					.320

DAILY DRILL STRING

		-------- Weights --------		--- Torques ---		Cumulative Time On	
WOB	15	Pick-up	245	Off-TD	2000.0	BHA	26.00
RPM	150	Slack-off	245	On-TD	4000.0	Shock Sub	.00
		Off-TD, Rotating	245			Jars	24.00

CASING

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990
6	20.000	X56	203.000	H 4	1	72.180	83.380
7	13.375	L80	68.000	WELD	1	83.380	84.940
8	13.375	K55	68.000	BUTT	63	84.940	849.150

*** End 31-Jul-2002 report for BEARDIE.1 Run 14-Nov-2002 18:13 Central Time

```
Drilling                      DETAILED DAILY REPORT                      01-Aug-2002
                                    Beardie-1

DRS Well ID: BEARDIE.1                              AFE L0501B003     Planned | Actual
Units       : Mixed Oilfield                        MD            m: 1905.00 | 1380.00
Office      : Australia SE                          TVD           m: 1905.00 | 1380.00
Client      : ExxonMobil Development                Days                     |
Drill Team  : Australia Offshore                     - if Dry        :   20.5 |
                                                     - if Suspended:     .0 |
Budget Cat  : WILDCAT--PRODUCTIVE AND DRY HO         - to Complete :   20.5 |
Contractor  : DIAMOND                                - Susp + Comp :   20.5 |      7.5
Rig Name    : Ocean Bounty                           - Ahead/Behind:          |       .0
Operator    : ExxonMobil                             - from Spud   :          |      5.0
Field       : Gippsland Basin                       Spud Date       :          26-Jul-2002
Country     : Australia                             Progress        m:              496.00
Latitude    :  38d 15' 16" South                    Drilling Hours :               23.50
Longitude   : 147d 48' 25" East                     ROP          m/hr:               21.11
Water Depth:   51.23 m                              Percentage NPT :                 4.2
RKB Height :   25.00 m                              Depth Reference:   Rig Floor (RKB)
Ground Elev:     .00 m
Phone       : 61 428 308 600

Superintendent     : F.W. Kratzer
Engineers          : A. McGregor
                     C.P. Meakin
Formation Desc     :
Deepest Casing Run: 13.375 inches at 849.100 MD, 849.100 TVD
Next Casing        : 9.625 inches at 1905.000 meters MD
Leakoff Test       : 14.70 ppg

Current: Drilling 12¬" hole
Planned: Drill 12¬" hole to 1905 m.

Start Elpsd  End MD                          Description
----- ----- -------- ----------------------------------------------------------
05:00  1.50   913.00 DRLG Drill 12¬" hole from 884 m to 913 m.
06:30   .50   913.00 RIG  Renew top drive saver sub that back out on connection.
                     NPT  See Event 11 (RIG)
07:00 22.00  1380.00 DRLG Drill 12¬" hole from 913 m to 1,380m. Drilled hard
                          streaks at 1,339 m and 1,347 m. Precautionary flow
                          check after drilling into top of Latrobe. Flow check
                          drilling breaks at 1,195 m and 1,287 m.
Total 24.00
======================== PROBLEM EVENTS AND MILESTONES ========================
Event:  11     NPT: Yes   Hours:    .50    Responsible Party: Rig Contractor
Start: 31-Jul-02 06:30   RIG  Top drive system problem
End  : 31-Jul-02 07:00        Renew top-drive saver sub that backed-out on
                              connection.
================================== REMARKS ===================================
Prepared Work Site Radiation Readiness Checklist.
Beardie work hours for July Esso 420, Esso other 216, Diamond Offshore 5,796,
Third party 3,984
Esso Medical Officer made occupational health inspection.
Boats:
Pacific Conqueror:- Standby at Ocean Bounty
Pacific Sentinal:- Sailed for BBMT at 23:00hrs 31-08-02. ETA BBMT 07:30 hrs
01-08-02
```

INSPECTIONS, DRILLS, AND CITATIONS

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		31-Jul-2002
BOP Pressure Test	No		31-Jul-2002
Fire Drill	No		29-Jul-2002
Abandon Ship Drill	No		29-Jul-2002
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	No	0	31-Jul-2002
BOP System Inspection (Minicheck)	No	0	

PERSONNEL

Personnel : Gordon Jarritt, Ray Wyld, Roy Gilbert
Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.
Total Head Count: 92
Total Hours : 1104.00

HEAD COUNTS

Contractor	59	ExxonMobil	8
Contractor Short Service (SSE)	0	Service Company	25

MANAGEMENT SUMMARY

Drill 12¬" hole from 884 m to 1,380 m.

COST DATA (Australian Dollar)

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	425,872	0	425,872	120,074
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	8,895,602	334,761	9,230,363	177,204
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	8,895,602	334,761	9,230,363	177,204

MUD REPORT

Time	21:00	Flowline Temp	51.0 deg C	% Solids	6.5
Mud Type	WBM	Filtrate	3.8 cc	% LGS	1.0
Sample From	Flowline	Filter Cake	1.0 32nd"	% Sand	.75
		HTHP Temp	121.0 deg C	% Water	93.5
MD	1155.00 meters	Filtrate	13.8 cc	% Oil	.0
Density	9.50 ppg				
Viscosity	49 sec	Elec Stab	0 volts	Ca++	240
PV	12.0 cp	MBT	2.5 lb/bbl	Cl-	35500
YP	20.0 phsf	Excess Lime	.07 lb/bbl	CaCl2	0
Gels	3./ 5. phsf			pH	9.1
		Circ Volume	1257.5 barrel	Pf/Mf	.1/ .3
		Vol Hole Dr	237.2 barrel	Pm	.4

Rhe'try at 49.0 deg: 600/44 300/32 200/23 100/17 60/0 30/0 6/5 3/3
Displaced hole to KCl/PHPA/Polymer mud at 840 m while drilling shoetrack. No losses over 52 mesh screens. Treated active with additional citric acid and sodium bicarbonate. Increased PHPA to programmed concentration plus added 3% Glycol and added BARACOR 120 oxygen scavenger. Lost 50 bbls over shakers when additional PHPA came back to surface. Sulfides=0

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	68	0	2341	Fuel	19200	150000	453000
Cement	0	1170	2195	Gel	0	0	772
Drill Water	97000	0	756000				

MUD ADDITIVES

Function	Name	Unit	Size	Amount
ALKALINITY (PH)	Caustic Potash	KGS	20	1
ALKALINITY (PH)	Caustic Soda	BKT	25	2
ALKALINITY (PH)	Citric Acid	KGS	25	9
BACTERICIDE	Baracide	BKT	25	4
CALCIUM REMOVER	Soda Ash	KGS	25	1
CALCIUM REMOVER	Sodium Bicarb	KGS	25	9
CORROSION INHIBITOR	BARACOR 129	BKT	25	16
FILTRATION REDUCER	DEXTRID LT	KGS	25	100
FILTRATION REDUCER	Mil Pac Low	KGS	25	34
LOST CIRCULATION	BARACARB 100	KGS	1200	1
LOST CIRCULATION	BARACARB 25	KGS	1200	1
SHALE CONTROL	Glycol CP	LTR	1500	5
SHALE CONTROL	KCL Ag	MTN	1000	25
SHALE CONTROL	PHPA	KGS	25	44
VISCOSIFIER	Drillzan D	KGS	25	45
WEIGHTING MATERIAL	Barite	KGS	25	227

BIT RECORD

Bit/Run Numbers	Size	Cd	Mfg	Type	Depth In	Length	Rotary Hours	Lng/Hour Today	Cum	Grade T	B	G	Cost /Lng
2 1	12.250	BT	RRB	DSX195	863.00	517.0	25.50	21.11	20.27	5-8	X	1	0

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	73
2	.1018	75
3	.1018	76

Nozzle Sizes 32nd": 14.0 14.0 14.0 / 14.0 14.0 .0 / .0 .0
Total Flow Area .7517 in2
Nozzle Velocity 124.60 m/sec
Hole Diameter 12.250 inches
Bit Pressure Drop 1450 psi
59 % of SPP
Impact Force 1970 lbf
Hydraulic HP 6.874 hp/in2

Annular Velocities ft/min
DC (Max) 286.
DP (Min) 181.
(Min OH) 187.
Riser (Min) ******

Pump Rate 224 str/min
Flow Rate 957.73 gpm
Pressure 2460 psi

SURVEYS

MD	Angle	Azimuth	TVD	Vert Sec	N+/S-	E+/W-	Dogleg
907.950	.55	184.35	907.932	-4.036	- 4.036	- 1.508	.055
996.990	.70	198.07	996.967	-4.980	- 4.980	- 1.709	.071
1025.730	.60	210.10	1025.705	-5.277	- 5.277	- 1.839	.176
1083.000	.46	228.69	1082.972	-5.688	- 5.688	- 2.162	.115
1169.990	.47	231.26	1169.959	-6.142	- 6.142	- 2.703	.007
1257.420	.51	245.44	1257.387	-6.528	- 6.528	- 3.337	.043

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	30	75	1004.000
2	40	150	1004.000
3	50	225	1004.000

Burst (70%) 2495 psi
Formation Strength 14.70 ppg
Kick Tolerance 2.83 ppg
Pore Pressure 8.60 ppg
MASP 724 psi

Background Gas .2
Connection Gas .0
Trip Gas .0

Density 9.70 ppg
ECD 9.82 ppg
at 1380.000 meters
with bit at 1379.830 meters

==================== WEATHER REPORT ====================

	23:59	Max			23:59	Max	
Bar Pressure :	1018	1024	mm Hg	Wind Speed :	20.0	20.0	knot
Heave :	.20	.20	meters	Direction :	300	300	degree
Pitch :	.20	.30	degree	Wave Height :	.60	.90	meters
Roll :	.20	.30	degree	Period :	3	3	second
Swell Height :	.90	.90	meters	Direction :	300	300	degree
Period :	6	7	second	Air Temperature:	14.0	15.0	deg C
Direction:	245	225	degree	Sea Temperature:	14.0	14.0	deg C
Visibility :	16.0	18.0	km	Cloud Cover :	5	6	

==================== ANCHOR TENSIONS ====================

Anchor	Tension at 23:59	24-Hr Maximum
1	344	0
2	243	0
3	212	0
4	209	0
5	263	0
6	316	0
7	387	0
8	244	0

==================== RISER DATA ====================

Riser Tension: 216 Flex Joint Rotation: .5 Hole Position, Offset: .52
Angle : .5 Angle : 0

==================== DRILL STRING ====================

Date Run:	30-Jul-02	Date Pulled:	1-Aug-02	Length of BHA :	364.940
Time Run:	12:00	Time Pulled:	21:15	BHA Weight in Air :	89.6
Depth In:	863.000	Depth Out :	1579.000	Above Jars:	43.1
				Below Jars:	33.3
				In Mud :	76.4

12¬ DS195 bit, NB stab, 8" pony, stab, dc, stab, ARC, MWD, 3 x dc, xo, HWDP, jars, HWDP

Tp	OD	ID	Grd	Connections Size	Type	Nom Wt/Len	Stab Blade OD In	OD Out	Length To Ctr	Bend	Section Length
DP	5.000	4.276	S135	4.500	IF	19.5					1214.059
HW	5.000	3.125	????	4.500	IF	50.0					274.910
JR	6.250	2.750	????	4.500	IF	.0					9.810
HW	5.000	3.125	????	4.500	IF	50.0					17.500
XO	8.250	2.687	????	4.500	IF	.0					1.100
DC	8.250	2.875	????	6.625	REG	147.0					28.220
MW	8.250	4.250	????	6.625	REG	.0	.000	.000	.000		8.520
LW	8.375	5.875	????	6.625	REG	.0					5.730
ST	12.250	2.750	????	6.625	REG	.0	8.062	12.250	1.110		2.350
DC	8.250	2.750	????	6.625	REG	147.0					9.420
ST	12.250	2.750	????	6.625	REG	.0	8.000	12.250	1.110		2.340
DC	8.000	2.750	????	6.625	REG	.0					3.250
ST	12.250	2.500	????	6.625	REG	.0	7.938	12.250	.470		1.470
BT	12.250	3.000	????	6.625	REG	.0					.320

==================== DAILY DRILL STRING ====================

		Weights		Torques		Cumulative Time On	
WOB	5	Pick-up	270	Off-TD	1500.0	BHA	48.50
RPM	190	Slack-off	260	On-TD	5000.0	Shock Sub	.00
		Off-TD, Rotating	265			Jars	46.50

==================== CASING ====================

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990
6	20.000	X56	203.000	H 4	1	72.180	83.380
7	13.375	L80	68.000	WELD	1	83.380	84.940
8	13.375	K55	68.000	BUTT	63	84.940	849.150

Drilling — DETAILED DAILY REPORT — 02-Aug-2002

Beardie-1

DRS Well ID:	BEARDIE.1	AFE L0501B003	Planned	Actual
Units	: Mixed Oilfield	MD m:	1905.00	1579.00
Office	: Australia SE	TVD m:	1905.00	1579.00
Client	: ExxonMobil Development	Days		
Drill Team	: Australia Offshore	- if Dry :	20.5	
		- if Suspended:	.0	
Budget Cat	: WILDCAT--PRODUCTIVE AND DRY HO	- to Complete :	20.5	
Contractor	: DIAMOND	- Susp + Comp :	20.5	8.5
Rig Name	: Ocean Bounty	- Ahead/Behind:		2.0
Operator	: ExxonMobil	- from Spud :		6.0
Field	: Gippsland Basin	Spud Date :		26-Jul-2002
Country	: Australia	Progress m:		199.00
Latitude	: 38d 15' 16" South	Drilling Hours :		11.25
Longitude	: 147d 48' 25" East	ROP m/hr:		17.69
Water Depth:	51.23 m	Percentage NPT :		4.7
RKB Height :	25.00 m	Depth Reference:		Rig Floor (RKB)
Ground Elev:	.00 m			
Phone	: 61 428 308 600			

Superintendent : F.W. Kratzer
Engineers : A. McGregor
C.P. Meakin
Formation Desc :
Deepest Casing Run: 13.375 inches at 849.100 MD, 849.100 TVD
Next Casing : 9.625 inches at 1905.000 meters MD
Leakoff Test : 14.70 ppg

Current: Running in hole at 1,525 m.
Planned: Drill 12¬" hole to 1,905 m

Start	Elpsd	End MD		Description
05:00	11.25	1579.00	DRLG	Drill 12¬" hole from 1,380 m to 1,579 m.
16:15	4.25	1579.00	TRIP	Pull string out of hole -- Flow check. Pump slug. POOH. No overpull except 20 kips at 1,282 m and 20 kips at 1,098 m.
20:30	.75	1579.00	TRIP	Break and lay down string, BHA or tools -- Lay down MWD tool and array resistivity compensated tool. MWD tool functioned normally during drilling. ARC recorded GR and resistivity data but did not transmit data to surface.
			NPT	See Event 5 (FE)
21:15	.50	1579.00	TRIP	Pick up or make up string, BHA, or tools -- Change to 12¬" EHP51HKPRDH bit w/ 3 x 18 jets.
21:45	1.25	1579.00	TRIP	Pick up or make up string, BHA, or tools -- Pick up new MWD and compensated dual resistivity tool.
			NPT	See Event 6 (FE)
23:00	.25	1579.00	INSP	Pump through MWD and CDR at 650 gpm - tools OK.
23:15	2.25	1579.00	TRIP	Pick up or make up string, BHA, or tools -- Pick up ten 8¬" drill collars.
01:30	1.75	1579.00	TRIP	Run string in hole -- TIH to casing shoe.
03:15	.50	1579.00	RIG	Service top drive.
03:45	1.25	1579.00	TRIP	Run string in hole -- TIH to 1,525 m.
Total	24.00			

======================== PROBLEM EVENTS AND MILESTONES ========================

Event: 5 NPT: Yes Hours: .75 Responsible Party: Anadrill
Start: 1-Aug-02 20:30 FE LWD problem
End : 1-Aug-02 21:15 Array Resistivity Compensated tool did not transmit data while drilling. Had to lay down tool.

Event: 6 NPT: Yes Hours: 1.25 Responsible Party: Anadrill
Start: 1-Aug-02 21:45 FE LWD problem
End : 1-Aug-02 23:00 Pick up new MWD and compensated dual resistivity tool to replace old MWD and ARC tool

==================================== REMARKS ====================================

Recorded information from Array Resistivity Compensated downloaded. Resistivity recorded from 943 m to TD. GR recorded entire open hole.
Boats:-
Pacific Conqueror:- Standby at Ocean Bounty
Pacific Sentinel :- At BBMT

===================== INSPECTIONS, DRILLS, AND CITATIONS =====================

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		31-Jul-2002
BOP Pressure Test	No		31-Jul-2002
Fire Drill	No		29-Jul-2002
Abandon Ship Drill	No		29-Jul-2002
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	Yes	2	31-Jul-2002
BOP System Inspection (Minicheck)	Yes	2	

=================================== PERSONNEL ===================================

Personnel : Roy Gilbert, Nguyen Trang, Nigel Smith
Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.
Total Head Count: 94
Total Hours : 1128.00

================================== HEAD COUNTS ==================================

Contractor	62	ExxonMobil	8
Contractor Short Service (SSE)	0	Service Company	24

============================== SAFETY INCIDENT ==============================

*** First Aid
Crewman on M/V Pacific Sentinel had foreign body in eye. Doctor removed spec and released individual to full duties. Treatment took place at Barry Beach Marine Terminal where Pacific Sentinel was located.

============================= MANAGEMENT SUMMARY =============================

Drill 12¬" hole from 1,380 m to 1,579 m. POOH to change bit. Change LWD tools. Pick up additional drill collars. TIH.

======================= COST DATA (Australian Dollar) =======================

	AFE		Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	462,575	0	462,575	82,693
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	9,358,177	334,761	9,692,938	259,897
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	9,358,177	334,761	9,692,938	259,897

MUD REPORT

Time	16:00	Flowline Temp	61.0 deg C	% Solids	8.0
Mud Type	WBM	Filtrate	3.8 cc	% LGS	2.0
Sample From	Pit	Filter Cake	1.0 32nd"	% Sand	.75
		HTHP Temp	121.0 deg C	% Water	92.0
MD	1579.00 meters	Filtrate	11.6 cc	% Oil	.0
Density	9.80 ppg				
Viscosity	48 sec	Elec Stab	0 volts	Ca++	280
PV	18.0 cp	MBT	2.5 lb/bbl	Cl-	35000
YP	26.0 phsf	Excess Lime	.05 lb/bbl	CaCl2	0
Gels	6./ 8. phsf			pH	9.3
		Circ Volume	1320.7 barrel	Pf/Mf	.1/ .3
		Vol Hole Dr	95.2 barrel	Pm	.3

Rhe'try at 49.0 deg: 600/62 300/44 200/36 100/25 60/0 30/0 6/7 3/5
Added and maintained 5 ppb each BARACARB 100 and 25 since entering the Latrobe.
No Sulfides apparent on either GGT and Hach tests.

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	68	0	2273	Fuel	18000	0	435000
Cement	0	0	2195	Gel	0	0	772
Drill Water	82000	0	674000				

MUD ADDITIVES

Function	Name	Unit	Size	Amount
ALKALINITY (PH)	Caustic Potash	KGS	20	4
ALKALINITY (PH)	Caustic Soda	BKT	25	7
CORROSION INHIBITOR	BARACOR 129	BKT	25	11
FILTRATION REDUCER	DEXTRID LT	KGS	25	20
FILTRATION REDUCER	Mil Pac Low	KGS	25	5
LOST CIRCULATION	BARACARB 100	KGS	25	33
LOST CIRCULATION	BARACARB 100	KGS	1200	2
LOST CIRCULATION	BARACARB 25	KGS	25	38
LOST CIRCULATION	BARACARB 25	KGS	1200	2
SHALE CONTROL	Glycol CP	LTR	1500	1
SHALE CONTROL	KCL Ag	MTN	1000	3
SHALE CONTROL	PHPA	KGS	25	4
VISCOSIFIER	Drillzan D	KGS	25	11
WEIGHTING MATERIAL	Barite Bulk	SAX	100	68

BIT RECORD

Bit/Run Numbers	Size	Cd	Mfg	Type	Depth In	Length	Rotary Hours	Lng/Hour Today	Lng/Hour Cum	Grade T	B	G	Cost /Lng
2 1	12.250	BT	RRB	DSX195	863.00	716.0	36.75	17.69	19.48	5-8	X	1	0
3 1	12.250	BT	RRB	EHP51H	1579.00	.0	.00	.00	.00	3-4	E	2	-1

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	73
2	.1018	75
3	.1018	76

Nozzle Sizes 32nd": 18.0 18.0 18.0 / .0 .0 .0 / .0 .0

Total Flow Area	.7455 in2
Nozzle Velocity	125.62 m/sec
Hole Diameter	12.250 inches
Bit Pressure Drop	1489 psi
	40 % of SPP
Impact Force	2006 lbf
Hydraulic HP	7.060 hp/in2

Annular Velocities ft/min

DC (Max)	286.
DP (Min)	181.
(Min OH)	187.
Riser (Min)	******

Pump Rate 224 str/min
Flow Rate 957.73 gpm
Pressure 3750 psi

SURVEYS

MD	Angle	Azimuth	TVD	Vert Sec	N+/S-		E+/W-		Dogleg
1344.310	.67	230.55	1344.270	-7.011	-	7.011	-	4.081	.076
1431.330	.79	216.92	1431.284	-7.814	-	7.814	-	4.834	.072
1517.169	1.19	222.49	1517.110	-8.945	-	8.945	-	5.791	.144

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	30	75	1004.000
2	40	150	1004.000
3	50	225	1004.000

Burst (70%)	2495	psi
Formation Strength	14.70	ppg
Kick Tolerance	2.41	ppg
Pore Pressure	8.60	ppg
MASP	710	psi
Background Gas	.3	
Connection Gas	.0	
Trip Gas	.0	

Density 9.80 ppg
ECD 9.97 ppg
at 1579.000 meters
with bit at 1578.864 meters

WEATHER REPORT

	23:59	Max	
Bar Pressure	1014	1018	mm Hg
Heave	.20	.20	meters
Pitch	.20	.20	degree
Roll	.20	.20	degree
Swell Height	.30	.90	meters
Period	8	10	second
Direction	350	225	degree
Visibility	16.0	18.0	km

	23:59	Max	
Wind Speed	3.0	20.0	knot
Direction	300	300	degree
Wave Height	.20	.90	meters
Period	3	3	second
Direction	300	300	degree
Air Temperature	14.0	15.0	deg C
Sea Temperature	14.0	14.0	deg C
Cloud Cover	5	7	

ANCHOR TENSIONS

Anchor	Tension at 23:59	24-Hr Maximum
1	345	0
2	247	0
3	217	0
4	214	0
5	263	0
6	312	0
7	382	0
8	247	0

RISER DATA

Riser Tension: 215 Flex Joint Rotation: .5 Hole Position, Offset: .50
Angle : .5 Angle : 0

DRILL STRING

Date Run:	30-Jul-02	Date Pulled:	1-Aug-02	Length of BHA :	364.940
Time Run:	12:00	Time Pulled:	21:15	BHA Weight in Air :	89.6
Depth In:	863.000	Depth Out :	1579.000	Above Jars:	43.1
				Below Jars:	33.3
				In Mud :	76.4

12¬ DS195 bit, NB stab, 8" pony, stab, dc, stab, ARC, MWD, 3 x dc, xo, HWDP, jars, HWDP

Tp	OD	ID	Grd	Connections Size	Type	Nom Wt/Len	Stab Blade OD In	OD Out	Length To Ctr	Bend	Section Length
DP	5.000	4.276	S135	4.500	IF	19.5					1214.059
HW	5.000	3.125	????	4.500	IF	50.0					274.910
JR	6.250	2.750	????	4.500	IF	.0					9.810
HW	5.000	3.125	????	4.500	IF	50.0					17.500
XO	8.250	2.687	????	4.500	IF	.0					1.100
DC	8.250	2.875	????	6.625	REG	147.0					28.220
MW	8.250	4.250	????	6.625	REG	.0	.000	.000	.000		8.520
LW	8.375	5.875	????	6.625	REG	.0					5.730
ST	12.250	2.750	????	6.625	REG	.0	8.062	12.250	1.110		2.350
DC	8.250	2.750	????	6.625	REG	147.0					9.420
ST	12.250	2.750	????	6.625	REG	.0	8.000	12.250	1.110		2.340
DC	8.000	2.750	????	6.625	REG	.0					3.250
ST	12.250	2.500	????	6.625	REG	.0	7.938	12.250	.470		1.470
BT	12.250	3.000	????	6.625	REG	.0					.320

913711 342

================================ DRILL STRING ================================

Date Run:	1-Aug-02	Date Pulled:	4-Aug-02	Length of BHA :	460.280
Time Run:	21:30	Time Pulled:	12:00	BHA Weight in Air :	135.2
Depth In:	1579.000	Depth Out :	1905.000	Above Jars:	40.0
				Below Jars:	75.0
				In Mud :	115.0

12¬ EHP51HKPRDH bit, NB stab, 8" pony, stab, dc, stab, CDR, MWD, 13 x dc, xo, HWDP, jars, HWDP

Tp	OD	ID	Grd	Connections Size	Type	Nom Wt/Len	Stab Blade OD In	OD Out	Length To Ctr	Bend	Section Length
DP	5.000	4.276	S135	4.500	IF	19.5					1443.621
HW	5.000	3.125	????	4.500	IF	50.0					274.910
JR	6.250	2.750	????	4.500	IF	.0					9.810
HW	5.000	3.125	????	4.500	IF	50.0					17.500
XO	8.250	2.687	????	4.500	IF	.0					1.100
DC	8.250	2.875	????	6.625	REG	147.0					122.330
MW	8.250	4.250	????	6.625	REG	.0	.000	.000	.000		8.530
LW	9.000	5.875	????	6.625	REG	.0					8.030
ST	12.250	2.750	????	6.625	REG	.0	8.062	12.250	1.110		2.350
DC	8.250	2.750	????	6.625	REG	147.0					9.420
ST	12.250	2.750	????	6.625	REG	.0	8.000	12.250	1.110		2.340
DC	8.000	2.750	????	6.625	REG	.0					3.250
ST	12.250	2.500	????	6.625	REG	.0	7.938	12.250	.470		1.470
BT	12.250	3.000	????	6.625	REG	.0					.340

============================== DAILY DRILL STRING ==============================

		-------- Weights --------		--- Torques ---		Cumulative Time On	
WOB	32	Pick-up	297	Off-TD	2000.0	BHA	59.75
RPM	150	Slack-off	297	On-TD	5500.0	Shock Sub	.00
		Off-TD, Rotating	297			Jars	57.75

=================================== CASING ===================================

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990
6	20.000	X56	203.000	H 4	1	72.180	83.380
7	13.375	L80	68.000	WELD	1	83.380	84.940
8	13.375	K55	68.000	BUTT	63	84.940	849.150

*** End 02-Aug-2002 report for BEARDIE.1 Run 14-Nov-2002 18:14 Central Time

Drilling — DETAILED DAILY REPORT — 03-Aug-2002
Beardie-1

DRS Well ID: BEARDIE.1	AFE L0501B003		Planned	Actual
Units : Mixed Oilfield	MD	m:	1905.00	1793.00
Office : Australia SE	TVD	m:	1905.00	1793.00
Client : ExxonMobil Development	Days			
Drill Team : Australia Offshore	- if Dry	:	20.5	
	- if Suspended	:	.0	
Budget Cat : WILDCAT--PRODUCTIVE AND DRY HO	- to Complete	:	20.5	
Contractor : DIAMOND	- Susp + Comp	:	20.5	9.5
Rig Name : Ocean Bounty	- Ahead/Behind	:		2.0
Operator : ExxonMobil	- from Spud	:		7.0
Field : Gippsland Basin	Spud Date	:		26-Jul-2002
Country : Australia	Progress	m:		214.00
Latitude : 38d 15' 16" South	Drilling Hours	:		23.50
Longitude : 147d 48' 25" East	ROP	m/hr:		9.11
Water Depth: 51.23 m	Percentage NPT	:		4.2
RKB Height : 25.00 m	Depth Reference	:		Rig Floor (RKB)
Ground Elev: .00 m				
Phone : 61 428 308 600				

Superintendent : F.W. Kratzer
Engineers : A. McGregor
C.P. Meakin
Formation Desc :
Deepest Casing Run: 13.375 inches at 849.100 MD, 849.100 TVD
Next Casing : 9.625 inches at 1905.000 meters MD
Leakoff Test : 14.70 ppg

Current: Drilling 12¬" hole from 1793m.
Planned: Drill 12¬" hole to 1,905 m. Log well.

Start	Elpsd	End MD		Description
05:00	.50	1579.00	TRIP	Run string in hole -- TIH to 1,537 m. Precautionary wash and ream from 1,537 m to 1,579 m. Trip gas 0.18%
05:30	.50	1580.00	DRLG	Break in new 12¬" Reed EHP51KPRDH insert bit Sn # NL5038.
06:00	23.00	1793.00	DRLG	Drill 12¬" hole from 1,580 m to 1,793 m.
Total	24.00			

REMARKS

Compensated dual resistivity tool ceased transmitting at 1,702 m.
MWD continued to transmit survey data.
Boats:-
Pacific Conqueror:- En route to BBMT. ETA 0700 hrs 03 Aug 02
Pacific Sentinel :- Standby at Ocean Bounty

INSPECTIONS, DRILLS, AND CITATIONS

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		31-Jul-2002
BOP Pressure Test	No		31-Jul-2002
Fire Drill	No		29-Jul-2002
Abandon Ship Drill	No		29-Jul-2002
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	No	0	02-Aug-2002
BOP System Inspection (Minicheck)	Yes	2	02-Aug-2002

PERSONNEL

Personnel : Roy Gilbert, Nguyen Trang, Nigel Smith
Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.
Total Head Count: 92
Total Hours : 1104.00

HEAD COUNTS

Contractor	58	ExxonMobil	8
Contractor Short Service (SSE)	0	Service Company	26

MANAGEMENT SUMMARY

RIH to 1,537 m. Precautionary ream to 1,579 m. Drill from 1,579 m to 1,793 m

COST DATA (Australian Dollar)

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	374,579	0	374,579	38,268
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	9,732,756	334,761	10,067,517	298,165
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	9,732,756	334,761	10,067,517	298,165

MUD REPORT

Time	22:00	Flowline Temp	57.0 deg C	% Solids	8.0
Mud Type	WBM	Filtrate	3.8 cc	% LGS	2.0
Sample From	Flowline	Filter Cake	1.0 32nd"	% Sand	.70
		HTHP Temp	121.0 deg C	% Water	92.0
MD	1707.00 meters	Filtrate	10.6 cc	% Oil	.0
Density	9.80 ppg				
Viscosity	56 sec	Elec Stab	0 volts	Ca++	180
PV	17.0 cp	MBT	5.0 lb/bbl	Cl-	37500
YP	26.0 phsf	Excess Lime	.04 lb/bbl	CaCl2	0
Gels	5./ 7. phsf			pH	9.3
		Circ Volume	1397.1 barrel	Pf/Mf	.1/ .1
		Vol Hole Dr	102.3 barrel	Pm	.2

Rhe'try at 49.0 deg: 600/60 300/43 200/34 100/24 60/0 30/0 6/7 3/5
Sulfides=0 on both GGT and Hach tests. Desander:10.8 @ 5.0 bph. Desilter:12.1m ppg @ 37 bph.

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	0	0	2273	Fuel	14300	0	420700
Cement	0	0	2195	Gel	0	0	772
Drill Water	95000	0	579000				

MUD ADDITIVES

Function	Name	Unit	Size	Amount
BACTERICIDE	Baracide	BKT	25	1
CORROSION INHIBITOR	BARACOR 129	BKT	25	7
DEFOAMER	BARADEFOAM W300	BKT	25	1
FILTRATION REDUCER	DEXTRID LT	KGS	25	16
FILTRATION REDUCER	Mil Pac Low	KGS	25	4
LOST CIRCULATION	BARACARB 100	KGS	25	63
LOST CIRCULATION	BARACARB 25	KGS	25	10
SHALE CONTROL	Glycol CP	LTR	1500	3
SHALE CONTROL	KCL Ag	MTN	1000	2
SHALE CONTROL	PHPA	KGS	25	15
VISCOSIFIER	Drillzan D	KGS	25	5

BIT RECORD

Bit/Run Numbers	Size	Cd	Mfg	Type	Depth In	Length	Rotary Hours	Lng/Hour Today	Lng/Hour Cum	Grade T	B	G	Cost /Lng
3 1	12.250	BT	RRB	EHP51H	1579.00	214.0	23.50	9.11	9.11	3-4	E	2	0

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	0
2	.1018	98
3	.1018	96

Nozzle Sizes 32nd": 18.0 18.0 18.0 .0 .0 .0 .0 .0

Total Flow Area	.7455 in2
Nozzle Velocity	108.80 m/sec
Hole Diameter	12.250 inches
Bit Pressure Drop	1117 psi
	38 % of SPP
Impact Force	1505 lbf
Hydraulic HP	4.586 hp/in2

Annular Velocities ft/min

DC (Max)	247.
DP (Min)	157.
(Min OH)	162.
Riser (Min)	******

Pump Rate	194 str/min
Flow Rate	829.47 gpm
Pressure	2940 psi

SURVEYS

MD	Angle	Azimuth	TVD	Vert Sec	N+/S-		E+/W-		Dogleg
1551.210	1.09	226.63	1551.145	-9.428	-	9.428	-	6.266	.113
1639.110	.83	214.91	1639.032	-10.524	-	10.524	-	7.238	.111
1725.470	.90	209.82	1725.384	-11.625	-	11.625	-	7.933	.036

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	30	120	1589.000
2	40	200	1589.000
3	50	275	1589.000

Burst (70%)	2495 psi
Formation Strength	14.70 ppg
Kick Tolerance	2.12 ppg
Pore Pressure	8.60 ppg
MASP	710 psi
Background Gas	.0
Connection Gas	.0
Trip Gas	.2

Density 9.80 ppg
ECD 9.96 ppg
at 1793.000 meters
with bit at 1792.833 meters

WEATHER REPORT

	23:59	Max	
Bar Pressure	1011	1015	mm Hg
Heave	.20	.20	meters
Pitch	.20	.20	degree
Roll	.20	.20	degree
Swell Height	.90	.90	meters
Period	10	10	second
Direction	80	80	degree
Visibility	8.0	10.0	km

	23:59	Max	
Wind Speed	15.0	16.0	knot
Direction	30	30	degree
Wave Height	.90	.90	meters
Period	2	3	second
Direction	30	30	degree
Air Temperature	12.0	14.0	deg C
Sea Temperature	14.0	14.0	deg C
Cloud Cover	4	8	

ANCHOR TENSIONS

Anchor	Tension at 23:59	24-Hr Maximum
1	345	0
2	249	0
3	218	0
4	214	0
5	266	0
6	317	0
7	382	0
8	247	0

RISER DATA

Riser Tension: 216 Flex Joint Rotation: .5 Hole Position, Offset: .50
Angle : .5 Angle : 0

913711 346

================================ DRILL STRING ================================

Date Run:	1-Aug-02	Date Pulled:	4-Aug-02	Length of BHA :	460.280
Time Run:	21:30	Time Pulled:	12:00	BHA Weight in Air :	135.2
Depth In:	1579.000	Depth Out :	1905.000	Above Jars:	40.0
				Below Jars:	75.0
				In Mud :	115.0

12¬ EHP51HKPRDH bit, NB stab, 8" pony, stab, dc, stab, CDR, MWD, 13 x dc, xo, HWDP, jars, HWDP

Tp	OD	ID	Grd	Connections Size	Type	Nom Wt/Len	Stab Blade OD In	OD Out	Length To Ctr	Bend	Section Length
DP	5.000	4.276	S135	4.500	IF	19.5					1443.621
HW	5.000	3.125	????	4.500	IF	50.0					274.910
JR	6.250	2.750	????	4.500	IF	.0					9.810
HW	5.000	3.125	????	4.500	IF	50.0					17.500
XO	8.250	2.687	????	4.500	IF	.0					1.100
DC	8.250	2.875	????	6.625	REG	147.0					122.330
MW	8.250	4.250	????	6.625	REG	.0	.000	.000	.000		8.530
LW	9.000	5.875	????	6.625	REG	.0					8.030
ST	12.250	2.750	????	6.625	REG	.0	8.062	12.250	1.110		2.350
DC	8.250	2.750	????	6.625	REG	147.0					9.420
ST	12.250	2.750	????	6.625	REG	.0	8.000	12.250	1.110		2.340
DC	8.000	2.750	????	6.625	REG	.0					3.250
ST	12.250	2.500	????	6.625	REG	.0	7.938	12.250	.470		1.470
BT	12.250	3.000	????	6.625	REG	.0					.340

============================= DAILY DRILL STRING =============================

		-------- Weights --------		--- Torques ---		Cumulative Time On	
WOB	50	Pick-up	340	Off-TD	2000.0	BHA	83.25
RPM	112	Slack-off	340	On-TD	5500.0	Shock Sub	.00
		Off-TD, Rotating	340			Jars	81.25

================================== CASING ==================================

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990
6	20.000	X56	203.000	H 4	1	72.180	83.380
7	13.375	L80	68.000	WELD	1	83.380	84.940
8	13.375	K55	68.000	BUTT	63	84.940	849.150

*** End 03-Aug-2002 report for BEARDIE.1 Run 14-Nov-2002 18:14 Central Time

Drilling — DETAILED DAILY REPORT — 04-Aug-2002

Beardie-1

DRS Well ID: BEARDIE.1	AFE L0501B003		Planned	Actual
Units : Mixed Oilfield	MD	m:	1905.00	1905.00
Office : Australia SE	TVD	m:	1905.00	1905.00
Client : ExxonMobil Development	Days			
Drill Team : Australia Offshore	- if Dry	:	20.5	
	- if Suspended	:	.0	
Budget Cat : WILDCAT--PRODUCTIVE AND DRY HO	- to Complete	:	20.5	
Contractor : DIAMOND	- Susp + Comp	:	20.5	10.5
Rig Name : Ocean Bounty	- Ahead/Behind	:		1.0
Operator : ExxonMobil	- from Spud	:		8.0
Field : Gippsland Basin	Spud Date	:		26-Jul-2002
Country : Australia	Progress	m:		112.00
Latitude : 38d 15' 16" South	Drilling Hours	:		16.00
Longitude : 147d 48' 25" East	ROP	m/hr:		7.00
Water Depth: 51.23 m	Percentage NPT	:		3.8
RKB Height : 25.00 m	Depth Reference:			Rig Floor (RKB)
Ground Elev: .00 m				
Phone : 61 428 308 600				

Superintendent : F.W. Kratzer
Engineers : A. McGregor
C.P. Meakin
Formation Desc :
Deepest Casing Run: 13.375 inches at 849.100 MD, 849.100 TVD
Next Casing : 9.625 inches at 1905.000 meters MD
Leakoff Test : 14.70 ppg

Current: Circulate at hole TD
Planned: POOH. Run electric logs.

Start	Elpsd	End MD		Description
05:00	16.00	1905.00	DRLG	Drill 12¬" hole from 1,793 m to 1,905 m.
21:00	1.00	1905.00	CIRC	Pump 100 bbl hi vis (115 sec) pill and circulate out. Flow check.
22:00	.75	1905.00	TRIP	Short trip (not to surface) -- Pull out of hole from 1 905 m to 1,800 m. Had intermittant overpull up to 50 kips.
22:45	1.75	1905.00	TRIP	Short trip (not to surface) -- Pump and rotate out of hole from 1,800 m to 1,579 m.
00:30	1.75	1905.00	TRIP	Short trip (not to surface) -- Pull out of hole from 1 579 m to casing shoe. No excess overpull
02:15	.50	1905.00	RIG	Service top drive.
02:45	2.25	1905.00	TRIP	Short trip (not to surface) -- TIH from casing shoe to 1,905 m. No excess drag.
Total	24.00			

================================== REMARKS ==================================

Discussed medical treatment incident at pretour meeting.
Boats:-
Pacific Conqueror:- Standby at Barry Beach Marine Terminal
Pacific Sentinel :- Standby at Ocean Bounty

==================== INSPECTIONS, DRILLS, AND CITATIONS ====================

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		31-Jul-2002
BOP Pressure Test	No		31-Jul-2002
Fire Drill	No		29-Jul-2002
Abandon Ship Drill	No		29-Jul-2002
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	Yes	1	02-Aug-2002
BOP System Inspection (Minicheck)	Yes	2	03-Aug-2002

PERSONNEL

Personnel : Roy Gilbert, Nguyen Trang, Nigel Smith
Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.
Total Head Count: 91
Total Hours : 1092.00

HEAD COUNTS

Contractor	57	ExxonMobil	8
Contractor Short Service (SSE)	0	Service Company	26

SAFETY INCIDENT

*** Medical Treatment
IP was connecting lube oil filling hose to engine oil intake and pinched left little finger between hose quick snap hydraulic female connection and engine oil intake quick snap hydraulic male connection.

MANAGEMENT SUMMARY

Drill 12¬" hole from 1,793 m to 1,905 m. Circulate. Short trip to casing shoe. RIH to 1,905 m.

COST DATA (Australian Dollar)

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	334,204	0	334,204	21,325
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	10,066,960	334,761	10,401,721	319,490
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	10,066,960	334,761	10,401,721	319,490

MUD REPORT

Time	03:30	Flowline Temp	.0 deg C	% Solids	8.2
Mud Type	WBM	Filtrate	3.5 cc	% LGS	3.0
Sample From	Pit	Filter Cake	1.0 32nd"	% Sand	.10
		HTHP Temp	121.0 deg C	% Water	91.8
MD	1905.00 meters	Filtrate	10.4 cc	% Oil	.0
Density	9.75 ppg				
Viscosity	57 sec	Elec Stab	.0 volts	Ca++	160
PV	17.0 cp	MBT	4.5 lb/bbl	Cl-	36500
YP	27.0 phsf	Excess Lime	.05 lb/bbl	CaCl2	0
Gels	6./ 8. phsf			pH	9.4
		Circ Volume	892.7 barrel	Pf/Mf	.1/ .3
		Vol Hole Dr	53.6 barrel	Pm	.3

Rhe'try at 49.0 deg: 600/61 300/44 200/36 100/28 60/0 30/0 6/8 3/6

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	158	0	2115	Fuel	16700	0	404000
Cement	0	0	2195	Gel	0	0	772
Drill Water	150000	310000	739000				

MUD ADDITIVES

Function	Name	Unit	Size	Amount
ALKALINITY (PH)	Caustic Potash	KGS	20	2
CALCIUM REMOVER	Soda Ash	KGS	25	2
CORROSION INHIBITOR	BARACOR 129	BKT	25	3
FILTRATION REDUCER	DEXTRID LT	KGS	25	8
FILTRATION REDUCER	Mil Pac Low	KGS	25	2
LOST CIRCULATION	BARACARB 25	KGS	25	48
SHALE CONTROL	Glycol CP	LTR	1500	1
SHALE CONTROL	KCL Ag	MTN	1000	4
SHALE CONTROL	PHPA	KGS	25	8
VISCOSIFIER	Drillzan D	KGS	25	6
WEIGHTING MATERIAL	Barite Bulk	SAX	100	158

BIT RECORD

Bit/Run Numbers	Size	Cd	Mfg	Type	Depth In	Length	Rotary Hours	Lng/Hour Today	Lng/Hour Cum	Grade T	B	G	Cost /Lng
3 1	12.250	BT	RRB	EHP51H	1579.00	326.0	39.50	7.00	8.25	3-4	E	2	0

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	98
2	.1018	0
3	.1018	97

Nozzle Sizes 32nd": 18.0 18.0 18.0 / .0 .0 .0 / .0 .0

Total Flow Area .7455 in2
Nozzle Velocity 109.36 m/sec
Hole Diameter 12.250 inches
Bit Pressure Drop 1128 psi
36 % of SPP
Impact Force 1521 lbf
Hydraulic HP 4.658 hp/in2

Annular Velocities ft/min
DC (Max) 249.
DP (Min) 158.
(Min OH) 163.
Riser (Min) ******

Pump Rate 195 str/min
Flow Rate 833.74 gpm
Pressure 3150 psi

SURVEYS

MD	Angle	Azimuth	TVD	Vert Sec	N+/S-	E+/W-	Dogleg
1754.650	.83	200.48	1754.559	-12.022	- 12.022	- 8.121	.161
1834.520	.89	216.64	1834.420	-13.062	- 13.062	- 8.693	.093
1869.060	.98	215.87	1868.955	-13.516	- 13.516	- 9.026	.079

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	30	200	1895.000
2	40	275	1895.000
3	50	375	1895.000

Burst (70%) 2495 psi
Formation Strength 14.70 ppg
Kick Tolerance 2.00 ppg
Pore Pressure 8.60 ppg
MASP 710 psi

Background Gas .1
Connection Gas .0
Trip Gas .0

Density 9.80 ppg
ECD 9.99 ppg
at 1905.000 meters
with bit at 1905.000 meters

WEATHER REPORT

	23:59	Max	
Bar Pressure	1010	1010	mm Hg
Heave	.20	.20	meters
Pitch	.20	.30	degree
Roll	.20	.30	degree
Swell Height	1.20	1.20	meters
Period	8	10	second
Direction	240	240	degree
Visibility	12.0	14.0	km

	23:59	Max	
Wind Speed	26.0	28.0	knot
Direction	235	230	degree
Wave Height	.90	.90	meters
Period	2	3	second
Direction	235	230	degree
Air Temperature	12.0	14.0	deg C
Sea Temperature	14.0	14.0	deg C
Cloud Cover	7	8	

ANCHOR TENSIONS

Anchor	Tension at 23:59	24-Hr Maximum
1	351	0
2	256	0
3	221	0
4	214	0
5	256	0
6	300	0
7	376	0
8	246	0

RISER DATA

Riser Tension: 217 Flex Joint Rotation: .5 Hole Position, Offset: .50
Angle : .5 Angle : 0

913711 350

=============================== DRILL STRING ===============================

Date Run:	1-Aug-02	Date Pulled:	4-Aug-02	Length of BHA :	460.280
Time Run:	21:30	Time Pulled:	12:00	BHA Weight in Air :	135.2
Depth In:	1579.000	Depth Out :	1905.000	Above Jars:	40.0
				Below Jars:	75.0
				In Mud :	115.0

12¬ EHP51HKPRDH bit, NB stab, 8" pony, stab, dc, stab, CDR, MWD, 13 x dc, xo, HWDP, jars, HWDP

Tp	OD	ID	Grd	Connections Size	Type	Nom Wt/Len	Stab Blade OD In	OD Out	Length To Ctr	Bend	Section Length
DP	5.000	4.276	S135	4.500	IF	19.5					1443.621
HW	5.000	3.125	????	4.500	IF	50.0					274.910
JR	6.250	2.750	????	4.500	IF	.0					9.810
HW	5.000	3.125	????	4.500	IF	50.0					17.500
XO	8.250	2.687	????	4.500	IF	.0					1.100
DC	8.250	2.875	????	6.625	REG	147.0					122.330
MW	8.250	4.250	????	6.625	REG	.0	.000	.000	.000		8.530
LW	9.000	5.875	????	6.625	REG	.0					8.030
ST	12.250	2.750	????	6.625	REG	.0	8.062	12.250	1.110		2.350
DC	8.250	2.750	????	6.625	REG	147.0					9.420
ST	12.250	2.750	????	6.625	REG	.0	8.000	12.250	1.110		2.340
DC	8.000	2.750	????	6.625	REG	.0					3.250
ST	12.250	2.500	????	6.625	REG	.0	7.938	12.250	.470		1.470
BT	12.250	3.000	????	6.625	REG	.0					.340

============================= DAILY DRILL STRING =============================

		-------- Weights --------		--- Torques ---		Cumulative Time On	
WOB	50	Pick-up	352	Off-TD	2000.0	BHA	99.25
RPM	100	Slack-off	339	On-TD	5000.0	Shock Sub	.00
		Off-TD, Rotating	347			Jars	97.25

================================== CASING ==================================

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990
6	20.000	X56	203.000	H 4	1	72.180	83.380
7	13.375	L80	68.000	WELD	1	83.380	84.940
8	13.375	K55	68.000	BUTT	63	84.940	849.150

*** End 04-Aug-2002 report for BEARDIE.1 Run 14-Nov-2002 18:14 Central Time

Drilling DETAILED DAILY REPORT 05-Aug-2002
Beardie-1

DRS Well ID: BEARDIE.1	AFE L0501B003		Planned	Actual
Units : Mixed Oilfield	MD	m:	1905.00	1905.00
Office : Australia SE	TVD	m:	1905.00	1905.00
Client : ExxonMobil Development	Days			
Drill Team : Australia Offshore	- if Dry	:	20.5	
	- if Suspended:		.0	
Budget Cat : WILDCAT--PRODUCTIVE AND DRY HO	- to Complete	:	20.5	
Contractor : DIAMOND	- Susp + Comp	:	20.5	11.5
Rig Name : Ocean Bounty	- Ahead/Behind:			1.0
Operator : ExxonMobil	- from Spud	:		9.0
Field : Gippsland Basin	Spud Date	:		26-Jul-2002
Country : Australia	Progress	m:		.00
Latitude : 38d 15' 16" South	Drilling Hours	:		.00
Longitude : 147d 48' 25" East	ROP	m/hr:		
Water Depth: 51.23 m	Percentage NPT	:		3.4
RKB Height : 25.00 m	Depth Reference:			Rig Floor (RKB)
Ground Elev: .00 m				
Phone : 61 428 308 600				

Superintendent : F.W. Kratzer
Engineers : A. McGregor
C.P. Meakin
Formation Desc :
Deepest Casing Run: 13.375 inches at 849.100 MD, 849.100 TVD
Next Casing : 9.625 inches at 1905.000 meters MD
Leakoff Test : 14.70 ppg

Current: Running Modular Dynamic Tester
Planned: Run MDT tool. Take 32 pressures and six samples

Start	Elpsd	End MD		Description
05:00	1.50	1905.00	TRIP	Run string in hole -- Make up TDS wash last stand to bottom. 6m of fill. Rotate and reciprocate drill string whilst circulating hole clean. Circulated 2x B/up. Large amount of Coal across shakers on bottoms up. Circulated total of 20221 stks, (2.5x Bottoms up.) until shakers clean. Short trip gas 0.18%
06:30	.75	1905.00	TRIP	Pull string out of hole -- Flow check well. Ok. POOH 5x stands to 1751m, Hole good. No Overpull. pump slug.
07:15	4.75	1905.00	TRIP	Pull string out of hole -- Continue to POOH with 12¬" BHA from 1751m to MWD/LWD tools.
12:00	1.00	1905.00	TRIP	Break and lay down string, BHA or tools -- Lay down MWD and compensated dual resistivity tool (non-functioning).
13:00	7.75	1905.00	LOG	Rig up Schlumberger wireline. Run Dual Axis Density-PEX-HALS-LEHQT log. Loggers TD 1 909.5 m. Bottom hole temperature 177øF 10« hours after circulating.
20:45	7.25	1905.00	LOG	Run FMI-DSI-HNGS-GR-LEHQT log. Loggers TD 1909.5 m.
04:00	1.00	1905.00	LOG	Run MDT-GR-LEHQT tool. Hole took 13 barrels of mud in last 14« hours.
Total	24.00			

================================== REMARKS ==================================

Recorded data recovered from Anadrill compensated dual resistivity tool.
Boats:-
Pacific Conqueror:- Standby at Barry Beach Marine Terminal
Pacific Sentinel :- Standby at Ocean Bounty

913711 352

INSPECTIONS, DRILLS, AND CITATIONS

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		31-Jul-2002
BOP Pressure Test	No		31-Jul-2002
Fire Drill	Yes		29-Jul-2002
Abandon Ship Drill	Yes		29-Jul-2002
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	No	0	04-Aug-2002
BOP System Inspection (Minicheck)	Yes	2	04-Aug-2002

PERSONNEL

Personnel : Roy Gilbert, Nguyen Trang, Nigel Smith
Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.
Total Head Count: 92
Total Hours : 1104.00

HEAD COUNTS

Contractor	58	ExxonMobil	8
Contractor Short Service (SSE)	0	Service Company	26

MANAGEMENT SUMMARY

Circulate hole clean. POOH laying down LWD/MWD tools. Run Schlumberger wireline logs. Run PEX-HALS-LDT, FMI-HNGS, and MDT.

COST DATA (Australian Dollar)

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	298,441	0	298,441	378
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	10,365,401	334,761	10,700,162	319,868
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	10,365,401	334,761	10,700,162	319,868

MUD REPORT

Time	01:30	Flowline Temp	.0 deg C	% Solids	8.2
Mud Type	WBM	Filtrate	3.3 cc	% LGS	2.0
Sample From	Pit	Filter Cake	1.0 32nd"	% Sand	.10
		HTHP Temp	121.0 deg C	% Water	91.8
MD	1905.00 meters	Filtrate	10.6 cc	% Oil	.0
Density	9.85 ppg				
Viscosity	68 sec	Elec Stab	0 volts	Ca++	180
PV	20.0 cp	MBT	4.5 lb/bbl	Cl-	37000
YP	35.0 phsf	Excess Lime	.06 lb/bbl	CaCl2	0
Gels	10./ 13. phsf			pH	9.7
		Circ Volume	1180.7 barrel	Pf/Mf	.1/ .3
		Vol Hole Dr	.0 barrel	Pm	.3

Rhe'try at 49.0 deg: 600/75 300/55 200/48 100/36 60/0 30/0 6/12 3/9
Replaced damaged shaker screens with previously used screens. Commenced preparing 10.5 ppg hi-vis pill for spotting in open hole during P & A operations.

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	0	0	2115	Fuel	9500	0	394500
Cement	0	0	2195	Gel	0	0	772
Drill Water	0	0	739000				

MUD ADDITIVES

Function	Name	Unit	Size	Amount
ALKALINITY (PH)	Caustic Potash	KGS	20	3
CORROSION INHIBITOR	BARACOR 129	BKT	25	2

BIT RECORD

Bit/Run Numbers	Size	Cd	Mfg	Type	Depth In	Length	Rotary Hours	Lng/Hour Today	Lng/Hour Cum	Grade T	Grade B	Grade G	Cost /Lng
3 1	12.250	BT	RRB	EHP51H	1579.00	.0	.00	.00	.00	3-4	E	2	-1

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	98
2	.1018	0
3	.1018	97

Nozzle Sizes 32nd": 18.0 18.0 18.0 / .0 .0 .0 / .0 .0

Total Flow Area	.7455 in2
Nozzle Velocity	109.36 m/sec
Hole Diameter	12.250 inches
Bit Pressure Drop	1128 psi
	36 % of SPP
Impact Force	1521 lbf
Hydraulic HP	4.658 hp/in2

Annular Velocities ft/min

DC (Max)	249.
DP (Min)	158.
(Min OH)	163.
Riser (Min)	******

Pump Rate	195 str/min
Flow Rate	833.74 gpm
Pressure	3150 psi

SURVEYS

MD	Angle	Azimuth	TVD	Vert Sec	N+/S-	E+/W-	Dogleg
1754.650	.83	200.48	1754.559	-12.022	- 12.022	- 8.121	.161
1834.520	.89	216.64	1834.420	-13.062	- 13.062	- 8.693	.093
1869.060	.98	215.87	1868.955	-13.516	- 13.516	- 9.026	.079

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	30	200	1895.000
2	40	275	1895.000
3	50	375	1895.000

Burst (70%)	2495 psi
Formation Strength	14.70 ppg
Kick Tolerance	2.00 ppg
Pore Pressure	8.60 ppg
MASP	710 psi
Background Gas	.0
Connection Gas	.0
Trip Gas	.2

Density	9.80 ppg
ECD	9.99 ppg
at	1905.000 meters
with bit at	1905.000 meters

WEATHER REPORT

	23:59	Max	
Bar Pressure	1024	1024	mm Hg
Heave	.30	.40	meters
Pitch	.30	.40	degree
Roll	.30	.60	degree
Swell Height	1.80	2.40	meters
Period	12	12	second
Direction	240	240	degree
Visibility	14.0	16.0	km

	23:59	Max	
Wind Speed	8.0	32.0	knot
Direction	235	250	degree
Wave Height	.90	1.20	meters
Period	2	3	second
Direction	235	250	degree
Air Temperature	12.0	13.0	deg C
Sea Temperature	14.0	14.0	deg C
Cloud Cover	7	8	

ANCHOR TENSIONS

Anchor	Tension at 23:59	24-Hr Maximum
1	366	0
2	264	0
3	224	0
4	215	0
5	261	0
6	300	0
7	382	0
8	250	0

RISER DATA

Riser Tension: 216 Flex Joint Rotation: .5 Hole Position, Offset: .50
Angle : .5 Angle : 0

================================ DRILL STRING ================================

Date Run:	1-Aug-02	Date Pulled:	4-Aug-02	Length of BHA :	460.280
Time Run:	21:30	Time Pulled:	12:00	BHA Weight in Air :	135.2
Depth In:	1579.000	Depth Out :	1905.000	Above Jars:	40.0
				Below Jars:	75.0
				In Mud :	115.0

12¬ EHP51HKPRDH bit, NB stab, 8" pony, stab, dc, stab, CDR, MWD, 13 x dc, xo, HWDP, jars, HWDP

Tp	OD	ID	Grd	Connections Size	Type	Nom Wt/Len	Stab Blade OD In	OD Out	Length To Ctr	Bend	Section Length
DP	5.000	4.276	S135	4.500	IF	19.5					1443.621
HW	5.000	3.125	????	4.500	IF	50.0					274.910
JR	6.250	2.750	????	4.500	IF	.0					9.810
HW	5.000	3.125	????	4.500	IF	50.0					17.500
XO	8.250	2.687	????	4.500	IF	.0					1.100
DC	8.250	2.875	????	6.625	REG	147.0					122.330
MW	8.250	4.250	????	6.625	REG	.0	.000	.000	.000		8.530
LW	9.000	5.875	????	6.625	REG	.0					8.030
ST	12.250	2.750	????	6.625	REG	.0	8.062	12.250	1.110		2.350
DC	8.250	2.750	????	6.625	REG	147.0					9.420
ST	12.250	2.750	????	6.625	REG	.0	8.000	12.250	1.110		2.340
DC	8.000	2.750	????	6.625	REG	.0					3.250
ST	12.250	2.500	????	6.625	REG	.0	7.938	12.250	.470		1.470
BT	12.250	3.000	????	6.625	REG	.0					.340

============================= DAILY DRILL STRING =============================

		-------- Weights --------		--- Torques ---		Cumulative Time On	
WOB	0	Pick-up	0	Off-TD	.0	BHA	99.25
RPM	0	Slack-off	0	On-TD	.0	Shock Sub	.00
		Off-TD, Rotating	0			Jars	97.25

================================== CASING ==================================

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990
6	20.000	X56	203.000	H 4	1	72.180	83.380
7	13.375	L80	68.000	WELD	1	83.380	84.940
8	13.375	K55	68.000	BUTT	63	84.940	849.150

*** End 05-Aug-2002 report for BEARDIE.1 Run 14-Nov-2002 18:15 Central Time

```
Drilling                    DETAILED DAILY REPORT                  06-Aug-2002
                                  Beardie-1

DRS Well ID: BEARDIE.1                      AFE L0501B003      Planned | Actual
Units       : Mixed Oilfield                MD              m: 1905.00 | 1905.00
Office      : Australia SE                  TVD             m: 1905.00 | 1905.00
Client      : ExxonMobil Development        Days                       |
Drill Team  : Australia Offshore             - if Dry        :    20.5 |
                                             - if Suspended:        .0 |
Budget Cat  : WILDCAT--PRODUCTIVE AND DRY HO - to Complete  :    20.5 |
Contractor  : DIAMOND                        - Susp + Comp  :    20.5 |    12.5
Rig Name    : Ocean Bounty                   - Ahead/Behind:           |     1.0
Operator    : ExxonMobil                     - from Spud    :          |    10.0
Field       : Gippsland Basin               Spud Date      :       26-Jul-2002
Country     : Australia                     Progress       m:              .00
Latitude    :  38d 15' 16" South            Drilling Hours :              .00
Longitude   : 147d 48' 25" East             ROP         m/hr:
Water Depth:   51.23 m                      Percentage NPT :               3.2
RKB Height :   25.00 m                      Depth Reference:   Rig Floor (RKB)
Ground Elev:     .00 m
Phone       : 61 428 308 600

Superintendent    : F.W. Kratzer
Engineers         : A. McGregor
                    C.P. Meakin
Formation Desc    :
Deepest Casing Run: 13.375 inches at 849.100 MD, 849.100 TVD
Leakoff Test      : 14.70 ppg

Current: Laying down velocity survey tool
Planned: Run CST-GR4 sidewall cores, 60 shots

Start Elpsd  End MD                      Description
----- ----- -------- ----------------------------------------------------------
05:00 10.25  1905.00 LOG  Run MDT-GR-LEHQT tool. Take 32 pre-tests - normal
                          formation pressure measured at all depths. At 1,689 m,
                          while attempting to take first sample, probe seal
                          failed. Reset tool and probe plugged. Reset seal;
                          probe still plugged. Disengage and POOH (abort MDT
                          program).
                          Temperature 85.5øC at 1,759 m 30¬ hours after last
                          circulation.
15:15 13.75  1905.00 LOG  Run Dual CSAT-VSP (sondes 15 meters apart). Tag bottom
                          at 1909.5 m. Shoot 62 levels x 2 tools.
                          Hole took 10 3/4 barrels in last 14 3/4 hours.
Total 24.00
================================== REMARKS ==================================
Boats:-
Pacific Conqueror:- Standby at Ocean Bounty
Pacific Sentinel :- En route to Barry Beach Marine Terminal
==================== INSPECTIONS, DRILLS, AND CITATIONS ====================
                                       Occurred?  Count  Most Recently Reported
BOP Control Function Test (BCFT)          No                  31-Jul-2002
BOP Pressure Test                         No                  31-Jul-2002
Fire Drill                                No                  05-Aug-2002
Abandon Ship Drill                        No                  05-Aug-2002
Operations Superintendent Inspection      No
Regulatory Agency Citation                No
BOP Drill (Pit or Trip Drill)             No          0       04-Aug-2002
BOP System Inspection (Minicheck)         Yes         2       05-Aug-2002
```

PERSONNEL

Personnel : R Gilbert, T Nguyen, Nigel Smith,Rudy Furchtenicht
Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.
Total Head Count: 93
Total Hours : 1116.00

HEAD COUNTS

Contractor	58	ExxonMobil	9
Contractor Short Service (SSE)	0	Service Company	26

MANAGEMENT SUMMARY

Run Modular Dynamic Tester. Take 32 formation pressure measurements. Probe plugged while taking first sample. Run velocity survey.

COST DATA (Australian Dollar)

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	366,765	0	366,765	3,836
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	10,732,166	334,761	11,066,927	323,704
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	10,732,166	334,761	11,066,927	323,704

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	0	0	2115	Fuel	7200	0	387300
Cement	0	0	2195	Gel	0	0	772
Drill Water	38000	0	701000				

MUD ADDITIVES

Function	Name	Unit	Size	Amount
VISCOSIFIER	Drillzan D	KGS	25	3
WEIGHTING MATERIAL	Barite	KGS	25	220

BIT RECORD

No bit report was entered for this date.

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	0
2	.1018	0
3	.1018	0

No hydraulics calculations were performed because no bit report was entered.

Pump Rate 0 str/min
Flow Rate .00 gpm
Pressure 0 psi

SURVEYS

MD	Angle	Azimuth	TVD	Vert Sec	N+/S-	E+/W-	Dogleg
1754.650	.83	200.48	1754.559	-12.022	- 12.022	- 8.121	.161
1834.520	.89	216.64	1834.420	-13.062	- 13.062	- 8.693	.093
1869.060	.98	215.87	1868.955	-13.516	- 13.516	- 9.026	.079

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	30	200	1895.000
2	40	275	1895.000
3	50	375	1895.000

Burst (70%)	2495 psi
Formation Strength	14.70 ppg
Kick Tolerance	2.00 ppg
Pore Pressure	8.60 ppg
MASP	710 psi
Background Gas	.0
Connection Gas	.0
Trip Gas	.0

Density 9.80 ppg
ECD ******* ppg
at 1905.000 meters
with bit at .000 meters

WEATHER REPORT

	23:59	Max			23:59	Max	
Bar Pressure :	1017	1029	mm Hg	Wind Speed :	12.0	14.0	knot
Heave :	.20	.20	meters	Direction :	45	60	degree
Pitch :	.20	.30	degree	Wave Height :	.30	.60	meters
Roll :	.20	.30	degree	Period :	3	3	second
Swell Height :	.90	.90	meters	Direction :	45	60	degree
Period :	8	10	second	Air Temperature:	12.0	13.0	deg C
Direction:	135	135	degree	Sea Temperature:	14.0	14.0	deg C
Visibility :	12.0	14.0	km	Cloud Cover :	7	8	

ANCHOR TENSIONS

Anchor	Tension at 23:59	24-Hr Maximum
1	352	0
2	250	0
3	224	0
4	206	0
5	266	0
6	319	0
7	385	0
8	252	0

RISER DATA

Riser Tension: 216 Flex Joint Rotation: .5 Hole Position, Offset: .50
Angle : .5 Angle : 0

DAILY DRILL STRING

		Weights		Torques		Cumulative Time On	
WOB	0	Pick-up	0	Off-TD	.0	BHA	.00
RPM	0	Slack-off	0	On-TD	.0	Shock Sub	.00
		Off-TD, Rotating	0			Jars	.00

CASING

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990
6	20.000	X56	203.000	H 4	1	72.180	83.380
7	13.375	L80	68.000	WELD	1	83.380	84.940
8	13.375	K55	68.000	BUTT	63	84.940	849.150

*** End 06-Aug-2002 report for BEARDIE.1 Run 14-Nov-2002 18:15 Central Time

913711 358

Drilling DETAILED DAILY REPORT 07-Aug-2002
Beardie-1

DRS Well ID: BEARDIE.1	AFE L0501B003		Planned	Actual
Units : Mixed Oilfield	MD	m:	1905.00	1905.00
Office : Australia SE	TVD	m:	1905.00	1905.00
Client : ExxonMobil Development	Days			
Drill Team : Australia Offshore	- if Dry	:	20.5	
	- if Suspended	:	.0	
Budget Cat : WILDCAT--PRODUCTIVE AND DRY HO	- to Complete	:	20.5	
Contractor : DIAMOND	- Susp + Comp	:	20.5	13.5
Rig Name : Ocean Bounty	- Ahead/Behind	:		1.0
Operator : ExxonMobil	- from Spud	:		11.0
Field : Gippsland Basin	Spud Date	:		26-Jul-2002
Country : Australia	Progress	m:		.00
Latitude : 38d 15' 16" South	Drilling Hours	:		.00
Longitude : 147d 48' 25" East	ROP	m/hr:		
Water Depth: 51.23 m	Percentage NPT	:		3.4
RKB Height : 25.00 m	Depth Reference	:		Rig Floor (RKB)
Ground Elev: .00 m				
Phone : 61 428 308 600				

Superintendent : F.W. Kratzer
Engineers : A. McGregor
C.P. Meakin
Formation Desc :
Deepest Casing Run: 13.375 inches at 849.100 MD, 849.100 TVD
Leakoff Test : 14.70 ppg

Current: Setting balanced cement plug from 920 m to 785 m
Planned: Lay down drill pipe. Set cement plugs in well.

Start	Elpsd	End MD		Description
05:00	5.50	1905.00	LOG	Run CST-GR. Loggers depth 1909.5 m. Take sidewall cores from 1887 m to 1070 m. Fired 60 shots, recovered 45, 15 misfires, 0 lost in hole.
10:30	2.50	1905.00	LOG NPT	Run DSI-GR log from casing shoe to sea floor. See Event 8 (FE)
13:00	2.00	1905.00	TRIP	Break and lay down string, BHA or tools -- Lay down 12¬" assembly, jars, stabilizers, and bit.
15:00	2.00	1905.00	TRIP	Pick up or make up string, BHA, or tools -- Make up side entry sub and TIW valve on stand and rack back. Pick up blanked mule shoe cement diverter tool and 20 joints of 3«" drill pipe and RIH. Total length of 3«" drill pipe is 195.07 m.
17:00	2.00	1905.00	TRIP	Run string in hole -- Run 3«" in hole on 5" drill pipe to 1,560 m.
19:00	1.25	1905.00	CIRC	Circulate bottoms up. Spot a 54 barrel 10.5 ppg high vis pill in hole.
20:15	.25	1905.00	TRIP	Pull string out of hole -- TOH to 1,460 m
20:30	1.00	1905.00	CMT	Set a balanced cement plug from 1,460 m to 1,325 m with 335 sacks Class G cement mixed with 0.1 gpb SCR-100L, 2 gpb Halad 413 L, and 0.025 gpb NF-5 in fresh water to 15.8 ppg.
21:30	.50	1905.00	TRIP	Pull string out of hole -- TOH to 1,325 m. All stands pulled wet with no backflow.
22:00	1.00	1905.00	CIRC	Circulate bottoms up while rotating cementing string. Flush down choke and kill lines.
23:00	.75	1905.00	CMT	Set a balanced cement plug from 1,325 m to 1,190 m with 335 sacks Class G cement mixed with 0.1 gpb SCR-100L, 2 gpb Halad 413 L and 0.025 gpb NF-5 in fresh water to 15.8 ppg.
23:45	.25	1905.00	TRIP	Pull string out of hole -- TOH to 1,190 m. All stands pulled wet with no backflow.

00:00	.75	1905.00	CIRC	Circulate bottoms up while rotating cementing string. Flush down choke and kill lines.
00:45	1.00	1905.00	CMT	Set a balanced cement plug from 1,190 m to 1,055 m with 335 sacks Class G cement mixed with 2 gpb Halad 413 L and 0.025 gpb NF-5 in fresh water to 15.8 ppg.
01:45	.50	1905.00	TRIP	Pull string out of hole -- TOH to 1,055 m. All stands pulled wet with no backflow.
02:15	.50	1905.00	CIRC	Circulate bottoms up while rotating cementing string. Flush down choke and kill lines.
02:45	1.00	1905.00	CMT	Set a balanced cement plug from 1,055 m to 920 m with 335 sacks Class G cement mixed with 2 gpb Halad 413 L and 0.025 gpb NF-5 in fresh water to 15.8 ppg.
03:45	.25	1905.00	TRIP	Pull string out of hole -- TOH to 920 m. All stands pulled wet with no backflow.
04:00	.50	1905.00	CIRC	Circulate bottoms up while rotating cementing string. Flush down choke and kill lines.
04:30	.50	1905.00	CMT	Setting a balanced plug from 920 m to 785 m with 407 sacks Class G cement mixed with 0.025 gpb NF-5 in sea water to 15.9 ppg.

Total 24.00

======================== PROBLEM EVENTS AND MILESTONES ========================

Event: 8 NPT: Yes Hours: 1.50 Responsible Party: Schlumberger
Start: 6-Aug-02 10:30 FE Logging problem
End : 6-Aug-02 12:00 Re run DSI-GR log from Casing shoe to seafloor, due to Schlumberger engineer failing to save correct log. (Saved Picture file not Data File

==================================== REMARKS ====================================

Held General Safety Meeting for all crews.
Boats:-
Pacific Conqueror:- En route to Barry Beach
Pacific Sentinel :- Standby at Ocean Bounty

===================== INSPECTIONS, DRILLS, AND CITATIONS =====================

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		31-Jul-2002
BOP Pressure Test	No		31-Jul-2002
Fire Drill	No		05-Aug-2002
Abandon Ship Drill	No		05-Aug-2002
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	No	0	04-Aug-2002
BOP System Inspection (Minicheck)	Yes	2	06-Aug-2002

=================================== PERSONNEL ===================================

Personnel : Roy Gilbert, Rudy Furchtenicht
Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.
Total Head Count: 84
Total Hours : 1008.00

============================== HEAD COUNTS ==============================

Contractor	59	ExxonMobil	7
Contractor Short Service (SSE)	0	Service Company	18

========================== MANAGEMENT SUMMARY ==========================

Take sidewall cores. Run DSI log. Set balanced cement plugs from 1,460 m to 920 m.

====================== COST DATA (Australian Dollar) ======================

	AFE		Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	801,512	0	801,512	2,820
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	11,533,678	334,761	11,868,439	326,524
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	11,533,678	334,761	11,868,439	326,524

MUD REPORT

Time	14:00	Flowline Temp	.0 deg C	% Solids	8.2
Mud Type	WBM	Filtrate	3.5 cc	% LGS	2.0
Sample From	Pit	Filter Cake	1.0 32nd"	% Sand	.50
		HTHP Temp	.0 deg C	% Water	91.8
MD	1905.00 meters	Filtrate	.0 cc	% Oil	.0
Density	9.85 ppg				
Viscosity	68 sec	Elec Stab	0 volts	Ca++	180
PV	20.0 cp	MBT	5.0 lb/bbl	Cl-	35000
YP	35.0 phsf	Excess Lime	.05 lb/bbl	CaCl2	0
Gels	10./ 13. phsf			pH	9.0
		Circ Volume	892.7 barrel	Pf/Mf	.1/ .3
		Vol Hole Dr	.0 barrel	Pm	.3

Rhe'try at 49.0 deg: 600/75 300/55 200/48 100/35 60/0 30/0 6/9 3/7

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	0	0	2115	Fuel	7500	0	379800
Cement	0	0	2195	Gel	0	0	772
Drill Water	119000	0	582000				

MUD ADDITIVES

Function	Name	Unit	Size	Amount
ALKALINITY (PH)	Caustic Potash	KGS	20	4
BACTERICIDE	Baracide	BKT	25	2
CORROSION INHIBITOR	BARACOR 129	BKT	25	3
SHALE CONTROL	PHPA	KGS	25	5
TEMPERATURE STAB'TY	Calcium Chlorid	KGS	25	3

BIT RECORD

No bit report was entered for this date.

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	0
2	.1018	0
3	.1018	0

No hydraulics calculations were performed because no bit report was entered.

Pump Rate 0 str/min
Flow Rate .00 gpm
Pressure 0 psi

SURVEYS

MD	Angle	Azimuth	TVD	Vert Sec	N+/S-	E+/W-	Dogleg
1754.650	.83	200.48	1754.559	-12.022	- 12.022	- 8.121	.161
1834.520	.89	216.64	1834.420	-13.062	- 13.062	- 8.693	.093
1869.060	.98	215.87	1868.955	-13.516	- 13.516	- 9.026	.079

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	30	200	1895.000
2	40	275	1895.000
3	50	375	1895.000

Burst (70%)	2495 psi
Formation Strength	14.70 ppg
Kick Tolerance	2.00 ppg
Pore Pressure	8.60 ppg
MASP	710 psi
Background Gas	.0
Connection Gas	.0
Trip Gas	.0

Density 9.80 ppg
ECD ******* ppg
at 1905.000 meters
with bit at .000 meters

WEATHER REPORT

	23:59	Max			23:59	Max	
Bar Pressure	1007	1012	mm Hg	Wind Speed	30.0	40.0	knot
Heave	.60	.90	meters	Direction	260	270	degree
Pitch	.30	.30	degree	Wave Height	1.80	2.40	meters
Roll	.50	.50	degree	Period	5	5	second
Swell Height	2.40	3.00	meters	Direction	260	270	degree
Period	10	10	second	Air Temperature	12.0	15.0	deg C
Direction	300	300	degree	Sea Temperature	14.0	14.0	deg C
Visibility	12.0	14.0	km	Cloud Cover	7	8	

ANCHOR TENSIONS

Anchor	Tension at 23:59	24-Hr Maximum
1	352	0
2	250	0
3	224	0
4	206	0
5	266	0
6	319	0
7	385	0
8	252	0

RISER DATA

Riser Tension: 216 Flex Joint Rotation: .5 Hole Position, Offset: .50
Angle : .5 Angle : 0

DAILY DRILL STRING

		Weights		Torques		Cumulative Time On	
WOB	0	Pick-up	0	Off-TD	.0	BHA	.00
RPM	0	Slack-off	0	On-TD	.0	Shock Sub	.00
		Off-TD, Rotating	0			Jars	.00

CASING

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990
6	20.000	X56	203.000	H 4	1	72.180	83.380
7	13.375	L80	68.000	WELD	1	83.380	84.940
8	13.375	K55	68.000	BUTT	63	84.940	849.150

CEMENT INFORMATION

Start Date :	6-Aug-02	Reciprocation?:		Number of Plugs :	0
Time :	20:30	Rotation? :		Did Plug Bump? :	
Finish Date:	6-Aug-02	% Returns :	0	Did Float(s) Hold?:	
Time	21:30	Top of Cement :	1325.00	Casing Size :	13.375

	Density	Yield	Amt	Volume	Rate	Composition
Pref	8.30			30.0	9.4	Fresh water
Flsh	.00			.0	.0	
Lead	15.80	1.2	335	69.2	5.4	
Tail	.00	.0	0	.0	.0	
Post	8.30			2.0	8.8	Fresh water
Disp	.00			.0	.0	

	Class	Additives
Lead	G	Class G cement w/ .1 gpb SCR-100L, 2 gpb Halad 413L, .025 gpb NF 5 in fresh water
Tail		

Balanced cement plug set from 1460 m to 1325 m in 12¬" open hole

============================== CEMENT INFORMATION ==============================

Start Date :	6-Aug-02	Reciprocation?:		Number of Plugs :	0
Time :	23:00	Rotation? :		Did Plug Bump? :	
Finish Date:	6-Aug-02	% Returns :	0	Did Float(s) Hold?:	
Time	23:45	Top of Cement :	1190.00	Casing Size :	13.375

	Density	Yield	Amt	Volume	Rate	Composition
Pref	8.34			30.0	5.8	Drill water
Flsh	.00			.0	.0	
Lead	15.80	1.2	335	69.2	4.7	
Tail	.00	.0	0	.0	.0	
Post	8.34			2.0	9.7	Drillwater
Disp	.00			.0	.0	

	Class	Additives
Lead	G	Class G cement w/ .1 gpb SCR-100L, 2 gpb Halad 413L, .025 gpb NF 5 in fresh water
Tail		

Balanced cement plug set from 1325 m to 1190 m in 12¬" open hole

============================== CEMENT INFORMATION ==============================

Start Date :	7-Aug-02	Reciprocation?:		Number of Plugs :	0
Time :	00:45	Rotation? :		Did Plug Bump? :	
Finish Date:	7-Aug-02	% Returns :	0	Did Float(s) Hold?:	
Time	01:45	Top of Cement :	1055.00	Casing Size :	13.375

	Density	Yield	Amt	Volume	Rate	Composition
Pref	8.34			30.0	.0	Drill water
Flsh	.00			.0	.0	
Lead	15.80	1.2	335	69.2	.0	
Tail	.00	.0	0	.0	.0	
Post	8.34			2.0	.0	Drill water
Disp	.00			.0	.0	

	Class	Additives
Lead	G	Class G cement w/ 2 gpb Halad 413L, .025 gpb NF 5 in fresh water
Tail		

Balanced cement plug set from 1,190 m to 1,055 m in 12¬" open hole.

============================== CEMENT INFORMATION ==============================

Start Date :	7-Aug-02	Reciprocation?:		Number of Plugs :	0
Time :	02:45	Rotation? :		Did Plug Bump? :	
Finish Date:	7-Aug-02	% Returns :	0	Did Float(s) Hold?:	
Time	03:45	Top of Cement :	920.00	Casing Size :	13.375

	Density	Yield	Amt	Volume	Rate	Composition
Pref	8.34			30.0	8.8	Drill water
Flsh	.00			.0	.0	
Lead	15.80	1.2	335	69.2	5.2	
Tail	.00	.0	0	.0	.0	
Post	8.34			2.0	6.0	Drill water
Disp	.00			.0	.0	

	Class	Additives
Lead	G	Class G cement w/ 2 gpb Halad 413L, .025 gpb NF 5 in fresh water
Tail		

Balanced cement plug set from 1,055 m to 920 m in 12¬" open hole.

================================ CEMENT INFORMATION ================================

Start Date :	7-Aug-02	Reciprocation?:		Number of Plugs :	0
Time :	04:45	Rotation? :		Did Plug Bump? :	
Finish Date:	7-Aug-02	% Returns :	0	Did Float(s) Hold?:	
Time	05:30	Top of Cement :	785.00	Casing Size :	13.375

	Density	Yield	Amt	Volume	Rate	Composition
Pref	8.50			35.0	5.0	Sea water
Flsh	.00			.0	.0	
Lead	15.90	1.2	407	84.0	5.0	
Tail	.00	.0	0	.0	.0	
Post	8.50			3.0	7.0	Sea water
Disp	.00			.0	.0	

	Class	Additives
Lead	G	Class G cement w/ ,025 gpb NF 5 mixed in seawater
Tail		

Balanced cement plug set from 920 m to 785 m in 12¬" open hole, across casing shoe, and into casing

*** End 07-Aug-2002 report for BEARDIE.1 Run 14-Nov-2002 18:15 Central Time

Drilling DETAILED DAILY REPORT 08-Aug-2002

Beardie-1

DRS Well ID: BEARDIE.1	AFE L0501B003		Planned	Actual
Units : Mixed Oilfield	MD	m:	1905.00	1905.00
Office : Australia SE	TVD	m:	1905.00	1905.00
Client : ExxonMobil Development	Days			
Drill Team : Australia Offshore	- if Dry	:	20.5	
	- if Suspended	:	.0	
Budget Cat : WILDCAT--PRODUCTIVE AND DRY HO	- to Complete	:	20.5	
Contractor : DIAMOND	- Susp + Comp	:	20.5	14.5
Rig Name : Ocean Bounty	- Ahead/Behind	:		1.0
Operator : ExxonMobil	- from Spud	:		12.0
Field : Gippsland Basin	Spud Date	:		26-Jul-2002
Country : Australia	Progress	m:		.00
Latitude : 38d 15' 16" South	Drilling Hours	:		.00
Longitude : 147d 48' 25" East	ROP	m/hr:		
Water Depth: 51.23 m	Percentage NPT	:		3.4
RKB Height : 25.00 m	Depth Reference	:		Rig Floor (RKB)
Ground Elev: .00 m				
Phone : 61 428 308 600				

Superintendent : F.W. Kratzer
Engineers : A. McGregor
C.P. Meakin
Formation Desc :
Deepest Casing Run: 13.375 inches at 849.100 MD, 849.100 TVD
Leakoff Test : 14.70 ppg

Current: Prepare to pull riser.
Planned: Pull BOP stack. Cut casing and recover wellheads.

Start	Elpsd	End MD		Description
05:00	.75	1905.00	CMT	Set balanced plug from 920 m to 785 m with 407 sacks Class G cement mixed with 0.025 gpb NF-5 in sea water to 15.9 ppg.
05:45	.50	1905.00	TRIP	Pull string out of hole -- TOH to 650 m. All stands pulled wet with no back flow.
06:15	.50	1905.00	CIRC	Circulate bottoms up while rotating cementing string. Flush down choke and kill lines.
06:45	3.75	1905.00	TRIP	Break and lay down string, BHA or tools -- TOH from 620 m. Lay out 5" D/pipe sideways. Lay down hangoff tool.
10:30	1.50	1905.00	TRIP	Run string in hole -- RIH to tag top of cement at 768 m, with 15 Kips.
12:00	.50	1905.00	CIRC	Displace hole with 330 bbls inhibited mud
12:30	2.50	1905.00	TRIP	Break and lay down string, BHA or tools -- POOH laying down 26 stands of drill pipe
15:00	1.00	1905.00	TRIP	Set or release downhole equipment -- RIH with wear bushing retrieval spear. Could not engage nominal seat protector.
			NPT	See Event 7 (TBLR)
16:00	1.75	1905.00	TRIP	Set or release downhole equipment -- Run EZSV bridge plug on drill pipe to 160 m. Set bridge plug at 160 m. Set 5 kips down on bridge plug to confirm set point. Set with 35 turns and 50 kips to pull out.
17:45	.25	1905.00	CIRC	Pump 120 bbls seawater and test cement line.
18:00	.50	1905.00	CMT	Set a balanced cement plug from 160 m to 100 m with 145 sacks Class G cement mixed with 1% CaCl2 and 0.025 gpb NF-5 in sea water to 15.9 ppg.
18:30	.25	1905.00	TRIP	Pull string out of hole -- Pull out of hole to 92 meters.
18:45	.75	1905.00	CIRC	Circulate at 92 meters with seawater. No cement in returns. Flush choke and kill lines and function rams.

19:30	.25	1905.00	CMT	Test cement plug and casing to 1,000 psi for five minutes.
19:45	4.50	1905.00	TRIP	Break and lay down string, BHA or tools -- Lay down 8" drill collars, drill pipe, HeviWate, side entry sub, and TIW valve. Dump mud.
00:15	.50	1905.00	TRIP	Run string in hole -- Run wash tool to tag top of cement plug at 105 meters, with 15 kips.
00:45	1.00	1905.00	CIRC	Wash across nominal seat protector and BOP stack. Lay out wash tool.
01:45	1.00	1905.00	TRIP	Set or release downhole equipment -- RIH with wear bushing running and retrieval spear with nominal seat protector slips. Retrieve nominal seat protector.
02:45	.75	1905.00	BOP	Remove subsea TV from moonpool. Set riser spider on rotary.
03:30	1.50	1905.00	BOP	Lay out diverter housing. Making up riser landing joint.

Total 24.00

======================== PROBLEM EVENTS AND MILESTONES ========================

Event: 7 NPT: Yes Hours: 1.00 Responsible Party: ABB VETCO
Start: 7-Aug-02 15:00 TBLR Wellhead or tree problem
End : 7-Aug-02 16:00 Incorrect slips(size) fitted to Wear bushing retrieval tool.

=================================== REMARKS ===================================

Recovered current meter. Wire rope and shackles will be retained by Esso. Lawson and Treloar will retain four core cable. Current meter functioned entire period it was deployed. No damage to equipment. Nine to ten complete sets of data were collected daily during well. Currents recorded match with Barracouta. Final report will be sent to Chris Meakin.

Boats:-
Pacific Conqueror:- Standby at Ocean Bounty
Pacific Sentinel :- En route to Barry Beach

===================== INSPECTIONS, DRILLS, AND CITATIONS =====================

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		31-Jul-2002
BOP Pressure Test	No		31-Jul-2002
Fire Drill	No		05-Aug-2002
Abandon Ship Drill	No		05-Aug-2002
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	No	0	04-Aug-2002
BOP System Inspection (Minicheck)	Yes	2	07-Aug-2002

================================== PERSONNEL ==================================

Personnel : Gordon Jarritt, Rudy Furchtenicht
Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.
Total Head Count: 78
Total Hours : 936.00

================================= HEAD COUNTS =================================

Contractor	59	ExxonMobil	5
Contractor Short Service (SSE)	0	Service Company	14

============================ MANAGEMENT SUMMARY ============================

Complete setting balanced cement plugs and bridge plug in well. Tag and pressure test plugs. Lay down drill string. Pull nominal seat protector. Prepare to pull BOP stack.

====================== COST DATA (Australian Dollar) ======================

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	468,653	0	468,653	83,470
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	12,002,331	334,761	12,337,092	409,994
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	12,002,331	334,761	12,337,092	409,994

=============================== SOLIDS CONTROL ===============================

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	0	0	2115	Fuel	9700	0	370100
Cement	1995	0	200	Gel	0	0	772
Drill Water	132	0	581868				

MUD ADDITIVES

Function	Name	Unit	Size	Amount

BIT RECORD

No bit report was entered for this date.

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	0
2	.1018	0
3	.1018	0

No hydraulics calculations were performed because no bit report was entered.

Pump Rate 0 str/min
Flow Rate .00 gpm
Pressure 0 psi

SURVEYS

MD	Angle	Azimuth	TVD	Vert Sec	N+/S-	E+/W-	Dogleg
1754.650	.83	200.48	1754.559	-12.022	- 12.022	- 8.121	.161
1834.520	.89	216.64	1834.420	-13.062	- 13.062	- 8.693	.093
1869.060	.98	215.87	1868.955	-13.516	- 13.516	- 9.026	.079

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	0	0	.000
2	0	0	.000
3	0	0	.000

Burst (70%)	2495 psi
Formation Strength	14.70 ppg
Kick Tolerance	6.60 ppg
Pore Pressure	.00 ppg
MASP	2129 psi
Background Gas	.0
Connection Gas	.0
Trip Gas	.0

Density .00 ppg
ECD ******* ppg
at 1905.000 meters
with bit at .000 meters

WEATHER REPORT

	23:59	Max			23:59	Max	
Bar Pressure	1024	1024	mm Hg	Wind Speed	30.0	40.0	knot
Heave	.60	.60	meters	Direction	260	250	degree
Pitch	.50	.50	degree	Wave Height	1.80	2.40	meters
Roll	.50	.50	degree	Period	5	5	second
Swell Height	2.70	2.70	meters	Direction	260	260	degree
Period	12	12	second	Air Temperature	12.0	15.0	deg C
Direction	230	230	degree	Sea Temperature	14.0	14.0	deg C
Visibility	12.0	12.0	km	Cloud Cover	8	8	

ANCHOR TENSIONS

Anchor	Tension at 23:59	24-Hr Maximum
1	378	0
2	280	0
3	260	0
4	240	0
5	290	0
6	260	0
7	360	0
8	250	0

RISER DATA

Riser Tension: 216 Flex Joint Rotation: .5 Hole Position, Offset: .50
Angle : .5 Angle : 0

```
============================= DAILY DRILL STRING =============================
                  -------- Weights --------       --- Torques ---   Cumulative Time On
WOB       0       Pick-up                   0     Off-TD        .0  BHA              .00
RPM       0       Slack-off                 0     On-TD         .0  Shock Sub        .00
                  Off-TD, Rotating          0                       Jars             .00
==================================== CASING ====================================
  Section       O.D.      Grade    Wt/Lng     Thread    Joints      Top      Bottom
     1        30.000     X52     457.000     ST 2          1      72.960     86.790
     2        30.000     X52     310.000     ST 2          2      86.790    109.960
     3        30.000     X52     310.000     ST 2          1     109.960    114.140
     4        30.000     X56     129.000     WELD          1     114.140    115.240
     5        20.000     X56     129.000     WELD          1     115.240    121.990
     6        20.000     X56     203.000     H 4           1      72.180     83.380
     7        13.375     L80      68.000     WELD          1      83.380     84.940
     8        13.375     K55      68.000     BUTT         63      84.940    849.150
============================= CEMENT INFORMATION =============================
Start Date :  7-Aug-02    Reciprocation?:              Number of Plugs    :       0
      Time :     04:45    Rotation?     :              Did Plug Bump?     :
Finish Date:  7-Aug-02    % Returns     :         0    Did Float(s) Hold?:
       Time      05:30    Top of Cement :    785.00    Casing Size        :  13.375

      Density Yield   Amt  Volume   Rate                Composition
      ------- ------ ----- ------- ------ ---------------------------------------
Pref     8.50                 35.0    5.0 Sea water
Flsh      .00                   .0     .0
Lead    15.90    1.2   407    84.0    5.0
Tail      .00     .0     0      .0     .0
Post     8.50                  3.0    7.0 Sea water
Disp      .00                   .0     .0

              Class                       Additives
              ----- -------------------------------------------------------
     Lead       G     Class G cement w/ ,025 gpb NF 5 mixed in seawater
     Tail


Balanced cement plug set from 920 m to 785 m in 12¬" open hole, across casing
shoe, and into casing
============================= CEMENT INFORMATION =============================
Start Date :  7-Aug-02    Reciprocation?:              Number of Plugs    :       0
      Time :     18:15    Rotation?     :              Did Plug Bump?     :
Finish Date:  7-Aug-02    % Returns     :         0    Did Float(s) Hold?:
       Time      18:30    Top of Cement :    100.00    Casing Size        :  13.375

      Density Yield   Amt  Volume   Rate                Composition
      ------- ------ ----- ------- ------ ---------------------------------------
Pref     8.50                 20.0    6.2 Seawater
Flsh      .00                   .0     .0
Lead    15.90    1.2   145    31.0    5.2
Tail      .00     .0     0      .0     .0
Post     8.50                  5.5    7.4 Seawater
Disp      .00                   .0     .0

              Class                       Additives
              ----- -------------------------------------------------------
     Lead       G     Class G cement w/ 1% CaCl2 and ,025 gpb NF 5 mixed in
                      seawater
     Tail


Balanced cement plug set from 160 m to 100 m in 13 3/8" casing with bridge plug
at base (160 m)

*** End 08-Aug-2002 report for BEARDIE.1        Run 14-Nov-2002 18:16 Central Time
```

Drilling DETAILED DAILY REPORT 09-Aug-2002
Beardie-1

DRS Well ID: BEARDIE.1	AFE L0501B003		Planned	Actual
Units : Mixed Oilfield	MD	m:	1905.00	1905.00
Office : Australia SE	TVD	m:	1905.00	1905.00
Client : ExxonMobil Development	Days			
Drill Team : Australia Offshore	- if Dry	:	20.5	
	- if Suspended	:	.0	
Budget Cat : WILDCAT--PRODUCTIVE AND DRY HO	- to Complete	:	20.5	
Contractor : DIAMOND	- Susp + Comp	:	20.5	15.5
Rig Name : Ocean Bounty	- Ahead/Behind	:		1.0
Operator : ExxonMobil	- from Spud	:		13.0
Field : Gippsland Basin	Spud Date	:		26-Jul-2002
Country : Australia	Progress	m:		.00
Latitude : 38d 15' 16" South	Drilling Hours	:		.00
Longitude : 147d 48' 25" East	ROP	m/hr:		
Water Depth: 51.23 m	Percentage NPT	:		4.5
RKB Height : 25.00 m	Depth Reference	:		Rig Floor (RKB)
Ground Elev: .00 m				
Phone : 61 428 308 600				

Superintendent : F.W. Kratzer
Engineers : A. McGregor
C.P. Meakin
Formation Desc :
Deepest Casing Run: 13.375 inches at 849.100 MD, 849.100 TVD
Leakoff Test : 14.70 ppg

Current: Pulling casing cutter out of hole.
Planned: Pull 20"/30" housings and PGS. Retrieve anchors.

Start	Elpsd	End MD		Description
05:00	1.50	1905.00	BOP	Unlatch BOP wellhead connector. Rig down riser tensioner wire and choke and kill goosenecks. Lay out landing joint and slip joint.
06:30	1.25	1905.00	BOP	Pull riser and BOPs. Secure on beams.
07:45	2.75	1905.00	BOP	Rig down marine riser equipment.
10:30	1.50	1905.00	BOP	Split LMRP from BOPs and move to stump.
12:00	.50	1905.00	BOP	Set back BOPs on stump
12:30	2.75	1905.00	TRIP	Pick up or make up string, BHA, or tools -- Make up 12" A-1 casing cutter dressed with 19«" (2436 WM) knives on MOST tool. Assembly includes one 17¬" stabilizer above casing cutter and one 17¬" stabilizer below casing cutter. MOST tool dressed with Cameron hub dogs. Pressure sub set for 30 inch indication. Sting into 18¾" housing and set 6 kips weight on marine swivel.
15:15	.75	1905.00	TBLR	Cut 20 inch casing at 77.89 m w/ 100 rpm, 4,500 ft-lb torque, 127 gpm, SPP 900 psi. Indicates that 20 inch cut at 1600 hrs.
16:00	2.25	1905.00	TBLR	Continue to cut 20 inch and 30 inch casing. Pressure drop indicated knives at 30" sweep.
18:15	.75	1905.00	TBLR	Continue casing cutting at 100 rpm, 4,500 ft-lb torque. Increase flow rate to 159 gpm and then 304 gpm to maintain a SPP of 900/950 psi.
19:00	.75	1905.00	TBLR	Attempt to pull H4 wellhead housing, 30" housing, and PGS with MOST tool - no purchase on Vetco H4 profile with Cameron hub dogs.
19:45	.75	1905.00	TRIP	Pull string out of hole -- POOH with casing cutter and MOST tool and lay out on riser catwalk. Wear on knives indicate that knives opened to a 32 inch cut.
			NPT	See Event 9 (RIG)

20:30	1.00	1905.00	TRIP	Pick up or make up string, BHA, or tools -- Make up 18¾" cam actuated running tool on HeviWate with 5" dp stinger below. Sting into housing; ROV cut guide ropes. Make up running tool in housing.
			NPT	See Event 9 (RIG)
21:30	.75	1905.00	TBLR	Pull 65 kips compensated overpull on wellhead. Pull oscillating 265 kips overpull on wellhead with compensator locked. Pull 115 kips compensated overpull on wellhead. Circulate at 454 gpm, SPP 100 psi. No indication of movement.
			NPT	See Event 9 (RIG)
22:15	1.75	1905.00	TRIP	Pick up or make up string, BHA, or tools -- Release and pull out CART tool. RIH with same casing cutter and MOST tool assembly dressed with new 2436 knives.
			NPT	See Event 9 (RIG)
00:00	4.50	1905.00	TBLR	Casing cutter run # 2. Continue to cut casing at 77.89 meters. Cut casing with 90/110 RPM, 3,000/6,500 ft-lb torque, 72/154 gpm, SPP 650/1420 psi. Pull casing cutter above housing and examine with ROV - indicates smooth wear where knives contacting 20 inch.
04:30	.50	1905.00	TRIP	Pull string out of hole -- Pull casing cutter to rig floor and examine knives.
			NPT	See Event 10 (RIG)

Total 24.00

======================== PROBLEM EVENTS AND MILESTONES ========================

Event: 9 NPT: Yes Hours: 4.25 Responsible Party: Weatherford
Start: 8-Aug-02 19:45 RIG String or BHA failure
End : 9-Aug-02 00:00 Weatherford "MOST Tool" dressed with Cameron Locking dogs instead of Vetco H4 type dogs.

Event: 10 NPT: Yes Hours: .50 Responsible Party: Weatherford
Start: 9-Aug-02 04:30 RIG String or BHA failure
End : 9-Aug-02 06:15 Unable to redress MOST tool with Vetco H4 type dogs, as none available onsite. (Tool not dressed with correct dogs when shipped)

==================================== REMARKS ====================================

Held anchor recovery meeting
Boats:-
Pacific Conqueror:- Standby at Ocean Bounty
Pacific Sentinel :- Standby at Ocean Bounty
Lady Elizabeth:- Backloading to BBMT

===================== INSPECTIONS, DRILLS, AND CITATIONS =====================

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		31-Jul-2002
BOP Pressure Test	No		31-Jul-2002
Fire Drill	No		05-Aug-2002
Abandon Ship Drill	No		05-Aug-2002
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	No	0	04-Aug-2002
BOP System Inspection (Minicheck)	No	0	08-Aug-2002

=================================== PERSONNEL ===================================

Personnel : Gordon Jarritt
Supervisors : Basset, Anthony A.
Bigby, Brigham E.
Sharkey, George K.
Total Head Count: 82
Total Hours : 984.00

================================= HEAD COUNTS =================================

Contractor	59	ExxonMobil	4
Contractor Short Service (SSE)	0	Service Company	19

============================= MANAGEMENT SUMMARY =============================

Pull BOP stack. Cut 20" and 30" casing with casing cutter. MOST tool could not pull wellheads. Attempt to pull wellheads with CART tool - no go. Continue to cut 20" and 30" casing.

COST DATA (Australian Dollar)

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	-839,393	0	-839,393	0
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	11,162,938	334,761	11,497,699	409,994
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	11,162,938	334,761	11,497,699	409,994

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	0	0	2115	Fuel	9500	0	360600
Cement	0	0	200	Gel	0	0	772
Drill Water	187868	0	394000				

MUD ADDITIVES

Function	Name	Unit	Size	Amount

BIT RECORD

No bit report was entered for this date.

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	0
2	.1018	0
3	.1018	0

No hydraulics calculations were performed because no bit report was entered.

Pump Rate 0 str/min
Flow Rate .00 gpm
Pressure 0 psi

SURVEYS

MD	Angle	Azimuth	TVD	Vert Sec	N+/S-	E+/W-	Dogleg
1754.650	.83	200.48	1754.559	-12.022	- 12.022	- 8.121	.161
1834.520	.89	216.64	1834.420	-13.062	- 13.062	- 8.693	.093
1869.060	.98	215.87	1868.955	-13.516	- 13.516	- 9.026	.079

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	0	0	.000
2	0	0	.000
3	0	0	.000

Burst (70%)	2495	psi
Formation Strength	14.70	ppg
Kick Tolerance	6.60	ppg
Pore Pressure	.00	ppg
MASP	2129	psi

Background Gas	.0
Connection Gas	.0
Trip Gas	.0

Density .00 ppg
ECD ******* ppg
at 1905.000 meters
with bit at .000 meters

WEATHER REPORT

		23:59	Max	
Bar Pressure	:	1026	1028	mm Hg
Heave	:	.10	.20	meters
Pitch	:	.20	.50	degree
Roll	:	.30	.50	degree
Swell Height	:	.90	2.10	meters
Period	:	8	12	second
Direction	:	230	220	degree
Visibility	:	15.0	15.0	km

		23:59	Max	
Wind Speed	:	20.0	20.0	knot
Direction	:	290	290	degree
Wave Height	:	.90	.90	meters
Period	:	2	2	second
Direction	:	290	290	degree
Air Temperature	:	12.0	13.0	deg C
Sea Temperature	:	14.0	14.0	deg C
Cloud Cover	:	6	6	

ANCHOR TENSIONS

Anchor	Tension at 23:59	24-Hr Maximum
1	250	0
2	280	0
3	260	0
4	240	0
5	290	0
6	260	0
7	360	0
8	250	0

RISER DATA

Riser Tension: 0 Flex Joint Rotation: .0 Hole Position, Offset: .00
Angle : .0 Angle : 0

DAILY DRILL STRING

		Weights		Torques		Cumulative Time On	
WOB	0	Pick-up	0	Off-TD	.0	BHA	.00
RPM	0	Slack-off	0	On-TD	.0	Shock Sub	.00
		Off-TD, Rotating	0			Jars	.00

CASING

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990
6	20.000	X56	203.000	H 4	1	72.180	83.380
7	13.375	L80	68.000	WELD	1	83.380	84.940
8	13.375	K55	68.000	BUTT	63	84.940	849.150

*** End 09-Aug-2002 report for BEARDIE.1 Run 14-Nov-2002 18:16 Central Time

Drilling DETAILED DAILY REPORT 10-Aug-2002

Beardie-1

```
DRS Well ID: BEARDIE.1                        AFE L0501B003     Planned  | Actual
Units       : Mixed Oilfield                  MD            m: 1905.00 | 1905.00
Office      : Australia SE                    TVD           m: 1905.00 | 1905.00
Client      : ExxonMobil Development          Days                      |
Drill Team  : Australia Offshore               - if Dry        :    20.5 |
                                               - if Suspended:      .0 |
Budget Cat  : WILDCAT--PRODUCTIVE AND DRY HO   - to Complete :    20.5 |
Contractor  : DIAMOND                          - Susp + Comp :    20.5 |      16.5
Rig Name    : Ocean Bounty                     - Ahead/Behind:          |       1.0
Operator    : ExxonMobil                       - from Spud   :          |      14.0
Field       : Gippsland Basin                 Spud Date      :        26-Jul-2002
Country     : Australia                       Progress      m:                .00
Latitude    :  38d 15' 16" South              Drilling Hours :                .00
Longitude   : 147d 48' 25" East               ROP         m/hr:
Water Depth:   51.23 m                        Percentage NPT :                4.6
RKB Height :   25.00 m                        Depth Reference:   Rig Floor (RKB)
Ground Elev:     .00 m
Phone       : 61 428 308 600

Superintendent      : F.W. Kratzer
Engineers           : A. McGregor
                      C.P. Meakin
Formation Desc      :
Deepest Casing Run: 13.375 inches at 849.100 MD, 849.100 TVD
Leakoff Test        : 14.70 ppg

Current: Rig released to OMV at 00:30 hrs 10 August 2002
Planned: N/A

Start Elpsd  End MD                          Description
----- ----- -------- ---------------------------------------------------------
05:00   .50  1905.00 TRIP Pull string out of hole -- Pull casing cutter to rig
                          floor and examine knives. Markings and measurements on
                          knives indicate that the 30" casing cut. Lay out MOST
                          tool.
                     NPT  See Event 10 (RIG)
05:30   .75  1905.00 TRIP Run string in hole -- P/up 18¾" housing CART tool.
                          Make up guide ropes, and RIH with same.
                     NPT  See Event 10 (RIG)
06:15   .50  1905.00 TRIP Pull string out of hole -- Latch 18¾" Housing with
                          CART tool. P/up to 220 kips. (40kips O/pull), & pulled
                          30" housing, 18¾ housing & PGB free. POOH with same.
06:45  1.00  1905.00 BOP  Secure PGB, and 30" Housing in Moon pool. Release 30"
                          Housing, with casing stub from PGB, and lay out same.

                          Recovered
                          18¾" housing and casing stub length 5.320m.
                          30" wellhead housing and casing stub length 4.750m.

                          NOTE:-
                          Commenced anchor recovery at 06:30hrs.
                          Made ROV Seabed Survey - no debris found
07:45  1.00  1905.00 MOB  Anchor recovery operations commenced at 0630 hrs.
                          Pacific Conqueror chased PCC out # 1 chain and
                          recovered anchor.  Pacific Sentinel chased PCC out # 5
                          chain and recovered anchor.  Anchor # 5 (Offdrill II)
                          was decked on Pacific Sentinel for normal PM
                          inspection.
                          Lay out casing cutting assembly.
08:45  2.00  1905.00 MOB  Pacific Conqueror chased PCC out # 8 chain and
                          recovered anchor. Pacific Sentinel chased PCC out # 4
                          chain and recovered anchor.
```

10:45	.75	1905.00	MOB	Primary tow bridle connected to Pacific Sentinel tow wire. Backload Pacific Conqueror with all remaining Esso material.
11:30	1.75	1905.00	MOB	Deballast rig to 56« ft draft. 11:00hrs Pacific Conqueror sailed to Snapper platform to offload Esso deck cargo. No Esso or third party equipment is left on Ocean Bounty.
13:15	3.75	1905.00	MOB	Continue to deballast Rig to 32 ft draft.Pacific Conqueror back at Ocean Bounty at 13:45hrs.
17:00	2.25	1905.00	MOB	Continue with anchor recovery operations. Pacific Conqueror chased PCC out # 3 chain, and recovered anchor. Number 3 anchor bolstered.
19:15	2.25	1905.00	MOB	Pacific Conqueror chased PCC out # 7 chain, and recovered anchor. Difficulty encountered in Bolstering Stepriv MK V anchor. Made several attempts, and anchor finally bolstered after 45 minutes, due to the design of the anchor.
21:30	1.50	1905.00	MOB	Pacific Conqueror passed # 2 PCC. Chased out chain, recovered and bolstered anchor. Rig commenced Heaving in # 6 anchor (Offdrill II).
23:00	.25	1905.00	MOB	Pacific Conqueror preparing to tow Rig. Number 2 pennant passed to rig.
23:15	1.25	1905.00	MOB	Continue heaving in Anchor #6 (Offdrill II). Anchor off bottom at 00:18hrs. Bolstered at 00:30 hrs

Total 19.50

======================== PROBLEM EVENTS AND MILESTONES ========================

Event: 10 NPT: Yes Hours: 1.75 Responsible Party: Weatherford
Start: 9-Aug-02 04:30 RIG String or BHA failure
End : 9-Aug-02 06:15 See report for 09-Aug-2002 (job 24-Jul-2002 17:00)

==================================== REMARKS ====================================

Tasman shear hopper remains installed on rig.
Boats:-
Pacific Conqueror:- On secondary tow
Pacific Sentinel :- On primary tow bridle
Five Stevpris Mark V anchors installed by Esso at mooring of Ocean Bounty on Beardie 1 were left connected to anchor chains 7, 8, 1, 2, and 3 when rig released to OMV.
All BAE Systems communications including CDMA were disconnected at 1430 hrs 09 Aug 2002.

===================== INSPECTIONS, DRILLS, AND CITATIONS =====================

	Occurred?	Count	Most Recently Reported
BOP Control Function Test (BCFT)	No		31-Jul-2002
BOP Pressure Test	No		31-Jul-2002
Fire Drill	No		05-Aug-2002
Abandon Ship Drill	No		05-Aug-2002
Operations Superintendent Inspection	No		
Regulatory Agency Citation	No		
BOP Drill (Pit or Trip Drill)	No	0	04-Aug-2002
BOP System Inspection (Minicheck)	No	0	08-Aug-2002

=================================== PERSONNEL ===================================

Personnel : N/A
Supervisors : Basset, Anthony A.
Sharkey, George K.
Total Head Count: 76
Total Hours : 912.00

================================= HEAD COUNTS =================================

Contractor	60	ExxonMobil	2
Contractor Short Service (SSE)	0	Service Company	14

============================ MANAGEMENT SUMMARY ============================

Recovered 30" Housing, and PGB. Conduct Final Seabed survey with ROV. Pulled anchors, deballasted and released rig at 00:30hrs to OMV.

913711 374

COST DATA (Australian Dollar)

AFE			Intangible	Tangible	Total	Mud
Dry :	14,680,000	Daily	-672,011	0	-672,011	0
Susp :	0	Cum Mbl	0	0	0	0
Comp :	0	Cum Drl	10,490,927	334,761	10,825,688	409,994
Total:	14,680,000	Cum Comp	0	0	0	0
		Cum W/O	0	0	0	0
Exc :	1.92310/US$	Cum AFE	10,490,927	334,761	10,825,688	409,994

SOLIDS CONTROL

Hours on Centrifuge: .00 Dilution Rate: .00

SUPPLIES DATA

	Usage	Receipts	Stock		Usage	Receipts	Stock
Barite	0	0	2115	Fuel	8400	0	352200
Cement	0	0	200	Gel	0	0	772
Drill Water	44000	0	350000				

MUD ADDITIVES

Function	Name	Unit	Size	Amount

BIT RECORD

No bit report was entered for this date.

HYDRAULICS

Pump	Displaces bbl/st	Rate str/min
1	.1018	0
2	.1018	0
3	.1018	0

No hydraulics calculations were performed because no bit report was entered.

Pump Rate 0 str/min
Flow Rate .00 gpm
Pressure 0 psi

SURVEYS

MD	Angle	Azimuth	TVD	Vert Sec	N+/S-	E+/W-	Dogleg
1754.650	.83	200.48	1754.559	-12.022	- 12.022	- 8.121	.161
1834.520	.89	216.64	1834.420	-13.062	- 13.062	- 8.693	.093
1869.060	.98	215.87	1868.955	-13.516	- 13.516	- 9.026	.079

WELL CONTROL

Pump	Rate str/min	Pressure psi	MD meters
1	0	0	.000
2	0	0	.000
3	0	0	.000

Burst (70%)	2495 psi
Formation Strength	14.70 ppg
Kick Tolerance	6.60 ppg
Pore Pressure	.00 ppg
MASP	2129 psi
Background Gas	.0
Connection Gas	.0
Trip Gas	.0

Density .00 ppg
ECD ******* ppg
at 1905.000 meters
with bit at .000 meters

WEATHER REPORT

	23:59	Max			23:59	Max	
Bar Pressure :	1026	1028	mm Hg	Wind Speed :	10.0	12.0	knot
Heave :	.20	.30	meters	Direction :	300	270	degree
Pitch :	.20	.20	degree	Wave Height :	.30	.60	meters
Roll :	.20	.20	degree	Period :	2	2	second
Swell Height :	.60	.90	meters	Direction :	300	270	degree
Period :	8	8	second	Air Temperature:	12.0	15.0	deg C
Direction:	240	230	degree	Sea Temperature:	14.0	14.0	deg C
Visibility :	15.0	15.0	km	Cloud Cover :	2	6	

DAILY DRILL STRING

		Weights		Torques		Cumulative Time On	
WOB	0	Pick-up	0	Off-TD	.0	BHA	.00
RPM	0	Slack-off	0	On-TD	.0	Shock Sub	.00
		Off-TD, Rotating	0			Jars	.00

==================================== CASING ====================================

Section	O.D.	Grade	Wt/Lng	Thread	Joints	Top	Bottom
1	30.000	X52	457.000	ST 2	1	72.960	86.790
2	30.000	X52	310.000	ST 2	2	86.790	109.960
3	30.000	X52	310.000	ST 2	1	109.960	114.140
4	30.000	X56	129.000	WELD	1	114.140	115.240
5	20.000	X56	129.000	WELD	1	115.240	121.990
6	20.000	X56	203.000	H 4	1	72.180	83.380
7	13.375	L80	68.000	WELD	1	83.380	84.940
8	13.375	K55	68.000	BUTT	63	84.940	849.150

*** End 10-Aug-2002 report for BEARDIE.1 Run 14-Nov-2002 18:16 Central Time

913711 376

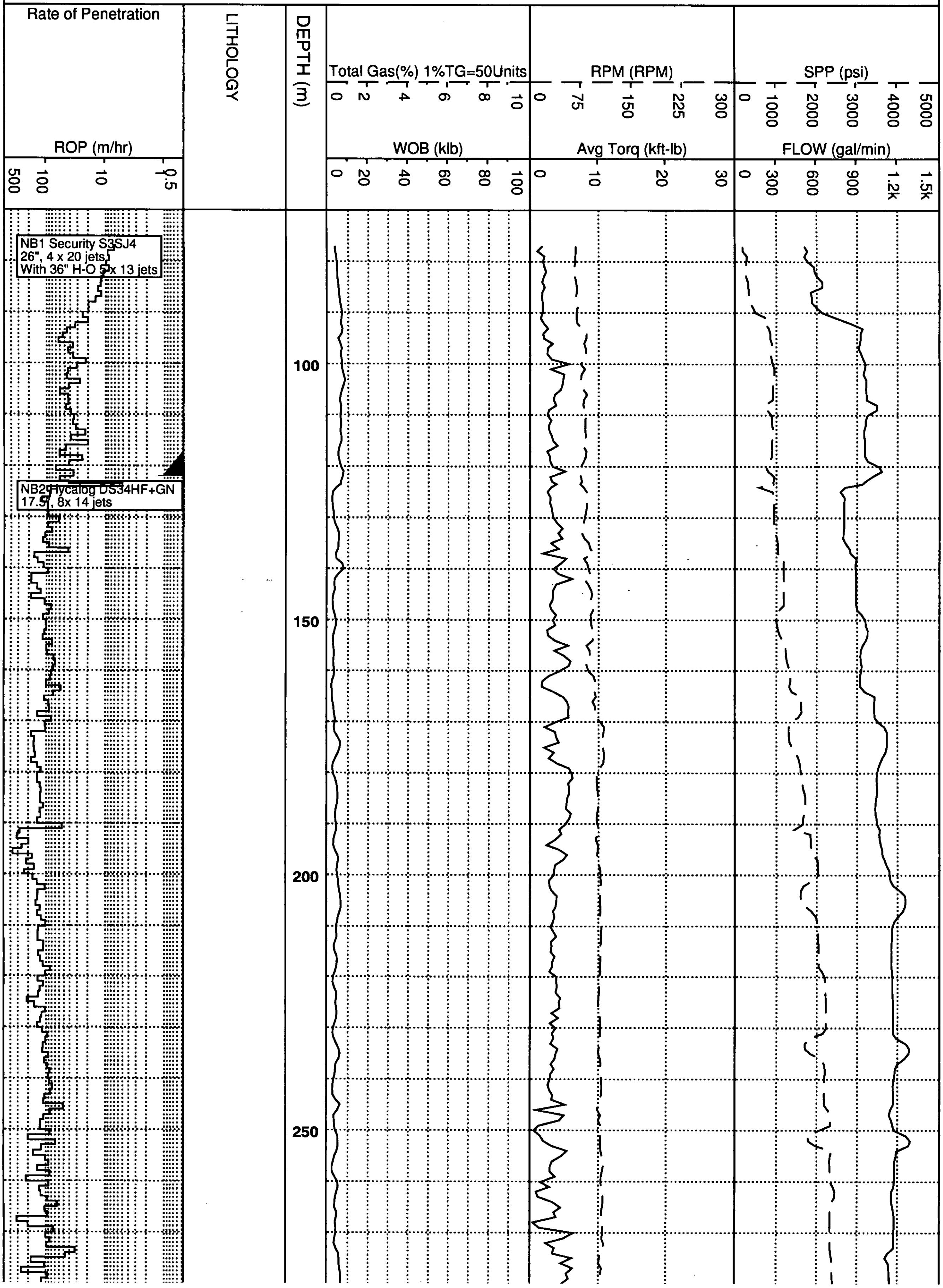
BAKER HUGHES

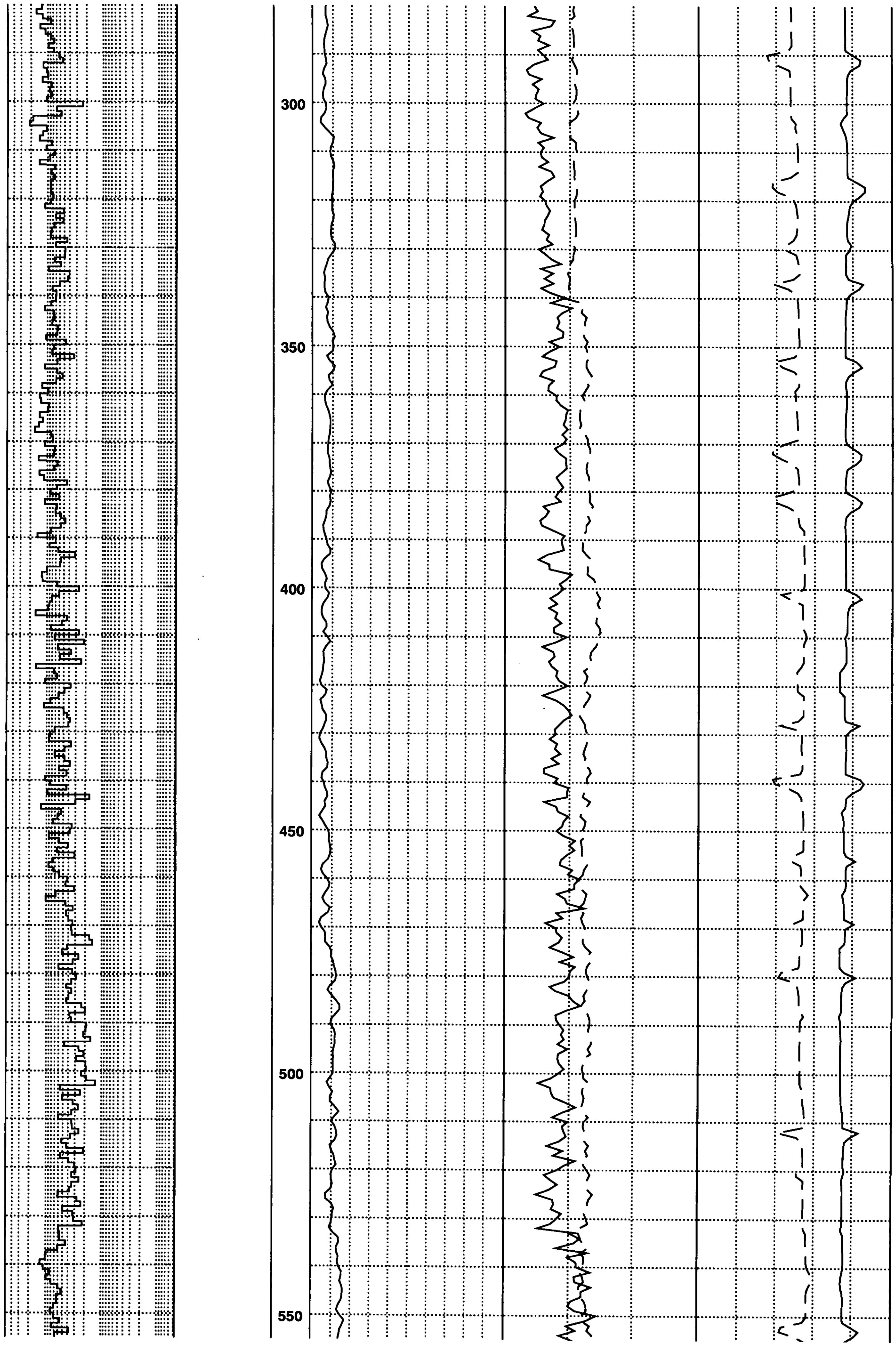
INTEQ

DRILLING DATA PLOT
Beardie-1

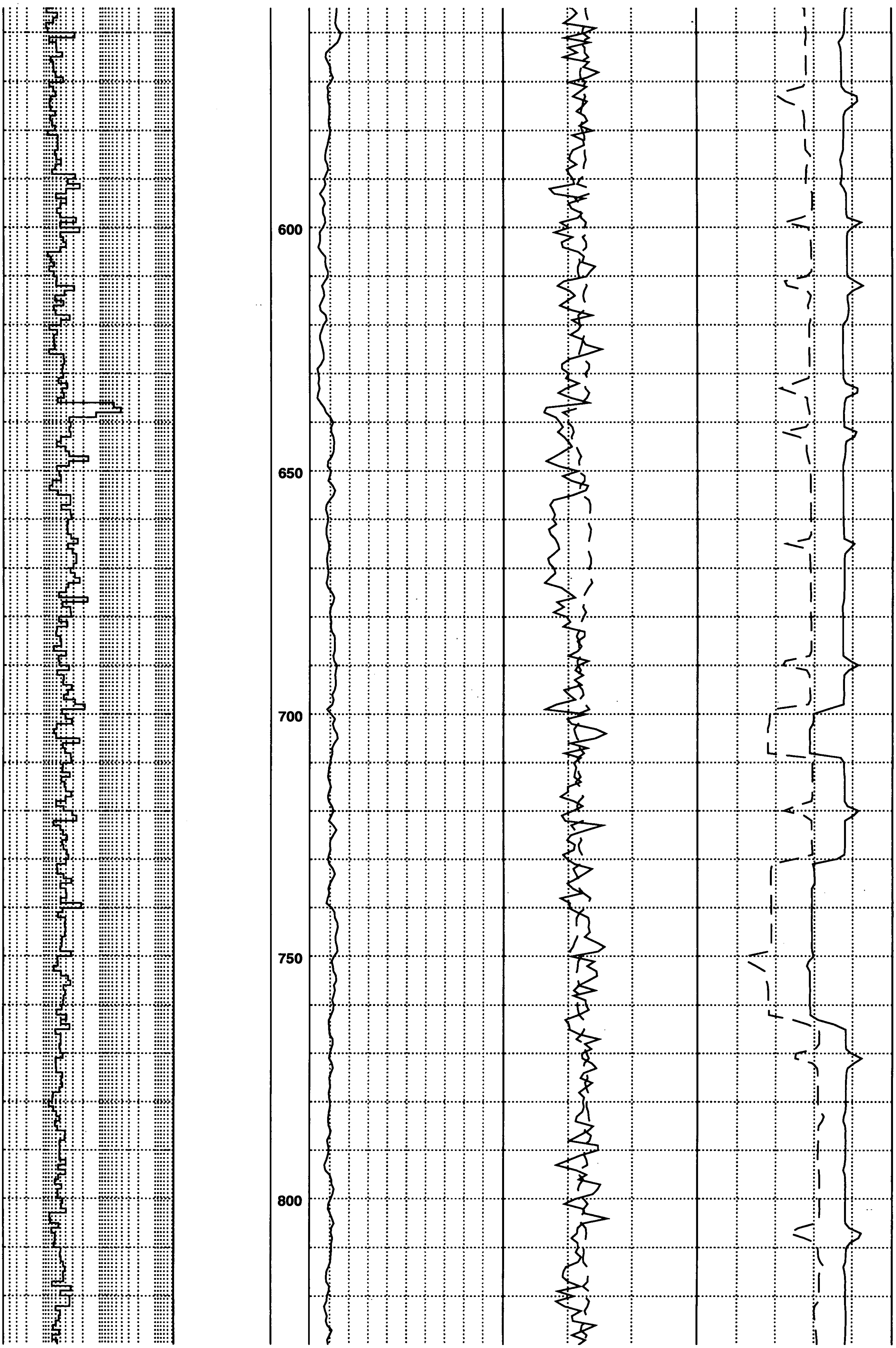
Esso

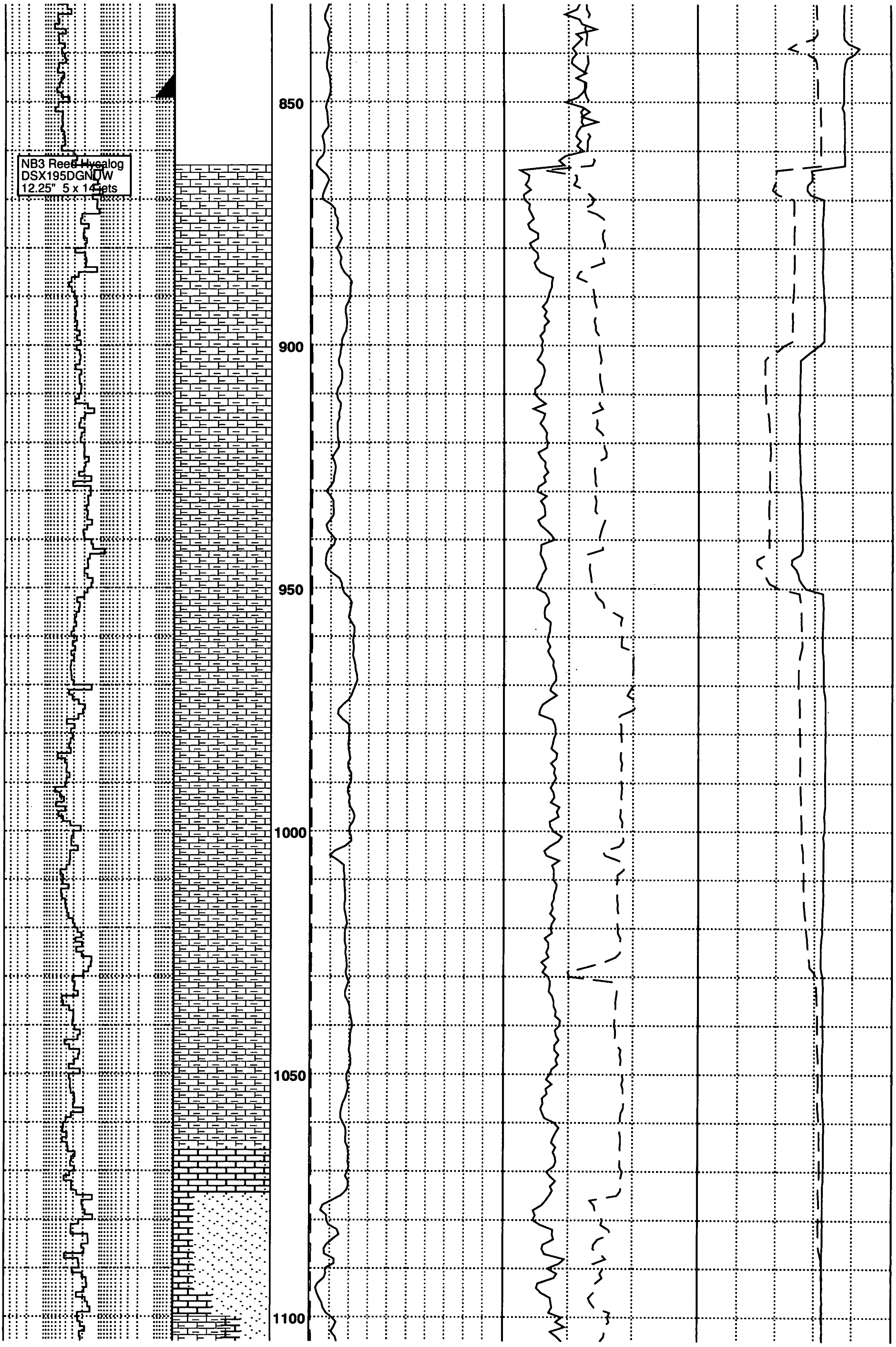
Scale: 1:1000.0



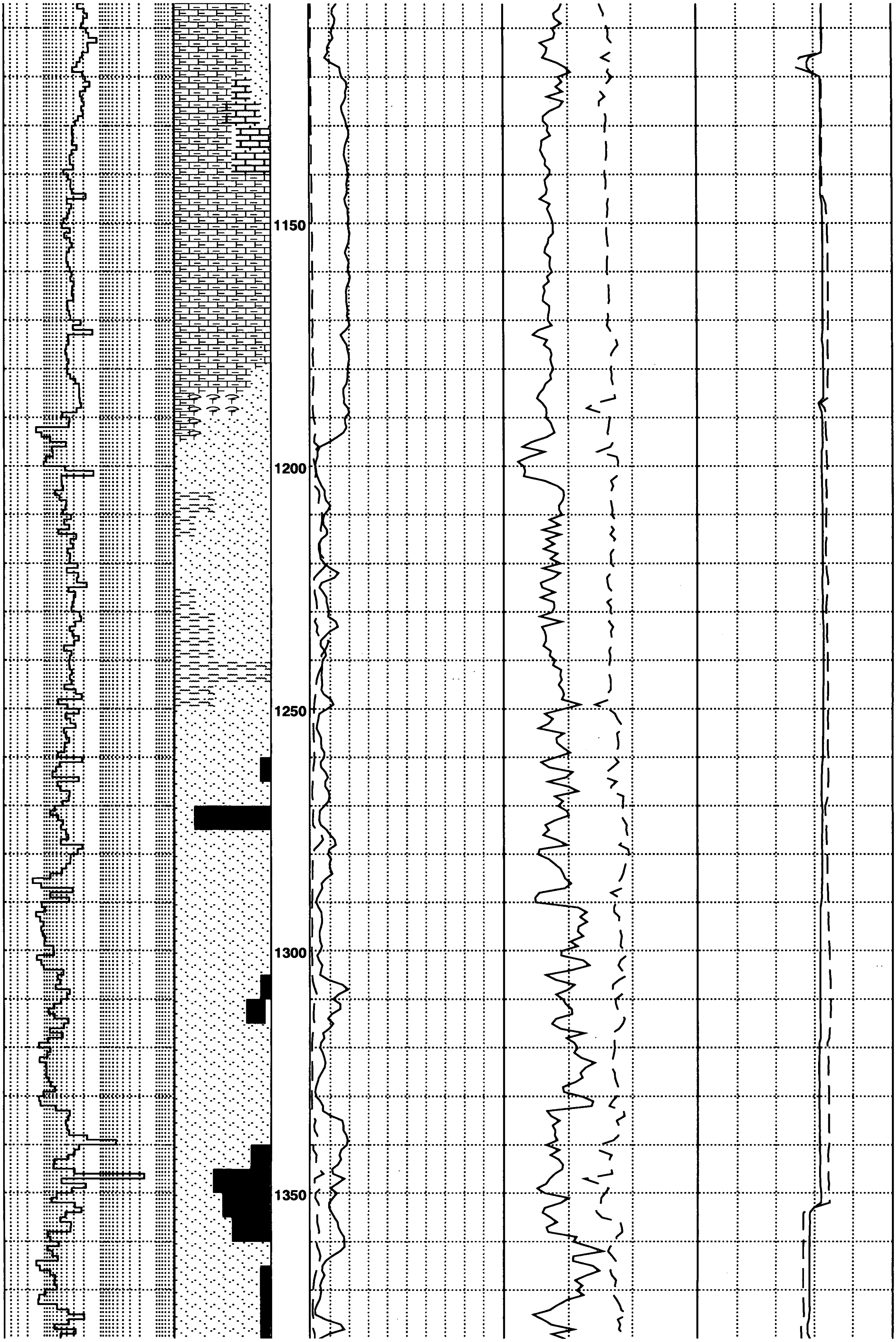

300
350
400
450
500
550

913711 378

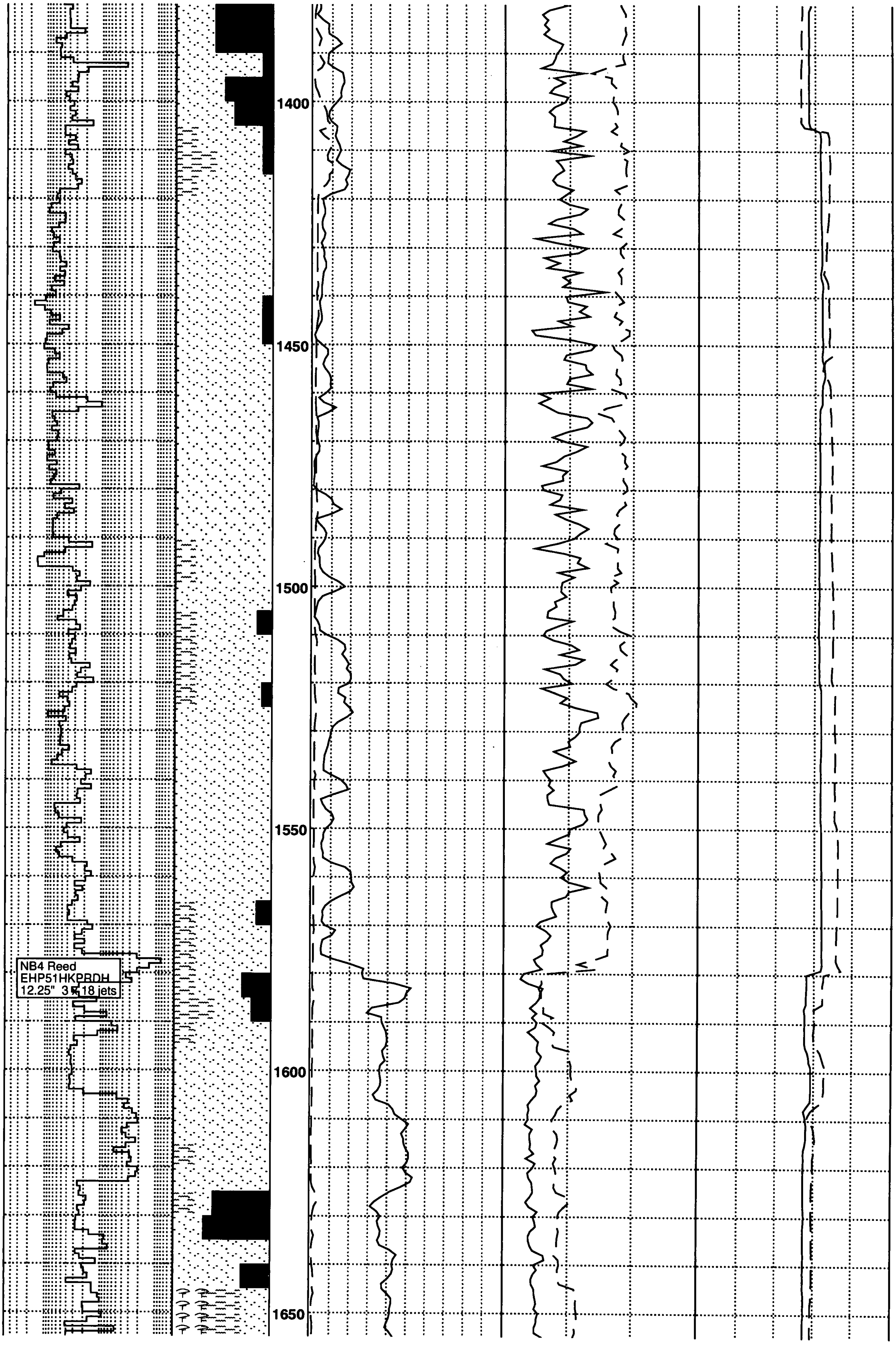



NB3 Reed Hycalog
DSX195DGNDW
12.25" 5 x 14 Jets
850
900
950
1000
1050
1100

913711 380



913711 381


1400
1450
1500
1550
1600
1650
NB4 Reed
EHP51HKPRDH
12.25" 3 x 18 jets

913711 382

913711 383

Other Reports

Other Reports

913711 384

Well Planning Checklist

WELL PLANNING CHECKLIST

Geological Operations

Esso Australia Ltd

Items marked *** **must be filled in prior to initial well costing**, items marked * to be filled in if available.

Beardie-1

General Information***

Country* ** Australia
State* ** Victoria
Well Name* ** Beardie 1 **Permit/Licence*** ** VIC/L2

Well Classification* **		**Wildcat**	☐	**Offshore*** **	☑
EMWI*	50%	**Outpost/Appraisal**	☐	**Onshore*** **	☐
		Development	☐		☐
		Other	☑	**NFW**	**(description)**

Target Location
(Vertical Well)

- **Shot Point***
- **Seismic Reference*** Barracouta G99 3D Inline 677, X-line 3230
- **Longitude*** 147° 48' 20.8" E
- **Latitude*** 38° 15' 14.6" S
- **X (Prelim. only)*** ** 570500 mE
- **Y (Prelim. only)*** ** 5765675 mN
- **Depth*** ** 1225m TVDSS

Nb: all co-ordinates are based on the AGD66 datum
Water Depth* ** 50 m

Surface Restrictions (if any)* No pipelines etc. in well area. Well location lies within shipping exclusion zone boundary.

Well Summary

Budget Depth* (TVDSS***)**	3050m (1880m dry hole)	**Formation at TD***	Latrobe Group (T. longus)
Directional Well? (Y/N)* **	No	**Abnormal Pressure***(Y/N)**	Not expected
Preliminary Target Size* **	100m radius		

Prepared by: ________	**Reviewed by:** ________	**Checklist Date*** **
P. B. Owen Geologist	K. Kuttan FE Team Leader	29 November 2001

Directional Considerations***

- **If the well is vertical, is a 3 - 5° cone acceptable? (Y/N)*** No -** 100m radius at target depth
- **If the well is directional, describe the well path in plan and section (define anticipated horizontal sections, etc)*****
  N/A

Formation Tops and Marker Depths (see also Figure 1)***

Vertical Well

Formation/Marker ***	TVDSS ***	Res. Pres. (Psig)	Est PP/ (EMW)	Lithology	Comments (incl target radius, boundaries, etc.)
Top Gippsland Limestone	0	-	-	limestone, calcarenite, marl	100m radius of target
Base Mid-Miocene Channel	-810	1230	8.6	calcarenite, calcisiltite, marl.	100m radius of target
Top Lakes Entrance Fm	-1129	1683	8.6	marl, claystone, shale	100m radius of target
Top Latrobe Group	-1151	1714	8.6	sandstone, shale, coal	100m radius of target
Top HD/P reservoir***	-1225	1819	8.6	sandstone, shale, coal	100m radius of target
Top LD/P reservoir***	-1305	1946	8.6	sandstone, shale, coal	100m radius of target
Top P240 equiv.***	-1365	2018	8.6	sandstone, shale, coal	100m radius of target
Top P250 equiv.***	-1430	2110	8.6	sandstone, shale, coal	100m radius of target
Top M1 equiv.*	-1585	2330	8.6	sandstone, shale, coal	100m radius of target
Base M.diversus	-1822	2667	8.6	sandstone, shale	100m radius of target
TD - *if no shows*	-1880	2749	8.6		100m radius of target
Top Volcanic	-2800	4055	8.6	basalt, sandstone, shale	100m radius of target
TD	-3050	4624	8.6		100m radius of target

******Primary Objective *Secondary Objective***
0-3200: Reservoir Pressure = (Depth mtvdss x 1.42psi/m) + 79.6
(Standard Gippsland Basin aquifer pressure calculation)

Temperature at Reservoir level (1225mTVDSS) estimated at 65 °C +/- 10 °C (149 °F +/- 15 °F)

Offset Well Control

Well Name	Distance & Direction	TD (TVDSS)	Max. MW	Analogous Interval to Beardie target interval (formation name/depth m TVDSS)	Date Drilled
Whiting 2	4km, E	-3529	11.0	P Reservoirs (-1429 to -1627	1985
Wirrah 3	6.3km, NNE	-3236	12.3	P Reservoirs (-1725 to -1848)	1983
Whiting 1	7.1km, ENE	-2990	10.0	P Reservoirs (-1437 to -1619)	1983
Wirrah 1	7.2km, NNE	-3005	9.8	P Reservoirs (-1653 to -1818)	1982
Wirrah 2	8km, NNE	-3063	10.6	P Reservoirs (-1695 to -1828)	1983
Barracouta 1	8.8km, WSW	-2642	11.6	N2-5 Reservoirs (-1287 to -1400)	1965
Barracouta 4	9.9km, SW	-1432	11.2	N2-5 Reservoirs (-1247 to -1377)	1977
Harlequin 1	10.3km, NW	-2554	10.0	P Reservoirs (-1563 to -1624)	1989

Offset Pressure Data (Potential Overpressured Sands)*

Well Name	Distance & Direction	Depth (TVDSS)	Reservoir	Pressure PSI	Pressure EMW	Pressure Data Source
Whiting 2	4km, E	-3186	T.longus	4966	9.2	RFT
Wirrah 3	6.3km, NNE	-2808	T.longus	4329	9.0	RFT
Wirrah 3	6.3km, NNE	-2915	T.lilliei	4787	11.5	RFT
Wirrah 1	7.2km, NNE	-2953	T.lilliei	5360	10.5	RFT
Wirrah 2	8km, NNE	-2872	P.mawsonni	4394	8.9	RFT
Wirrah 2	8km, NNE	-3020	P.mawsonni	4758	9.2	RFT

Subsurface Geological Hazards***

Bore Hole Conditions***

• **Carbon Dioxide Gas*** **	Barracouta 1: 4% in N5 reservoir Barracouta 2: 0.5-1.4% in N1 reservoir Barracouta 3: Trace (5 units) in N2 reservoir Barracouta 5: 10-12% in M.diversus section Whiting 2: 16% in L460 reservoir Whiting 1: 4% in T.longus section Wirrah 3: 2.7-10.8% in N1 reservoir 5.3-7.5% in M.diversus section 4.3-5.8% in L.balmei section **0-70% in T.longus section** Wirrah 1: Trace-1.5% in N1 reservoir 0.5-12% in T.longus section Wirrah 2: 0.4-0.6% in N1 reservoir
• **Hydrogen Sulphide Gas*** **	Barracouta 1: 15ppm in N1 reservoir **Whiting 2: 200ppm in P240 reservoir** Whiting 1: 50ppm in N1 reservoir Wirrah 2: 0-7ppm detected from mud filtrate Wirrah 1: 30-80ppm in N1 reservoir 0-15ppm in L450 reservoir Wirrah 3: 0-8ppm in N1 reservoir 2-8ppm in T.longus section
• **Swelling Shale*** **	Lakes Entrance Formation prognosed to be 25m thick
• **Sloughing Coal*** **	2-20m coals throughout Latrobe Group in offset wells
Brecciated/Sheared Fault Zones* **	There is a possibility for many small-scale (sub-seismic) faults to be encountered in the reservoir section and also in the section from -810m to top Latrobe. LCM may be required.

Normal Pressure***

• **High Solution Gas Water Sands*** **	Not present
• **Hydrocarbon Gas Sands*** **	Large gas columns in Barracouta Field at TOL but not at Whiting as there is no independent closure at that structural level. Gas columns present in Whiting Intra-Latrobe section (L reservoirs). Small gas columns seen in Whiting Field in sub-volcanic reservoir section

Overpressure***

• **Seafloor/Surface Hydrocarbon Seeps*** **	None
• **Shallow Gas*** **	No shallow gas zones have been identified during drilling of adjacent wells (Barracouta & Whiting Fields). Total gas units recorded above TOL are low. In Whiting 2 total gas recorded above TOL range from 5-15 units (background gas 5 units). In the Barracouta/Whiting area, low impedance seismic anomalies are not associated with

elevated levels of drill gas. Thus there is no demonstrated link between seismic amplitudes and shallow gas in the Barracouta/Whiting area.

However, there are seismic amplitudes at the Beardie-1 location that could possibly be associated with shallow gas. These occur at seismic two-way travel times between 265-311msec corresponding to predicted subsea true vertical depth of 272-320m.

- **Overpressured Mud or Shale*****

  Not present in offset wells

- **Shallow Production (Overpressured Oil/Gas Reservoirs)*****

  Not present in offset wells in Barracouta & Whiting Fields

  Overpressured Reservoirs***

  Not anticipated in Latrobe Group section in the Barracouta/Whiting area, however deeper sub-volcanic wells have occasionally encountered overpressured zones (9-11.5ppg EMW, see table above).

Underpressure***

- **Draw Down Reservoirs*****

  Gas production from the N1 reservoir at Barracouta may cause drawn down reservoirs at TOL if reservoir is continuous across to Beardie-1 location, as reservoir is 120psi drawn down at Barracouta. Oil production from M1 reservoir has drawn down the reservoir 90psi at Barracouta.

  Pressure data from P240 reservoir at Whiting is still being assessed and is expected to be within the ranges observed at Barracouta for the N1 reservoir. The M1 and L400/500 reservoirs at Whiting have undergone 80psi of draw down, up until 1989.

  Similar drawdown are expected at equivalent reservoir levels at Beardie-1.

- **Lost Returns*****

  Lost return intervals were recorded from Barracouta-4 (-874m & -1210m).

  Possible lost returns in drawn down zones.

Seafloor Stability***

- **High Relief/Seafloor Topography*****

  Near flat (<0.5 degree) at surface location.

- **Other*****

  -

For information on other hazards (i.e. sea floor stability, well site safety, environmental, man-made obstructions) consult Drilling Engineer.

Geophysical Shallow Hazard Survey

- **Based on the foregoing hazard identification, will a site specific hazard survey be required? Y/N*****

Yes

If Yes:

- **Can existing 3-D seismic data be used, or will acquisition of high resolution 2-D data be required?**
  Good quality 3D data exists over planned well locations

- **List services required (i.e. high res 2-D, bathymetric, sub-bottom profile, side scan sonar, etc.)**
  Site survey needed as 3D not surficiant for sea floor profile

- **Expected Required Products:**

Interpreted high res 2-D or 3-D seismic	☐
Bathymetric maps	☑
Seafloor hazards/obstruction map	☐
Shallow gas/shallow fault map	☐
Consultants' report (if required)	☐
In-house summary report	☐

Completion Considerations***

- **How will the well be maintained? P&A/T&A/etc, single/dual, csg/tbg size/etc, oil/gas, conventional/gravel pack/etc, flowing/ESP/etc?*****

  P&A (dry-hole scenario).

Well Testing***

- **How many well tests are probable?*****

None.

- **Clarify the test objectives as listed below.**

Confirm the existence of hydrocarbons	☐
Measure the productivity of the well	☐
Measure the formation pressure and temperature	☐
Obtain separator samples of oil, gas, and water for laboratory analyses	☐
Obtain bottom-hole samples for laboratory analyses	☐
Determine the amount of wellbore damage or stimulation	☐
Determine reservoir limits	☐
Determine hydrocarbon reserves	☐
Determine the vertical components of productivity using production logs	☐

- **Well Reservoir Engineer has provided input to above program?**

N/A

- **Well Test Engineer has communicated test equipment needs to Drilling?**

N/A

913711 392

Mud Program Data*

- **Estimated Maximum Pore Pressure (EMW)*** 8.6 - 9.5ppg
- **Formation/Depth*** 1225-3200 mTVDSS
- **Pressure Profile Attached*** No
- **Conductivity/Pore Pressure Plots Completed?*** No
- **Does the wireline formation evaluation program place restrictions on the mud program? Explain***

  Need to avoid using baracarb in mud as it has adverse effect on the MDT.

- **Does the coring program place restrictions on the mud program? Explain***

  N/A

- **Does the formation integrity and/or formation evaluation considerations require adjustments in the mud or mud hydraulics (e.g. MW, FV, WL, GPM, AV, etc)? Elaborate***

  No

- **If hydrateable shale has been identified as potentially affecting wellbore stability, should the DCM be employed or mechanical properties be investigated?***

  No. Swelling shale problems in the Lakes Entrance are well documented.

Coring Program Data***

- **Number and length of conventional cores to be cut*****

  None

- **Type core/barrel***

  N/A

Type Core:	**4½"**	☐
	5¼"	☐
	Other	☐
Type Barrel/OD:	**Fibreglass sleeve**	☐
	Plastic liner	☐
	Aluminium	☐
	Other	☐

- **Objectives of the coring program***

  N/A

- **Types of routine core analysis to be performed***

  N/A

- **Types of special core analysis (SCAL) to be performed in the future (no cost estimate is required)***

  N/A

- **Will any special handling "onsite" be required? (epoxy stabilsation, on-site plugging, measurements, etc)***

  N/A

For costing purposes provide (documented) cost estimates and enter values in summary table at back of WPC**

Coring*

Formation*	Interval* (TVDSS)	Type & Length*	Total Core*	Comments*

- **What will be the disposition of the core after the preliminary wellsite description is made?**

  N/A

- **Disposition of on-site core plugs?**

  N/A

- **How will the core point be determined (i.e. on shows; stratigraphy)? Qualifying conditions will be outlined in ATD/RTD and Coring Protocol.**

  N/A

Mud Logging and Sample Program***

- **Will mud logging be required? (Y/N)*** ** Yes

For costing purposes, provide (documented) cost estimate and enter value in summary table at back of WPC*

- **Indicate any additional services required and depth ranges:**

  Wellsite Geochem ☐ **Dielectric Const Meter** ☐ **Fission Track** ☐ **Other** ☐

Type	Number	Interval	Frequency	Recipients	Shipping Frequency
Washed & Dried	3	Surface to 1100mTVDSS	30m	EAL, BHPP, DAEM (via EAL)	End of well
		1100 mTVDSS to TD	5m		
Lightly Washed and Air Dried#	1	Surface to 1100mTVDSS	30m		
		1100 mTVDSS to TD	5m		
Geochemical	none				

****Lightly washed and air dried cuttings may be required for analyses affected by subjecting the cuttings to temperature (i.e. oven drying).***

- **Discuss any special considerations regarding samples.**

- **Are there any wellsite paleontology requirements (e.g. to avoid geological hazards)?**

  No

FORMATION EVALUATION PROGRAM*** 913711 395

Preliminary Wireline Logging Program***

Depth Interval (mTVDSS)*	**200-800m**	**800-1050m**	**1050-1880m**	**1880-3200**
Hole Size/Suite #	36" / 1	17 ½" / 1	12 1/4" / 1	12 1/4" / 1
Generic Tools				
• **Gamma Ray**	✓	✓		
- HNGS			✓	✓*
• **Neutron**			✓	✓*
• **Density**		✓	✓	✓*
• **Resistivity**			✓	✓*
• **Sonic – P wave**	✓	✓	✓	✓*
- dipole			✓	✓*
• **Borehole imaging FMI**				✓*
• **MDT**			50 pressures, 10 samples*	50 pressures, 10 samples*
• **MSCT's**				50 samples*
• **Sidewall Cores**			60 shots**	60 shots*
• **VSP - zero offset**		✓	✓	✓

*contingent on significant hydrocarbons
**dry hole TD at -1880m only

For costing purposes, provide documented cost estimate and enter value in summary table at back of WPC**

- **Formation Evaluation specialist has provided input to above program?** Yes
- **Will sidewall core samples be taken for paleo, geochem, etc. purposes?** Yes
- **Will mechanical rotary sidewall cores be taken for reservoir and lithology idenetification?** No
- **List formation evaluation problems, if any (e.g. deep invasion, hole washout, fresh formation waters, fracture identification, complex mineralogy, etc)***

  Volcanics may be variable in lithology and prone to local washouts.

- **What can be done to minimise these problems?***

  Appropriate drilling parametres during drilling of volcanics.

- **Has optimisation of drilling parameters been discussed with Drilling Department? Y/N*** No

MWD/LWD Program***

- **Will MWD/LWD services be required?*** ** Yes - Gamma Ray only
- **If so, justification is as follows:**

For costing purposes, provide documented cost estimate and enter value in summary table at back of WPC**

Depth Interval	800-1880mTVDSS			
Hole Size	12 1/4"			
Directional Only				
Directional/Resis/GR	GR-RES			
Porosity				

- **Has BHA configuration been discussed with Drilling Department?**

  No

Geophysical Surveys (specs provided by geophysical applications)***

- **Will a geophysical survey be run?*** ** Yes

For costing purposes, provide documented cost estimate and enter value in summary table at back of WPC**

- **Type of velocity survey to be run (i.e. checkshot, VSP, walkaways, etc)**

  VSP - zero offset

- **What depth?**

  From TD to surface casing

- **Energy source and supplier.**

  Schlumberger airgun

- **Geophone type.**

  Dual CSAT

- **Will a pit or boat be required?**

  No

- **Pit specs provided to drilling.**

  N/A

- **Will geophysical applications provide on-site supervision?**

  Not likely

- **Any additional special instructions:**

WELLSITE GEOLOGICAL SUPERVISION

Will a contract Wellsite Geologist be required?* Y/N** Yes

Will the Wellsite Geologist require backup during long work periods? Y/N Yes from top 12 1/4" hole.
If so provide a (documented) cost estimate and enter the value in the summary table at the back of the W.P.C.***

Bid/Contract Considerations

Technical specifications (tool types, services required, etc) are to be/have been supplied to Formation Evaluation and Geophysical Operations for inclusion in bids/contracts/planning, etc***

Specifications	To Whom	Date	EAL Contact
Wireline	Schlumberger	Provided for by normal contracts	A. Hodgson/ K. Kuttan
Wellsite Geology	AIPC		A. Hodgson/ K. Kuttan
Mudlog	BHI		A. Hodgson/ K. Kuttan
MWD/LWD	Anadrill		A. Hodgson/ K. Kuttan
Biostratigraphy	URC		A. Hodgson/ K. Kuttan
Onsite Sample Transfer / PVT	Petrolab / ACS		A. Hodgson/ K. Kuttan
Geophysical - Shallow Hazards	N/A		A. Hodgson/ K. Kuttan

Cost elements for Formation Evaluation related services (via contract terms, quotes, or contract plan) are to be provided to Drilling for inclusion in the well costing on the following table.

Summary of Anticipated Costs for Inclusion in Well Costing***

(include only items expected to be invoiced within six months of reaching TD)

Item	Vertical	Sidetrack
Wireline Logging (including Processing and Seismic)	$ 318,761.72	
LWD Gr	$ 700,000.00	
Mudlogging	$ 118,450.00	
Wellsite sample transfer: equipment rentals only	$ 36,340.00	
Palynology	$ 50,000.00	
FE Surveillance	$ 33,000.00	
Operations Geology Surveillance	$ 30,000.00	
Wellsite Geological Supervision	$ 56,000.00	
Total	$ 1,342,551.72	

Note - all costs based on dry hole case
[1] includes indicative equipment rentals for callout tools (MSCT and MDT) used in a success case. Includes FMI.
[2] assumes 24 day dry hole AFE

When requesting cost estimates from Formation Evaluation for any of the above, supply a documented programme as backup.

913711 398

Site Survey Report

Site Survey Report

Beardie-1 NFW
EAL OIMS Shallow Drilling Hazard Evaluation
EMEC/Site Investigation Endorsement

Introduction

In order to comply with EMDC/Drilling OIMS Manual–Shallow Hazards section, EMEC's /Site Investigation Group (SI Group) are required to review and endorse the shallow hazard assessment prepared EAL/Gippsland Production Geoscience Group for the Beardie–1 well. This note summarises the findings of this review.

The planned spud date for the Beardie-1 well is between July 20, 2002 and August 7, 2002 and the well is to be drilled by the *Ocean Bounty*, an anchored semi-submersible rig.

This review is based on the following information that has been supplied to SI Group by Gippsland Production Geoscience Group.

1. Single page preliminary report prepared by Thales on results from Beardie-1 site survey (received May 16, 2002)
2. Shallow Gas and Seafloor Hazards for Beardie-1 (received June 28, 2002)
   This internal report was written by P.B. Owen and A. Zannetos based on an analysis of the G99A Barracouta 3D seismic survey and three offset well locations, Whiting 2 (~4km east), Wirrah 3 (~6.3km north) and Barracouta 1 (~9km west). The report predates the Beardie-1 site survey.
3. Beardie 1 Well Planning Checklist, dated January 16, 2002 (received June 28, 2002)
4. Beardie-1 Well schematic (received June 30, 2002)
5. Ocean Bounty preliminary mooring pattern (received June 30, 2002)
6. Beardie-1 Authorisation to Drill document, dated May 2002 (received July 1, 2002)
7. Berdie-1 Site Survey Report-Thales GeoSolutions (Australasia) Ltd dated April 2002 (Received July 2, 2002)

Well Location

The proposed Beardie-1well is at the following location (AGD 66, AMG Zone 55, CM 147° East):

Latitude	:	38° 15' 16.27" S
Longitude	:	147° 48' 24.63" E
A.M.G.	:	X = 570,593.8mE Y = 5,765,622.4mN

Water depth and Seabed Conditions

The Shallow Gas and Seafloor Hazards for Beardie-1 report states that the 3D data is of insufficient quality to enable accurate mapping of the seafloor and recommends that a site survey is performed before moving any rig to this location. Subsequently a seabed clearance and shallow soils survey was carried out by Thales GeoSolutions (Australasia) Ltd in March 2002. The survey covered an area of 3x3km centered on the proposed Beardie-1 location.

The water depth at the proposed well location is 49.9m LAT (50.8m below Mean Sea Level). The water depth across the survey area ranges from 48.1m to 51.1m LAT. The seabed is reported to be gently undulating with slopes of less than 1°. One 11x7m, 5.0m high object has been identified offset approximately 1398m on a grid bearing of 147 degrees from the proposed location. This position is considered to be accurate to ± 15m.

The shallow soils comprise 1.5 to 2.0 m of loose to medium dense coarse silty sands, overlying a unit of medium dense to dense shelly sands.

Shallow Gas

The tophole sequence is dominated by a carbonate sequence known as the Gippsland Limestone which comprises limestone, calcarenite and marl, extending from seabed to a depth of 754m TVDSS. This same lithology makes up the slumps and slump glide planes evident in the lower part of the formation. It is therefore anticipated that the reservoir quality (porosity and permeability) would be poor within this formation.

Minor amounts of gas in the tophole section are known to occur throughout the Gippsland Formation. No hazardous shallow gas zones were reported from any of the offset wells, with maximum total gas percentage recorded above Top of Latrobe (TOL) of 0.5%.

Given this lithology, it is not entirely clear how shallow gas would manifest itself as a Direct Hydrocarbon Indicator (DHI) in the shallow section (bright spot vs. dim spot?). However, high amplitude packages have been identified at 272-320m TVDSS and 1024-1151m TVDSS. Both of these amplitude packages do not show conformance to structure. Therefore, lithological variability within the carbonate section, rather than the presence of significant gas accumulation at these levels presumably cause the high amplitudes.

There are no anomalous amplitudes above the base Miocene. Below the base Miocene at 1024m-1151m TVDSS the wellbore will intersect a small enclosure identified on the time section, however in a depth section this enclosure is no longer apparent. Sandstones are expected at this level. The Barracouta-4 well experienced lost circulation within these equivalent sands. In the unlikely event that gas is reservoired in these sands and the well became under balanced (due to lost circulation) then a gas flow could occur. However, above this depth the 13⅜" conductor will have been set with the BOP nippled up.

Conclusions

- The water depth at the proposed location is 49.9m LAT the seafloor is almost flat (slopes with less than one degree gradient).
- There is no evidence of any seabed infrastructure (wells and pipelines) within a 1.5km (4900ft) radius of the proposed location. One object 5m high object has been identified on the seabed. It is anticipated that the mooring spread has been tailored to avoid this feature.
- A normal pressure gradient is expected through the tophole section.
- Tophole lithologies are not favorable for the development of shallow reservoirs.
- Only minor gas shows were seen in the offset wells (maximum 0.5%).
- There is a low risk of lost circulation within the Earliest Miocene to Latest Cretaceous sands (Gippsland Limestone and Lakes Entrance Formations) that are well below the 13⅜" casing shoe.
- There is no obvious migration path, (i.e. fault network) from the target horizons to the shallow section.

Based on the available information provided by EAL, we concur with the findings of the shallow hazard assessment prepared by EAL/Gippsland Production Geoscience Group, that no prohibitive seafloor or other tophole condition exists at the proposed Beardie-1 location.

It is anticipated that all future site investigations for EAL operated wells will be conducted by corporate experts, as defined by the CARDS Skills Inventory System.

Andy Zannetos

31/05/2002 10:53 am

To: Chris P Meakin/U-SouthPacific/ExxonMobil@xom
cc: John F Moore/U-SouthPacific/ExxonMobil@xom, James E Corthay/U-Houston/ExxonMobil@xom, Paul B Owen/SouthPacific/Mobil-Notes@xom
Subject: Re: Beardie-1 Site Survey - Who is the Shallow Drilling Hazards Geologists/Geophysicists?

Chris, I have reviewed the report and the data, and endorse the analysis of shallow hazards by Thales.

Regards, Andy

Andy Zannetos
Gippsland Production Geoscience

Ph 9270-3731 Fax 9270-3895
Email: andy.zannetos@exxonmobil.com
Chris P Meakin

Chris P Meakin

31/05/02 09:06

To: Andy Zannetos/U-SouthPacific/ExxonMobil@xom
cc:
Subject: Re: Beardie-1 Site Survey - Who is the Shallow Drilling Hazards Geologists/Geophysicists?

Andy,

Can we get this items closed out, viz the analysis of shallow hazards or an endorsement of Thales Site Survey report, by a Shallow Drilling Hazards Geophysicist. A qualified affiliate geophysicist may also perform this function. Please let me know when this will be completed.

As detailed in my earlier note in February (below), our OIMS requires

"The analysis shall be included in a report prepared and signed by a geophysicist or geologist specializing in high-resolution geophysical interpretation. If a contractor prepares the report, a company geologist/geophysicist shall review and endorse the report.
· The primary company expert to be consulted is the Shallow Drilling Hazards Geophysicist. A qualified affiliate geophysicist may also perform this function.
· A contractor may not have been privy to all available data (i.e., company proprietary, etc.) and their independent conclusions may reflect this."

Regards

Chris Meakin
Drilling Engineer
EMDC Drilling - Australia Offshore
+61 3 9270 3536 (phone); +61 3 9270 3593 (fax)
E-mail: chris.p.meakin@exxonmobil.com (including attachments)

----- Forwarded by Chris P Meakin/U-SouthPacific/ExxonMobil on 31/05/2002 09:05 am -----

Chris P Meakin

20/02/2002 02:43 pm

To: Andy Zannetos/U-SouthPacific/ExxonMobil@xom
cc:
Subject: Re: Beardie-1 Site Survey - Who is the Shallow Drilling Hazards Geologists/Geophysicists?

Andy,

The requirements for a site survey are driven by both shallow hazard evaluation and rig insurance requirments. Attached is an extract from the EMDC Drilling OIMS manual dealing with site survey requirements.

Shallow Hazards
A Shallow Hazards Assessment shall be conducted for all ExxonMobil wells, and a determination made if a Shallow Hazards Survey and associated analysis are required.
Shallow Hazards Assessment
The purpose of a Shallow Hazards Assessment is to provide an evaluation and risk analysis of any shallow conditions (natural or man-made) that could impact the safety of the drilling operation. The scope of the assessment depends on the nature of the proposed well (i.e., land vs. offshore, exploration vs. development, etc.), geologic environment, general knowledge of the area and government regulations.
The assessment shall include a review of existing information for any evidence of shallow hazards. Sources may include the following:
- Offset well/soil data, including appropriate geological and geophysical data and offset well casing pressure
- Bathymetry data
- Piston core data , if available
- Exploration seismic data (For land locations, shot hole and "up" hole data, if available, shall be reviewed.)
- Up-to-date drawings of pipelines and data regarding the position and characteristics of previous rigs that worked in the area
- Up-to-date maps of buried/subsea cables (communications, power, etc.)
- Regional seismicity (i.e., number and intensity of earthquakes) in earthquake prone areas
- Existence of natural seeps
- Literature (company and public)

A field-wide assessment may be sufficient for development wells.

Survey to collect data
If a thorough analysis, as described below, can be made using available geological and geophysical data, a site-specific survey is not generally necessary (unless required by government regulations or rig insurance requirements).
Offshore survey methods may include:
· Echo sounder
· Sub-bottom profiler
· 2-D high resolution multifold seismic
· Side Scan Sonar
· Hi-Frequency 3-D near Trace Cube data from seismic program
Dimensions of the individual grid depends on regulatory requirements and local geology and shall be designed to cover the area of anticipated physical disturbances. The grid shall be extended to include any nearby offset wells, which exhibited shallow drilling problems (i.e., shallow gas, water flows, etc.). For a moored floater, the grid shall cover a minimum of the anchor pattern.
Depth of the survey will vary with the basin. Generally, the survey shall be extended to the surface casing point or to a minimum of 3,000 ft BML.
A magnetometer survey shall be conducted where required by regulations or in areas where pipelines or other ferromagnetic objects exist which may impact the rig's anchor pattern or jack-up rig approach. A magnetometer shall not be required in frontier areas where no pipelines/known obstructions exist. (For operational reasons, the magnetometer tool is limited to water depths of about 1,000 ft.)
Instead of a full shallow hazards survey as described above, a seafloor investigation may be conducted when adequate data is available to assess the potential for sub-surface shallow hazards, such as for a well developed field.
Under certain conditions, additional instrumentation and methods such as underwater television, still or movie cameras, divers, remote or manned submersibles, and additional geophysical survey lines may be necessary.
Additional geotechnical work (i.e., soil sampling, drop coring, piston coring, etc.) shall be conducted, as required, to determine anchor holding capacity, guide base/mud mat bearing capacity, jack-up rig leg penetration depth, structural casing integrity, to confirm seafloor hydrocarbon seeps, etc.

Land survey normally involves physical inspection. Shallow seismic data is typically less reliable on land and more emphasis is placed on offset data (including water well data), site trips and coring/borehole studies.
In certain areas, geotechnical borings may be performed to asses soil conditions for foundation stability. This is particularly important where soil subsidence is observed or expected.
Based on the above surveys (offshore or land), it may be desired to have Exploration perform a pore pressure prediction from velocity data. This method has typically been applied below 2,000 ft, but can apply shallower.

Analysis of survey data
The analysis includes the following:
· A review of any seafloor and subsurface geological and man-made features and conditions which may have an adverse effect on the drilling operation.
· A discussion of risks and any special safety measures that would minimize the adverse effects of shallow hazards.
· A foundation evaluation for jack-up rigs, if applicable, which considers the jack-up footing configuration, environmental loads, jack-up pre-load capacity and soil conditions.
The analysis shall be included in a report prepared and signed by a geophysicist or geologist specializing in high-resolution geophysical interpretation. If a contractor prepares the report, a company geologist/geophysicist shall review and endorse the report.
· The primary company expert to be consulted is the Shallow Drilling Hazards Geophysicist. A qualified affiliate geophysicist may also perform this function.
· A contractor may not have been privy to all available data (i.e., company proprietary, etc.) and their independent conclusions may reflect this.
Responsibilities:
- Exploration wells and those development wells with identified shallow hazards: Engineering Manager, Supervising Engineer and Shallow Drilling Hazards Geologists/Geophysicists
- Development wells with no identified shallow hazards: Engineering Manager, Supervising Engineer
Approval Authority: Field Drilling Manager (including alternatives/exceptions)

Regards

Chris Meakin
Drilling Engineer
EMDC Drilling - Australia Offshore
+61 3 9270 3536 (phone); +61 3 9270 3593 (fax)
E-mail: chris.p.meakin@exxonmobil.com (including attachments)

Andy Zannetos

Andy Zannetos 20/02/2002 02:13 pm

To: Chris P Meakin/U-SouthPacific/ExxonMobil@xom
cc:
Subject: Re: Beardie-1 Site Survey - Who is the Shallow Drilling Hazards Geologists/Geophysicists?

Chris, this is the note I got back from Houston. If you can give me something on OIMS responsibilities that would be great. Thanks. Andy

Andy Zannetos
Gippsland Production Geoscience

Ph 9270-3731 Fax 9270-3895
Email: andy.zannetos@exxonmobil.com
----- Forwarded by Andy Zannetos/U-SouthPacific/ExxonMobil on 20/02/02 14:13 -----

Donal S Mageean To: Andy Zannetos/U-SouthPacific/ExxonMobil@xom

20/02/02 03:54

cc: Glen A Nash/U-SouthPacific/ExxonMobil@xom, James E Corthay/U-Houston/ExxonMobil@xom
Subject: Re: Beardie-1 Site Survey - Who is the Shallow Drilling Hazards Geologists/Geophysicists?

Andy,
Jim Corthay is working a technical recommendation as we speak. Just a heads up on another issue. With the new skill areas and their roles and responsibilities world wide, I'm somewhat surprised to see that Drilling is planning the site survey !
Should John Knapp's group (Geophysical Operations) not be associated/consulted for this ? I'm not trying to push the "Big Brother" story and having worked many years in a subsidiary, I understand the frustration of the "Houston Factor", but you may want to at least engage them in your plans.
Talk with you soon.

Best wishes
Donal
Operations Geology Coordinator
Tel: 281-654-5157, Fax: 281-654-5355
Cell phone: 281-723-9713
Andy Zannetos

Andy Zannetos
02/18/02 03:19 PM

To: Donal S Mageean/U-Houston/ExxonMobil@xom
cc: Glen A Nash/U-SouthPacific/ExxonMobil@xom, James E Corthay/U-Houston/ExxonMobil@xom
Subject: Re: Beardie-1 Site Survey - Who is the Shallow Drilling Hazards Geologists/Geophysicists?

Donal, thanks for your reply. I'd like to put myself and John Moore down for a certification check for this type of work.

Regards, Andy

Andy Zannetos
Gippsland Production Geoscience

Ph 9270-3731 Fax 9270-3895
Email: andy.zannetos@exxonmobil.com
Donal S Mageean

Donal S Mageean
18/02/02 14:30

To: Andy Zannetos/U-SouthPacific/ExxonMobil@xom
cc: Glen A Nash/U-SouthPacific/ExxonMobil@xom, James E Corthay/U-Houston/ExxonMobil@xom
Subject: Re: Beardie-1 Site Survey - Who is the Shallow Drilling Hazards Geologists/Geophysicists?

Andy,
You were correct in copying Jim Corthay. He is the team lead for the Shallow Hazards group. Yes, Houston will need to be involved as the new work model requires us to review the data. A local interpreter can do this type of work if he is certified under the CARDS systems as a local Expert or Subject Matter Expert.
If you can supply the name of your interpreter I will be glad to have the SALTS review his CARDS data.
Looking forward to working with you.

Best wishes
Donal
Operations Geology Coordinator
Tel: 281-654-5157, Fax: 281-654-5355
Cell phone: 281-723-9713

Andy Zannetos

Andy Zannetos
02/17/02 08:48 PM

To: Donal S Mageean/U-Houston/ExxonMobil@xom
cc: Glen A Nash/U-SouthPacific/ExxonMobil@xom, James E Corthay/U-Houston/ExxonMobil@xom
Subject: Beardie-1 Site Survey - Who is the Shallow Drilling Hazards Geologists/Geophysicists?

Donal, we communicated briefly last year regarding Beardie-1 NFW. I was wondering if you could help me with a further question outlined below of who handles the interpretation of the site survey for the analysis of shallow hazards. I spoke to John Moore, our GAPS expert, and he said he'd QC'd these types of surveys overseas before but never in Australia. He advised that I should contact Houston to get clarification/guidance on whether it was okay for the affiliate interpreters to interpret this data or whether some Houston involvement was required.

In a previous note you advised that Jim Corthay would be the contact on Shallow Hazards so I'll cc the note to him as well.

Regards, Andy

Andy Zannetos
Gippsland Production Geoscience

Ph 9270-3731 Fax 9270-3895
Email: andy.zannetos@exxonmobil.com
----- Forwarded by Andy Zannetos/U-SouthPacific/ExxonMobil on 18/02/02 13:22 -----

Chris P Meakin
18/02/02 09:55

To: Andy Zannetos/U-SouthPacific/ExxonMobil@xom
cc: Glen A Nash/U-SouthPacific/ExxonMobil@xom
Subject: Beardie-1 Site Survey - Who is the Shallow Drilling Hazards Geologists/Geophysicists?

Andy,

For the Beardie-1 site survey we're planning:
- Sidescan survey
- Echosounder/bathymetry survey
- Boomer sub-bottom profiler

The Boomer sub-bottom profile is included in the package price.

We considered a magnetometer survey, and decided it was not neccessary.

Our EMDC Drilling OIMS manual requires the following analysis from the site survey.

Analysis of survey data
The analysis includes the following:
· A review of any seafloor and subsurface geological and man-made features and conditions which may have an adverse effect on the drilling operation.
· A discussion of risks and any special safety measures that would minimize the adverse effects of

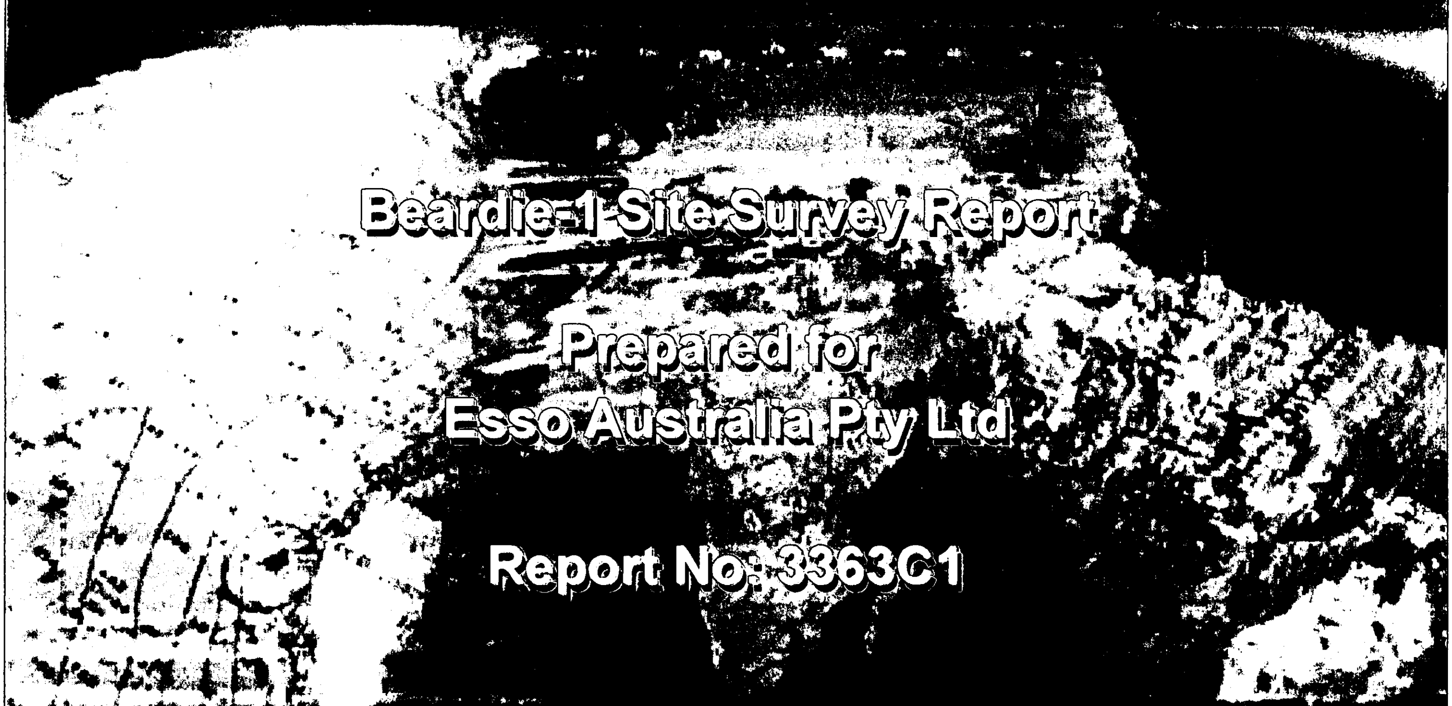
shallow hazards.
· A foundation evaluation for jack-up rigs, if applicable, which considers the jack-up footing configuration, environmental loads, jack-up pre-load capacity and soil conditions.
The analysis shall be included in a report prepared and signed by a geophysicist or geologist specializing in high-resolution geophysical interpretation. If a contractor prepares the report, a company geologist/geophysicist shall review and endorse the report.
· **The primary company expert to be consulted is the Shallow Drilling Hazards Geophysicist. A qualified affiliate geophysicist may also perform this function.**
· A contractor may not have been privy to all available data (i.e., company proprietary, etc.) and their independent conclusions may reflect this.

Responsibilities:
- Exploration wells and those development wells with identified shallow hazards:
Engineering Manager, Supervising Engineer and **Shallow Drilling Hazards Geologists/Geophysicists**
- Development wells with no identified shallow hazards: Engineering Manager, Supervising Engineer
Approval Authority: Field Drilling Manager (including alternatives/exceptions)

Regards

Chris Meakin
Drilling Engineer
EMDC Drilling - Australia Offshore
+61 3 9270 3536 (phone); +61 3 9270 3593 (fax)
E-mail: chris.p.meakin@exxonmobil.com (including attachments)

THALES



Beardie-1 Site Survey Report

Prepared for
Esso Australia Pty Ltd

Report No: 3363C1

Thales GeoSolutions (Australasia) Limited
ABN 82 000 601 909
Hydrographic House
4 Ledgar Road
BALCATTA WA 6021
Tel: +61 (0) 8 9344 7166
Fax: +61 (0) 8 9344 8783

913711 408

THALES

Thales GeoSolutions (Australasia) Limited
ABN 82 000 601 909

Hydrographic House
4 Ledgar Road
Balcatta WA 6021
Tel: + 61 (0) 8 9344 7166
Fax: + 61 (0) 8 9344 8783

Prepared for

ESSO AUSTRALIA PTY LTD

DOCUMENT TITLE	:	BEARDIE-1 SITE SURVEY REPORT
CLIENT	:	ESSO AUSTRALIA PTY LTD
LOCATION	:	GIPPSLAND BASIN, BASS STRAIT
PERMIT	:	VIC/L2
REPORT REF.	:	3363C1
REPORT REV NO.	:	0
REPORT ISSUE DATE	:	15 APRIL 2002
SURVEY DATE	:	15 - 27 MARCH 2002

CONTENTS

LIST OF FIGURES

APPENDICES

A - SAFETY REPORTS

B - OFFSET DIAGRAM - BLUEFIN

C - GNS SYSTEM DATA PRINTOUT

D - GYROCOMPASS CALIBRATIONS PRINTOUTS

E - STATIC DIFFERENTIAL GPS CHECK PRINTOUTS

F - BAR CHECK & MOTION SENSOR CHECK

G - SIDE SCAN SONAR WET TEST & RUB TEST

H - BOOMER WET TEST AND PULSE TEST

I - VELOCITY OF SOUND IN SEAWATER PROFILE

J - SURVEY LINE LOGS

K - FIELD SEABED SAMPLE DESCRIPTIONS

L - TIDAL PREDICTIONS

M - DAILY FIELD PROGRESS REPORT SHEETS

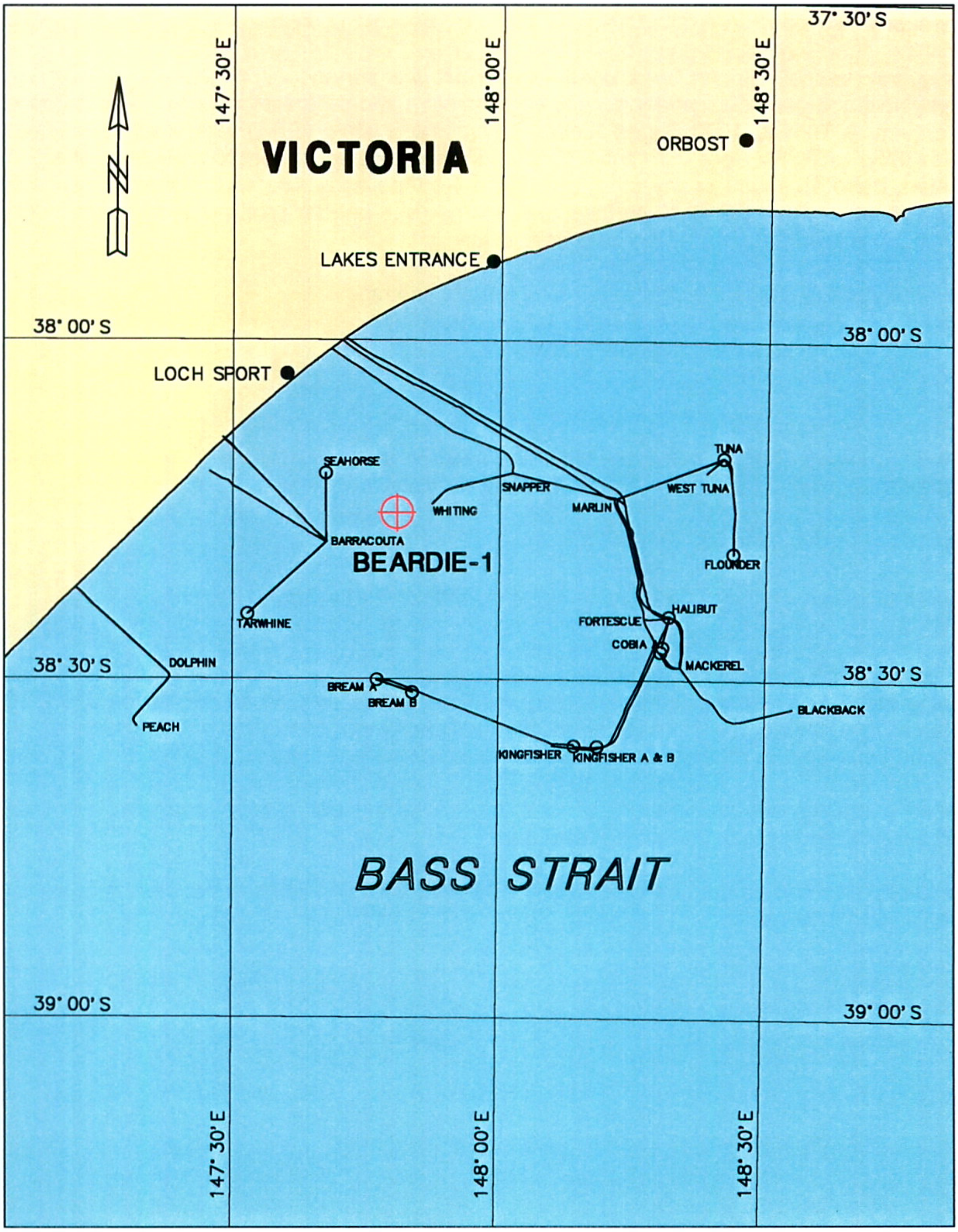
DRAWINGS

3363C1-01	TRACK DRAWING	Scale 1:5000
3363C1-02	BATHYMETRY DRAWING	Scale 1:5000
3363C1-03	SEABED FEATURES DRAWING	Scale 1:5000
3363C1-04	ISOPACH DRAWING	Scale 1:5000
3363C1-05	GEOLOGICAL PROFILE DRAWING	Scale 1:5000/1:200

~~PE913711_colour Ø28~~

913711 413

LOCATION DIAGRAM



1. INTRODUCTION

Positioning, bathymetric and geophysical services were provided by Thales GeoSolutions (Australasia) Limited (Thales) to Esso Australia Pty Limited (Esso), for a survey of the proposed Beardie-1 location, in the Gippsland Basin, Bass Strait, offshore Victoria. All survey requirements and operating procedures were undertaken in accordance with the agreement between Thales and Esso. The survey was undertaken to investigate the suitability of the area for the positioning of a semi-submersible rig.

The survey vessel, Bluefin, was used to conduct the survey. All necessary survey positioning, geophysical and geotechnical equipment were installed and calibrated prior to the commencement of the survey. A Trimble 4000 Series Global Positioning System (GPS) was used in conjunction with Thales' SkyFix/SkyFix Spot Differential GPS and associated equipment to provide on-line positioning. An Atlas Deso 15 single beam echo sounder, a GeoAcoustics side scan sonar towfish with CODA data logging and an EG & G surface tow boomer sub-bottom profiling system with CODA data logging were used for geophysical data acquisition.

The survey site is 3.0km x 3.0km with a total area of 9.0km^2.

Esso supplied the proposed Beardie-1 location:

Datum: AGD66

Latitude	:	38° 15' 16.30" South
Longitude	:	147° 48' 24.60" East

Projection: AMG Zone 55, CM 147° East

Easting	:	570 593.00m
Northing	:	5 765 623.00m

The survey area consisted of 31 primary lines 3.0km long, on an orientation of 090°/270° with a line spacing of 100m. The cross lines consisted of 5 lines 3.0km long, on an orientation of 0°/180° with a line spacing of 500m. The full suite of geophysical equipment consisting of echo sounder, side scan sonar and sub-bottom profiler was run simultaneously on these lines.

Seabed sampling was successfully undertaken across the site survey area, and the results have been used to ground truth the geophysical data.

The survey was carried out between 25 and 27 March 2002. All times are quoted in Eastern Daylight Time (UTC+11 hours).

2. SUMMARY OF SURVEY RESULTS

Bathymetry

All soundings have been reduced to the Lowest Astronomical Tide (LAT) based on tidal predictions obtained from Esso. LAT is approximately 0.9m below Mean Sea Level (MSL) or the Australian Height Datum (AHD).

The nearest observable water depth to the proposed Beardie-1 location is 49.9m LAT. The minimum water depth observed within the site survey area was 48.1m LAT, 1.9km northwest of the proposed Beardie-1 location. The maximum water depth observed was 51.1m LAT, 2.0km southeast of the proposed Beardie-1 location.

Overall, the seabed is essentially flat, across the site with only a 3.5m variation in seabed height. The seabed within the site survey area shows no overall geographic trend but undulates with a very gentle gradient <1° (<1:57).

Seabed features

A low reflectivity seabed interpreted as loose/medium dense, medium to coarse silty SAND with some shell fragments occurs ubiquitously across the Beardie-1 site survey area. The proposed Beardie-1 location lies within this seabed type. Three gravity corer samples were recovered within this seabed type.

One sonar contact was identified, approximately 11m across and 5.0m in height interpreted as a piece of debris.

Shallow geology

The shallow stratigraphy in the survey area has been defined as follows:

Stratigraphy	Description
Unit A	Loose to medium dense medium to coarse silty SANDS with some shell fragments.
Unit B	Medium dense to dense shelly SANDS
Unit C	Bedded consolidated sediments.

The shallow stratigraphy at the proposed Beardie-1 location has been defined as follows:

Top of Unit	Depth Below Seabed (m)	Unit Thickness (m)	Predicted Lithology
Unit A	0	1.5	Loose to medium dense, medium to coarse silty SANDS with some shell fragments.
Unit C	1.5	Beyond limit of useful acoustic penetration	Bedded consolidated sediments.

Shallow Gas Risk Assessment

Using the method of shallow gas risk assessment outlined in section 3.5 of this report, the risk of shallow gas is defined as slight (gas unlikely) at the proposed Beardie-1 location and within the limit of useful boomer penetration.

Seabed Sampling

Three gravity corer samples of the seabed were collected near the proposed Beardie-1 location the results of which have been used to ground truth the geophysical data.

3. SURVEY RESULTS

3.1 BATHYMETRY

Analogue and digital soundings of the seafloor were obtained using an Atlas Deso 15 Single Beam echo sounder. The data was corrected for heave using a TSS DMS 2-05 motion sensor. The transducers were mounted onto the starboard side of the vessel and a bar check was carried out prior to commencement of the survey. A draft setting of 1.54m was obtained for the 33kHz and 210kHz transducers on 16 March 2002. These were entered into the echo sounder (refer Appendix F).

All soundings have been reduced to LAT based on the tidal predictions obtained from Esso (refer Drawing No. 3363C1-02). LAT is approximately 0.9m below Mean Sea Level (MSL) or the Australian Height Datum (AHD) (refer Appendix L).

Bathymetric data quality was generally good with minimal miss-ties. Maximum miss-ties observed were up to 0.3m.

The velocity of sound in seawater was determined prior to the commencement of the survey by the deployment of an Applied Microsystems Model SVPlus Velocity Profiler Probe. A mean velocity of sound of 1517.9m/s was determined and entered into the echo sounder on 25 March 2002 (refer Appendix I).

The bathymetric soundings are representative of the seafloor topography and are plotted on Drawing No. 3363C1-02 (Scale 1:5000) and contoured at 1m intervals.

The nearest observable water depth to the proposed Beardie-1 location is 49.9m. The minimum water depth observed within the site survey area was 48.1m, 1.9km northwest of the proposed Beardie-1 location. The maximum water depth observed was 51.1m, 2.0km southeast of the proposed Beardie-1 location.

Overall, the seabed is essentially flat, across the site with only a 3.5m variation in seabed height. The seabed within the site survey area shows no overall geographic trend but undulates with a very gentle gradient <1° (<1:57).

The seabed within a 100.0m radius of the proposed Beardie-1 location appears clear of any topographical features that may be considered hazardous to drilling operations.

A single beam echo sounder data example at the proposed location is shown as Figure 1.

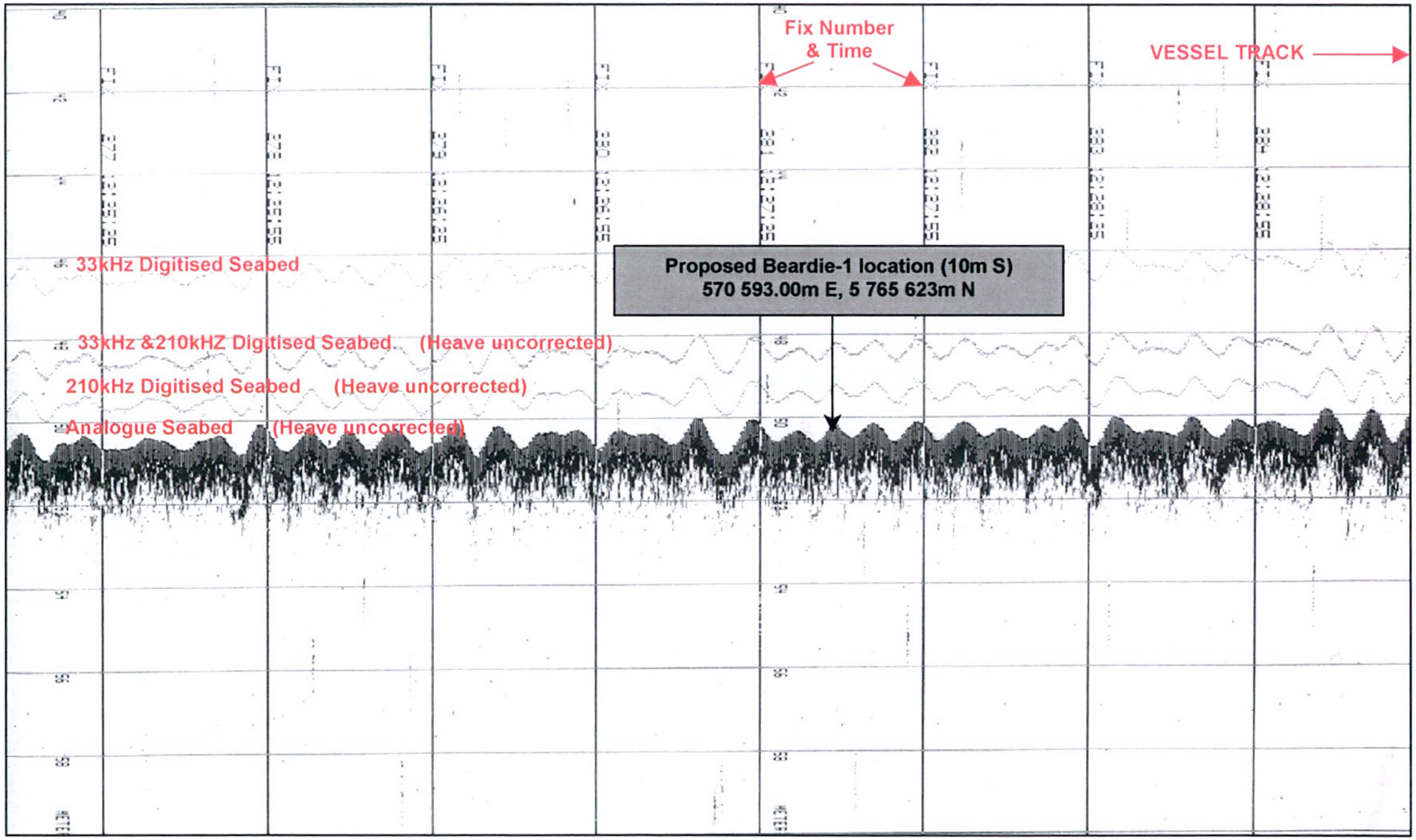


Figure 1 : 33kHz and 210kHz Atlas Deso 15 single beam echo sounder data example. Illustrates the seabed bathymetry at the proposed Beardie-1 location.
Line BP16. Heading 270°

3.2 SEABED FEATURES

The textural characteristics and reflective strengths of the seafloor around the survey area were investigated by the deployment of a GeoAcoustics side scan sonar system. The system consists of the GeoAcoustics side scan sonar towfish & transceiver operated at 100kHz, a CODA DA200 Digital Recorder and an Alden 9315 CTP printer. The data was digitally recorded using the CODA Acquisition System to allow further processing or replay. The side scan sonar was set with a slant range of 125m, with interval scale lines of 10m, providing over 100% data overlap on a 100m primary line spacing.

Three gravity corer samples were recovered within the site survey area. These samples were used to ground truth the geophysical data. Correlation between seabed sample data and sonar acoustic reflectivity across the survey area enables textural characteristics to be interpreted in terms of sediment lithology and plotted on the seabed features drawing (refer Drawing No. 3363C1-03).

The quality of the side scan sonar data was good. Insonification of the seabed was achieved to the limit of the selected slant range, and adequate to produce the required coverage.

Seabed sediments within the survey area have been interpreted and classified into the following acoustic and lithological seabed categories:

Low reflectivity seabed interpreted as loose/medium dense, medium to coarse silty SANDS with some shell fragments.

This seabed type occurs ubiquitously across the Beardie-1 site survey area and consists of loose/medium dense, medium to coarse silty SANDS with some shell fragments. It is characterised by a flat, low reflectivity seabed.

Three gravity core samples recovered in this seabed type consist of loose/medium dense, medium to coarse silty SANDS with some shell fragments. The proposed Beardie-1 location lies within this seabed type (see Figure 2).

The seabed is clear of debris and obstruction in the vicinity of the proposed Beardie-1 location.

Sonar Contacts

One sonar contact was identified approximately 11m across and with a height of approximately 5.0m. It is interpreted as a piece of debris (see Figure 3). The as-found (side scan sonar) position of the contact can be found below.

Datum: AGD66 Projection: AMG Zone 55, CM 147° East

Description	Easting (m)	Northing (m)
Debris	571 357	5 764 451

Positional Considerations

The accuracy of derived dimensions is dependent on the quality of the side scan sonar data. Adverse operating conditions can produce effects such as tow fish heave and yaw, which reduce interpretation accuracy.

The accuracy with which a sonar contact or seabed feature can be positioned is dependent on a number of factors. Survey considerations are of primary importance, as position accuracy ultimately depends on the accuracy with which both the vessel and tow fish can be positioned. Running adjacent survey lines in opposite directions reduces the effects of tow fish position inaccuracy, as miss-ties between lines can then be averaged to produce a best-fit position.

The position accuracy of features derived from an interpretation of side scan sonar data, is subject to additional considerations that are independent of the data quality issues discussed above. Such potential errors include those associated with scaling, plotting and subsequent digitising of features. Additionally, certain features require a subjective interpretation.

In the survey area, the accuracy of positioning is estimated at ± 15m and the accuracy of height measured above and below ambient seabed is estimated at ± 0.5m.

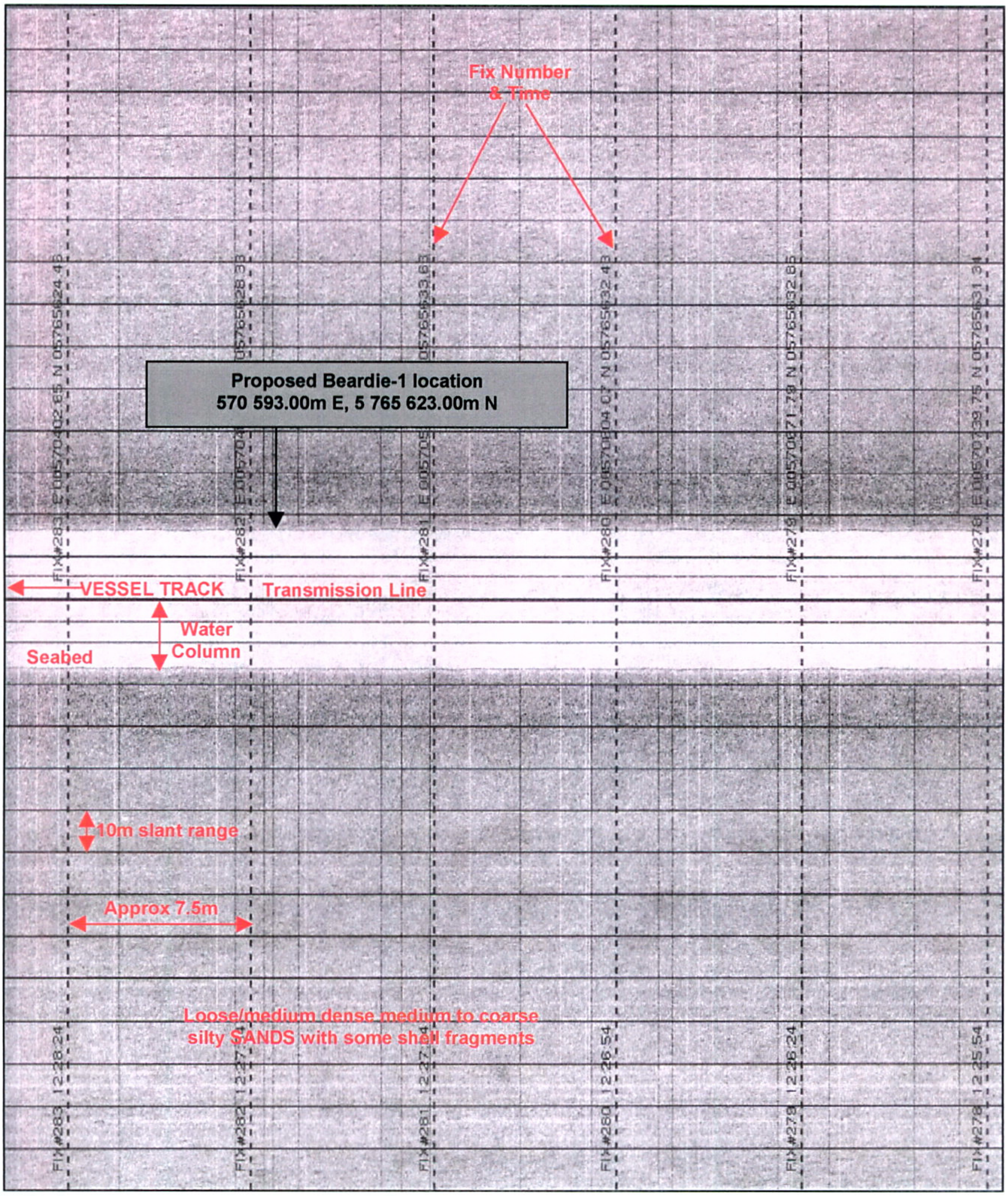


Figure 2 : 100kHz side scan sonar data example. Illustrates the low reflectivity seabed interpreted as loose/medium dense medium to coarse silty SANDS with some shell fragments surrounding the proposed Beardie-1 location.
Line BP16. Heading 270°

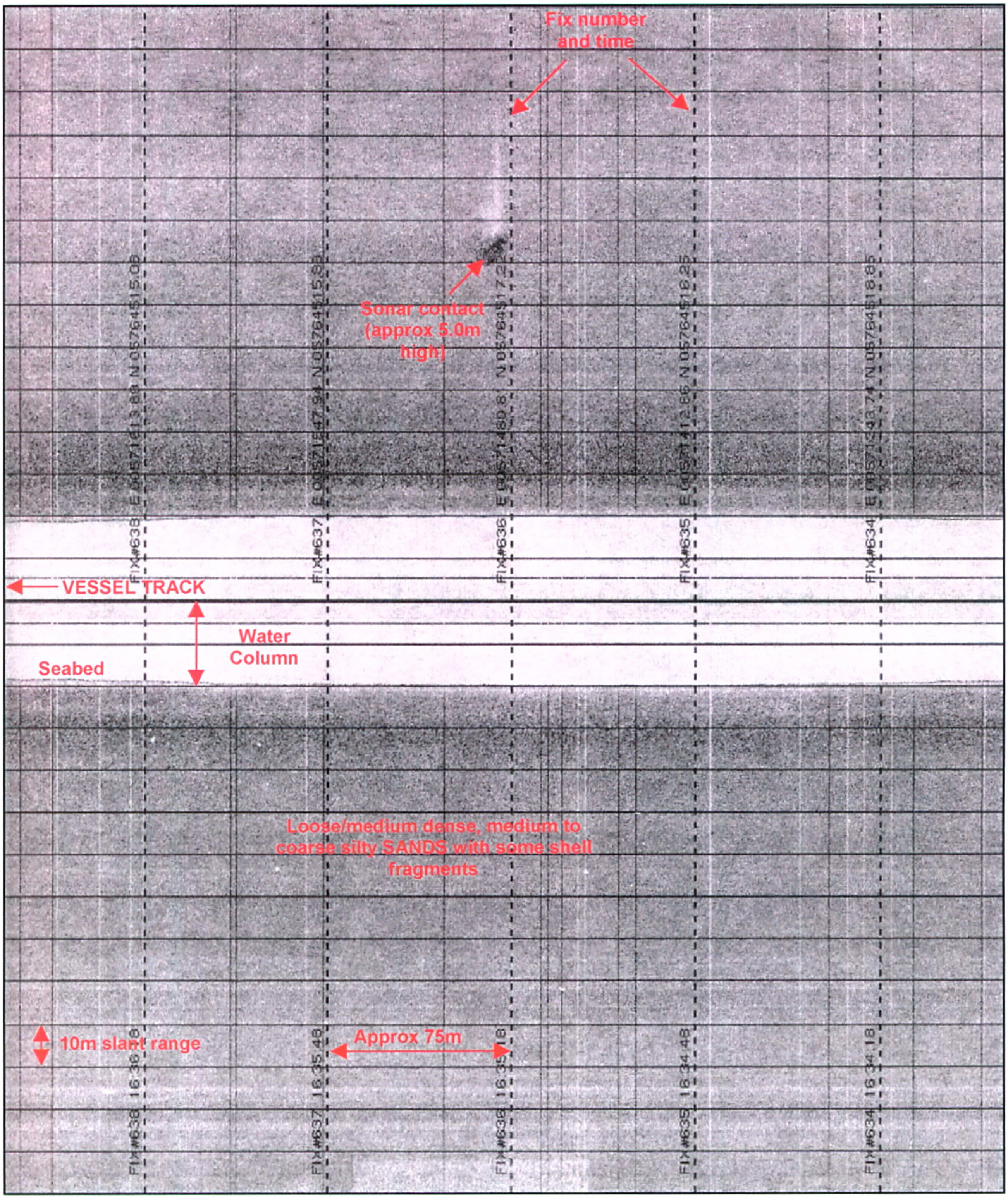


Figure 3 : 100kHz side scan sonar data example. Illustrates the sonar contact interpreted as debris and the surrounding seabed
Line BP5. Heading 90°

3.3 SHALLOW GEOLOGY

The shallow geology of the survey area was interpreted from data acquired by the deployment of an EG&G 230 surface tow boomer. Analogue seismic data was recorded on a CODA DA200 Digital Recorder and an Alden 9315 CTP printer. The data was digitally recorded using the CODA Acquisition System to allow further processing or replay. The boomer data was recorded with a sweep of 135ms of which 85ms was displayed on a hard copy printout using an Alden 9315 CTP printer. The firing interval was 410ms and a power level of 300 Joules was supplied by an Applied Acoustics, high voltage energy source. The printed sub-bottom data was TVG amplified to compensate for signal loss and a band-pass filter (400Hz to 4.0kHz) was applied.

Sub-bottom profiler data quality was good considering the poor weather conditions. The limit of penetration reached with the sub-bottom profiler (or limit of useful acoustic penetration) was up to 20.0m below seabed. Boomer data could not be interpreted below this depth.

Sediment thickness was calculated using an assumed acoustic velocity of 1600m/s for the time to depth conversion. The stratigraphy in the survey area has been categorised as follows:

Stratigraphy	Description
Unit A	Loose to medium dense, medium to coarse silty SANDS with some shell fragments.
Unit B	Medium dense to dense shelly SANDS.
Unit C	Bedded consolidated sediments.

The shallow geology is relatively homogenous across the site survey area. Unit A is generally flat lying and continuous across the entire site survey area. Unit B is laterally discontinuous across the site survey area and is located at the eastern boundary and in the south-southwest section of the survey area. Unit B varies between 2.0m and 11m thick. Unit C underlies Unit B, where present and Unit A across the entire site survey area.

Unit A : Loose to medium dense, medium to coarse silty SANDS with some shell fragments

The seabed and reflector R1 bound the uppermost unit, designated Unit A. By correlation with seabed sampling, Unit A is interpreted to comprise of loose to medium dense, medium to coarse silty SANDS with some shell fragments. Unit A is present over the entire site survey area. Its thickness varies from 1.5m to 2.0m thick. Unit A is flat lying and its thickness is relatively homogenous across the survey area.

Reflector R1 has a relatively low reflection amplitude and is continuous across the entire survey area.

The thickness of Unit A (seabed to reflector R1) has been mapped across the survey area and presented as an isopach drawing at one metre contour interval (refer Drawing No. 3363C1-04).

Unit B : Medium dense to dense shelly SANDS.

The acoustic properties of Unit B are similar to Unit A. Unit B is interpreted as paleochannels consisting of medium dense to dense shelly SANDS. Two paleochannels have been mapped across the survey area. One paleochannel was mapped in the south-southwest section of the survey area and the other paleochannel was mapped at the eastern boundary (Figure 4). The paleochannel at the eastern boundary varies in thickness between 2.0m-11.0m and the paleochannel in the south-southwest section of the survey area varies between 2.0m-8m.

The top of Unit B is defined by reflector R1, and its base by reflector R2. Reflector R2 is laterally discontinuous across the entire survey area and of varying reflection amplitude (Figure 2). Where reflector R2 is poorly defined (low amplitude) it suggests that the boundary between Unit A and Unit B is gradational. Reflector R2 displays anomalously high reflection amplitudes along the eastern boundary and on the southwest margin of Unit B, in the south-southwest section of the survey area. This is interpreted to represent areas of high acoustic impedance (density x velocity). These areas can be represented geologically by denser sediments due to compaction and/or cementation or the presence of coarser sediments deposited within the paleochannels. It should be noted that high amplitude reflection could also be caused by small amounts of gas accumulated below reflector R2

No seabed sampling was obtained within Unit B due reflector R1 existing approximately 2.0m below the seabed.

The thickness of Unit B (seabed to reflector R2) has been mapped across the survey area and presented as an isopach drawing at one metre contour interval (refer Drawing No. 3363C1-04).

Unit C : Bedded consolidated sediments

The top of Unit C is defined by the reflector R2 and continues below the limit of useful acoustic penetration. Where reflector R2 is absent the top of Unit C is bounded by reflector R1. No seabed sampling was obtained within Unit C. Unit C is interpreted as bedded consolidated sediments.

There is an angular unconformity between Unit B (where present), and Unit A and the top of Unit C, which may comprise a weathered surface related to a Pleistocene era sea level regression. Numerous internal reflectors have been identified within Unit C (refer Drawing No. 3363C1-05). These have been interpreted as bedding planes within Unit C, dipping generally to the east. These internal reflectors could also be indicative of lithological changes within Unit C. (see Figures 5 and 6). Anomalously high reflection amplitudes are associated with these bedding planes in localised areas within the sub-bottom. This is interpreted to represent areas of high acoustic impedance (density x velocity). However, again it should be noted that high amplitude reflections can also be caused by small amounts of gas accumulated within the bedding planes.

The predicted lithology at the proposed Beardie-1 location can be seen below:

Top of Unit	Depth Below Seabed (m)	Unit Thickness (m)	Predicted Lithology
A	0	1.5	Loose to medium dense, medium to coarse silty SANDS with some shell fragments.
C	1.5	Beyond limit of useful acoustic penetration	Bedded consolidated sediments.

A boomer data example at the proposed Beardie-1 location is presented as Figure 5.

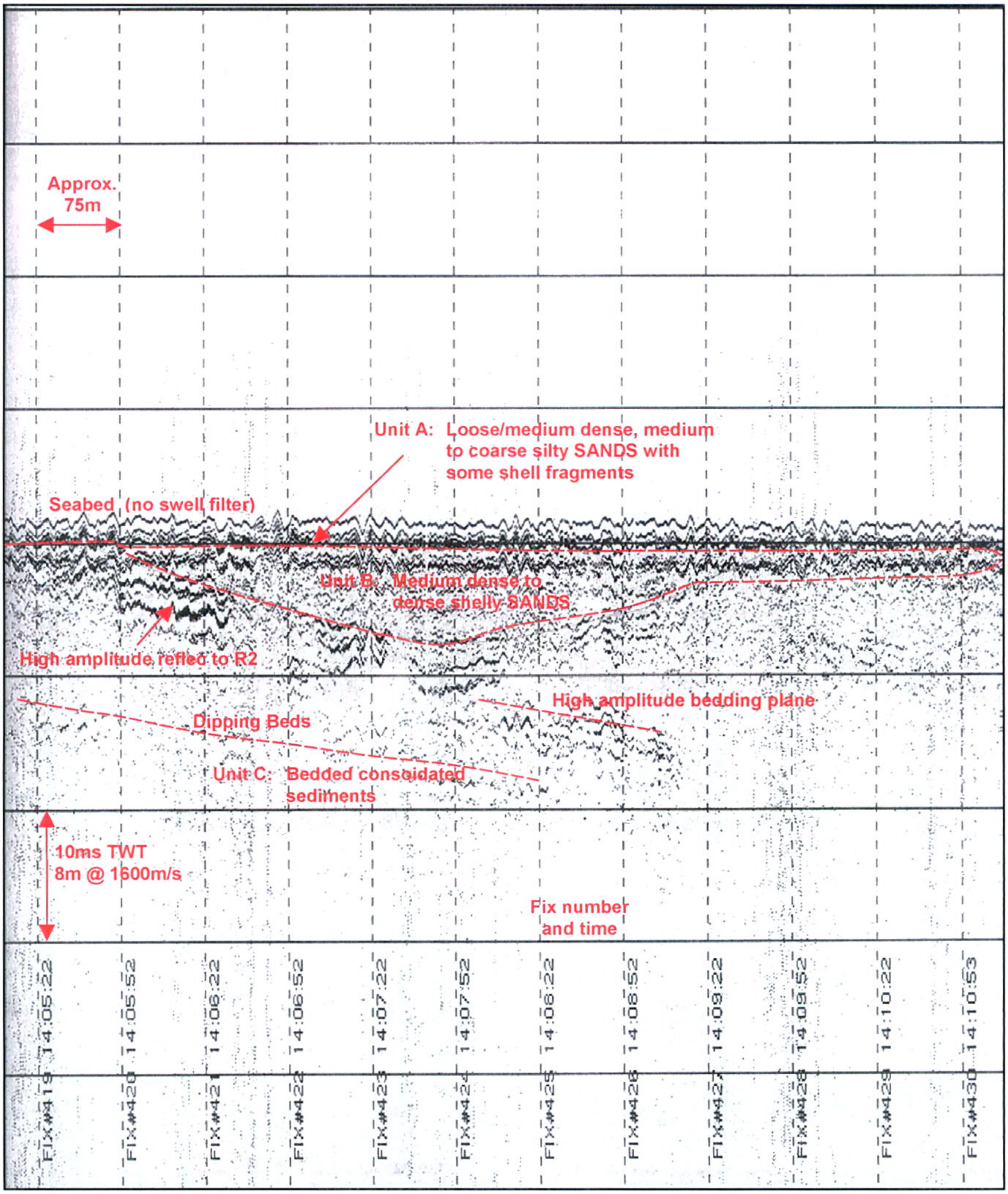


Figure 4 : Boomer sub-bottom data examples. Illustrates units A, B & C in the south-southwest section of the survey area.
Line BP7. Heading 270°

913711 426

~~PE913711 colour Ø33~~

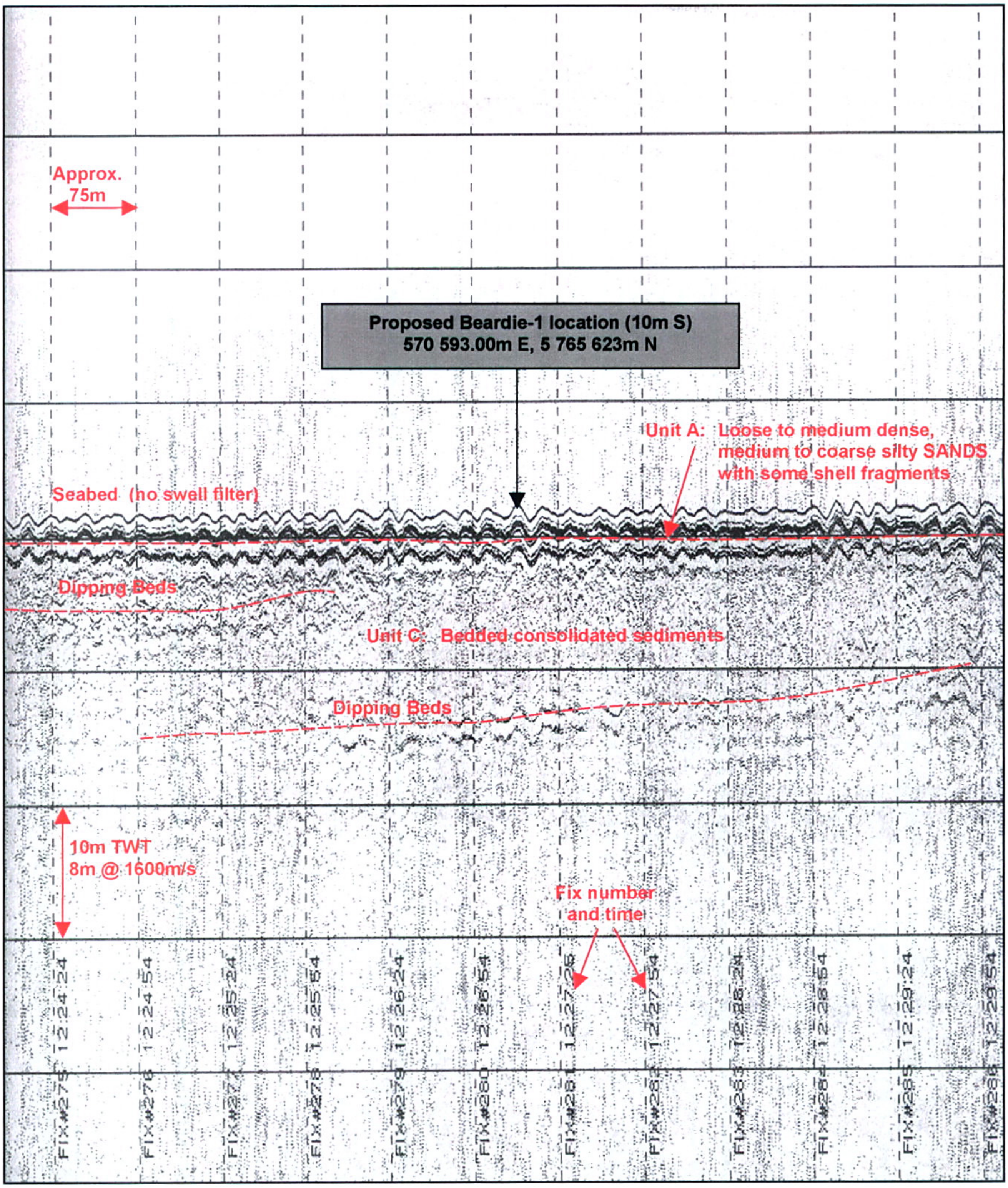


Figure 5 : Boomer sub-bottom data examples. Illustrates the shallow geology at the proposed Beardie-1 location.
Line BP16. Heading 270°

3.4 SHALLOW GAS RISK ASSESSMENT

The limit of penetration reached with the sub-bottom profiler (or limit of useful acoustic penetration) was up to 20.0m below the seabed. Boomer data could not be interpreted below this depth.

In places reflector R2 and bedding planes within Unit C exhibit anomalously high amplitude reflections. This has been interpreted as indicating varying degrees of cementation and/or consolidation along some bedding planes and in the upper section of Unit C. This could also be an indication of the presence of shallow gas accumulation in the upper part of Unit C. No other criterion suggesting the presence of shallow gas were observed from the bathymetry, side scan sonar, boomer or seabed sampling data.

Using the method of shallow gas risk assessment outlined in section 3.5 of this report, the risk of shallow gas is defined as slight (gas unlikely) at the proposed Beardie-1 location.

3.5 STANDARD METHOD OF SHALLOW GAS RISK ASSESSMENT

The shallow gas hazard assessment consisted of the following:

- Analysis of side scan sonar / echo sounder data attributes, which included the following:
  - Disturbed seabed and / or numerous pockmarks.
  - Areas of high reflectivity seabed.
  - Evidence of gas within the water column.
- Lithological / structural evidence e.g. faults.
- Analysis of seismic data attributes which included the following:
  - Anomalously high amplitude reflectors: high acoustic impedance contrast.
  - Acoustic blanking: high signal attenuation.
  - Velocity pull down of underlying reflectors: velocity reduction.
  - Phase reversal: negative reflection coefficient.
  - Edge effects: diffraction hyperbolae.

The risk assessment criteria in this report is summarised in the following table and is dependant on the type and number of attributes observed and the magnitude or severity of these attributes.

Shallow Gas Risk Assessment Criteria

Level of Risk	Probability of Gas	Typical Seismic Characteristics
High	Gas most probable	High amplitude with 3 or 4 other well defined features (closure, phase reversal etc.).
Moderate	Gas likely	High amplitude with 2 other subsidiary gas-like features.
Low	Gas possible	Moderate amplitude with 1 or 2 other features or very high reflector amplitude alone.
Slight	Gas unlikely	Usually 1 or more features, but unremarkable reflector amplitude.

3.6 SEABED SAMPLING

Three gravity core sample attempts were made returning three samples within the Beardie-1 site survey area. The recovered samples were photographed and logged upon recovery and sealed in gravity core liners and returned to Thales (Perth) for storage.

The sample descriptions are summarised in the table below and sample logs are presented in Appendix K.

Datum : AGD66 Projection: AMG Zone 55 South, CM 147° East

Sample Reference Number	Location		Brief Description
	Easting (m)	Northing (m)	
GC1	570 237	5 766 517	Medium to coarse loose/medium dense, medium to coarse silty SANDS with some shell fragments
GC2	570 334	5 764 537	Medium to coarse loose/medium dense, medium to coarse silty SANDS with some shell fragments
GS3	572 018	5 766 233	Medium to coarse loose/medium dense, medium to coarse silty SANDS with some shell fragments

4. CONCLUSIONS

The nearest observable water depth to the proposed Beardie-1 location is 49.9m LAT. The seabed within a 100.0m radius of the proposed Beardie-1 location appears clear of any topographical features, debris or other obstructions that may be considered hazardous to drilling operations.

One sonar contact was identified, approximately 1.40km southwest of the proposed Beardie-1 location, with dimensions approximately 11m across and 5.0m in height interpreted as a piece of debris.

The predicted lithology at the proposed Beardie-1 location can be seen below:

Top of Unit	Depth Below Seabed (m)	Unit Thickness (m)	Predicted Lithology
A	0	1.5	Loose to medium dense medium to coarse silty SANDS with some shell fragments.
C	1.5	Beyond limit of useful acoustic penetration	Bedded consolidated sediments.

Anchoring conditions across the survey area will be dictated by the geotechnical properties of Units A, B and C. The sediments of Units A and B are believed to consist of loose/dense medium, to coarse silty SANDS overlying bedded consolidated sediments of Unit C. Because Unit B is only found in localised areas Unit C approaches the seabed across the majority of the survey area. Although it is not possible to predict geotechnical properties, it is reasonable to assume that these sediments will become denser with increasing depth below the seabed.

Within the limit of useful acoustic penetration, there is no evidence of shallow faults or any other characteristics of shallow gas in the vicinity of the proposed Beardie-1 location that could be considered hazardous to drilling operations. Using the method of shallow gas risk assessment outlined in section 3.5 of this report, the risk of shallow gas is defined as slight (gas unlikely) at the proposed Beardie-1 location.

5. SAFETY

Objective

The prevention of accidents and injury is the primary objective on this and all Thales projects, and great importance is placed on ensuring and maintaining the health and safety of employees. Furthermore, Thales wishes to protect all persons with whom employees may have association during work activities. It is therefore the policy of Thales; to observe and comply with all statutory provisions and to take additional measures that it sees fit in the pursuance of safety. Thales maintains a safe working environment by employing the following measures:

a) Observe and comply with all statutory provisions.

b) Ensure that all work places are suitably equipped and free from recognised hazards that are liable to cause death, injury or illness.

c) Encourage employees to improve health and safety awareness in their own sphere of activity, to prevent injury to themselves and to other people and to report accidents and hazards to their superiors.

d) Hold all supervisory personnel responsible for developing and maintaining safety equipment where appropriate.

e) Provide employees with suitable safety equipment where appropriate.

f) Seek ways of improving health and safety in the work environment.

g) Encouraging the use of the 'Stand Back, 5 by 5' work safety ethic.

To facilitate the implementation of these measures Thales produces the following documents; Survey Safety Manual, Project Manual (includes Safety Management Plan), and Emergency Response Plan.

Project Induction and Safety Meeting

A general Project Induction and Safety Meeting was held at 0800 on 15 March 2002 onboard the Bluefin, prior to the start of mobilisation. A further safety meeting and fire & abandonment drill was held at 1730 on 16 March 2002. The subsequent safety meeting was held to go into further detail of the safety requirements expected from the Client, Thales and Australian Maritime College (AMC). The Client Representative, Thales and AMC personnel attended the Project Induction and Safety Meeting.

The Thales Party Chief discussed the Following topics:

1. Thales personnel introductions.
2. Project briefing of the survey campaign.
3. Introduction of Thales Operations Policies including Thales Health and Safety Policy, Environmental Policy, Drugs and Alcohol Policy, Injury Management Policy and Procedures, and Quality Policy.
4. The effective implementation of Thales Policies under the Thales Safety Management Systems (SMS).
5. Legislation and Regulations applicable to Thales Operations, particularly offshore operations.

6. Hazard Identification and Assessment (the introduction of Thales U-See, U-Act Safety System and the Stepback 5x5 process), Risk Assessment and Job Safety Analysis (JSA) with particular discussion directed toward equipment deployment / recovery and geotechnical coring operations.
7. Thales Emergency Response Plan and the process for accident / incident reporting and investigations.
8. Safety documentation supporting Thales SMS including Thales Manuals, Legislation and Acts, Safety Work Instructions, Safety Notes, Safety Forms, Codes of Practice and Guidance Notes.
9. The appropriate use of Personal Protective Equipment (PPE) including coveralls, safety footwear, safety helmets, safety glasses, hearing protection devices, safety gloves and the mandatory use of life vests during operations near the vessels stern.
10. Thales' Underwater Engineers to control all back deck operations involving equipment deployment / recovery and geotechnical coring.

The AMC Vessel Master discussed the Following topics:

1. AMC personnel introductions.
2. Vessel safety onboard the Bluefin.
3. Emergency procedures, muster points and alarms.
4. General reinforcement of Thales Safety Management System (SMS).

Vessel Inductions

AMC held vessel inductions onboard the Bluefin on 15 March 2002. All Thales personnel and the Client Representative were required to undertake the vessel induction.

Job Safety Analysis (JSA) Meetings

Job Safety Analysis meetings were undertaken prior to all facets of the survey. A JSA was held for the following operations; vessel mobilisation, equipment installation, vessel operations, deployment / recovery of equipment, velocity profile dip and coring operations. Particular emphasis was directed towards safety near the stern of the vessel, with all non-essential personnel required to remain clear of equipment deployment and geotechnical coring operations. The use of PPE was re-iterated. The process of communication between the back deck and bridge was outlined during each JSA to ensure personnel wee informed during each phase of the operation.

JSA worksheets are detailed in the Thales Safety Management Plan.

Incidents

There were no safety incidents reported for the project.

6. GEODETIC PARAMETERS

Co-ordinates shown in this report are referred to the Australian Geodetic Datum 1966 (AGD66). The Global Positioning System (GPS) is referenced to the World Geodetic System 1984 (WGS84).

6.1 DATUMS

Datum	:	**ITRF92 (Epoch 1994.0) WGS84 G730**
Spheroid	:	WGS84
Semi-major Axis (a)	:	6 378 137.000m
Semi-minor Axis (b)	:	6 356 752.314m
Eccentricity Squared (e^2)	:	0.006 694 380
Flattening ($^1/_f$)	:	298.257 223 563

Datum	:	**Australian Geodetic Datum AGD66**
Spheroid	:	Australian National Spheroid
Semi-major Axis (a)	:	6 378 160.000m
Semi-minor Axis (b)	:	6 356 774.719m
Eccentricity Squared (e^2)	:	0.006 694 542
Flattening ($^1/_f$)	:	298.25

6.2 PROJECTION

Projection Name	:	**Australian Map Grid 1966 (AMG66)**
Projection Type	:	Universal Transverse Mercator (UTM)
AMG Zone	:	55
Central Meridian (CM)	:	147° East
Scale factor on the CM	:	0.9996
False Easting	:	500 000m
False Northing	:	10 000 000m
Latitude of Origin	:	0° (Equator)
Unit of Measure	:	International Metre

6.3 DATUM TRANSFORMATION

The following 7-parameter datum transformation was used to convert WGS84 co-ordinates to AGD66 co-ordinates:

Dx	=	+123.314m
Dy	=	+47.223m
Dz	=	-136.594m
Rx	=	+0.264"
Ry	=	+0.322"
Rz	=	+0.270"
Scale (K)	=	+1.384 p.p.m.

The sign convention applied by Thales in GNS2 software is that used by the US Department of Defence, where a positive sign about the z axis is an anti-clockwise movement of the x and y-axes (when viewed from the North Pole looking towards the centre of the Earth).

7. EQUIPMENT DESCRIPTIONS

7.1 GNS2

GNS2 (General Navigation System) is Thales' third generation of On-line Navigation Survey Control software. Thales' Software Support Group in C++ has written it for operation under Windows® 95 or Windows® 98 or Windows® NT. GNS2 adheres to the operation and dialogue conventions of the Microsoft Windows® environment. Attention has been paid to preserving a consistent operator interface, while at the same time modifying individual dialogue boxes to reflect specific logical circumstances. It has been designed for operation with a pointing device such as a mouse or a tracker ball but control can still be effected in case of the absence or failure of such a device.

The program has the ability to accommodate a large number and variety of mobiles, including surface vessels/ships, anchor-handling vessels, tugs, barges, ROVs, towfish, aircraft, vehicles and submersibles etc. The only limiting factors on the number of mobiles that can be tracked in GNS2 are the number of input/output serial communication ports available on the computer and the computer's memory.

For the input/output (I/O) of navigation and sensor data, GNS2 employs intelligent multi-channel serial communications boards to expand a computer's serial input/output facility. Currently GNS2 can support up to 26 communication (Comm) ports, which would consist of the computer's two internal Comm ports and three 8 channel serial communications boards fitted in the computer's internal expansion slots.

If Least Squares Computations (LSCs) are employed for positional calculations, whether two-dimensional (2D), three-dimensional (3D) or altitude aided, GNS2 uses standard iteration routines for the minimisation of residuals using 'variation of co-ordinate' algorithms. The number of I/O serial communication ports available on the computer and the computer's memory, limits the number of positioning systems/computations that GNS2 can handle.

All input observables are accepted on interrupt. Screen updates and other internal triggers are paced to once per second but time critical activities occur at discrete moments as required.

The GNS2 application workspace can extend beyond the display area, which is normally restricted to a single monitor connected to the computer. By using one or more multiple VGA cards, an enlarged display area can spread across multiple monitors.

Currently GNS2 can display 14 different types of view windows. Several copies of the same type of view window can be invoked at any one time. This may be required when several mobiles are being tracked and a Plan, Helmsman's or Bullseye display are required for each one or when the data on several Comm ports are to be viewed simultaneously. Each window can be individually sized to optimise use of the available display area.

GNS2 can be operated in 2 modes: GNS2 Master or GNS2 Remote. GNS2 Master has the full functionality of GNS2. GNS2 Remote is run on a separate computer and allows independent configuration of the graphics display and its associated numeric information. GNS2 Remote is operated on Anchor Handling Vessels or anywhere where positional information is required (e.g. Vessel Masters, ROV Pilots, Winch Control Stations). The link between GNS2 Master and GNS2 Remote can be via a telemetry link or hard-wired cable.

7.2 GLOBAL POSITIONING SYSTEM (GPS)

System Description

The NAVSTAR GPS (Navigational Satellite Timing and Ranging Global Positioning System) is a USA Military all-weather, space-based positioning system that transmits signals from a constellation of satellites orbiting the Earth. It is capable of providing suitably equipped users worldwide with accurate three-dimensional positions on, or near, the Earth's surface. The accuracy of these determined positions can vary from a few millimetres to several 10's of metres depending on the GPS receiver and on the method of data acquisition and processing. System design consists of three integrated parts: the Ground Control Segment, the Space Segment and the User Segment.

The operational space segment consists of 24 production satellites and 3 active spares; the term Space Vehicle (SV) is used as a synonym for satellite. The satellites are in high orbits, at approximately 20,200km, having an orbit period of 12 hours. They are arranged in 6 orbital planes, inclined at 55 degrees with near circular orbits. The configuration provides complete 4-satellite (3D) coverage worldwide.

GPS Observations

There are two important types of GPS observations (observables): Pseudo-range and Carrier Phase. Carrier phase is sometimes also referred to as carrier beat phase. Pseudo-range techniques are generally used for navigation. In high-precision baseline surveying the carrier phase is used. Although the (undifferenced) phase can be used directly, it has become common practice, at least in surveying applications, to process certain linear combinations of the original carrier phase observations (double differences and triple differences).

Pseudo-ranges

The pseudo-range is a measure of the distance between the satellite and the receiver at the epochs of transmission and reception of the signals. The transit time of the signals is measured by comparing (correlating) identical pseudo-random noise (PRN) codes generated by the satellite and by the receiver. A code-tracking loop within the receiver shifts the internal replica of the PRN code in time until maximum correlation occurs. The codes generated at the receiver are derived from the receiver's own clock, and the codes of the satellite transmissions are generated by the satellite system of clocks. It follows that unavoidable timing errors in both the satellite and the receiver clock will cause the measured quantity (pseudo-range) to differ from the geometric distance.

Where instantaneous positions are required, pseudo-range is the preferred observable. Given the satellite ephemeris (i.e. the position of the satellite at the epoch of transmission), there are seven unknowns: two clock errors, three receiver co-ordinates and the ionospheric and tropospheric delays. The effect of the satellite clock error is negligible for the typical navigation solution, particularly considering that the time errors are indistinguishable from the ionospheric and tropospheric delays. The satellite clocks are constantly monitored and synchronised with GPS time as maintained by the control centre. Actual offsets of the satellite clocks are approximated by polynomials in time and transmitted as part of the navigation message to the user for the correction of the measured pseudo-ranges. The ionospheric and tropospheric delays can be computed on the basis of ionospheric and tropospheric models, thus there are four unknowns left X, Y, Z and receiver clock error. These can be determined from four pseudo-ranges measured simultaneously to four GPS satellites.

Carrier Phase

The phase observable is the difference between the phase of the carrier signal of the satellite, measured at the receiver, and the phase of the local oscillator within the receiver at the epoch of measurement. This can be regarded as a biased range measurement of the satellite-receiver distance with the integer number of carrier waves being unknown. The wavelength of the L1 carrier is about 19cm. Because of the fraction of the carrier phase is measured, the term "interferometry" is often used to describe carrier phase techniques.

7.3 SKYFIX/SKYFIX SPOT DIFFERENTIAL GPS (DGPS)

Differential GPS (DGPS)

GPS is primarily a USA Defence space-based positioning system capable of operating worldwide and in all weather conditions. The USA Military can degrade the accuracy of GPS with the use of Selective Availability (SA) to control the accuracy of Pseudo-range measurements. Essentially, the user is given a false Pseudo-range for each satellite so that the resulting measurement is in error by a controlled amount. On the 1 May 2000 SA was discontinued conditionally and coincided with the successful demonstration of the ability to selectively deny GPS signals on a regional basis. SA has been set to zero and can be reinstated during periods of heightened global tension.

GPS signals are affected by several sources of positional bias, the largest of which was SA. The remaining biases of the ionosphere, the troposphere, time, satellite ephemeris and inherent receiver noise also give rise to substantial bias of position.

Differential GPS is a means by which the civil user can improve the accuracy and quality of GPS to the 1-3m level. It requires a receiver be located at a precisely known point from which pseudo-range corrections for each satellite can be determined and monitored. These pseudo-range corrections are then communicated by means of a telecommunications link to users at unknown locations. In the relative mode, most of the important systematic errors common to the known station and at the unknown location cancel out to improve the accuracy of the computed position.

SkyFix/SkyFix Spot Differential

<u>SkyFix</u>

Thales GeoSolutions (Australasia) Limited introduced its SkyFix Differential GPS System in Australia in February 1991, using the Inmarsat Pacific and Indian Ocean marine communications satellites as the differential data broadcast link. Extensive performance trials and projects undertaken to date have shown SkyFix to meet the best industry expectations in terms of quality of service and accuracy.

Satellite communications systems, particularly at the Inmarsat L-band frequencies of 1.5 GHz are reliable and free of the interference associated with the crowded MF/HF bands. This high data integrity gives users confidence that the corrections will be continuously received without interference.

The SkyFix Australian network comprises of reference stations at Dampier, Broome, Perth, Adelaide, Melbourne, Sydney, Cairns and Darwin.

<u>SkyFix Spot</u>

The SkyFix Spot Differential GPS System was launched in Australia in December 1994, using the OPTUS high powered focused communications satellite as the differential data broadcast link. Projects undertaken to date have shown SkyFix Spot to meet the industry expectations in terms of quality of service and accuracy.

The SkyFix Spot system has a link capacity of 1200 bits per second, similar to the SkyFix system but because it is only transmitting corrections from the Australian network an update rate of better than five seconds is achieved.

The OPTUS satellites uses the L-band frequencies of 1.5586 GHz and are very reliable and free of interference avoiding data loss associated with the crowded MF/HF bands.

The SkyFix Spot network comprises of reference stations at Dampier, Broome, Perth, Adelaide, Melbourne, Sydney, Cairns, Darwin, Alice Springs and also Ujung Pandang and Jakarta in Indonesia and Wellington, New Zealand.

The differential corrections generated at each reference station are brought via landline links to the data hub and control centre in Singapore, where the system is monitored for performance and quality. From there, a composite message containing full RTCM 104 version 2 formatted data from all reference stations are sent via dual redundant links to Satellite Earth Stations at Sentosa Island, Singapore, O.T.C. Perth, Western Australia and OPTUS, Perth, Western Australia, for uplink and broadcast over the Inmarsat Pacific and Indian Ocean Region satellites and the OPTUS Satellite.

The SkyFix/SkyFix Spot system includes a 24 hour monitoring facility to ensure the validity of data received at the control centre from the Differential GPS reference stations, and that the same data are received over the SkyFix/SkyFix Spot satellite data link.

7.4 TRIMBLE SERIES 4000 GPS RECEIVER

The Trimble Series 4000 GPS receiver is designed for moderate precision static and dynamic positioning applications. The GPS receiver provides time and three-dimensional station co-ordinates at a once-per-second update rate.

The receiver receives the civilian coded signal (C/A) from the GPS NAVSTAR satellites. The receiver automatically acquires and simultaneously tracks GPS satellites and precisely measures code phase and computes position and velocity.

Latitude, longitude and height values are output on the World Geodetic System (WGS 84) Earth-centred, Earth-fixed co-ordinate system.

The receiver is designed to measure the following observables:

- Coarse/Acquisition (C/A) code Pseudo-ranges
- Rate of change of Pseudo-range
- Integrated Carrier

C/A code correlation techniques measure the propagation time of the signal from the satellite to the antenna. Latitude, longitude, height and time can be determined from measurements made from at least 4 satellites, by a process similar to triangulation.

To determine speed and heading, the receiver calculates the rate of change of Range (the range-rate) by measuring the Doppler shift of the carrier.

It is capable of receiving and processing differential corrections from other reference sources using the standard format of the Radio Technical Commission for Maritime Services, Special Committee 104 (RTCM SC-104), Version 1.0 or 2.0 protocols.

The Trimble Series 4000 GPS receiver has several options available, including internal data logging memory, event marker logging etc. and therefore may be used alone or as part of a more extensive navigation system.

7.5 MULTIFIX 3

7.5.1 System Overview

MultiFix 3 is Thales GeoSolutions third generation *multiple reference station* differential GPS (DGPS) real time position computation and quality control program. It is an integral part of the Thales SkyFix Premier service but can also be used with the standard SkyFix service. MultiFix 3 has more advanced features than its predecBSOCr, MultiFix 2, including being able to use dual frequency receivers and form real time 'Iono-Free DGPS position solutions'.

MultiFix 3 is one of a series of programs available under the group name Zero, which includes other tools and utilities with a similar user interface and layout structure, like static and dynamic position comparison programs, a correction monitor program, a terminal program and a replay utility.

MultiFix 3 takes in Almanac, Ephemeris and Raw Code and Carrier measurements from a single or dual frequency GPS receiver (or, for replay, from logged files). It takes in RTCM SC104 Version 2 differential correction messages from one or more RTCM correction delivery systems. It also takes in RTCM Type 15 or Thales Proprietary RTCM Type 55 Ionospheric range corrections generated at selected SkyFix Premier reference stations and broadcast via the Thales global network of high (SkyFix Spot-Optus) and low (SkyFix-Inmarsat) power satellite based L-Band beams.

Key features of the program are:

- No limit on the number of RTCM correction delivery systems (data links)
- No limit on the number of RTCM differential reference stations
- No limit on the number of computations (solutions)
- Each computation can employ corrections from any combination of reference stations available
- Computations are weighted least squares with statistical evaluation based upon the UKOOA recommendations
- No limit on the number of outputs
- No limit on the number of view windows
- View windows can be customised
- Extra NMEA outputs can be defined
- TCP/IP communication via sockets for GPS, RTCM and position data transfer between networked computers

MultiFix 3 has been designed in a modular fashion such that data is passed between modules as if over a computer network. The core module MultiFix 3 performs the computation of position. Additional modules are available and more will be made available in the future. While a single computer can be used, the various modules will equally be able to be run on different computers, provided there is a network interconnection.

MultiFix 3 uses the EGM96 geoid/spheroid separation model.

The RTCM corrections that are generated at reference stations are contaminated by a variety of error components, one of which is Ionospheric delay. The Ionospheric delay is currently more variable because of greater sun spot activity. MultiFix 2 and MultiFix 3's standard computation uses the Klobuchar Ionospheric delay model. This model is updated periodically but is not responsive to the current short-term variability. MultiFix 3 has an additional calculation option when working with dual frequency receivers and in receipt of Type 15 or 55 RTCM messages. With dual frequency receivers, estimates can be made of the Ionospheric delay by examining the differences between the measurements from the two frequencies. If the same procedure for estimation of Ionospheric delay is performed at the reference stations and on the mobile, both the RTCM corrections and the pseudo-ranges can have the Ionospheric delay removed, effectively providing an Iono-Free DGPS position solution.

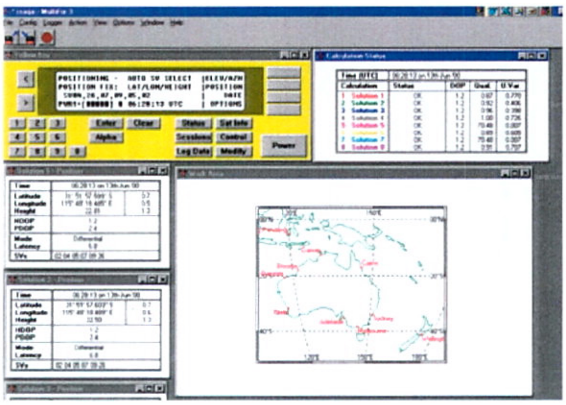
7.5.2 Hardware Requirements

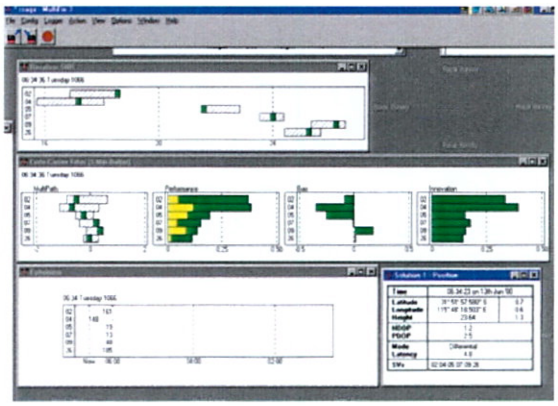
Optimum requirements for MultiFix 3 are:

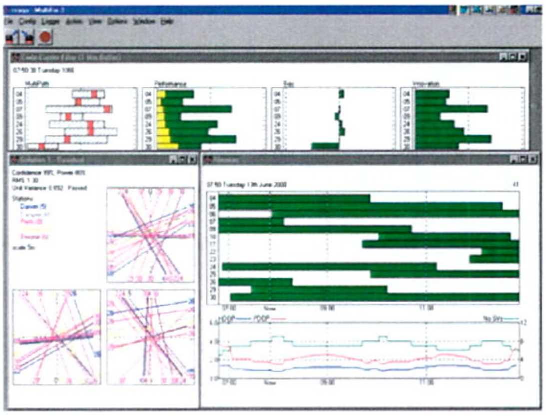
- 350 MHz Pentium II computer
- 32 Mb RAM
- Windows 95, 98 or NT operating system
- Graphics resolution of at least 800 x 600 pixels
- Intelligent multi-port serial I/O board

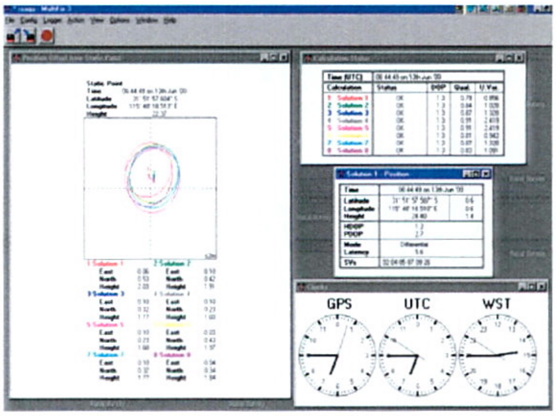
7.5.3 Positioning and Quality Control Displays

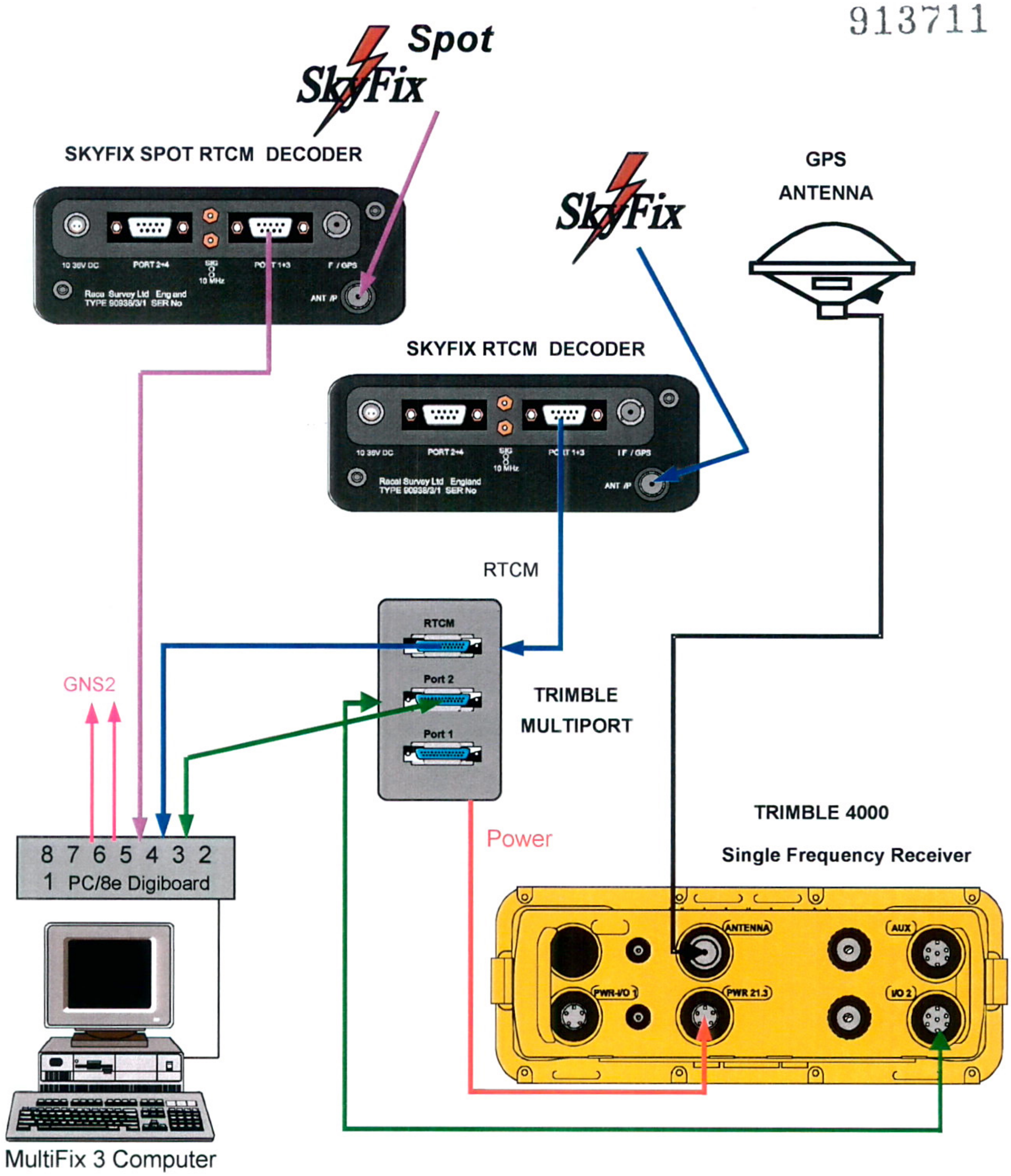
MultiFix 3 has a large number of features to accomodate the user requirements of highly accurate positions with quality control (QC) information and outputs in different formats. MultiFix 3 runs in a Windows environment, which allows the user to design a preferred screen layout by opening, sizing and placing the numerous displays that are available. Examples of the various displays can be found below.











Typical MultiFix 3 Interconnection With Trimble 4000 GPS Receiver

7.6 ATLAS DESO 15 ECHO SOUNDER

The Atlas Deso 15 echo sounder is a dual frequency system operating at 33kHz and 210kHz. Digital technology is employed so that the equipment comprises one unit incorporating an analogue/digital thermal recorder, transceiver electronics and digitiser. The transducers may be hull or over-the-side mounted.

To measure water depth the Atlas Deso 15 echo sounder uses ultrasonic sound waves. A short burst of ultrasound is transmitted vertically downwards into the water by a transducer, which converts electrical energy into mechanical energy. A proportion of the sound energy is reflected by the bottom or by other solid media such as fish, and returns as an echo to the transducer. The time which elapses between the transmission of the signal and the return of its echo is proportional to the depth. The accuracy of the depth measurement depends on such factors such as the print speed and index errors, although the primary influence on depth accuracy is the measurement (and concomitant accuracy) of the velocity of sound through the water column, which is set by the operator in the echo sounder. Bar checks are also carried out to calibrate the system for index errors. Print speed checks are carried out as part of the mobilisation procedures. The echo sounder controls the generation, timing and length of outgoing pulses that are transmitted from the transducer.

High frequency transmissions will tend to be reflected by the seafloor whilst lower frequency signals penetrate soft mud and sediment to produce shaded echoes of the various layers on the analogue recorder. The echo sounder contains two digitisers, one for each transmitted frequency. Returns from several transmissions are stored, weighted and summed so that faint returns from the seabed will be recognised from the background noise. Digital information is indicated in the display window of the echo sounder and is also available for external use. The digitiser can be set to track either or both of the two frequencies.

System specifications are as follows:

Operational Voltage	:	18 - 32 V DC or 240 V AC
Power Consumption	:	Approx. 100 VA
Transducer Frequencies	:	33kHz 210kHz
Beam Widths	:	33kHz - 16° 210kHz - 9°
Depth Capability	:	0.5 - 650 metres
Power Output	:	300W, 600W & 1,000W
Measuring Accuracy	:	33kHz - better than 10cm 210kHz - better than 1cm
Water Sound Velocity	:	1400 m/s to 1600 m/s in 1 m/s steps

7.7 TSS DMS 2-05 MOTION SENSOR

The TSS DMS 2-05 Motion Sensor is used to provide heave, pitch and roll data to the single beam echo sounder system. The TSS DMS 2-05 is a small portable system for measuring the vertical displacement and altitude of a vessel when no stationary reference is available.

Sensor Package

The standard sensor package contains the solid state sensing elements that resolve the magnitude and direction of forces acting upon the sensor so that it can supply motion measurements. High speed circuitry converts the signals from the sensing elements into actual measurements of attitude and motion. These are then communicated via RS232 or RS422 to a receiving PC, or terminal, or to the appropriate receiving equipment (echo sounder, datalogger etc.).

Installation of the DMS System is simple, and the compact design allows it to be mounted close to the point for which measurements are required.

Software

Software resident within the sensor electronics package allows a PC or terminal to control the DMS System so that its configuration can be optimised for any particular installation. The software can be utilised to check the analogue output values, and to measure the roll and pitch mount angles.

Auxiliary Input

The DMS System can accept signals from auxiliary equipment such as a Global Positioning System (GPS) or a gyrocompass. The sensor uses these 'aiding' inputs to maintain the accuracy and stability of measurements throughout vessel turns.

Principle of Operation

The DMS includes an array of solid-state sensing elements that measures the instantaneous linear accelerations and angular rates affecting the sensor at any time. These measurements allow the system to derive the attitude of the platform on which the sensor is mounted with respect to the true vertical.

Additionally, velocity and heading information supplied by external GPS and gyrocompass systems can be used by the DMS system to maintain the measurement accuracy of the sensor throughout vessel turns.

The digital output from the sensor is updated and supplied as a digital data string transmitted to external equipment using either RS232 or RS422.

To support the requirement of applications that require an analogue input (i.e. the Elac Multibeam System), the sensor provides scalable analogue outputs for roll, pitch and heave.

System specifications are as follows:

Heave

Range	:	± 100 meters
Resolution	:	1cm
Bandwidth	:	0.05 to >10 Hz
Accuracy	:	The greatest of 5cm or 5%
Measurement Datum	:	All measurements are with respect to the centre of the bottom surface of vertically mounted Sensor.
Acceleration Range (vertical)	:	2g
Noise (at cut-off frequency 0.05 Hz)	:	<1cm RMS

Roll, Pitch

Range	:	±30°
Resolution	:	Digital 0.01°
Bandwidth	:	0 to >10 Hz
Accuracy		
(Dynamic) DMS 2-05	:	±0.05°
(Static) DMS 2-05	:	±0.05°
Angular rate change	:	100°/second
Noise	:	<0.05° RMS
Cross axis coupling	:	<1%

Electrical

Power Requirement	:	12V to 36V DC 12W at 24V
Digital Interface	:	RS232C, RS422 user selectable
Digital Output Data Rate	:	Dependent upon output format and baud rate. The Sensor will supply data packets at the highest possible transfer rate. Using the default settings (format TSS1 at 9600 baud), the digital output rate will be 32 packets/second.

Environmental

Temperature Range		
(Operating)	:	0 to +40°C {32°F to 104°F}
(Storage)	:	-20 to +70°C {-4°F to 158°F}
Shock (Survival)	:	30g peak 40ms half-sine
Vibration (Operating)	:	Meet Lloyd's Register ENV2 (1996) specification for vibration Meet ABS Table 4/11.1 (1996) No. 12 IEC Publication 68-2-6 (1995) Test F.
Transverse Acceleration	:	500mg peak 0.1s sine
Enclosure Ingress Protection	:	3000m {9840ft} depth rated
Tilt	:	±30° any plane
Operating Transit/Storage	:	No limit
Yaw Immunity	:	10° per second with 30° roll and pitch

7.8 GEOACOUSTICS DUAL FREQUENCY SIDE SCAN SONAR SYSTEMS

The GeoAcoustics Dual Frequency Side Scan Sonar system provides mapping of the seabed and consists of a GeoAcoustics combined towfish (159D), a pair of dual frequency sonar transducers (196D) and a Sonar Transceiver (SS941).

The GeoAcoustics combined towfish contains side scan sonar transducers which transmit short pulses of high frequency acoustic energy in fan shaped beams at right angles to the fish's track. The beams are narrow in the horizontal plane and wide in the vertical plane. In the nose of the towfish are the transmitting and receiving circuitry and on receipt of a trigger pulse from the ship-borne recorder the transducers are energized. The receiving circuitry amplifies the returned echoes and sends them via the tow cable to the recorder for display.

The transceiver unit allows the operator a simple means of controlling various Side Scan operating parameters. The unit includes standard controls such as: Gain, Time Varying Gain (TVG), Automatic Gain Control (AGC), with duplicated controls for port and starboard transducers. The operating frequency can also be switched from 100kHz to 500kHz directly from the transceiver. The choices of frequencies means that long range scanning and short range high resolution investigations are possible. The output of the transceiver can be recorded digitally if interfaced to a digital recording system.

System specifications are as follows:

GeoAcoustics 196D Dual Frequency Transducers

Source level	223 ± 3 dB re 1µPa @ 1 m
Beamwidth	50° by 1°/40° by 0.5°
Sensitivity	190 dB re 1 V/µPa
Depression	Angle 10° ±1° down.

Transmitter

Frequency	100/500 kHz ±1%.
Power output	1.2 kW/1 kW pulse ±20%.
Pulse length	167 µsec/88 µsec ±1%
Pulse repetition rate	50 pulses per second maximum.

Protection Open and short circuit protected.

Efficiency Greater than 80%.

913711 448

Receiver

Port channel	100/500kHz, heterodyned to 135kHz.
Starboard channel	100/500kHz, heterodyned to 65kHz.
Bandwidth	20kHz. TVG Transmission loss curve compensated at both frequencies. Approximately + 40dB at 100m range.
Keyburst Frequency	455kHz ± 2%.
Pulse length	300μsec for 110 kHz operation. 600μsec for 410kHz operation.
Power	150V DC at 100mA.
Size	Diameter 10.2cm Length 34.5cm Weight 3.2kg in air, 0.45kg in water.

7.9 BOOMER SUB-BOTTOM PROFILING SYSTEM – CSP1000

A Boomer sub-bottom profiling system consisting of an Applied Acoustics CSP1000 power source, EG&G Model 230 Boomer seismic source, and an EG&G Model 265 Type hydrophone is used to determine the nature of the sub-seafloor geology. The boomer catamaran and the 10-element hydrophone are towed astern of the vessel.

The raw analogue signal is firstly filtered using a Krohn-Hite 3700 filter before it is digitally displayed and recorded.

The system is operated and fired by an Applied Acoustics CSP1000 Triggered Capacitor Bank and Power Source. The data can be processed and recorded by a digital recording system, which includes a band pass filter.

The Boomer Sub-bottom Profiling system comprises the following components:

Applied Acoustics CSP1000 Power Source

The Applied Acoustics CSP1000 Power Source provides a high-voltage direct current for charging the capacitor banks used in sub-bottom profiling systems. The Applied Acoustics CSP1000 Power Source will charge at 1100 Joules per second. This allows the operator to select sound-pulse repetition rates as fast as six pulses per second at an energy level of 1000 Joules:

System specifications are as follows:

Size	:	19" rack mounted 7U high 550mm deep
Weight	:	55 kg
Operating Temperature	:	0-37°C at maximum output
Mains input	:	207-206 VAC 45-65Hz @ 2.5kVA 3 pin connector
Voltage Output	:	3550 or 3800 volts DC 4 pin interlocked connector
Output Energy	:	100 to 1000J in 100J increments
Charging Rate	:	1100J per second
Capacitance	:	144μF. 1 x 10^8 shot life
Trigger	:	+ive key opto isolated or closure set by front panel switch. BNC connector on front panel and remote.
Repetition Rate	:	To 6pps
Earth	:	M8 stainless steel stud on front panel

EG&G Model 230 Boomer Seismic Source

The EG&G Model 230 Boomer (or Uniboom) is an electromechanical source fixed to a surface towed catamaran. The boomer source consists of an induction coil against which an aluminium plate is applied by a system of springs. With each discharge, from the ship-borne capacitor banks, the eddy currents induced in the conductive plate cause it to move violently away from the coil. The initial movement of the plate triggers the acoustic pulse, the duration of the boomer signal is limited to about 0.2ms.

EG&G Model 265 Type Hydrophone

The EG&G Model 265 Type Hydrophone uses 10 elements connected in series and incorporates a current summing amplifier. The hydrophone elements and preamplifier are enclosed in a one-inch, oil filled tube designed to minimise turbulent noise from towing, this part of the hydrophone is called the active section. In addition to the active section, the hydrophone includes a tail for stabilisation, a tow cable that incorporates the conductors for transmitting the electric signals and a battery box attached to the shipboard end of the cable which supplies the DC voltage for operating the pre-amplifier.

System specifications are as follows:

Input Power	:	9v DC Battery
Sensitivity	:	-61 dB/volt/microbar
Bandwidth	:	400Hz - 5kHz
Hydrophone Element	:	
Sensitivity		-103 dB/volt/microbar (single element)
Gain (Preamplifier)		42 dB (including gain of 10 elements in series)
Output		2 kohms

7.10 CODA DA200 DIGITAL RECORDING/PROCESSING SYSTEM

The CODA-DA200 Sonar Data Acquisition and Playback System is used to convert the analogue signal from the GeoAcoustics Transceivers to digital format, and to record the digital data on magneto-optical disk. The CODA is a Unix-based hardware and software system developed for recording and processing of analogue or digital signals from a dual channel side scan sonar.

In real time the data can be recorded to the hard disk, to removable disk drives, or to magneto-optical disk. Processing parameters such as slant range correction, TVG enhancement, image enhancement, zoom facilities, real-time cursor navigation position and on-screen management, scrolling speed adjustment, multi-resolution data display and single/dual channel waterfall display, can be applied while on-line or during playback. Only the raw data will be recorded to magneto-optical disk.

CODA-DA200

Physical
Flight-cased industrial 19" rackmount chassis - 21" x 22" x 13"
Monitor flight casing - 20.75" x 19.75" x 19.5"

Hardware
Dedicated acquisition board
Dual Independent input/output triggers
High-spec Pentium PC
High Resolution 17" monitor
Mouse or Trackball

Data Storage/Retrieval
Shock mounted high speed DDS DAT (4mm) SCSI tape (Exabyte tape, Optical Disk optional)
Shock mounted 1GB SCSI HDD

Data Format
CODA, SEG-Y, SDEF, Q-MIPS™ compatible

Hard Copy
Continuous real-time output to various thermal recorders:
Ultra Wideline 200, Ultra Wideline 195
Ultra 3710, EPC1086, Alden 9315
Screen dump to disk or printer in EPS or TIFF format
SCSI, GPIB, Parallel interface

DATA INTERFACES

Analogue Input
200 kHz throughput
Fully independent triggers
Input signal range $\pm$ 1.25 to $\pm$10V
12-bit resolution, dynamic range 72dB (16-bit optional)
Up to 10,240 samples per channel

Triggering
2 fully independent triggers
Master Trigger Output
Trigger period 33ms to 65s
TTL (user-specifiable duty cycle)
Slave Trigger Input
Trigger period minimum 33ms
TTL (min. pulse width 40ns)
Negative/Positive Edge Triggered

Digital Input/Output
TCP/IP Ethernet link, or customer-specified (e.g. SCSI, GPIB), RS-232, DMA compatible parallel
External event input by TTL

Navigational Interface
RS-232 serial interface
Data rate up to 9600 baud, user-configurable
User-configurable RS-232 data format
Corrected navigation input from floppy disk

SOFTWARE

General On-line Processing
Simultaneous, real-time, dual sensor display windows
Real-time, on-line corrective processing including independent channel TVG
Automatic seabed detection and display
Full colour image enhancement

Side scan On-line Processing
Slant range correction
Across-track smoothing

Shallow Seismic On-line Processing
High, low, and band-pass filtering
Trace mixing and anti-mixing
User selectable sound velocity for measurements
Swell filtering

High-Resolution Display
Multi-channel window displays including horizontal and vertical waterfall display and 3D mesh plot (optional)
Multi-resolution, independent channel display
3-mode zoom
Freeze-frame with auto-release during acquisition
A-scan oscilloscope display
Geo-referenced screen and cursor
On-screen measurement and event marking
User configurable scale lines

High Speed Tape Operating System
Random data access with intuitive controls including GoTo, Stop, Play, Fast Forward, Rewind, Cue and review
Tape copying facility including data format and tape conversion
Continuous recording with dual type system
CODA, SEG-Y, SDEF, Q-MIPS™ compatible data formats

Acquisition
Navigation input and survey parameter QC
Software-configurable acquisition setup
Time-synchronised navigation input
User-programmable nav. string input

General
X windows/Motif user interface (version X11R6)
UNIX SVR4 operating system
Additional software modules available for pipeline inspection (PI100), site survey interpretation and reporting (GeoKit), survey overview (Trackplot and Trackplot Plus), on-line mosaicing (Coda Mosaic), swathe bathymetry acquisition and processing (Coda Swathe module)

7.11 S.G. BROWN 1000S GYROCOMPASS

The S.G. Brown 1000S Gyrocompass is a compact, simple-to-operate master heading reference instrument employing the effect of gravity and the earth's rotation to produce a True North reference. This reference may be read off the compass card or from a digital display and can be interfaced to the GNS2 navigation system.

The normal starting cycle of the instrument is fully automatic and is initiated when the system power supply is switched on. A fail safe control circuit is incorporated which ensures that the compass is not damaged after a power failure when power is restored; the compass will restart automatically and carry out its normal settling program.

7.12 APPLIED MICROSYSTEMS MODEL SVPLUS SOUND VELOCITY PROFILER

The SVPlus is a multi-parameter, self-contained, intelligent instrument designed for the measurement of sound velocity, temperature and pressure. The SVPlus features microprocessor based CMOS circuitry, two A/D converters (1 part in 40,000, 1 part in 16,000) and 128 Kbytes of battery backed-up random access memory (RAM) for data storage. The SVPlus has the options of logging data continuously, by depth increments, by time increments, by sound velocity increments, or logging individual scans.

Prior to deployment the SVPlus is connected to an IBM compatible computer via a 3-conductor cable, the instruments output is standard ASCII RS-232. When connected to a computer the SVPlus is programmed using Applied Microsystems Ltd's Total System Software. The SVPlus is configured for logging, choosing sample time units, sampling interval, depth logging increment, sound velocity increment and log file name. Logging begins when the SVPlus is immersed in water and when the instrument receives a valid sound velocity value it begins recording the data. Logging stops when the instrument cannot detect a sound velocity signal and it will assume it is out of the water.

Deployment of the SVPlus is either by hand or winch. As the instrument is lowered to and raised from the seabed, data is stored in memory.

When recovered the SVPlus is re-connected to a computer to view, edit and graph the data logged by the instrument. When a file (or cast) has been completely loaded an analysis of the data automatically begins. The purpose of this analysis is to compute the engineering values of the data and to determine the maximum and minimum values for graphing.

The SVPlus records the temperature, pressure and sound velocity at user specified logging increments. The sound velocity is measured by injecting an acoustic pulse into the water and measuring the time taken for that pulse to travel across a fixed distance.

The SVPlus's sensors must be calibrated occasionally. These should remain within published specifications for periods of 1 - 2 years, depending on the amount of use, and depth of deployment. Sensors are calibrated by recording the instruments raw data at known reference points. This data is applied to a curve fitting algorithm to produce calibration coefficients which are permanently stored in the instruments memory.

System specifications are as follows:

Pressure	:	Type: Keller stainless steel pressure transducer Range: Assorted pressure ranges up to 5000 dBars Accuracy: 0.15% of Full scale Resolution: 0.005% of Full scale Response Time: 10 ms
Temperature	:	Type: Pressure protected precision aged thermistor Range: -02°c to 32°C Accuracy: ±0.005°C Resolution: 0.001°C Response Time: 100 ms
Sound Velocity	:	Type: 1 Megahertz piezoelectric transducer. INVAR stabilised path length (±5.5nm/°C) Range: 1400 - 1550 m/s Accuracy: <0.06 m/s (r.m.s) Resolution: 0.015 m/s
Sample Rate	:	When recording internally without sending data, the scan rate is selectable

from 10 scans/second to one every 24 hours.

Memory : 128 Kb battery backed-up RAM, expandable to 40 Mbytes. The standard RAM can record 6400 scans of date, time, pressure, sound velocity and battery.

8. EQUIPMENT CALIBRATIONS AND CHECKS

8.1 GYROCOMPASS CALIBRATION

The S.G.Brown survey gyrocompass was calibrated at 1130 on 16 March 2002. Calibration of the survey gyrocompass was performed using total station observations, while the Bluefin was alongside the Australian Maritime College (AMC) Wharf, Beauty Point, Tasmania.

Survey Mark AMC5 on the AMC Wharf was occupied by total station. The observed reference object was Survey Mark AMC2 on the AMC Wharf. A series of horizontal angles and distances were measured to reflective prisms located along the centreline of the vessel, at the bow and stern. Simultaneous survey gyrocompass observations were recorded within the Thales GNS2 software. The gyrocompass Calculated minus Observed (C-O) was reset to zero before commencing logging data to file.

The vessels Calculated (C) heading was compared to the Observed (O) survey gyrocompass heading to determine the gyrocompass C-O. The gyrocompass C-O was entered into GNS2 and used throughout the site survey campaign. The results of the calibrations are tabulated below.

Control Point Co-ordinates

Datum: AGD66 **Projection: AMG Zone 55, CM 147° East**

Control Mark	Easting (m)	Northing (m)
AMC5	485 188.128	5 443 443.762
AMC2	485 232.088	5 443 475.890

Observations

Date: 16 March 2002

Instrument Station: AMC5
Backsight Station: AMC2

Time (hh:mm:ss)	Observation Point	Observed Bearing	Observed Distance (m)	Observed (O) True Heading
11:34:40	Bow	343° 21' 35"	70.910	338.80°
11:35:20	Stern	001° 12' 00"	61.880	339.20°
11:35:50	Bow	343° 30' 25"	70.840	339.00°
11:36:20	Stern	001° 03' 05"	61.935	339.00°
11:36:50	Bow	343° 20' 05"	70.830	338.80°
11:37:20	Stern	001° 03' 40"	61.930	338.50°
11:37:50	Bow	343° 23' 55"	70.730	338.20°
11:38:20	Stern	001° 10' 45"	61.890	337.80°
11:40:10	Bow	343° 19' 05"	70.720	338.80°
11:40:40	Stern	001° 10' 55"	61.980	338.20°
11:41:00	Bow	343° 20' 25"	70.750	337.70°
11:41:40	Stern	001° 16' 25"	61.835	338.70°
11:42:20	Bow	343° 17' 40"	70.935	339.00°
11:43:00	Stern	001° 06' 30"	61.970	339.30°
11:43:30	Bow	343° 23' 40"	70.910	339.00°
11:44:00	Stern	001° 06' 30"	62.000	338.30°
11:44:30	Bow	343° 22' 40"	70.685	338.20°
11:45:00	Stern	001° 12' 45"	61.815	339.00°

Time (hh:mm:ss)	Observation Point	Observed Bearing	Observed Distance (m)	Observed (O) True Heading
11:45:40	Bow	343° 19' 45"	70.500	338.80°
11:46:10	Stern	001° 21' 05"	62.020	338.70°

Results

Calculated (C) Vessel Heading (True)	Observed (O) Survey Gyrocompass (True)	C-O
339.66°	339.00°	+0.66°
339.73°	339.00°	+0.73°
339.42°	338.65°	+0.77°
339.32°	338.00°	+1.32°
338.94°	338.50°	+0.44°
339.34°	338.20°	+1.14°
339.44°	339.15°	+0.29°
339.48°	338.65°	+0.83°
339.25°	338.60°	+0.65°
339.54°	338.75°	+0.79°
	Mean	**+0.76°**

The mean gyrocompass C-O = +0.76° was entered into the GNS2 configuration parameters.

The printouts for the pre-survey gyrocompass calibration are located in Appendix D.

8.2 STATIC DIFFERENTIAL GPS CHECK

A static check of the SkyFix/SkyFix Spot Differential GPS was carried out at 1150 on 16 March 2002 while the Bluefin was alongside the AMC Wharf.

Survey Mark AMC5 on the AMC Wharf was occupied by total station. The observed reference object was Survey Mark AMC2. A series of horizontal angles and distances were measured to the vessel datum (echo sounder transducer pole) installed onboard the Bluefin. Simultaneous Differential GPS position fixes were recorded within Thales GNS2 software.

The calculated datum position was then compared to the observed datum position to provide verification of the Differential GPS positioning system. The results of the static Differential GPS check are tabulated below.

Control Point Co-ordinates

Datum: AGD66 Projection: AMG Zone 55, CM 147° East

Control Mark	Easting (m)	Northing (m)
AMC5	485 188.128	5 443 443.762
AMC2	485 232.088	5 443 475.890

Results

Date : 16 March 2002
Instrument Station : AMC5
Backsight Station : AMC2

Time (hh:mm:ss)	Calculated Co-ordinates		Observed DGPS Co-ordinates		Linear Misclose (m)
	Easting (m)	Northing (m)	Easting (m)	Northing (m)	
11:49:50	485 234.330	5 443 500.347	485 235.440	5 443 500.200	1.12
11:50:15	485 234.300	5 443 500.436	485 235.460	5 443 500.320	1.17
11:50:35	485 234.452	5 443 500.466	485 235.350	5 443 500.040	0.99
11:50:55	485 234.447	5 443 500.490	485 235.300	5 443 499.640	1.20
11:51:15	485 234.450	5 443 500.494	485 235.120	5 443 499.300	1.37
11:51:30	485 234.397	5 443 500.460	485 234.930	5 443 498.870	1.68
11:51:45	485 234.310	5 443 500.415	485 234.910	5 443 498.780	1.74
11:52:05	485 234.401	5 443 500.327	485 234.790	5 443 498.780	1.60
11:52:20	485 234.346	5 443 500.243	485 234.700	5 443 498.870	1.42
11:52:35	485 234.375	5 443 500.181	485 234.740	5 443 499.020	1.22
				Mean	**1.35**

Mean Linear Misclosure = +1.35m

Printouts of the static Differential GPS checks are located in Appendix E of this report.

8.3 VELOCITY OF SOUND IN SEAWATER PROFILES

A velocity of sound in seawater profile was carried out at the Beardie-1 survey site on 25 March 2002, using a SV Plus Sound Velocity Probe.

A mean velocity of sound of 1517.9m/s was determined and entered into the echo sounder.

The water column velocity profile is detailed in Appendix I of this report.

8.4 ECHO SOUNDER TRANSDUCER DRAFT MEASUREMENT AND MOTION SENSOR TEST

8.4.1 Echo Sounder Transducer Draft Measurements

The Atlas Deso 15 echo sounder transducer draft settings were established by undertaking a bar check. A bar check was performed after vessel mobilisation on 16 March 2002, while Bluefin was alongside the AMC Wharf. The draft was measured as 1.54m for the 33kHz and 210kHz transducers.

Copies of the bar check are included in Appendix F of this report.

8.4.2 Motion Sensor Test

A motion sensor test was carried out prior to departure from the AMC Wharf on 16 March 2002. This involved physically lifting the DMS 2-05 Motion Sensor up and down whilst watching the echo sounder screen for the correct movement in the raw heave trace.

8.5 SIDE SCAN SONAR RUB TESTS & WET TESTS

Side scan sonar rub tests and wet tests were performed on the primary and back-up towfish alongside the AMC Wharf on 16 March 2002. The purpose of these tests was to ensure that the fish mounted transducers were operating within specification and connected to the correct recorder channels. The Client Representative accepted the results.

The results of these tests are presented as Appendix G of this report.

8.6 BOOMER WET TESTS

A boomer wet-test was performed while the Bluefin was alongside the AMC Wharf on 16 March 2002. The purpose of the test was to check the overall operation and performance of the seismic equipment. The Client Representative was present during the test and accepted the results.

The results of this test are presented as Appendix H of this report.

9. SUMMARY OF EVENTS

The Bluefin commenced mobilisation at the AMC Wharf on 15 March 2002, initially on contract to OMV Australia Pty Ltd (OMV), before conducting the Beardie-1 site survey for Esso Australia Pty Ltd, in Gippsland Basin, Bass Strait, offshore Victoria.

Mobilisation of the vessel Bluefin was conducted at the Australian Maritime College (AMC) Wharf, Beauty Point, Tasmania.

A vessel induction, pre-mobilisation safety meeting including a JSA for the mobilisation was conducted for Thales and Bluefin personnel on arrival at the vessel. The induction and safety meeting commenced at 0800 on 15 March 2002.

Thales survey equipment was loaded onto the Bluefin at 0830 and all crane, welders and labour work were completed by 1545. The Gyrocompasses were powered up at 1300. At 1600 a power failure was encountered but power returned by 1630. At 2000 Thales personnel departed the vessel for the night.

At 0700 on 16 March 2002 mobilisation recommenced. Boomer wet test and side scan sonar rub tests and wet tests were completed by 1000. An echo sounder bar check, gyrocompass calibration and DPGS health check were completed by 1345. Another power failure was encountered from 1515 to 1530. By 1600 the magnetometer was operational. An emergency muster including a fire and abandonment drill was held at 1730.

At 1800 on 16 March 2002 the vessel departed the AMC wharf. The vessel was on contract to OMV until 2200 on 24 March 2002. The vessel commenced transit to the Beardie-1 site survey area, arriving at 0700 on 25 March 2002.

Analogue acquisition commenced at 0700 on 25 March 2002 until completed at 0600 on 26 March 2002. Seabed samples were acquired within the Beardie-1 site survey area from 0600 until 0730 on 26 March 2002.

The vessel transited from the site survey area to the AMC Wharf from 0730 on 26 March 2002, arriving at 0500 on 27 March 2002. Demobilisation took place from 0500 on 27 March 2002 until completed at 2359 on 27 March 2002, after which Thales personnel departed for Perth.

10. PERSONNEL AND EQUIPMENT

10.1 PERSONNEL

The following personnel were employed on this project:

For: Thales GeoSolutions (Australasia) Limited

Chris Shuttleworth	-	Team Leader/Senior Surveyor
Marc Dybala	-	Surveyor
Laurie Etheridge	-	Senior Underwater Engineer
Jeremy Antao	-	Underwater Engineer
Patrick Fournier	-	Offshore Geophysicist
Luis McArthur	-	Interpretation Geophysicist

For: Esso Australia Pty Limited

Rick Glanville	-	Client Representative

10.2 EQUIPMENT

NAVIGATION

2 x Trimble 4000 Series GPS Receivers
3 x SkyFix/LandStar Demodulators
2 x LandStar Whip Antennae
1 x Skyfix Minidome plus controller
2 x Compaq Pentium Desktop GNS2 Computers
1 x Compaq 486/66 MHz Desktop MultiFix3 Computer
2 x Epson LX300 Printers
2 x SG Brown 1000S Gyro Compass
2 x Helmsman's GNS2 Remote Display
1 x 3KVA Un-interruptible Power Supply

GEOPHYSICAL

ECHO SOUNDER
2 x Atlas Deso 15 Single Beam Echo Sounder
2 x Overboard Transducer (Dual Frequency)
1 x Model XR-666 230vac to 24vdc Power Converter
2 x SV-Plus Velocity Probe
1 x E/S Bar Check
1 x TSS DMS 2-05 Motion Sensor
1 x TSS 335 Motion Sensor

SIDE SCAN SONAR
2 x GeoAcoustics Transceiver Units
2 x Dual Frequency (100 and 500 kHz) Towfish Assemblies
2 x Side Scan Sonar Deck Cables
2 x CODA DA200 Acoustic Recorder
2 x Alden 9315 CTP printer
1 x Seamac Winch
1 x Electric/Hydraulic Winch

BOOMER SYSTEM
2 x EG&G Surface Tow Source
2 x CSP 1000 Cap/Disch Power supplies
1 EG&G Power Supply Model 232-A
1 EG&G Triggered Capacitor Bank Model 231
2 x EG&G Type Hydrophones
2 x TSS 307 TVG amplifiers
Auto transformer
2 x Krohne-Hite Filters

11. DISTRIBUTION

Copies of this report have been distributed as follows:

Esso Australia Pty Ltd Attn: Mr Chris Meakin	: 5 copies
Thales GeoSolutions (Australasia) Limited	: 1 copy

Patrick Fournier
Interpretation Geophysicist

John Graindorge
Senior Geophysicist

Anthony Kerr
Survey Manager

APPENDIX A

SAFETY REPORTS

THALES	THALES GEOSOLUTIONS (AUSTRALASIA) LTD ABN 82 000 601 909	FORM : F-SMS-SMM

VESSEL INDUCTION/PRE-MOBILISATION MEETING

MINUTES

Date : 15 March 2002 **Job No. :** 3363C1 Beardie-1 Site Survey
Time : 0800 **Location :** AMC, Beauty Point

Present : TGA Personnel and Bluefin Marine Crew

The Party Chief opened the meeting & made the following points.

1) Everything to be proven & tested prior to departure.
2) A detailed discussion on where all the equipment to be positioned & what required welding & testing.
3) An explanation of the site, including size, water depth & procedures.
4) Talk of the safety requirements during mobilisation, including hot work certificates, PPE, cranage, etc.
5) Explanation of survey crew shift pattern & responsibilities.
6) Safety environment & hierarchy, need to keep hazard free as possible.

The First Officer.

1) No smoking within the vessel. Restrictions on smoking on deck.
2) Restriction on personnel in working areas on back deck.
3) Safety chains on stern when applicable.
4) No work boots in accommodation, keep clean environment.

The Party Chief then thanked all attendees, the survey crew were then taken on the vessel induction tour by the First Officer.

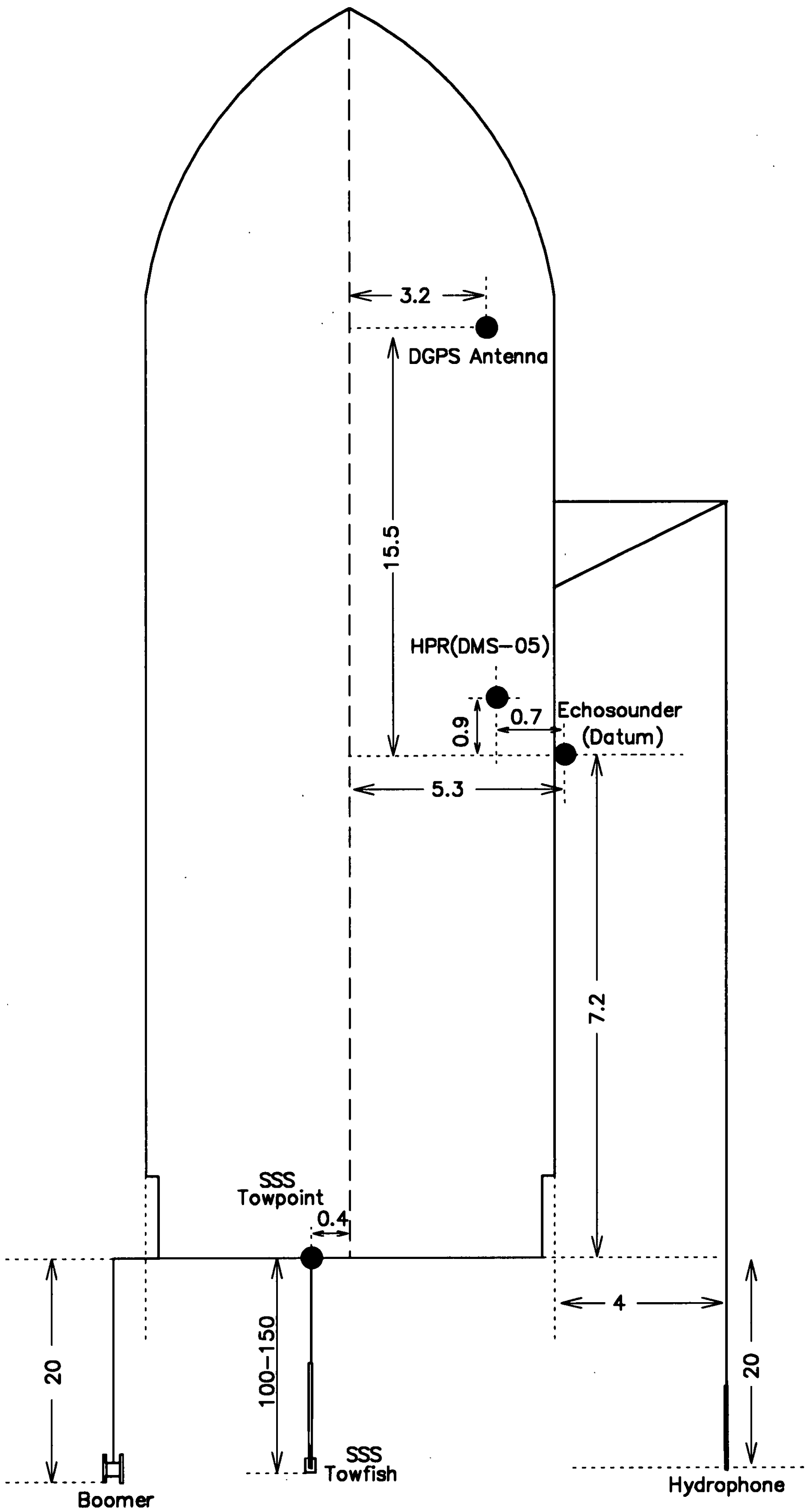
913711 470

APPENDIX B

OFFSET DIAGRAM - BLUEFIN

FTV BLUEFIN

(NOT TO SCALE)



UNITS IN METRES

913711 472

APPENDIX C

GNS SYSTEM DATA PRINTOUT

GNS II CONFIGURATION FILE C:\3346C1_Site Surveys\Bass Strait.gns

JOB DETAILS
Job Number : 3346C1
Job Description : Site Surveys
Company : Thales GeoSolutions Group Ltd
Client : OMV
Time Zone : GMT +11:00

WORKING SPHEROID
AGD 1966
Semi-major : 6378160.000 m
e Squared : 0.006694541855

WORKING PROJECTION
AMG Zone 55
Lat of Origin : 00°00'00.000"N
Long of Origin : 147°00'00.000"E
False Easting : 500000.00
False Northing : 10000000.00
Scale Factor : 0.999600
Units : Metres

GPS TRANSFORMATION
From : WGS 84
Semi-major : 6378137.000 m
e Squared : 0.006694380067
To : AGD 1966
Dx : 123.314 m
Dy : 47.223 m
Dz : -136.594 m
Rot x : 0.2640 secs
Rot y : 0.3220 secs
Rot z : 0.2700 secs
Scale : 1.3840 ppm

MOBILES
Blue Fin (ship)
Shape Definition: Bluefin
Line:-
X: -10.30 m Y: -7.00 m
X: -10.30 m Y: 13.00 m
X: -5.30 m Y: 23.00 m
X: -0.30 m Y: 13.00 m
X: -0.30 m Y: -7.00 m
X: -10.30 m Y: -7.00 m

Tracking Point : Datum
Pitch and Roll Centre: HPR

Selected Sources:-
Primary Position : T1 Thales UKOOA (Using Antenna Offset : GPS)
Backup Position : T3 Thales UKOOA (Using Antenna Offset : GPS)
Primary Heading : S1 SGB 1000S
Primary Height : Datum Displacement

Verified by: (sign)________________________ (print)________________________

913711 474

GNS II CONFIGURATION FILE C:\3346C1_Site Surveys\Bass Strait.gns

```
Pitch and Roll     : T2 TSS DMS-05
Heave Sensor       : T2 TSS DMS-05
Soundings          : A1 Atlas Deso 15 Ch1
Speed              : Position Filter
Course Made Good   : Posn Filter CMG

Equipment:-
T1 Thales UKOOA
 Status: ON  Interface: COM3
 Antenna Offset Selected: GPS
  X:   -2.10 m Y:   15.49 m Z:    0.00 m Rng:   15.63 m Brg:352.3°
 Apply Pitch Roll: Instantaneous  Stale Time: 5.0 s  Posn SD: 3.0 m  Ht S
 Update posn regardless of whether diff corrected
 Filter: Off  Time Constant:60.0 s  Sample Dwell: 0.5 s
 Gate: Off  Gate Width: 9.0 xSD  Minimum Gate: 0.0 m

T3 Thales UKOOA
 Status: ON  Interface: COM4
 Antenna Offset Selected: GPS
  X:   -2.10 m Y:   15.49 m Z:    0.00 m Rng:   15.63 m Brg:352.3°
 Apply Pitch Roll: Instantaneous  Stale Time: 5.0 s  Posn SD: 3.0 m  Ht S
 Update posn regardless of whether diff corrected
 Filter: Off  Time Constant:60.0 s  Sample Dwell: 0.5 s
 Gate: Off  Gate Width: 9.0 xSD  Minimum Gate: 0.0 m

S1 SGB 1000S
 Status: ON  Interface: COM5
 C-O:  0.8 degs  Stale Time: 5.0 s  SD: 0.1 degs
  Filter: Off  Gate: Off  Time Constant: 5.0 s  Sample Dwell: 0.5 s

T2 TSS DMS-05
 Status: ON  Interface: COM7
 Pitch C-O:  0.0 degs  Roll C-O:  0.0 degs  Stale Time: 0.2 s

C1 CODA DA200
 Status: ON  Interface: COM8
 Antenna Offset Selected: Datum
  X:    0.00 m Y:    0.00 m Z:    0.00 m Rng:    0.00 m Brg:  0.0°

A1 Atlas Deso 15
 Status: ON  Interface: COM6
 Tdr 1:Datum
  X:    0.00 m Y:    0.00 m Z:    0.00 m Rng:    0.00 m Brg:  0.0°
 Tdr 2:Datum
  X:    0.00 m Y:    0.00 m Z:    0.00 m Rng:    0.00 m Brg:  0.0°
 Stale Time: 5.0 s
 Corrections Applied:-
  Is Heave Compensated: Yes  Tdr Draught entered in E/S:  0.00 m
 Apply Corrections:-
  Heave Compensate: No  Correct for Draught: No  Correct for Pitch and
 Sounding Selection:-
  Mode: All  Gate: No  Gate Window: 25.00
 Annotation: Yes  Every: 1 fixes
```

Verified by: (sign)______________________ (print)______________________

12:19 17-Mar-2002

913711 475

GNS II CONFIGURATION FILE C:\3346C1_Site Surveys\Bass Strait.gns

Defined Offsets:-

Datum										
X:	0.00 m	Y:	0.00 m	Z:	0.00 m	Rng:	0.00 m	Brg:	0.0°
GPS									
X:	-2.10 m	Y:	15.49 m	Z:	0.00 m	Rng:	15.63 m	Brg:	352.3°
Stern									
X:	-5.30 m	Y:	-7.17 m	Z:	0.00 m	Rng:	8.92 m	Brg:	216.5°
SSS									
X:	-5.70 m	Y:	-7.17 m	Z:	0.00 m	Rng:	9.16 m	Brg:	218.5°
HPR									
X:	-0.70 m	Y:	0.93 m	Z:	0.00 m	Rng:	1.16 m	Brg:	323.0°

Verified by: (sign)________________ (print)________________

APPENDIX D

GYROCOMPASS CALIBRATIONS PRINTOUTS

THALES

Thales GeoSolutions (Australasia) Limited

ABN 82 000 601 909

Gyrocompass Calibration

Thales Job Number: 3363C1
Job Description: Bass Strait Site Surveys
Client: Esso Australia Pty Ltd
Party Chief: C.Shuttleworth
Surveyor: M.Dybala
Wharf: Beauty Point
Vessel: Blue Fin
Date: 16 March 2002

Control Point Co-ordinates

Datum: AGD66 Projection: AMG Zone 55 CM 147° East

Instrument Station:	AMC5	Easting (m):	485 188.128
		Northing (m):	5 443 443.762
		AHD Height (m):	0.000
Backsight Station:	AMC2	Easting (m):	485 232.088
		Northing (m):	5 443 475.890
		AHD Height (m):	0.000

Calculated Grid Bearing (DMS):	053	50	20	
Calculated Grid Convergence (DMS):	000	06	58	Negative-Grid North East of True North

Gyrocompass Observations

Backsight Observation (DMS): 000 00 00

Time (hh:mm:ss)	Observation Point	Observed Direction (DMS)			Observed Distance (m)	Observed (O) True Heading (D.D)
11:34:40	Bow	343	21	35	70.910	338.80
11:35:20	Stern	001	12	00	61.880	339.20
11:35:50	Bow	343	30	25	70.840	339.00
11:36:20	Stern	001	03	05	61.935	339.00
11:36:50	Bow	343	20	05	70.830	338.80
11:37:20	Stern	001	03	40	61.930	338.50
11:37:50	Bow	343	23	55	70.730	338.20
11:38:20	Stern	001	10	45	61.890	337.80
11:40:10	Bow	343	19	05	70.720	338.80
11:40:40	Stern	001	10	55	61.980	338.20
11:41:00	Bow	343	20	25	70.750	337.70
11:41:40	Stern	001	16	25	61.835	338.70
11:42:20	Bow	343	17	40	70.935	339.00
11:43:00	Stern	001	6	30	61.970	339.30
11:43:30	Bow	343	23	40	70.910	339.00
11:44:00	Stern	001	6	30	62.000	338.30
11:44:30	Bow	343	22	40	70.685	338.20
11:45:00	Stern	001	12	45	61.815	339.00
11:45:40	Bow	343	19	45	70.500	338.80
11:46:10	Stern	001	21	5	62.020	338.70

Signature

SURVEYOR/PARTY CHIEF

CLIENT SURVEY REPRESENTATIVE

913711 478

THALES

Thales GeoSolutions (Australasia) Limited

ABN 82 000 601 909

Gyrocompass Calibration

Thales Job Number: 3363C1
Job Description: Bass Strait Site Surveys
Client: Esso Australia Pty Ltd
Party Chief: C.Shuttleworth
Surveyor: M.Dybala
Wharf: Beauty Point
Vessel: Blue Fin
Date: 16 March 2002

Datum: AGD66 Projection: AMG Zone 55 CM 147° East

Time (hh:mm:ss)	Observation Point	Observed Direction (DMS)			Observed Distance (m)	Plane Bearing (DMS)			Plane Distance (m)	Calculated Co-ordinates Easting (m)	Calculated Co-ordinates Northing (m)	Calc (C) True Heading (D.D)	Obs (O) True Heading (D.D)	C-O (D.D)
11:34:40	Bow	343	21	35	70.910	037	11	55	70.882	485 230.982	5 443 500.222	339.66	339.00	0.66
11:35:20	Stern	001	12	00	61.880	055	02	20	61.855	485 238.821	5 443 479.206			
11:35:50	Bow	343	30	25	70.840	037	20	45	70.812	485 231.084	5 443 500.056	339.73	339.00	0.73
11:36:20	Stern	001	03	05	61.935	054	53	25	61.910	485 238.774	5 443 479.369			
11:36:50	Bow	343	20	05	70.830	037	10	25	70.802	485 230.909	5 443 500.177	339.42	338.65	0.77
11:37:20	Stern	001	03	40	61.930	054	54	00	61.905	485 238.776	5 443 479.358			
11:37:50	Bow	343	23	55	70.730	037	14	15	70.702	485 230.911	5 443 500.050	339.32	338.00	1.32
11:38:20	Stern	001	10	45	61.890	055	01	05	61.865	485 238.816	5 443 479.230			
11:40:10	Bow	343	19	05	70.720	037	09	25	70.692	485 230.826	5 443 500.102	338.94	338.50	0.44
11:40:40	Stern	001	10	55	61.980	055	01	15	61.955	485 238.892	5 443 479.280			
11:41:00	Bow	343	20	25	70.750	037	10	45	70.722	485 230.866	5 443 500.110	339.34	338.20	1.14
11:41:40	Stern	001	16	25	61.835	055	06	45	61.810	485 238.830	5 443 479.115			
11:42:20	Bow	343	17	40	70.935	037	08	00	70.907	485 230.932	5 443 500.291	339.44	339.15	0.29
11:43:00	Stern	001	06	30	61.970	054	56	50	61.945	485 238.838	5 443 479.339			
11:43:30	Bow	343	23	40	70.910	037	14	00	70.882	485 231.016	5 443 500.196	339.48	338.65	0.83
11:44:00	Stern	001	06	30	62.000	054	56	50	61.975	485 238.862	5 443 479.356			
11:44:30	Bow	343	22	40	70.685	037	13	00	70.657	485 230.863	5 443 500.030	339.25	338.60	0.65
11:45:00	Stern	001	12	45	61.815	055	03	05	61.790	485 238.775	5 443 479.158			
11:45:40	Bow	343	19	45	70.500	037	10	05	70.472	485 230.704	5 443 499.919	339.54	338.75	0.79
11:46:10	Stern	001	21	05	62.020	055	11	25	61.995	485 239.029	5 443 479.152			

Mean C-O 0.76

Signature

SURVEYOR/PARTY CHIEF

CLIENT SURVEY REPRESENTATIVE

APPENDIX E

STATIC DIFFERENTIAL GPS CHECK PRINTOUTS

THALES

Thales GeoSolutions (Australasia) Limited

ABN 82 000 601 909

Static Differential GPS Check

Thales Job Number: 3363C1
Job Description: Bass Strait Site Surveys
Client: Esso Australia Pty Ltd
Party Chief: C.Shuttleworth
Surveyor: M.Dybala
Wharf: Beauty Point
Vessel: Blue Fin
Date: 16 March 2002

Control Point Co-ordinates

Datum: AGD66 Projection: AMG Zone 55 CM 147° East

Instrument Station:	AMC5	Easting (m):	485 188.128
		Northing (m):	5 443 443.762
		AHD Height (m):	0.000
Backsight Station:	AMC2	Easting (m):	485 232.088
		Northing (m):	5 443 475.890
		AHD Height (m):	0.000

Calculated Grid Bearing (DMS):	053	50	20	
Calculated Grid Convergence (DMS):	000	06	58	Negative-Grid North East of True North

Observations To: **Vessel Datum**

Backsight Observation (DMS): 000 00 00

Time (hh:mm:ss)	Observed Distance (m)	Observed Direction (DMS)			Positioning System DGPS Co-ordinates	
					Easting (m)	Northing (m)
11:49:50	73.080	345	23	35	485 235.440	5 443 500.200
11:50:15	73.130	345	19	50	485 235.460	5 443 500.320
11:50:35	73.250	345	24	30	485 235.350	5 443 500.040
11:50:55	73.265	345	23	35	485 235.300	5 443 499.640
11:51:15	73.270	345	23	35	485 235.120	5 443 499.300
11:51:30	73.210	345	22	40	485 234.930	5 443 498.870
11:51:45	73.120	345	20	50	485 234.910	5 443 498.780
11:52:05	73.110	345	26	45	485 234.790	5 443 498.780
11:52:20	73.010	345	27	15	485 234.700	5 443 498.870
11:52:35	72.980	345	30	10	485 234.740	5 443 499.020

Signature

SURVEYOR/PARTY CHIEF

CLIENT SURVEY REPRESENTATIVE

913711 481

THALES

Thales GeoSolutions (Australasia) Limited

ABN 82 000 601 909

Static Differential GPS Check

Thales Job Number: 3363C1
Job Description: Bass Strait Site Surveys
Client: Esso Australia Pty Ltd
Party Chief: C.Shuttleworth
Surveyor: M.Dybala
Wharf: Beauty Point
Vessel: Blue Fin
Date: 16 March 2002

Datum: AGD66 Projection: AMG Zone 55 CM 147° East

Observations To: **Vessel Datum**

Time (hh:mm:ss)	Observed Direction (DMS)			Observed Distance (m)	Plane Bearing (DMS)			Plane Distance (m)	Calculated Co-ordinates		Positioning System DGPS Co-ordinates		Linear Misclose (m)
									Easting (m)	Northing (m)	Easting (m)	Northing (m)	
11:49:50	345	23	35	73.080	039	13	55	73.051	485 234.330	5 443 500.347	485 235.440	5 443 500.200	1.12
11:50:15	345	19	50	73.130	039	10	10	73.101	485 234.300	5 443 500.436	485 235.460	5 443 500.320	1.17
11:50:35	345	24	30	73.250	039	14	50	73.221	485 234.452	5 443 500.466	485 235.350	5 443 500.040	0.99
11:50:55	345	23	35	73.265	039	13	55	73.236	485 234.447	5 443 500.490	485 235.300	5 443 499.640	1.20
11:51:15	345	23	35	73.270	039	13	55	73.241	485 234.450	5 443 500.494	485 235.120	5 443 499.300	1.37
11:51:30	345	22	40	73.210	039	13	00	73.181	485 234.397	5 443 500.460	485 234.930	5 443 498.870	1.68
11:51:45	345	20	50	73.120	039	11	10	73.091	485 234.310	5 443 500.415	485 234.910	5 443 498.780	1.74
11:52:05	345	26	45	73.110	039	17	05	73.081	485 234.401	5 443 500.327	485 234.790	5 443 498.780	1.60
11:52:20	345	27	15	73.010	039	17	35	72.981	485 234.346	5 443 500.243	485 234.700	5 443 498.870	1.42
11:52:35	345	30	10	72.980	039	20	30	72.951	485 234.375	5 443 500.181	485 234.740	5 443 499.020	1.22

Mean Linear Misclose (m) **1.35**

Surveyor

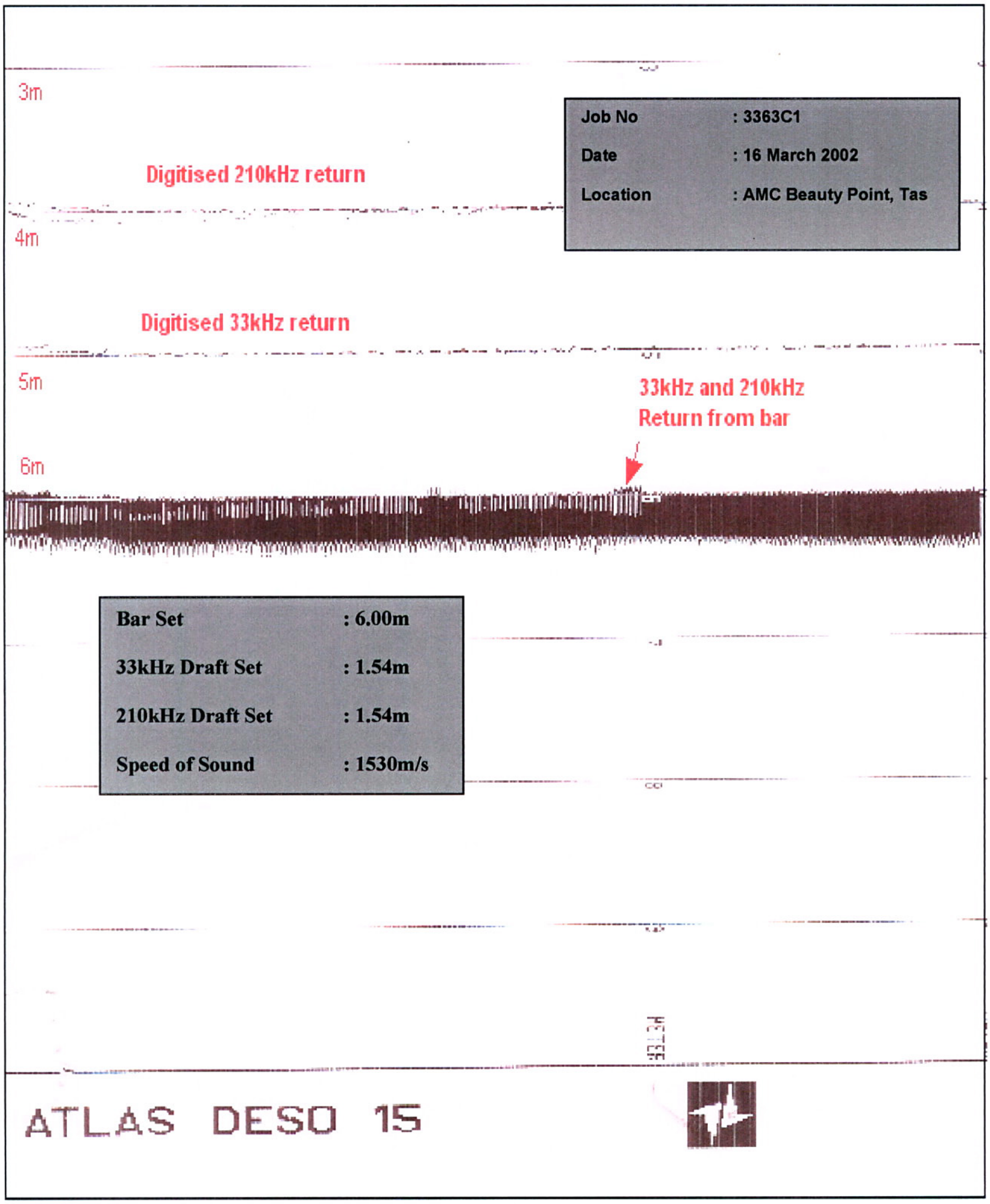
SURVEYOR/PARTY CHIEF

CLIENT SURVEY REPRESENTATIVE

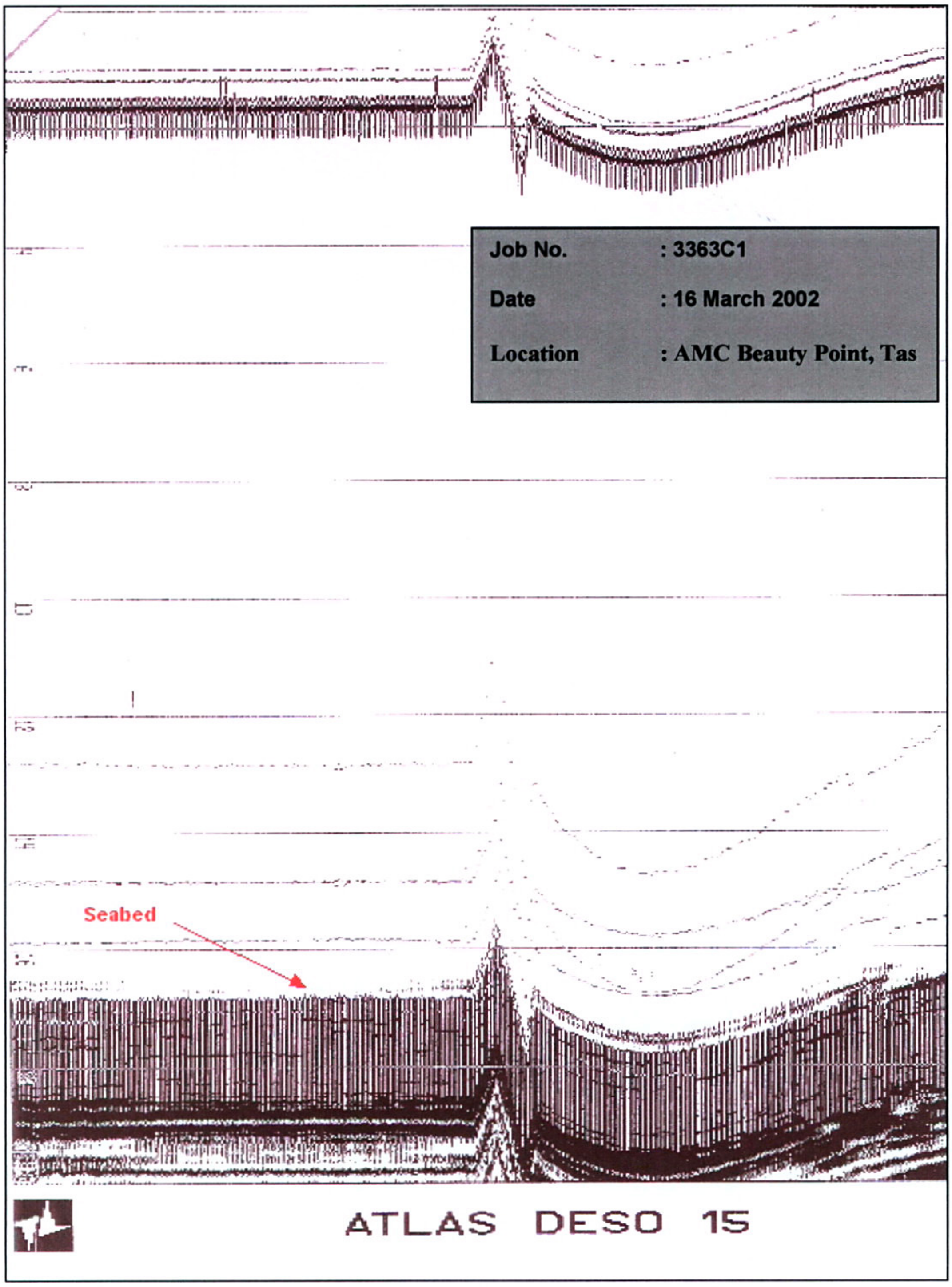
APPENDIX F

BAR CHECK & MOTION SENSOR CHECK

~~PE913711 - colour Ø36~~



~~Re 913711 colour Ø37~~



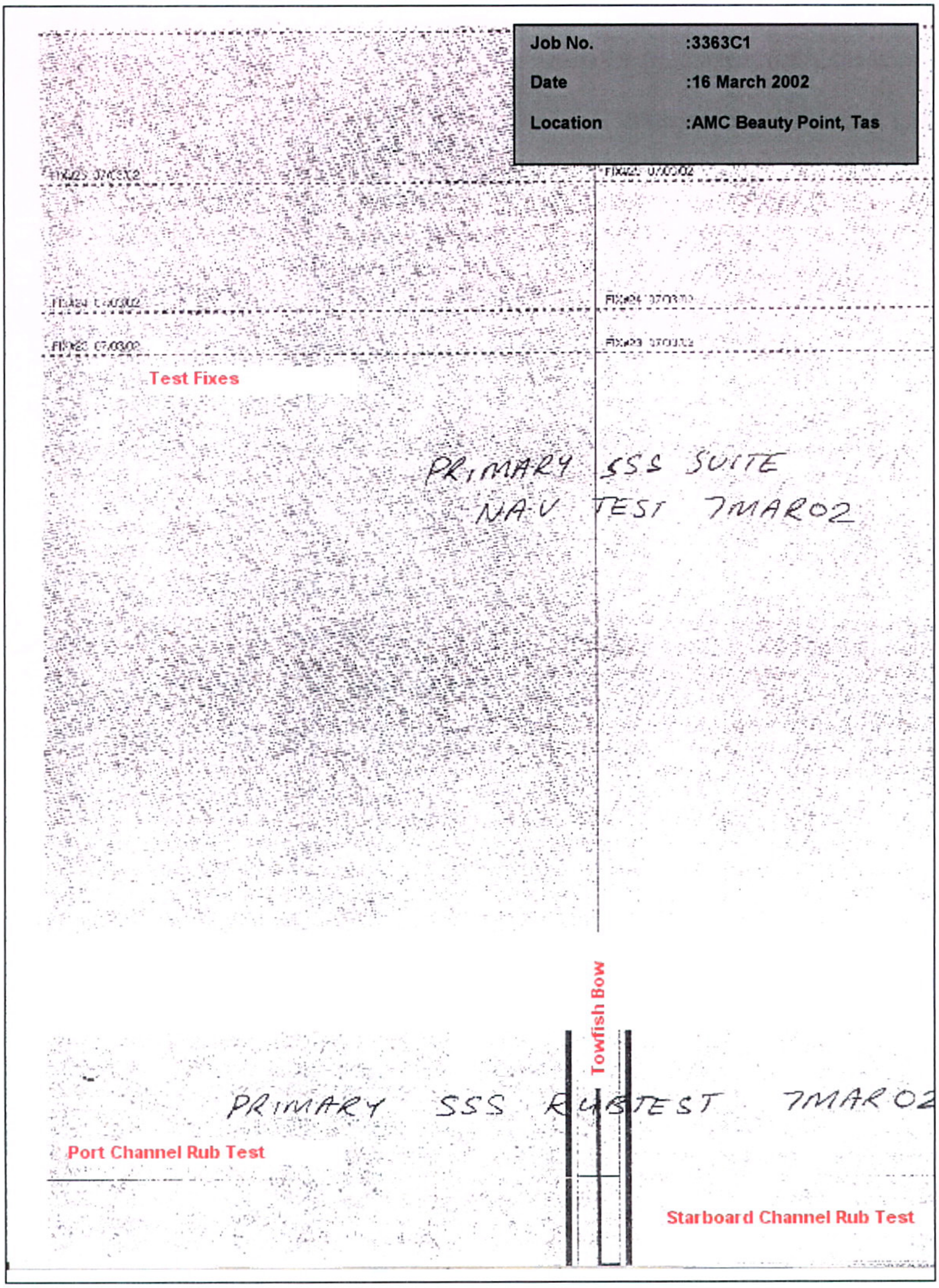
TSS DMS-05 Motion Sensor Test

APPENDIX G

SIDE SCAN SONAR WET TEST & RUB TEST

~~Pe913711 = colour Ø38~~

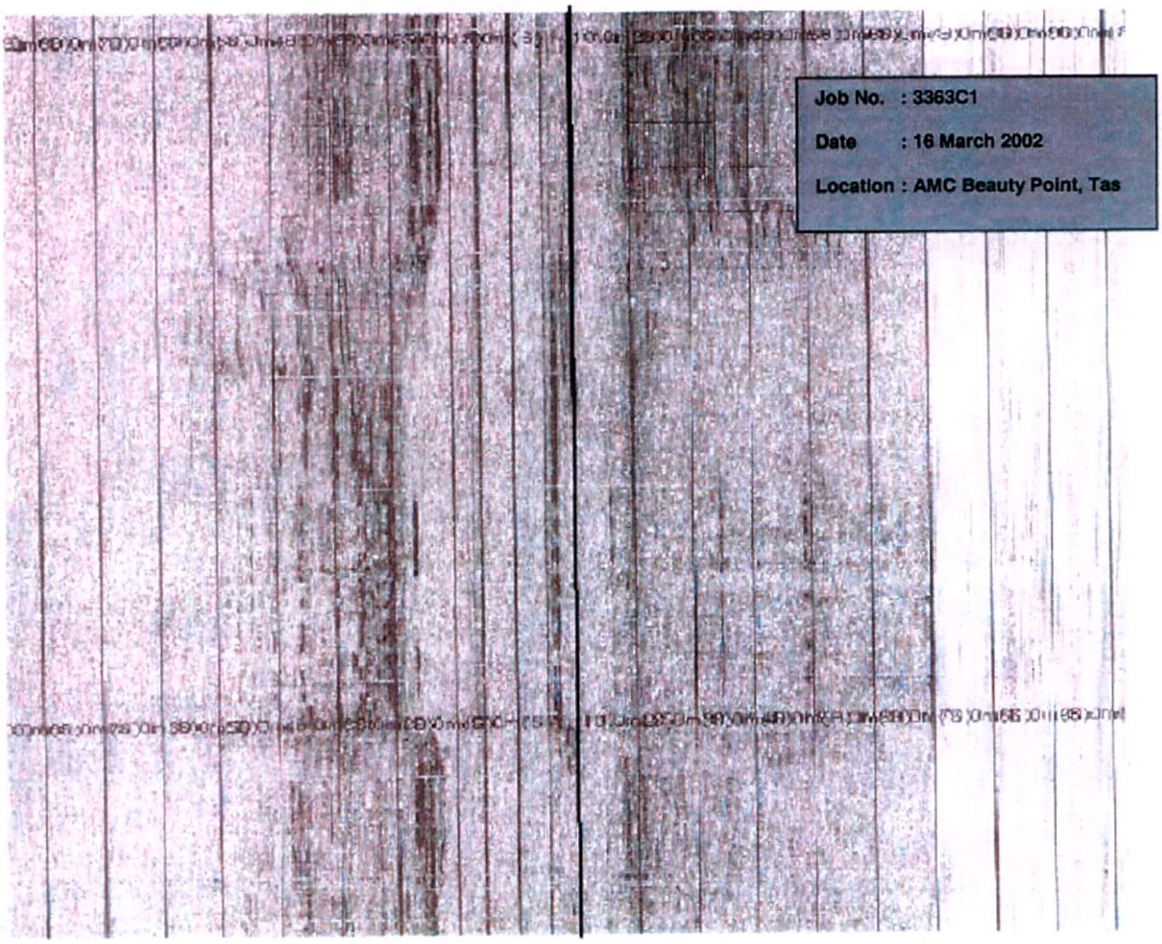
913711 486



Primary Side Scan Sonar Towfish Nav Test and Rub Test

~~Pe913711 colour Ø39~~

913711 487



Primary Side Scan Sonar Towfish Wet Test

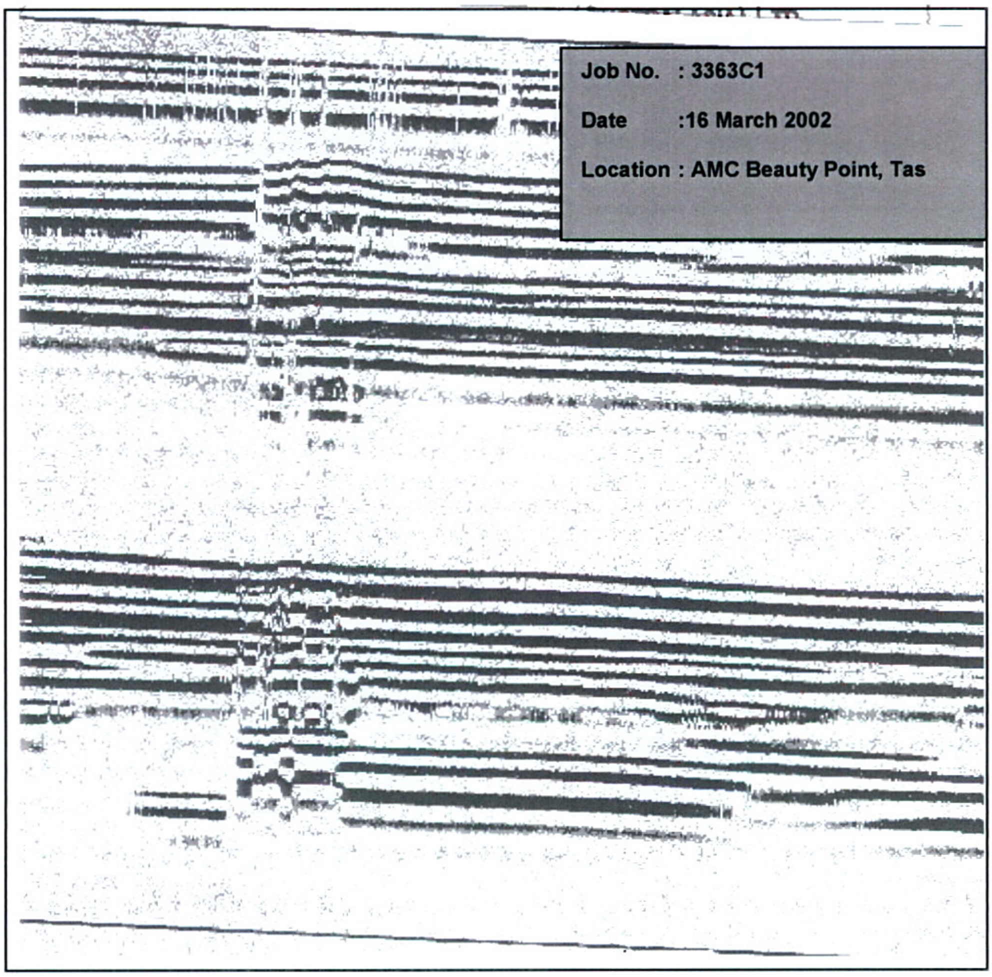
913711 488

APPENDIX H

BOOMER WET TEST

~~Re 913711 colour Ø40~~

913711 489



Primary Boomer Sub-Bottom Profiler System Wet Test

APPENDIX I

VELOCITY OF SOUND IN SEAWATER PROFILE

Sound Velocity Profile

Date : 25 March 2002

Location : Bass Strait Beardie-1 Site Survey

Job No. : 3363C1

Pressure	Temperature	Sndvel	Battery
0.6	19.13	1518.54	12.13
1.2	18.579	1518.53	12.13
2.8	18.552	1518.34	12.13
3.9	18.55	1518.32	12.13
5.3	18.542	1518.27	12.13
6.4	18.537	1518.26	12.13
7.7	18.537	1518.24	12.13
8.9	18.539	1518.21	12.13
10	18.539	1518.23	12.13
11.1	18.539	1518.26	12.13
12.3	18.532	1518.22	12.13
13.7	18.511	1518.14	12.13
15.1	18.465	1518.02	12.13
16.4	18.441	1517.99	12.13
17.6	18.409	1517.88	12.13
19.1	18.362	1517.68	12.13
20.2	18.314	1517.66	12.13
21.3	18.291	1517.62	12.13
22.6	18.271	1517.61	12.13
24.2	18.261	1517.60	12.13
25.3	18.26	1517.63	12.13
26.4	18.259	1517.64	12.13
28.1	18.254	1517.65	12.13
29.5	18.253	1517.65	12.13
30.6	18.254	1517.67	12.13
31.7	18.252	1517.69	12.13
30.6	18.254	1517.67	12.13
29.2	18.253	1517.65	12.12
28.1	18.254	1517.67	12.12
26.6	18.252	1517.62	12.12
25.3	18.255	1517.59	12.12
23.7	18.254	1517.59	12.12
22.4	18.259	1517.60	12.12
21	18.269	1517.61	12.12
19.8	18.282	1517.62	12.12
18.6	18.292	1517.65	12.12
17.5	18.311	1517.67	12.12
15.9	18.329	1517.72	12.12
14.6	18.368	1517.83	12.12
13	18.399	1517.89	12.12
11.7	18.44	1518.02	12.12
10.3	18.512	1518.18	12.12
9	18.526	1518.13	12.12
7.9	18.53	1518.13	12.12
6.8	18.532	1518.14	12.12
5.4	18.533	1518.08	12.12
3.9	18.535	1518.07	12.12
2.8	18.532	1518.07	12.12
	Average	**1517.91**	

APPENDIX J

SURVEY LINE LOGS

THALES

SUMMARY ANALOGUE LOG SHEET — **Page No 1 of 2**

JOB NO: 3363C1	**SITE: Beardie-1**	**OPERATORS: LE - JA**	**DATUM: E/S Pole**	**Speed of Sound: 1518 m/s**
GPS Ant Offset from Datum		X= -2.10, Y= +15.49	**Vessel**	Bluefin
Stern Offset from Datum		X= -5.30, Y= -7.17	**Positioning System**	Multifix 3

Date	Line No.	Fixes		Times		SSS		SBP		ES	Cable Out	Heading	Comments
		SOL	EOL	SOL	EOL	Disc	Roll	Disc	Roll	Roll	@SOL		
25/3/02	SSS1N	1	16	0808	0815	1A	1	1A	1	1	100	360	Dynamic SSS Check. No heave in E/S; applied in GNS.
25/3/02	SSS1S	17	29	0828	0834	1A	1	1A	1	1	100	180	Dynamic SSS Check.
25/3/02	BP31	30	72	0944	1005	1A	1	1A	1	1	120	90	
25/3/02	BP28	73	116	1015	1036	1A	1	1A	1	1	130	270	
25/3/02	BP25	117	162	1044	1106	1A	1	1A	1	1	120	90	
25/3/02	BP22	163	209	1113	1136	1A	1	1A	1	1	130	270	
25/3/02	BP19	210	255	1144	1206	1A	1	1A	1	1	120	90	
25/3/02	BP16	256	304	1214	1239	1B	1	1B	1	1	116	270	
25/3/02	BP13	305	353	1250	1314	1B	1	1B	1	1	104	90	
25/3/02	BP10	354	402	1322	1346	1B	1	1B	1	1	120	270	
25/3/02	BP7	403	451	1357	1421	1B	1	1B	1	1	106	90	
25/3/02	BP4	452	497	1430	1453	1B	1	1B	1	1	132	270	
25/3/02	BP1	498	548	1503	1528	1B	1	1B	1	1	113	90	
25/3/02	BP2	549	597	1541	1605	1B	1	1B	1	1	113	270	
25/3/02	BP5	598	647	1616	1641	1B	1	1B	1	1	118	90	
25/3/02	BP8	648	694	1650	1713	1B	1	1B	1	1	115	270	
25/3/02	BP11	695	743	1722	1746	1B	1	1B	1	1	127	90	
25/3/02	BP14	744	788	1756	1818	2A	2	2A	2	2	116	270	
25/3/02	BP17	789	837	1828	1852	2A	2	2A	2	2	120	90	
25/3/02	BP20	838	897	1900	1930	2A	2	2A	2	2	104	270	
25/3/02	BP23	898	946	1941	2505	2A	2	2A	2	2	120	90	
25/3/02	BP26	947	993	2012	2035	2A	2	2A	2	2	100	270	
25/3/02	BP29	994	1040	2042	2105	2A	2	2A	2	3	120	90	
25/3/02	BP30	1041	1089	2113	2137	2A	2	2A	2	3	101	270	
25/3/02	BP27	1090	1136	2144	2207	2A	2	2A	2	3	120	90	
25/3/02	BP24	1137	1190	2215	2242	2A	2	2A	2	3	100	270	
25/3/02	BP21	1191	1238	2249	2313	2B	2	2B	2	3	100	90	

913711 494

THALES

SIDE SCAN SONAR AND SUB BOTTOM PROFILER ANALOGUE LOG SHEET				Page No 2 of 2
JOB NO: 3363C1	SITE: Beardie-1	OPERATORS: LE - JA	DATUM: E/S Pole	Speed of Sound: 1518 m/s
GPS Ant Offset from Datum		X= -2.10, Y= +15.49	Vessel	Bluefin
Stern Offset from Datum		X= -5.30, Y= -7.17	Positioning System	Multifix 3

Date	Line No.	Fixes		Times		SSS		SBP		ES	Cable Out	Heading	Comments
		SOL	EOL	SOL	EOL	Disc	Roll	Disc	Roll	Roll	@SOL		
25/3/02	BP18	1239	1288	2321	2345	2B	2	2B	2	3	113	270	
25/3/02	BP15	1289	1333	2351	0013	2B	2	2B	2	3	110	90	
26/3/02	BP12	1334	1379	0021	0044	2B	2	2B	2	3	110	270	
26/3/02	BP9	1380	1422	0055	0116	2B	2	2B	2	3	110	90	
26/3/02	BP6	1423	1467	0127	0149	2B	2	2B	2	3	110	270	
26/3/02	BP3	1468	1515	0157	0221	2B	2	2B	2	3	110	90	
26/3/02	BX5	1516	1560	0246	0308	3A	3	3A	3	3	110	360	
26/3/02	BX4	1561	1607	0317	0340	3A	3	3A	3	3	110	180	
26/3/02	BX3	1608	1654	0349	0412	3A	3	3A	3	3	110	360	
26/3/02	BX2	1655	1700	0422	0444	3A	3	3A	3	3	110	180	
26/3/02	BX1	1701	1748	0453	0517	3A	3	3A	3	3	110	360	

APPENDIX K

FIELD SEABED SAMPLE DESCRIPTIONS

913711 496

Gravity Core / Grab Sample Description

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LTD

CLIENT: Esso	**SAMPLE No.:** GC1
PROJECT: Beardie-1	**WATER DEPTH (mLAT):** 50.2
JOB No.: 3363C1	**DATE:** 26-Mar-02
VESSEL: Bluefin	**TIME:** 6:52
LOGGED BY Pat Fournier	**TYPE OF CORER** Gravity corer
POSITION EAST: 570 237.00mE	**BARREL LENGTH (m):** 2.0m
POSITION NORTH: 5 766 517.00mN	**CORER WEIGHT:** 500kg
RECOVERY (m): 0.89	**CUTTER CONDITION ON RECOVERY:**

DEPTH (m)	LITHOLOGY	SAMPLE NUMBER	VISUAL DESCRIPTION	TORVANE (Kn/m^2)	PENETROMETER (Kn/m^2)
0	silty SAND	GC1	Loose to medium dense, medium to coarse silty SANDS with some shell fragments		0
0.89					15

Sample has been described by visual identification. A pocket penetrometer and a Torvane have been used to define the unconfined compressive strength and shear strength respectively, of the soil. The undrained shear strength of the soil is taken as half the unconfined compressive strength.

Note: field identification for strength of cohesive soils (AS 1726 - 1993)		**Undrained shear strength** kN/m^2	kgf/cm^2
Very soft	Exudes between fingers when squeezed in fist	< 12	< 0.12
Soft	Easily moulded in the fingers	12 to 25	0.12 to 0.25
Firm	Can be moulded in the fingers by strong pressure	25 to 50	0.25 to 0.50
Stiff	Cannot be moulded in the fingers, can be indented by thumb	50 to 100	0.50 to 1.00
Very stiff	Can be indented by thumb nailVery tough	100 to 200	1.00 to 2.00
Hard	Can be indented with difficulty by thumb nail	>200	>2.00

CLAY	SILT	SAND	sandy GRAVEL
silty CLAY	clayey SILT	clayey SAND	sandy silty GRAVEL
sandy CLAY	sandy SILT	silty SAND	
silty sandy CLAY		clayey silty SAND	ROCK

Gravity Core / Grab Sample Description

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LTD

CLIENT: Esso	SAMPLE No.: GC2
PROJECT: Beardie-1	WATER DEPTH (mLAT): 50.2
JOB No.: 3363C1	DATE: 26-Mar-02
VESSEL: Bluefin	TIME: 7:17
LOGGED BY Pat Fournier	TYPE OF CORER Gravity corer
POSITION EAST: 570 334.12mE	BARREL LENGTH (m): 2.0m
POSITION NORTH: 5 764 537.80mN	CORER WEIGHT: 500kg
RECOVERY (m): 0.95	CUTTER CONDITION ON RECOVERY:

DEPTH (m)	LITHOLOGY	SAMPLE NUMBER	VISUAL DESCRIPTION	TORVANE (Kn/m^2)	PENETROMETER (Kn/m^2)
0	silty SAND	GC2	Loose to medium dense, medium to coarse silty SANDS with some		0
			shell fragments		
0.95					17

Sample has been described by visual identification. A pocket penetrometer and a Torvane have been used to define the unconfined compressive strength and shear strength respectively, of the soil. The undrained shear strength of the soil is taken as half the unconfined compressive strength.

Note: field identification for strength of cohesive soils (AS 1726 - 1993)		Undrained shear strength kN/m^2	kgf/cm^2
Very soft	Exudes between fingers when squeezed in fist	< 12	< 0.12
Soft	Easily moulded in the fingers	12 to 25	0.12 to 0.25
Firm	Can be moulded in the fingers by strong pressure	25 to 50	0.25 to 0.50
Stiff	Cannot be moulded in the fingers, can be indented by thumb	50 to 100	0.50 to 1.00
Very stiff	Can be indented by thumb nailVery tough	100 to 200	1.00 to 2.00
Hard	Can be indented with difficulty by thumb nail	>200	>2.00

CLAY	SILT	SAND	sandy GRAVEL
silty CLAY	clayey SILT	clayey SAND	sandy silty GRAVEL
sandy CLAY	sandy SILT	silty SAND	
silty sandy CLAY		clayey silty SAND	ROCK

913711 498

Gravity Core / Grab Sample Description

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LTD

CLIENT: Esso
PROJECT: Beardie-1
JOB No.: 3363C1
VESSEL: Bluefin
LOGGED BY Pat Fournier
POSITION EAST: 572 018.26mE
POSITION NORTH: 5 766 233.81mN
RECOVERY (m): 1.2

SAMPLE No.: GC3
WATER DEPTH (mLAT): 50.2
DATE: 26-Mar-02
TIME: 6:22
TYPE OF CORER Gravity
BARREL LENGTH (m): 2m
CORER WEIGHT: 500kg

CUTTER CONDITION ON RECOVERY:

DEPTH (m)	LITHOLOGY	SAMPLE NUMBER	VISUAL DESCRIPTION	TORVANE (Kn/m^2)	PENETROMETER (Kn/m^2)
0		GC3	Loose to medium dense, medium to coarse silty SANDS with some shell fragments		0
1.2					18

Sample has been described by visual identification. A pocket penetrometer and a Torvane have been used to define the unconfined compressive strength and shear strength respectively, of the soil. The undrained shear strength of the soil is taken as half the unconfined compressive strength.

Note: field identification for strength of cohesive soils (AS 1726 - 1993)

		Undrained shear strength kN/m^2	kgf/cm^2
Very soft	Exudes between fingers when squeezed in fist	< 12	< 0.12
Soft	Easily moulded in the fingers	12 to 25	0.12 to 0.25
Firm	Can be moulded in the fingers by strong pressure	25 to 50	0.25 to 0.50
Stiff	Cannot be moulded in the fingers, can be indented by thumb	50 to 100	0.50 to 1.00
Very stiff	Can be indented by thumb nailVery tough	100 to 200	1.00 to 2.00
Hard	Can be indented with difficulty by thumb nail	>200	>2.00

CLAY
SILT
SAND
sandy GRAVEL
silty CLAY
clayey SILT
clayey SAND
sandy silty GRAVEL
sandy CLAY
sandy SILT
silty SAND
silty sandy CLAY
clayey silty SAND
ROCK

APPENDIX L

TIDAL PREDICTIONS

913711 500

Job Location: Gippsland Basin, Bass Strait, Tasmania
Job Name: Beardie-1
Job No.: 3363C1
Latitude: 38° 15' 16.300" S
Longitude: 147° 48' 24.600" E

Date	Time	LAT
24-Mar-02	00:00.0	0.78
24-Mar-02	10:00.0	0.78
24-Mar-02	20:00.0	0.79
24-Mar-02	30:00.0	0.8
24-Mar-02	40:00.0	0.81
24-Mar-02	50:00.0	0.83
24-Mar-02	00:00.0	0.84
24-Mar-02	10:00.0	0.86
24-Mar-02	20:00.0	0.89
24-Mar-02	30:00.0	0.91
24-Mar-02	40:00.0	0.94
24-Mar-02	50:00.0	0.98
24-Mar-02	00:00.0	1.01
24-Mar-02	10:00.0	1.04
24-Mar-02	20:00.0	1.08
24-Mar-02	30:00.0	1.12
24-Mar-02	40:00.0	1.16
24-Mar-02	50:00.0	1.19
24-Mar-02	00:00.0	1.23
24-Mar-02	10:00.0	1.27
24-Mar-02	20:00.0	1.3
24-Mar-02	30:00.0	1.34
24-Mar-02	40:00.0	1.37
24-Mar-02	50:00.0	1.4
24-Mar-02	00:00.0	1.43
24-Mar-02	10:00.0	1.45
24-Mar-02	20:00.0	1.48
24-Mar-02	30:00.0	1.5
24-Mar-02	40:00.0	1.51
24-Mar-02	50:00.0	1.53
24-Mar-02	00:00.0	1.54
24-Mar-02	10:00.0	1.54
24-Mar-02	20:00.0	1.55
24-Mar-02	30:00.0	1.55
24-Mar-02	40:00.0	1.54
24-Mar-02	50:00.0	1.54
24-Mar-02	00:00.0	1.53
24-Mar-02	10:00.0	1.51
24-Mar-02	20:00.0	1.5
24-Mar-02	30:00.0	1.48
24-Mar-02	40:00.0	1.46
24-Mar-02	50:00.0	1.43
24-Mar-02	00:00.0	1.4
24-Mar-02	10:00.0	1.37
24-Mar-02	20:00.0	1.34
24-Mar-02	30:00.0	1.3
24-Mar-02	40:00.0	1.26
24-Mar-02	50:00.0	1.22
24-Mar-02	00:00.0	1.18

24-Mar-02	10:00.0	1.13
24-Mar-02	20:00.0	1.08
24-Mar-02	30:00.0	1.03
24-Mar-02	40:00.0	0.98
24-Mar-02	50:00.0	0.93
24-Mar-02	00:00.0	0.87
24-Mar-02	10:00.0	0.82
24-Mar-02	20:00.0	0.77
24-Mar-02	30:00.0	0.72
24-Mar-02	40:00.0	0.66
24-Mar-02	50:00.0	0.61
24-Mar-02	00:00.0	0.57
24-Mar-02	10:00.0	0.52
24-Mar-02	20:00.0	0.48
24-Mar-02	30:00.0	0.44
24-Mar-02	40:00.0	0.41
24-Mar-02	50:00.0	0.38
24-Mar-02	00:00.0	0.35
24-Mar-02	10:00.0	0.32
24-Mar-02	20:00.0	0.3
24-Mar-02	30:00.0	0.28
24-Mar-02	40:00.0	0.27
24-Mar-02	50:00.0	0.26
24-Mar-02	00:00.0	0.25
24-Mar-02	10:00.0	0.24
24-Mar-02	20:00.0	0.24
24-Mar-02	30:00.0	0.23
24-Mar-02	40:00.0	0.23
24-Mar-02	50:00.0	0.24
24-Mar-02	00:00.0	0.24
24-Mar-02	10:00.0	0.25
24-Mar-02	20:00.0	0.26
24-Mar-02	30:00.0	0.27
24-Mar-02	40:00.0	0.29
24-Mar-02	50:00.0	0.31
24-Mar-02	00:00.0	0.33
24-Mar-02	10:00.0	0.36
24-Mar-02	20:00.0	0.39
24-Mar-02	30:00.0	0.42
24-Mar-02	40:00.0	0.46
24-Mar-02	50:00.0	0.49
24-Mar-02	00:00.0	0.53
24-Mar-02	10:00.0	0.57
24-Mar-02	20:00.0	0.61
24-Mar-02	30:00.0	0.66
24-Mar-02	40:00.0	0.7
24-Mar-02	50:00.0	0.75
24-Mar-02	00:00.0	0.79
24-Mar-02	10:00.0	0.84
24-Mar-02	20:00.0	0.88
24-Mar-02	30:00.0	0.93
24-Mar-02	40:00.0	0.97
24-Mar-02	50:00.0	1.01
24-Mar-02	00:00.0	1.05
24-Mar-02	10:00.0	1.09
24-Mar-02	20:00.0	1.13

24-Mar-02	30:00.0	1.16
24-Mar-02	40:00.0	1.19
24-Mar-02	50:00.0	1.21
24-Mar-02	00:00.0	1.24
24-Mar-02	10:00.0	1.26
24-Mar-02	20:00.0	1.27
24-Mar-02	30:00.0	1.28
24-Mar-02	40:00.0	1.29
24-Mar-02	50:00.0	1.3
24-Mar-02	00:00.0	1.3
24-Mar-02	10:00.0	1.3
24-Mar-02	20:00.0	1.29
24-Mar-02	30:00.0	1.28
24-Mar-02	40:00.0	1.27
24-Mar-02	50:00.0	1.25
24-Mar-02	00:00.0	1.24
24-Mar-02	10:00.0	1.22
24-Mar-02	20:00.0	1.19
24-Mar-02	30:00.0	1.17
24-Mar-02	40:00.0	1.14
24-Mar-02	50:00.0	1.12
24-Mar-02	00:00.0	1.09
24-Mar-02	10:00.0	1.06
24-Mar-02	20:00.0	1.03
24-Mar-02	30:00.0	1
24-Mar-02	40:00.0	0.97
24-Mar-02	50:00.0	0.94
24-Mar-02	00:00.0	0.91
24-Mar-02	10:00.0	0.88
24-Mar-02	20:00.0	0.86
24-Mar-02	30:00.0	0.83
24-Mar-02	40:00.0	0.81
24-Mar-02	50:00.0	0.79
24-Mar-02	00:00.0	0.77
24-Mar-02	10:00.0	0.75
24-Mar-02	20:00.0	0.74
24-Mar-02	30:00.0	0.72
24-Mar-02	40:00.0	0.71
24-Mar-02	50:00.0	0.7
25-Mar-02	00:00.0	0.7
25-Mar-02	10:00.0	0.69
25-Mar-02	20:00.0	0.69
25-Mar-02	30:00.0	0.69
25-Mar-02	40:00.0	0.69
25-Mar-02	50:00.0	0.7
25-Mar-02	00:00.0	0.71
25-Mar-02	10:00.0	0.72
25-Mar-02	20:00.0	0.74
25-Mar-02	30:00.0	0.76
25-Mar-02	40:00.0	0.78
25-Mar-02	50:00.0	0.8
25-Mar-02	00:00.0	0.83
25-Mar-02	10:00.0	0.86
25-Mar-02	20:00.0	0.9
25-Mar-02	30:00.0	0.94
25-Mar-02	40:00.0	0.97

25-Mar-02	50:00.0	1.01
25-Mar-02	00:00.0	1.06
25-Mar-02	10:00.0	1.1
25-Mar-02	20:00.0	1.14
25-Mar-02	30:00.0	1.19
25-Mar-02	40:00.0	1.23
25-Mar-02	50:00.0	1.27
25-Mar-02	00:00.0	1.31
25-Mar-02	10:00.0	1.35
25-Mar-02	20:00.0	1.39
25-Mar-02	30:00.0	1.42
25-Mar-02	40:00.0	1.46
25-Mar-02	50:00.0	1.49
25-Mar-02	00:00.0	1.51
25-Mar-02	10:00.0	1.54
25-Mar-02	20:00.0	1.56
25-Mar-02	30:00.0	1.58
25-Mar-02	40:00.0	1.59
25-Mar-02	50:00.0	1.61
25-Mar-02	00:00.0	1.61
25-Mar-02	10:00.0	1.62
25-Mar-02	20:00.0	1.62
25-Mar-02	30:00.0	1.61
25-Mar-02	40:00.0	1.61
25-Mar-02	50:00.0	1.59
25-Mar-02	00:00.0	1.58
25-Mar-02	10:00.0	1.56
25-Mar-02	20:00.0	1.54
25-Mar-02	30:00.0	1.51
25-Mar-02	40:00.0	1.48
25-Mar-02	50:00.0	1.45
25-Mar-02	00:00.0	1.41
25-Mar-02	10:00.0	1.37
25-Mar-02	20:00.0	1.33
25-Mar-02	30:00.0	1.28
25-Mar-02	40:00.0	1.23
25-Mar-02	50:00.0	1.18
25-Mar-02	00:00.0	1.13
25-Mar-02	10:00.0	1.08
25-Mar-02	20:00.0	1.02
25-Mar-02	30:00.0	0.96
25-Mar-02	40:00.0	0.9
25-Mar-02	50:00.0	0.85
25-Mar-02	00:00.0	0.79
25-Mar-02	10:00.0	0.73
25-Mar-02	20:00.0	0.67
25-Mar-02	30:00.0	0.62
25-Mar-02	40:00.0	0.57
25-Mar-02	50:00.0	0.52
25-Mar-02	00:00.0	0.47
25-Mar-02	10:00.0	0.43
25-Mar-02	20:00.0	0.39
25-Mar-02	30:00.0	0.36
25-Mar-02	40:00.0	0.33
25-Mar-02	50:00.0	0.3
25-Mar-02	00:00.0	0.27

913711 504

25-Mar-02	10:00.0	0.25
25-Mar-02	20:00.0	0.23
25-Mar-02	30:00.0	0.22
25-Mar-02	40:00.0	0.21
25-Mar-02	50:00.0	0.2
25-Mar-02	00:00.0	0.19
25-Mar-02	10:00.0	0.19
25-Mar-02	20:00.0	0.19
25-Mar-02	30:00.0	0.19
25-Mar-02	40:00.0	0.19
25-Mar-02	50:00.0	0.2
25-Mar-02	00:00.0	0.21
25-Mar-02	10:00.0	0.23
25-Mar-02	20:00.0	0.25
25-Mar-02	30:00.0	0.27
25-Mar-02	40:00.0	0.29
25-Mar-02	50:00.0	0.32
25-Mar-02	00:00.0	0.35
25-Mar-02	10:00.0	0.39
25-Mar-02	20:00.0	0.43
25-Mar-02	30:00.0	0.47
25-Mar-02	40:00.0	0.52
25-Mar-02	50:00.0	0.56
25-Mar-02	00:00.0	0.61
25-Mar-02	10:00.0	0.66
25-Mar-02	20:00.0	0.71
25-Mar-02	30:00.0	0.76
25-Mar-02	40:00.0	0.81
25-Mar-02	50:00.0	0.86
25-Mar-02	00:00.0	0.91
25-Mar-02	10:00.0	0.96
25-Mar-02	20:00.0	1.01
25-Mar-02	30:00.0	1.05
25-Mar-02	40:00.0	1.09
25-Mar-02	50:00.0	1.13
25-Mar-02	00:00.0	1.17
25-Mar-02	10:00.0	1.2
25-Mar-02	20:00.0	1.23
25-Mar-02	30:00.0	1.26
25-Mar-02	40:00.0	1.28
25-Mar-02	50:00.0	1.3
25-Mar-02	00:00.0	1.31
25-Mar-02	10:00.0	1.33
25-Mar-02	20:00.0	1.33
25-Mar-02	30:00.0	1.34
25-Mar-02	40:00.0	1.33
25-Mar-02	50:00.0	1.33
25-Mar-02	00:00.0	1.32
25-Mar-02	10:00.0	1.31
25-Mar-02	20:00.0	1.3
25-Mar-02	30:00.0	1.28
25-Mar-02	40:00.0	1.26
25-Mar-02	50:00.0	1.24
25-Mar-02	00:00.0	1.22
25-Mar-02	10:00.0	1.19
25-Mar-02	20:00.0	1.16

25-Mar-02	30:00.0	1.13
25-Mar-02	40:00.0	1.1
25-Mar-02	50:00.0	1.07
25-Mar-02	00:00.0	1.04
25-Mar-02	10:00.0	1
25-Mar-02	20:00.0	0.97
25-Mar-02	30:00.0	0.93
25-Mar-02	40:00.0	0.9
25-Mar-02	50:00.0	0.87
25-Mar-02	00:00.0	0.83
25-Mar-02	10:00.0	0.8
25-Mar-02	20:00.0	0.77
25-Mar-02	30:00.0	0.75
25-Mar-02	40:00.0	0.72
25-Mar-02	50:00.0	0.7
26-Mar-02	00:00.0	0.68
26-Mar-02	10:00.0	0.66
26-Mar-02	20:00.0	0.65
26-Mar-02	30:00.0	0.63
26-Mar-02	40:00.0	0.63
26-Mar-02	50:00.0	0.62
26-Mar-02	00:00.0	0.62
26-Mar-02	10:00.0	0.62
26-Mar-02	20:00.0	0.62
26-Mar-02	30:00.0	0.63
26-Mar-02	40:00.0	0.64
26-Mar-02	50:00.0	0.65
26-Mar-02	00:00.0	0.67
26-Mar-02	10:00.0	0.69
26-Mar-02	20:00.0	0.71
26-Mar-02	30:00.0	0.74
26-Mar-02	40:00.0	0.77
26-Mar-02	50:00.0	0.81
26-Mar-02	00:00.0	0.84
26-Mar-02	10:00.0	0.88
26-Mar-02	20:00.0	0.92
26-Mar-02	30:00.0	0.96
26-Mar-02	40:00.0	1.01
26-Mar-02	50:00.0	1.05
26-Mar-02	00:00.0	1.1
26-Mar-02	10:00.0	1.15
26-Mar-02	20:00.0	1.19
26-Mar-02	30:00.0	1.24
26-Mar-02	40:00.0	1.28
26-Mar-02	50:00.0	1.33
26-Mar-02	00:00.0	1.37
26-Mar-02	10:00.0	1.41
26-Mar-02	20:00.0	1.45
26-Mar-02	30:00.0	1.48
26-Mar-02	40:00.0	1.51
26-Mar-02	50:00.0	1.54
26-Mar-02	00:00.0	1.57
26-Mar-02	10:00.0	1.6
26-Mar-02	20:00.0	1.62
26-Mar-02	30:00.0	1.63
26-Mar-02	40:00.0	1.65

913711 506

26-Mar-02	50:00.0	1.65
26-Mar-02	00:00.0	1.66
26-Mar-02	10:00.0	1.66
26-Mar-02	20:00.0	1.65
26-Mar-02	30:00.0	1.64
26-Mar-02	40:00.0	1.63
26-Mar-02	50:00.0	1.61
26-Mar-02	00:00.0	1.59
26-Mar-02	10:00.0	1.56
26-Mar-02	20:00.0	1.53
26-Mar-02	30:00.0	1.5
26-Mar-02	40:00.0	1.46
26-Mar-02	50:00.0	1.42
26-Mar-02	00:00.0	1.38
26-Mar-02	10:00.0	1.33
26-Mar-02	20:00.0	1.28
26-Mar-02	30:00.0	1.23
26-Mar-02	40:00.0	1.18
26-Mar-02	50:00.0	1.12
26-Mar-02	00:00.0	1.06
26-Mar-02	10:00.0	1
26-Mar-02	20:00.0	0.95
26-Mar-02	30:00.0	0.89
26-Mar-02	40:00.0	0.83
26-Mar-02	50:00.0	0.77
26-Mar-02	00:00.0	0.71
26-Mar-02	10:00.0	0.65
26-Mar-02	20:00.0	0.6
26-Mar-02	30:00.0	0.55
26-Mar-02	40:00.0	0.5
26-Mar-02	50:00.0	0.45
26-Mar-02	00:00.0	0.41
26-Mar-02	10:00.0	0.37
26-Mar-02	20:00.0	0.34
26-Mar-02	30:00.0	0.3
26-Mar-02	40:00.0	0.28
26-Mar-02	50:00.0	0.25
26-Mar-02	00:00.0	0.23
26-Mar-02	10:00.0	0.21
26-Mar-02	20:00.0	0.2
26-Mar-02	30:00.0	0.18
26-Mar-02	40:00.0	0.18
26-Mar-02	50:00.0	0.17
26-Mar-02	00:00.0	0.17
26-Mar-02	10:00.0	0.17
26-Mar-02	20:00.0	0.17
26-Mar-02	30:00.0	0.18
26-Mar-02	40:00.0	0.19
26-Mar-02	50:00.0	0.21
26-Mar-02	00:00.0	0.23
26-Mar-02	10:00.0	0.25
26-Mar-02	20:00.0	0.28
26-Mar-02	30:00.0	0.31
26-Mar-02	40:00.0	0.34
26-Mar-02	50:00.0	0.38
26-Mar-02	00:00.0	0.42

26-Mar-02	10:00.0	0.47
26-Mar-02	20:00.0	0.52
26-Mar-02	30:00.0	0.57
26-Mar-02	40:00.0	0.62
26-Mar-02	50:00.0	0.67
26-Mar-02	00:00.0	0.73
26-Mar-02	10:00.0	0.78
26-Mar-02	20:00.0	0.83
26-Mar-02	30:00.0	0.88
26-Mar-02	40:00.0	0.94
26-Mar-02	50:00.0	0.99
26-Mar-02	00:00.0	1.03
26-Mar-02	10:00.0	1.08
26-Mar-02	20:00.0	1.12
26-Mar-02	30:00.0	1.16
26-Mar-02	40:00.0	1.2
26-Mar-02	50:00.0	1.23
26-Mar-02	00:00.0	1.26
26-Mar-02	10:00.0	1.29
26-Mar-02	20:00.0	1.31
26-Mar-02	30:00.0	1.33
26-Mar-02	40:00.0	1.34
26-Mar-02	50:00.0	1.35
26-Mar-02	00:00.0	1.36
26-Mar-02	10:00.0	1.36
26-Mar-02	20:00.0	1.36
26-Mar-02	30:00.0	1.36
26-Mar-02	40:00.0	1.35
26-Mar-02	50:00.0	1.34
26-Mar-02	00:00.0	1.33
26-Mar-02	10:00.0	1.31
26-Mar-02	20:00.0	1.29
26-Mar-02	30:00.0	1.27
26-Mar-02	40:00.0	1.25
26-Mar-02	50:00.0	1.22
26-Mar-02	00:00.0	1.19
26-Mar-02	10:00.0	1.16
26-Mar-02	20:00.0	1.13
26-Mar-02	30:00.0	1.09
26-Mar-02	40:00.0	1.05
26-Mar-02	50:00.0	1.02
26-Mar-02	00:00.0	0.98
26-Mar-02	10:00.0	0.94
26-Mar-02	20:00.0	0.9
26-Mar-02	30:00.0	0.86
26-Mar-02	40:00.0	0.83
26-Mar-02	50:00.0	0.79
27-Mar-02	00:00.0	0.76
27-Mar-02	10:00.0	0.73
27-Mar-02	20:00.0	0.7
27-Mar-02	30:00.0	0.67
27-Mar-02	40:00.0	0.64
27-Mar-02	50:00.0	0.62
27-Mar-02	00:00.0	0.61
27-Mar-02	10:00.0	0.59
27-Mar-02	20:00.0	0.58

913711 508

27-Mar-02	30:00.0	0.57
27-Mar-02	40:00.0	0.57
27-Mar-02	50:00.0	0.57
27-Mar-02	00:00.0	0.57
27-Mar-02	10:00.0	0.58
27-Mar-02	20:00.0	0.59
27-Mar-02	30:00.0	0.6
27-Mar-02	40:00.0	0.62
27-Mar-02	50:00.0	0.64
27-Mar-02	00:00.0	0.66
27-Mar-02	10:00.0	0.68
27-Mar-02	20:00.0	0.71
27-Mar-02	30:00.0	0.74
27-Mar-02	40:00.0	0.78
27-Mar-02	50:00.0	0.82
27-Mar-02	00:00.0	0.85
27-Mar-02	10:00.0	0.9
27-Mar-02	20:00.0	0.94
27-Mar-02	30:00.0	0.98
27-Mar-02	40:00.0	1.03
27-Mar-02	50:00.0	1.08
27-Mar-02	00:00.0	1.12
27-Mar-02	10:00.0	1.17
27-Mar-02	20:00.0	1.22
27-Mar-02	30:00.0	1.26
27-Mar-02	40:00.0	1.31
27-Mar-02	50:00.0	1.35
27-Mar-02	00:00.0	1.39
27-Mar-02	10:00.0	1.43
27-Mar-02	20:00.0	1.47
27-Mar-02	30:00.0	1.51
27-Mar-02	40:00.0	1.54
27-Mar-02	50:00.0	1.57
27-Mar-02	00:00.0	1.59
27-Mar-02	10:00.0	1.62
27-Mar-02	20:00.0	1.63
27-Mar-02	30:00.0	1.64
27-Mar-02	40:00.0	1.65
27-Mar-02	50:00.0	1.66
27-Mar-02	00:00.0	1.65
27-Mar-02	10:00.0	1.65
27-Mar-02	20:00.0	1.64
27-Mar-02	30:00.0	1.62
27-Mar-02	40:00.0	1.6
27-Mar-02	50:00.0	1.58
27-Mar-02	00:00.0	1.55
27-Mar-02	10:00.0	1.52
27-Mar-02	20:00.0	1.48
27-Mar-02	30:00.0	1.44
27-Mar-02	40:00.0	1.4
27-Mar-02	50:00.0	1.36
27-Mar-02	00:00.0	1.31
27-Mar-02	10:00.0	1.26
27-Mar-02	20:00.0	1.21
27-Mar-02	30:00.0	1.16
27-Mar-02	40:00.0	1.11

27-Mar-02	50:00.0	1.05
27-Mar-02	00:00.0	1
27-Mar-02	10:00.0	0.94
27-Mar-02	20:00.0	0.88
27-Mar-02	30:00.0	0.83
27-Mar-02	40:00.0	0.77
27-Mar-02	50:00.0	0.72
27-Mar-02	00:00.0	0.66
27-Mar-02	10:00.0	0.61
27-Mar-02	20:00.0	0.56
27-Mar-02	30:00.0	0.51
27-Mar-02	40:00.0	0.46
27-Mar-02	50:00.0	0.42
27-Mar-02	00:00.0	0.38
27-Mar-02	10:00.0	0.35
27-Mar-02	20:00.0	0.31
27-Mar-02	30:00.0	0.29
27-Mar-02	40:00.0	0.26
27-Mar-02	50:00.0	0.24
27-Mar-02	00:00.0	0.22
27-Mar-02	10:00.0	0.21
27-Mar-02	20:00.0	0.2
27-Mar-02	30:00.0	0.19
27-Mar-02	40:00.0	0.18
27-Mar-02	50:00.0	0.18
27-Mar-02	00:00.0	0.19
27-Mar-02	10:00.0	0.2
27-Mar-02	20:00.0	0.21
27-Mar-02	30:00.0	0.22
27-Mar-02	40:00.0	0.24
27-Mar-02	50:00.0	0.27
27-Mar-02	00:00.0	0.29
27-Mar-02	10:00.0	0.33
27-Mar-02	20:00.0	0.36
27-Mar-02	30:00.0	0.4
27-Mar-02	40:00.0	0.44
27-Mar-02	50:00.0	0.49
27-Mar-02	00:00.0	0.53
27-Mar-02	10:00.0	0.58
27-Mar-02	20:00.0	0.63
27-Mar-02	30:00.0	0.69
27-Mar-02	40:00.0	0.74
27-Mar-02	50:00.0	0.79
27-Mar-02	00:00.0	0.84
27-Mar-02	10:00.0	0.89
27-Mar-02	20:00.0	0.94
27-Mar-02	30:00.0	0.99
27-Mar-02	40:00.0	1.04
27-Mar-02	50:00.0	1.08
27-Mar-02	00:00.0	1.13
27-Mar-02	10:00.0	1.17
27-Mar-02	20:00.0	1.2
27-Mar-02	30:00.0	1.24
27-Mar-02	40:00.0	1.27
27-Mar-02	50:00.0	1.3
27-Mar-02	00:00.0	1.32

913711 510

27-Mar-02	10:00.0	1.34
27-Mar-02	20:00.0	1.36
27-Mar-02	30:00.0	1.37
27-Mar-02	40:00.0	1.38
27-Mar-02	50:00.0	1.38
27-Mar-02	00:00.0	1.38
27-Mar-02	10:00.0	1.38
27-Mar-02	20:00.0	1.37
27-Mar-02	30:00.0	1.36
27-Mar-02	40:00.0	1.35
27-Mar-02	50:00.0	1.34
27-Mar-02	00:00.0	1.32
27-Mar-02	10:00.0	1.3
27-Mar-02	20:00.0	1.27
27-Mar-02	30:00.0	1.24
27-Mar-02	40:00.0	1.21
27-Mar-02	50:00.0	1.18
27-Mar-02	00:00.0	1.15
27-Mar-02	10:00.0	1.11
27-Mar-02	20:00.0	1.08
27-Mar-02	30:00.0	1.04
27-Mar-02	40:00.0	1
27-Mar-02	50:00.0	0.96

Average 0.94

APPENDIX M

DAILY FIELD PROGRESS REPORT SHEETS

913711 512

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date:15 March 2002	Client: OMV	Job No.: 3346C1	Vessel: Blue Fin	Location: Bass Strait

Equipment	Op	
SkyFix	Mob	
SkyFix Spot	Mob	
Gyro	Mob	
GNS 2	Mob	
MultiFix 3	Mob	
GRREP	Mob	

Equipment	Op	
Echo Sounder	Mob	
Sidescan	Mob	
Boomer	Mob	
Heave Comp	Mob	
Velocity Probe	Mob	
ENSIN/CODA	Mob	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200			
1800			

DIARY OF OPERATIONS

TIME	Time Zone=UTC+11
0800	Thales personnel at vessel. Project Briefing & vessel induction
0830	Truck, crane, welders & labour commence work.
1115	All equipment loaded to vessel
1300	Gyros powered up.
1545	Crane, welders & labour complete work
1600	Power failure.
1630	Power return
2000	Thales personnel depart vessel for night.

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ____________________
SURVEYOR/ENGINEER

WHITE	: Accounts Department
BLUE	:Operations Department
YELLOW	: Clients Representative

Signature ____________________
CLIENT REPRESENTATIVE

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date:16 March 2002	Client: OMV	Job No.: 3346C1	Vessel: Blue Fin	Location: Bass Strait

Equipment	Op	
SkyFix	Y	
SkyFix Spot	Y	
Gyro	Y	
GNS 2	Y	
MultiFix 3	Y	
GRREP	Y	

Equipment	Op	
Echo Sounder	Y	
Sidescan	Y	
Boomer	Y	
Heave Comp	Y	
Velocity Probe	Y	
ENSIN/CODA	Y	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200			
1800			

DIARY OF OPERATIONS

TIME	Time Zone=UTC+11
0700	Thales personnel at vessel.
0800	Boomer in water
1000	SSS rub & wet test
1100	ES deployed. Deso 15 problem.
1200	DGPS Health check & gyro calibration complete.
1300	ES operational
1345	ES bar check complete.
1430	Spare magnetometer arrive.
1515	Power failure.
1530	Power back. Reboot equipment
1600	Magnetometer operational
1730	Fire & Abandonment drill
1800	Depart Beauty Point.
2400	Transit to Patricia

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ____________________
SURVEYOR/ENGINEER

WHITE	: Accounts Department
BLUE	:Operations Department
YELLOW	: Clients Representative

Signature ____________________
CLIENT REPRESENTATIVE

913711 514

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date:17 March 2002	Client: OMV	Job No.: 3346C1	Vessel: Blue Fin	Location: Bass Strait

Equipment	Op	
SkyFix	Y	
SkyFix Spot	Y	
Gyro	Y	
GNS 2	Y	
MultiFix 3	Y	
GRREP	Y	

Equipment	Op	
Echo Sounder	Y	
Sidescan	Y	
Boomer	Y	
Heave Comp	Y	
Velocity Probe	Y	
ENSIN/CODA	Y	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000	6	2m	NW
0600	6	2m	SW
1200	6	2m	SW
1800	3/4	2m	SW

DIARY OF OPERATIONS

TIME	Time Zone=UTC+11
0000	Transit to Patricia
1100	DMS2-05 reset itself to 1200 baud rate. Reset GNS2 & Deso 15 to same.
1845	Drop anchor at Patricia site. Wx standby. Wind dec., seas 2m+
2100	SVP check during wx dt. 1515.7 m/s
2400	Standby for wx on Patricia 2 site

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ____________________
SURVEYOR/ENGINEER

WHITE	: Accounts Department
BLUE	:Operations Department
YELLOW	: Clients Representative

Signature ____________________
CLIENT REPRESENTATIVE

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date: 18 March 2002	Client: OMV	Job No.: 3346C1	Vessel: Blue Fin	Location: Bass Strait

Equipment	Op	
SkyFix	Y	
SkyFix Spot	Y	
Gyro	Y	
GNS 2	Y	
MultiFix 3	Y	
GRREP	Y	

Equipment	Op	
Echo Sounder	Y	
Sidescan	Y	
Boomer	Y	
Heave Comp	Y	
Velocity Probe	Y	
ENSIN/CODA	Y	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000	3/4	2m	SW
0600	3/4	1m	NW
1200	3	<1m	NE
1800	3	<1m	NE

DIARY OF OPERATIONS

TIME	Time Zone=UTC+ 11
0000	Standby for wx on Patricia 2 site
0400	Deploy and tune E/S. No heave into E/S as causes loss of soundings. Heave applied in GNS.
0520	Recover anchor.
0530	Deploy SSS. Tuning SSS.
0639	Start SSS dynamic check Patricia 2.
0715	End of dynamic check.
0730	Deploy hydrophone. Tuning boomer.
1030	Commence run-in to line PP1.
1043	Commenced SSS, ES & Boomer on Patricia 2 site.
2119	Analogue acquisition completed at Patricia 2.
2148	Commence analogue acquisition at Baleen 3 site.
2400	Continue on Baleen 3 site.

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ______________________
SURVEYOR/ENGINEER

WHITE : Accounts Department
BLUE :Operations Department
YELLOW : Clients Representative

Signature ______________________
CLIENT REPRESENTATIVE

913711 516

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date:19 March 2002	Client: OMV	Job No.: 3347C1	Vessel: Blue Fin	Location: Bass Strait

Equipment	Op	
SkyFix	Y	
SkyFix Spot	Y	
Gyro	Y	
GNS 2	Y	
MultiFix 3	Y	
GRREP	Y	

Equipment	Op	
Echo Sounder	Y	
Sidescan	Y	
Boomer	Y	
Heave Comp	Y	
Velocity Probe	Y	
ENSIN/CODA	Y	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000	4	1-2m	SW
0600	3	1-2m	SW
1200	3	1-2m	SW
1800			

DIARY OF OPERATIONS

TIME	Time Zone=UTC+ 11
0000	Continue on Baleen 3 site.
1233	Analogue acquisition complete on Baleen 3. Recover SSS & Boomer, deploy magnetometer.
1315	Magnetometer deployed.
1353	Commence magnetometer checks on wellheads.
1800	Magnetometer recovered. Rig for coring.
1845	JSA/Toolbox for coring.
1902	Gravity core attempt on Patricia 2. Fail.
1920	Gravity core attempt on Patricia 2. Sample.
1940	Grab Sample 1 (Patricia site.)
2007	Grab Sample 2 (Patricia site.)
2036	Grab Sample 3 (Baleen site.)
2053	Grab Sample on Baleen 3 site. Derig corer, hd for pipe route ridge.
2200	SSS deployed. Commence ridge examination

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ______________________
SURVEYOR/ENGINEER

WHITE : Accounts Department
BLUE :Operations Department
YELLOW : Clients Representative

Signature ______________________
CLIENT REPRESENTATIVE

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date: 19 March 2002	Client: OMV	Job No.: 3347C1	Vessel: Blue Fin	Location: Bass Strait

Equipment	Op	
SkyFix	Y	
SkyFix Spot	Y	
Gyro	Y	
GNS 2	Y	
MultiFix 3	Y	
GRREP	Y	

Equipment	Op	
Echo Sounder	Y	
Sidescan	Y	
Boomer	Y	
Heave Comp	Y	
Velocity Probe	Y	
ENSIN/CODA	Y	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000	4	1-2m	SW
0600	3	1-2m	SW
1200	3	1-2m	SW
1800			

DIARY OF OPERATIONS

TIME	Time Zone=UTC+ 11
0000	Continue on Baleen 3 site.
1233	Analogue acquisition complete on Baleen 3. Recover SSS & Boomer, deploy magnetometer.
1315	Magnetometer deployed.
1353	Commence magnetometer checks on wellheads.
1800	Magnetometer recovered. Rig for coring.
1845	JSA/Toolbox for coring.
1902	Gravity core attempt on Patricia 2. Fail.
1920	Gravity core attempt on Patricia 2. Sample.
1940	Grab Sample 1 (Patricia site.)
2007	Grab Sample 2 (Patricia site.)
2036	Grab Sample 3 (Baleen site.)
2053	Grab Sample on Baleen 3 site. Derig corer, hd for pipe route ridge.
2200	SSS deployed. Commence ridge examination

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ____________________ SURVEYOR/ENGINEER

WHITE	: Accounts Department
BLUE	:Operations Department
YELLOW	: Clients Representative

Signature ____________________ CLIENT REPRESENTATIVE

913711 518

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date:20 March 2002 Client: OMV Job No.: 3347C1 Vessel: Blue Fin Location: Bass Strait

Equipment	Op	
SkyFix	Y	
SkyFix Spot	Y	
Gyro	Y	
GNS 2	Y	
MultiFix 3	Y	
GRREP	Y	

Equipment	Op	
Echo Sounder	Y	
Sidescan	Y	
Boomer	Y	
Heave Comp	Y	
Velocity Probe	Y	
ENSIN/CODA	Y	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000	3	1	NW
0600	3	1	NW
1200	5/6	2m+	SW
1800			

DIARY OF OPERATIONS

TIME	Time Zone=UTC+ 11
0000	Continue on ridge survey.
0014	Complete ridge survey. Deploy Boomer for route development
0115	Commenced pipe route development.
0617	Pipe route completed.
0654	Commence scout line to 15m contour.
0828	Scout line complete. Start recovering spread.
0900	Commence transit to Sole-2 site.
1100	Divert to shelter off Gabo Island. Wind SW'ly, force 6, seas 2m+. F'cast W/SW 30 – 40 kn.
1700	Drop anchor in lee of Gabo Island.

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ____________________ SURVEYOR/ENGINEER

WHITE : Accounts Department
BLUE :Operations Department
YELLOW : Clients Representative

Signature ____________________ CLIENT REPRESENTATIVE

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date:21 March 2002 Client: OMV Job No.: 3349C1 Vessel: Blue Fin Location: Bass Strait

Equipment	Op	
SkyFix	Y	
SkyFix Spot	Y	
Gyro	Y	
GNS 2	Y	
MultiFix 3	Y	
GRREP	Y	

Equipment	Op	
Echo Sounder	Y	
Sidescan	Y	
Boomer	Y	
Heave Comp	Y	
Velocity Probe	Y	
ENSIN/CODA	Y	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200			
1800			

DIARY OF OPERATIONS

TIME	Time Zone=UTC+ 11
0000	At anchor in lee of Gabo Island.
1300	Deployed Sub-tow boomer for testing. Deployed ES pole to check HeCo.
1700	Recovered all equipment.
2400	Commence recover anchor.

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ____________________
SURVEYOR/ENGINEER

WHITE : Accounts Department
BLUE :Operations Department
YELLOW : Clients Representative

Signature ____________________
CLIENT REPRESENTATIVE

913711 520

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date:22 March 2002 Client: OMV Job No.: 3349C1 Vessel: Blue Fin Location: Bass Strait

Equipment	Op	
SkyFix	Y	
SkyFix Spot	Y	
Gyro	Y	
GNS 2	Y	
MultiFix 3	Y	
GRREP	Y	

Equipment	Op	
Echo Sounder	Y	
Sidescan	Y	
Boomer	Y	
Heave Comp	Y	
Velocity Probe	Y	
ENSIN/CODA	Y	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000		na	
0600	4	2m	SW
1200	3	1m	E
1800	5	1-2m	E

DIARY OF OPERATIONS

TIME	Time Zone=UTC+ 11
0000	Enroute to Sole-2 site..
0800	Arrive Sole-2 site. Deploy E/S pole.
0815	Deploy SVP probe. SV = 1517.8m/s.
0840	Deploy boomer and SSS.
0900	Deploy hydrophone. Start tuning gear.
0930	Heading for SOL
0956	Commenced analogue acquisition on Sole 2 site.
1700	Shooting from west to east, into prevailing seas, due to excess noise on boomer data.
1800	Return to shooting both directions.
2400	Continue on Sole 2 site survey.

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ______________________
SURVEYOR/ENGINEER

WHITE : Accounts Department
BLUE :Operations Department
YELLOW : Clients Representative

Signature ______________________
CLIENT REPRESENTATIVE

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date:23 March 2002	Client: OMV	Job No.: 3349C1	Vessel: Blue Fin	Location: Bass Strait

Equipment	Op	
SkyFix	Y	
SkyFix Spot	Y	
Gyro	Y	
GNS 2	Y	
MultiFix 3	Y	
GRREP	Y	

Equipment	Op	
Echo Sounder	Y	
Sidescan	Y	
Boomer	Y	
Heave Comp	Y	
Velocity Probe	Y	
ENSIN/CODA	Y	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000	5	1-2m	E
0600	4	1-2m	NE
1200	3	1m	NE
1800	4	1-2m	NE

DIARY OF OPERATIONS

TIME	Time Zone=UTC+ 11
0000	Continue analogue acquisition on Sole 2 site.
1140	Complete analogue on Sole 2 site. Recover gear, deploy magnetometer.
1240	Magnetometer deployed, hdg wellhd.
1800	Magnetometer recovered. Preparing corer.
1910	Core S1 on Sole 2 site .
1934	Core S2 On Sole 2 site
2000	Corer de-rigged. Analogue gear deployed. Hdg for line.
2041	Commenced scout line from Sole to meet scout line running north from Patricia Baleen,

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ____________________
SURVEYOR/ENGINEER

WHITE : Accounts Department
BLUE :Operations Department
YELLOW : Clients Representative

Signature ____________________
CLIENT REPRESENTATIVE

913711 522

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date:24 March 2002 | Client: OMV | Job No.: 3349C1 | Vessel: Blue Fin | Location: Bass Strait

Equipment	Op	
SkyFix	Y	
SkyFix Spot	Y	
Gyro	Y	
GNS 2	Y	
MultiFix 3	Y	
GRREP	Y	

Equipment	Op	
Echo Sounder	Y	
Sidescan	Y	
Boomer	Y	
Heave Comp	Y	
Velocity Probe	Y	
ENSIN/CODA	Y	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000	5	1-2m	E
0600	4	1-2m	NE
1200	3	1m	NE
1800	4	1-2m	NE

DIARY OF OPERATIONS

TIME	Time Zone=UTC+ 11
0000	Continue analogue acquisition on scout line from Sole-2 to Patricia/Baleen pipe route.
0330	Finish scout line. Recover survey spread.
0400	Commence transit to Port Welshpool.

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ____________________
SURVEYOR/ENGINEER

WHITE : Accounts Department
BLUE :Operations Department
YELLOW : Clients Representative

Signature ____________________
CLIENT REPRESENTATIVE

913711 523

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date:25 March 2002	Client: Esso	Job No.: 3363C1	Vessel: Blue Fin	Location: Bass Strait PAGE 10 OF

Equipment	Op	
SkyFix	Y	
SkyFix Spot	Y	
Gyro	Y	
GNS 2	Y	
MultiFix 3	Y	
GRREP	Y	

Equipment	Op	
Echo Sounder	Y	
Sidescan	Y	
Boomer	Y	
Heave Comp	Y	
Velocity Probe	Y	
ENSIN/CODA	Y	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000	3	1	NW
0600	3	1m	NW
1200	3	<1m	NW
1800	3	<1m	NW

DIARY OF OPERATIONS

TIME	Time Zone=UTC+ 11
0000	En route Seahorse wellhead
0700	At Seahorse wellhead location. Deploy e/s pole.
0715	Deploy SV probe; sound velocity = 1517.9m/s
0730	Deploy SSS, boomer and hydrophone. Heading for SSS dynamic check line.
0800	Start dynamic positioning check.
0840	End of dynamic positioning check, heading for Beardie-1 site.
0930	Commence run-in line BP31, Beardie-1 site.
0945	Commence analogue acquisition Beardie-1 site.
2400	Continue acquisition on Beardie 1 site.

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ____________________
SURVEYOR/ENGINEER

WHITE	: Accounts Department
BLUE	:Operations Department
YELLOW	: Clients Representative

Signature ____________________
CLIENT REPRESENTATIVE

913711 524

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date:25 March 2002 Client: Esso Job No.: 3363C1 Vessel: Blue Fin Location: Bass Strait
PAGE 10 OF

Equipment	Op	
SkyFix	Y	
SkyFix Spot	Y	
Gyro	Y	
GNS 2	Y	
MultiFix 3	Y	
GRREP	Y	

Equipment	Op	
Echo Sounder	Y	
Sidescan	Y	
Boomer	Y	
Heave Comp	Y	
Velocity Probe	Y	
ENSIN/CODA	Y	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000	3	1	NW
0600	3	1m	NW
1200	3	<1m	NW
1800	3	<1m	NW

DIARY OF OPERATIONS

TIME	Time Zone=UTC+ 11
0000	En route Seahorse wellhead
0700	At Seahorse wellhead location. Deploy e/s pole.
0715	Deploy SV probe; sound velocity = 1517.9m/s
0730	Deploy SSS, boomer and hydrophone. Heading for SSS dynamic check line.
0800	Start dynamic positioning check.
0840	End of dynamic positioning check, heading for Beardie-1 site.
0930	Commence run-in line BP31, Beardie-1 site.
0945	Commence analogue acquisition Beardie-1 site.
2400	Continue acquisition on Beardie 1 site.

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ______________________
SURVEYOR/ENGINEER

WHITE : Accounts Department
BLUE :Operations Department
YELLOW : Clients Representative

Signature ______________________
CLIENT REPRESENTATIVE

THALES

THALES GEOSOLUTIONS (AUSTRALASIA) LIMITED
DAILY RECORD SHEET

Date:27 March 2002 Client: Esso Job No.: 3363C1 Vessel: Blue Fin Location: Bass Strait
PAGE 13 OF

Equipment	Op	
SkyFix	Y	
SkyFix Spot	Y	
Gyro	Y	
GNS 2	Y	
MultiFix 3	Y	
GRREP	Y	

Equipment	Op	
Echo Sounder	Y	
Sidescan	Y	
Boomer	Y	
Heave Comp	Y	
Velocity Probe	Y	
ENSIN/CODA	Y	

Racal Personnel
EC Shuttleworth
M.Dybala
J Antao
L.Ethridge
P Fournier
Client Personnel
R Glanville

WX	Sea State	Swell	Wind Dir.
0000			
0600			
1200		na	
1800			

DIARY OF OPERATIONS

TIME	Time Zone=UTC+ 11
0000	Continue transit to Beauty Pt., Tasmania.
0500	ETA arrival at Beauty Pt. Commence demobilisation.

Forms are to be completed daily in duplicate on all vessels. Each form should be countersigned by the Clients Representative, the original being retained on board until the next crew change or at the end of job, whichever is the earlier, when they should be returned to the PERTH office.

Signature ____________________
SURVEYOR/ENGINEER

WHITE	: Accounts Department
BLUE	:Operations Department
YELLOW	: Clients Representative

Signature ____________________
CLIENT REPRESENTATIVE

913711 526

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3346C1*	REPORT No.:	*1*	DATE:	*15 March 2002*
To:	TGA Perth	Attn:	Operations - N. Mackay				Fax 08 9344 8783
To	OMV Australia Pty Ltd	Attn:	Ron King			Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh			Via:	TGA Perth

AA. LOCATION AT 2359 hrs:
Beauty Point, Tasmania

BB. WEATHER:
Na

CC. OPERATIONAL DATA:
C2. PERSONNEL

	Racal	Sub-Cont	Client	Vessel	Today	Total Project To Date
No. of Persons	4	0	1	0	5	5
Man-Hours	96	0	24	0	120	120
No. On Today	4	0	1	4	9	9
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	Percent Complete (at end of today)
Mobilisation	60
Patricia 2	0
Baleen 3	0
Pipe route	0
Sole 2	0
Demobilisation	0

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				Total (hours)			
	Working	Transit	Downtime	Weather	Working	Transit	Downtime	Weather
Patricia 2	0	0	0	0	0	0	0	0
Baleen 3								
Pipe route								
Sole 2								

DD. HSE REPORT:

	Today	To Date
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0
DETAILS OF INCIDENTS AND DRILLS TODAY:	Vessel Induction and Pre-MOB Safety Meeting	

EE. EVENT DIARY TODAY (all times WST)

From	To	Activity	Code	Hours
0000	*0800*	*Wait on equipment*	*MOB/DEMO*	*8*
0800	*2000*	*Mobilisation*	*MOB/DEMO*	*12*
2000	*2400*	*Standby*	*MOB/DEMO*	*4*

FF. TIME SUMMARY:

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*0*	*0*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*0*	*0*
Downtime	*TD*	*0*	*0*
Working	*OP*	*0*	*0*
Mobilisation / Demobilisation	*MOB/DEMO*	*24*	*24*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*0*	*0*
	TOTAL	*24*	*24*

GG. EXPECTED WEATHER FOR NEXT 24 HOURS:
Na

HH. TECHNICAL & PARTY CHIEF'S COMMENTS:
Mob progressing satisfactorily.

II. CLIENT REPRESENTATIVE'S COMMENTS:
Nil

JJ. PROGRAMME FOR NEXT 24 HOURS:
Continue Mobilisation and Equipment testing. Expect to depart 1800 hrs.

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for OMV Australia Pty Ltd

Rick Glanville
(Client Representative)

913711 528

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3346C1*	REPORT No.:	2	DATE:	*16 March 2002*
To:	TGA Perth	Attn:	Operations - N. Mackay				Fax 08 9344 8783
To	OMV Australia Pty Ltd	Attn:	Ron King			Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh			Via:	TGA Perth

AA. LOCATION AT 2359 hrs:
40° 58" S, 146° 46" E

BB. WEATHER:
NW 30 kn, 2m seas

CC. OPERATIONAL DATA:

C2. PERSONNEL

	Racal	Sub-Cont	Client	Vessel	Today	Total Project To Date
No. of Persons	5	0	1	5	11	16
Man-Hours	120	0	24	120	262	382
No. On Today	1	0	0	1	2	11
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	Percent Complete (at end of today)
Mobilisation	100
Patricia 2	0
Baleen 3	0
Pipe route	0
Sole 2	0
Demobilisation	0

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				Total (hours)			
	Working	Transit	Downtime	Weather	Working	Transit	Downtime	Weather
Patricia 2	0	6	0	0	0	6	0	0
Baleen 3								
Pipe route								
Sole 2								

DD. HSE REPORT:

	Today	To Date
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0
DETAILS OF INCIDENTS AND DRILLS TODAY:	Fire & Abandon Boat Drill	

EE. EVENT DIARY TODAY (all times WST)

From	To	Activity	Code	Hours
0000	*0700*	*Standby*	*MOB/DEMO*	*7*
0700	*1800*	*Mobilisation*	*MOB/DEMO*	*11*
1800	*2400*	*Transit. Depart Beauty Point*	*TR*	*6*

FF. TIME SUMMARY:

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*0*	*0*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*6*	*6*
Downtime	*TD*	*0*	*0*
Working	*OP*	*0*	*0*
Mobilisation / Demobilisation	*MOB/DEMO*	*18*	*42*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*0*	*0*
	TOTAL	*24*	*48*

GG. EXPECTED WEATHER FOR NEXT 24 HOURS:
NW 20-30 kn, back SW 20-30 kn, then moderating

HH. TECHNICAL & PARTY CHIEF'S COMMENTS:
Mob completed.

II. CLIENT REPRESENTATIVE'S COMMENTS:
Nil

JJ. PROGRAMME FOR NEXT 24 HOURS:
Transit to Patricia. ETA 1400 hrs 17/03/02. Commence proof of wellheads. Acquisition.

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for OMV Australia Pty Ltd

Rick Glanville
(Client Representative)

913711 530

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3346C1*	REPORT No.:	*3*	DATE:	*17 March 2002*
To:	TGA Perth	Attn:	Operations - N. Mackay				Fax 08 9344 8783
To	OMV Australia Pty Ltd	Attn:	Ron King			Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh			Via:	TGA Perth

AA. LOCATION AT 2359 hrs:
At anchor on Patricia 2 site

BB. WEATHER:
SW 15 kn, 2m seas

CC. OPERATIONAL DATA:
C2. PERSONNEL

	Racal	**Sub-Cont**	**Client**	**Vessel**	**Today**	**Total Project To Date**
No. of Persons	5	0	1	5	11	27
Man-Hours	120	0	24	120	262	644
No. On Today	0	0	0	0	0	11
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	**Percent Complete (at end of today)**
Mobilisation	100
Patricia 2	0
Baleen 3	0
Pipe route	0
Sole 2	0
Demobilisation	0

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				**Total (hours)**			
	Working	**Transit**	**Downtime**	**Weather**	**Working**	**Transit**	**Downtime**	**Weather**
Patricia 2	0	18.75	0	5.25	0	24.75	0	5.25
Baleen 3								
Pipe route								
Sole 2								

DD. HSE REPORT:

	Today	**To Date**
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0
DETAILS OF INCIDENTS AND DRILLS TODAY:	0	

EE. **EVENT DIARY TODAY (all times WST)**

From	To	Activity	Code	Hours
0000	*1845*	*Transit*	*TR*	*18.75*
1845	*2400*	*Standby at anchor, Patricia 2 site*	*STBY*	*5.25*

FF. **TIME SUMMARY:**

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*5.25*	*5.25*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*18.75*	*24.75*
Downtime	*TD*	*0*	*0*
Working	*OP*	*0*	*0*
Mobilisation / Demobilisation	*MOB/DEMO*	*18*	*42*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*0*	*0*
	TOTAL	*24*	*72*

GG. **EXPECTED WEATHER FOR NEXT 24 HOURS:**
SW back NW inc 20-30 kn. Seas dec to 1m then inc again.

HH. **TECHNICAL & PARTY CHIEF'S COMMENTS:**
Expect seas to remain low when wind is NW from off the land. Geko Beta 30m south of sites.

II. **CLIENT REPRESENTATIVE'S COMMENTS:**
Nil

JJ. **PROGRAMME FOR NEXT 24 HOURS:**
SSS dynamic position on Patricia 1 wellhead. Commence acquisition Patricia 2.

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for OMV Australia Pty Ltd

Rick Glanville
(Client Representative)

913711 532

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3346C1 3347C1*	REPORT No.:	*4*	DATE:	*18 March 2002*

To:	TGA Perth	Attn:	Operations - N. Mackay		Fax 08 9344 8783
To	OMV Australia Pty Ltd	Attn:	Ron King	Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh	Via:	TGA Perth

AA. LOCATION AT 2359 hrs:
On Baleen 3 site

BB. WEATHER:
SW 15 kn, 1m seas

CC. OPERATIONAL DATA:

C2. PERSONNEL

	Racal	Sub-Cont	Client	Vessel	Today	Total Project To Date
No. of Persons	5	0	1	5	11	38
Man-Hours	120	0	24	120	262	906
No. On Today	0	0	0	0	0	0
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	Percent Complete (at end of today)
Mobilisation	100
Patricia 2	90
Baleen 3	10
Pipe route	0
Sole 2	0
Demobilisation	0

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				Total (hours)			
	Working	Transit	Downtime	Weather	Working	Transit	Downtime	Weather
Patricia 2	18.5	O	0	5.5	18.5	24.75	0	10.75
Baleen 3								
Pipe route								
Sole 2								

DD. HSE REPORT:

	Today	To Date
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0

DETAILS OF INCIDENTS AND DRILLS TODAY: 0

EE. EVENT DIARY TODAY (all times WST)

From	To	Activity	Code	Hours
0000	*0530*	*Standby at anchor on Patricia site.*	*STBY*	*5.5*
0530	*2130*	*Analogue acquisition on Patricia 2 site*	*OP*	*16*
2130	*2400*	*Analogue acquisition on Baleen 3 site*	*OP*	*2.5*

FF. TIME SUMMARY:

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*5.5*	*10.75*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*0*	*24.75*
Downtime	*TD*	*0*	*0*
Working	*OP*	*18.5*	*18.5*
Mobilisation / Demobilisation	*MOB/DEMO*	*0*	*42*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*0*	*0*
	TOTAL	*24*	*96*

GG. EXPECTED WEATHER FOR NEXT 24 HOURS:
W/SW 20-30 kn, seas 2-4m, dec 10-20 kn, seas 1-2m

HH. TECHNICAL & PARTY CHIEF'S COMMENTS:
Patricia 2 site completed excepting coring. No heave on Deso 15 ES, but applied in GNS.

II. CLIENT REPRESENTATIVE'S COMMENTS:
Nil

JJ. PROGRAMME FOR NEXT 24 HOURS:
Continue Baleen 3 analogue acquisition, then magnetometer over wellheads, then coring.

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for OMV Australia Pty Ltd

Rick Glanville
(Client Representative)

913711 534

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3347C1*	REPORT No.:	*5*	DATE:	*19 March 2002*
To:	TGA Perth	Attn:	Operations - N. Mackay				Fax 08 9344 8783
To	OMV Australia Pty Ltd	Attn:	Ron King			Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh			Via:	TGA Perth

AA. LOCATION AT 2359 hrs:
On pipe route, 37 56 S 148 26 E

BB. WEATHER:
SW 15 kn, 1m seas

CC. OPERATIONAL DATA:
C2. PERSONNEL

	Racal	Sub-Cont	Client	Vessel	Today	Total Project To Date
No. of Persons	5	0	1	5	11	49
Man-Hours	120	0	24	120	262	1168
No. On Today	0	0	0	0	0	0
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	Percent Complete (at end of today)
Mobilisation	100
Patricia 2	100
Baleen 3	100
Pipe route	10
Sole 2	0
Demobilisation	0

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				Total (hours)			
	Working	Transit	Downtime	Weather	Working	Transit	Downtime	Weather
Patricia 2	24	O	0	0	42.5	24.75	0	10.75
Baleen 3								
Pipe route								
Sole 2								

DD. HSE REPORT:

	Today	To Date
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0

DETAILS OF INCIDENTS AND DRILLS TODAY: 0

EE. EVENT DIARY TODAY (all times WST)

From	To	Activity	Code	Hours
0000	*1230*	*Analogue acquisition on Baleen 3*	*OP*	*12.5*
1230	*1800*	*Magnetometer check on wellheads*		*5.5*
1800	*2130*	*Core & grab samples, Patricia & Baleen*		*3.5*
2130	*2400*	*Pipe route development*		*2.5*

FF. TIME SUMMARY:

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*0*	*10.75*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*0*	*24.75*
Downtime	*TD*	*0*	*0*
Working	*OP*	*24*	*42.5*
Mobilisation / Demobilisation	*MOB/DEMO*	*0*	*42*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*0*	*0*
	TOTAL	*24*	*120*

GG. EXPECTED WEATHER FOR NEXT 24 HOURS:
NW inc 25-35 kn, back W/SW inc 30-40 kn.

HH. TECHNICAL & PARTY CHIEF'S COMMENTS:
Patricia 2 & Baleen 3 sites complete.

II. CLIENT REPRESENTATIVE'S COMMENTS:
Nil

JJ. PROGRAMME FOR NEXT 24 HOURS:
Complete pipe route development, transit & commence on Sole, weather permitting.

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for OMV Australia Pty Ltd

Rick Glanville
(Client Representative)

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3348C1 3349C1*	REPORT No.:	*6*	DATE:	*20 March 2002*
To:	TGA Perth	Attn:	Operations - N. Mackay				Fax 08 9344 8783
To	OMV Australia Pty Ltd	Attn:	Ron King			Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh			Via:	TGA Perth

AA. LOCATION AT 2359 hrs:
At anchor, lee of Gabo Isl., 37 33, S. 149 55, E

BB. WEATHER:
SW 35 kn.

CC. OPERATIONAL DATA:
C2. PERSONNEL

	Racal	Sub-Cont	Client	Vessel	Today	Total Project To Date
No. of Persons	5	0	1	5	11	60
Man-Hours	120	0	24	120	262	1430
No. On Today	0	0	0	0	0	0
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	Percent Complete (at end of today)
Mobilisation	100
Patricia 2	100
Baleen 3	100
Pipe route	100
Sole 2	0
Demobilisation	0

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				Total (hours)			
	Working	Transit	Downtime	Weather	Working	Transit	Downtime	Weather
Patricia 2	9	2	0	13	51.5	26.75	0	23.75
Baleen 3								
Pipe route								
Sole 2								

DD. HSE REPORT:

	Today	To Date
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0
DETAILS OF INCIDENTS AND DRILLS TODAY:	0	

EE. **EVENT DIARY TODAY (all times WST)**

From	To	Activity	Code	Hours
0000	*0900*	*Pipe route development*	*OP*	*9*
0900	*1100*	*Transit to Sole*	*TR*	*2*
1100	*1700*	*Divert to Gabo Isl*	*STBY*	*6*
1700	*2400*	*At anchor in lee of Gabo Island*	*STBY*	*7*

FF. **TIME SUMMARY:**

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*13*	*23.75*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*2*	*26.75*
Downtime	*TD*	*0*	*0*
Working	*OP*	*9*	*51.5*
Mobilisation / Demobilisation	*MOB/DEMO*	*0*	*42*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*0*	*0*
	TOTAL	*24*	*120*

GG. **EXPECTED WEATHER FOR NEXT 24 HOURS:**
Continue SW 30 kn

HH. **TECHNICAL & PARTY CHIEF'S COMMENTS:**
Pipe route development completed.

II. **CLIENT REPRESENTATIVE'S COMMENTS:**
Nil

JJ. **PROGRAMME FOR NEXT 24 HOURS:**
Commence on Sole, weather permitting.

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for OMV Australia Pty Ltd

Rick Glanville
(Client Representative)

913711 538

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3349C1*	REPORT No.:	7	DATE:	*21 March 2002*
To:	TGA Perth	Attn:	Operations - N. Mackay				Fax 08 9344 8783
To	OMV Australia Pty Ltd	Attn:	Ron King			Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh			Via:	TGA Perth

AA. LOCATION AT 2359 hrs:

At anchor, lee of Gabo Isl., 37 33, S. 149 55, E

BB. WEATHER:

In lee.

CC. OPERATIONAL DATA:

C2. PERSONNEL

	Racal	Sub-Cont	Client	Vessel	Today	Total Project To Date
No. of Persons	5	0	1	5	11	71
Man-Hours	120	0	24	120	262	1692
No. On Today	0	0	0	0	0	0
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	Percent Complete (at end of today)
Mobilisation	100
Patricia 2	100
Baleen 3	100
Pipe route	100
Sole 2	0
Demobilisation	0

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				Total (hours)			
	Working	Transit	Downtime	Weather	Working	Transit	Downtime	Weather
Patricia 2	0	0	0	24	51.5	26.75	0	47.75
Baleen 3								
Pipe route								
Sole 2								

DD. HSE REPORT:

	Today	To Date
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0

DETAILS OF INCIDENTS AND DRILLS TODAY: 0

EE. EVENT DIARY TODAY (all times WST)

From	To	Activity	Code	Hours
1700	*2400*	*At anchor in lee of Gabo Island*	*STBY*	*24*

FF. TIME SUMMARY:

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*24*	*47.75*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*0*	*26.75*
Downtime	*TD*	*0*	*0*
Working	*OP*	*0*	*51.5*
Mobilisation / Demobilisation	*MOB/DEMO*	*0*	*42*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*0*	*0*
	TOTAL	*24*	*144*

GG. EXPECTED WEATHER FOR NEXT 24 HOURS:
SW 15-25 kn., dec 10-15kn, swell dec 3-4 to <2m

HH. TECHNICAL & PARTY CHIEF'S COMMENTS:
Anchor recover at midnight. ETA on location 0700hrs 220302.

II. CLIENT REPRESENTATIVE'S COMMENTS:
Nil

JJ. PROGRAMME FOR NEXT 24 HOURS:
Commence on Sole with analogue acquisition

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for OMV Australia Pty Ltd

Rick Glanville
(Client Representative)

913711 540

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3349C1*	REPORT No.:	*8*	DATE:	*22 March 2002*
To:	TGA Perth	Attn:	Operations - N. Mackay				Fax 08 9344 8783
To	OMV Australia Pty Ltd	Attn:	Ron King			Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh			Via:	TGA Perth

AA. LOCATION AT 2359 hrs:
Sole 2 location

BB. WEATHER:
NE 20 kn, 1-2m seas

CC. OPERATIONAL DATA:

C2. PERSONNEL

	Racal	Sub-Cont	Client	Vessel	Today	Total Project To Date
No. of Persons	5	0	1	5	11	82
Man-Hours	120	0	24	120	262	1954
No. On Today	0	0	0	0	0	0
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	Percent Complete (at end of today)
Mobilisation	100
Patricia 2	100
Baleen 3	100
Pipe route	100
Sole 2	50
Scout pipe route	0
Demobilisation	0

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				Total (hours)			
	Working	Transit	Downtime	Weather	Working	Transit	Downtime	Weather
Patricia 2	16	0	0	8	67.5	26.75	0	55.75
Baleen 3								
Pipe route								
Sole 2								

DD. HSE REPORT:

	Today	To Date
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0

DETAILS OF INCIDENTS AND DRILLS TODAY: 0

EE. EVENT DIARY TODAY (all times WST)

From	To	Activity	Code	Hours
0000	*0800*	*En route Gabo Isl. To Sole 2 site*	*STBY*	*8*
0800	*1000*	*Deploy & tune equipment*	*OP*	*2*
1000	*2400*	*Analogue acquisition on Sole 2 site*	*OP*	*14*

FF. TIME SUMMARY:

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*8*	*55.75*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*0*	*26.75*
Downtime	*TD*	*0*	*0*
Working	*OP*	*16*	*67.5*
Mobilisation / Demobilisation	*MOB/DEMO*	*0*	*42*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*0*	*0*
	TOTAL	*24*	*168*

GG. EXPECTED WEATHER FOR NEXT 24 HOURS:
Cont. E/NE 10-15 kn

HH. TECHNICAL & PARTY CHIEF'S COMMENTS:
Scout line pipe route from Sole 2 location to meet line Patricia Ballen-15m contour added to programme

II. CLIENT REPRESENTATIVE'S COMMENTS:
Nil

JJ. PROGRAMME FOR NEXT 24 HOURS:
Continue on Sole with analogue acquisition, magnetometer search, coring & scout line, head Welshpool.

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for OMV Australia Pty Ltd

Rick Glanville
(Client Representative)

913711 542

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3349C1 3375C1*	REPORT No.:	*9*	DATE:	*23 March 2002*
To:	TGA Perth	Attn:	Operations - N. Mackay				Fax 08 9344 8783
To	OMV Australia Pty Ltd	Attn:	Ron King			Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh			Via:	TGA Perth

AA. LOCATION AT 2359 hrs:
On scout line 38 03 S, 148 53 E

BB. WEATHER:
NE 20 kn, 1-2m seas

CC. OPERATIONAL DATA:
C2. PERSONNEL

	Racal	Sub-Cont	Client	Vessel	Today	Total Project To Date
No. of Persons	5	0	1	5	11	93
Man-Hours	120	0	24	120	262	2216
No. On Today	0	0	0	0	0	0
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	Percent Complete (at end of today)
Mobilisation	100
Patricia 2	100
Baleen 3	100
Pipe route	100
Sole 2	100
Scout pipe route	50
Demobilisation	0

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				Total (hours)			
	Working	Transit	Downtime	Weather	Working	Transit	Downtime	Weather
Patricia 2	24	0	0	0	91.5	26.75	0	55.75
Baleen 3								
Pipe route								
Sole 2								

DD. HSE REPORT:

	Today	To Date
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0

DETAILS OF INCIDENTS AND DRILLS TODAY: 0

EE. EVENT DIARY TODAY (all times WST)

From	To	Activity	Code	Hours
0000	*1200*	*Analogue acquisition on Sole 2 site*	*OP*	*12*
1200	*1800*	*Magnetometer search for Sole 1 wellhead*	*OP*	*6*
1800	*2000*	*Coring*	*OP*	*2*
2000	*2400*	*Scout line, Sole to line north of Patricia Baleen*	*OP*	*4*

FF. TIME SUMMARY:

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*0*	*55.75*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*0*	*26.75*
Downtime	*TD*	*0*	*0*
Working	*OP*	*24*	*91.5*
Mobilisation / Demobilisation	*MOB/DEMO*	*0*	*42*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*0*	*0*
	TOTAL	*24*	*216*

GG. EXPECTED WEATHER FOR NEXT 24 HOURS:
Cont. E/NE 10-15 kn

HH. TECHNICAL & PARTY CHIEF'S COMMENTS:
ETA Port Welshpool now delayed to approx 1600 hrs 24/03/02

II. CLIENT REPRESENTATIVE'S COMMENTS:
Sole 1 magnetometer runs proved location of seabed disturbance as observed on sidescan to be wellhead position.

JJ. PROGRAMME FOR NEXT 24 HOURS:
Complete scout line, head Port Welshpool for data drop & discharge magnetometers

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for OMV Australia Pty Ltd

Rick Glanville
(Client Representative)

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3363C1*	REPORT No.:	*10a*	DATE:	*24 March 2002*
To:	TGA Perth	Attn:	Operations - N. Mackay				Fax 08 9344 8783
To	Esso Australia Pty Ltd	Attn:	Chris Meakin			Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh			Via:	TGA Perth

AA. LOCATION AT 2359 hrs:
38 50 S, 146 33 E

BB. WEATHER:
NE 20 kn, 1-2m seas

CC. OPERATIONAL DATA:
C2. PERSONNEL

	Racal	Sub-Cont	Client	Vessel	Today	Total Project To Date
No. of Persons	5	0	1	5	11	104
Man-Hours	120	0	24	120	262	2478
No. On Today	0	0	0	0	0	0
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	Percent Complete (at end of today)
Mobilisation	100
Beardie 1	0
Demobilisation	0

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				Total (hours)			
	Working	Transit	Downtime	Weather	Working	Transit	Downtime	Weather
Timings	0	2	0	0	0	2	0	0

DD. HSE REPORT:

	Today	To Date
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0

DETAILS OF INCIDENTS AND DRILLS TODAY: 0

EE. EVENT DIARY TODAY (all times WST)

From	To	Activity	Code	Hours
0000	*2200*	*OMV contract*	*CT*	22
2200	*2400*	*Transit*	*TR*	2

FF. TIME SUMMARY:

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*0*	*0*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*2*	*2*
Downtime	*TD*	*0*	*0*
Working	*OP*	*0*	*0*
Mobilisation / Demobilisation	*MOB/DEMO*	*0*	*0*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*22*	*22*
	TOTAL	*24*	*24*

GG. EXPECTED WEATHER FOR NEXT 24 HOURS:
Cont. E/NE 10-15 kn

HH. TECHNICAL & PARTY CHIEF'S COMMENTS:
Nil

II. CLIENT REPRESENTATIVE'S COMMENTS:
Nil

JJ. PROGRAMME FOR NEXT 24 HOURS:
Transit to Seahorse wellhead, dynamic positioning proof, hd Beardie 1 site, commence analogue acquisition

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for OMV Australia Pty Ltd

Rick Glanville
(Client Representative)

913711 546

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3363C1*	REPORT No.:	*10a*	DATE:	*24 March 2002*
To:	TGA Perth	Attn:	Operations - N. Mackay				Fax 08 9344 8783
To	ExxonMobil	Attn:	Chris Meakin			Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh			Via:	TGA Perth

AA. LOCATION AT 2359 hrs:
38 50 S, 146 33 E

BB. WEATHER:
NE 20 kn, 1-2m seas

CC. OPERATIONAL DATA:

C2. PERSONNEL

	Racal	Sub-Cont	Client	Vessel	Today	Total Project To Date
No. of Persons	5	0	1	5	11	104
Man-Hours	120	0	24	120	262	2478
No. On Today	0	0	0	0	0	0
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	Percent Complete (at end of today)
Mobilisation	100
Beardie 1	0
Demobilisation	0

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				Total (hours)			
	Working	Transit	Downtime	Weather	Working	Transit	Downtime	Weather
Timings	0	2	0	0	0	2	0	0

DD. HSE REPORT:

	Today	To Date
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0

DETAILS OF INCIDENTS AND DRILLS TODAY: 0

EE. EVENT DIARY TODAY (all times WST)

From	To	Activity	Code	Hours
0000	*2200*	*OMV contract*	*CT*	*22*
2200	*2400*	*Transit*	*TR*	*2*

FF. TIME SUMMARY:

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*0*	*0*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*2*	*2*
Downtime	*TD*	*0*	*0*
Working	*OP*	*0*	*0*
Mobilisation / Demobilisation	*MOB/DEMO*	*0*	*0*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*22*	*22*
	TOTAL	*24*	*24*

GG. EXPECTED WEATHER FOR NEXT 24 HOURS:
Cont. E/NE 10-15 kn

HH. TECHNICAL & PARTY CHIEF'S COMMENTS:
Nil

II. CLIENT REPRESENTATIVE'S COMMENTS:
Nil

JJ. PROGRAMME FOR NEXT 24 HOURS:
Transit to Seahorse wellhead, dynamic positioning proof, hd Beardie 1 site, commence analogue acquisition

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for OMV Australia Pty Ltd

Rick Glanville
(Client Representative)

913711 548

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3363C1*	REPORT No.:	*11*	DATE:	*25 March 2002*
To:	TGA Perth	Attn:	Operations - N. Mackay				Fax 08 9344 8783
To	Esso Australia Pty Ltd	Attn:	Chris Meakin			Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh			Via:	TGA Perth

AA. LOCATION AT 2359 hrs:
On Beardie 1 site

BB. WEATHER:
NW 20 kn, 1m seas

CC. OPERATIONAL DATA:
C2. PERSONNEL

	Racal	Sub-Cont	Client	Vessel	Today	Total Project To Date
No. of Persons	5	0	1	5	11	115
Man-Hours	120	0	24	120	262	2740
No. On Today	0	0	0	0	0	0
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	Percent Complete (at end of today)
Mobilisation	100
Beardie 1	70
Demobilisation	0

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				Total (hours)			
	Working	Transit	Downtime	Weather	Working	Transit	Downtime	Weather
Timings	17	7	0	0	17	9	0	0

DD. HSE REPORT:

	Today	To Date
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0

DETAILS OF INCIDENTS AND DRILLS TODAY: 0

EE. **EVENT DIARY TODAY (all times WST)**

From	To	Activity	Code	Hours
0000	*0700*	*Transit to Seahorse wellhead*	*TR*	*7*
0700	*2400*	*Anaolgue acquisition on Beardie 1 site*	*OP*	*17*

FF. **TIME SUMMARY:**

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*17*	*17*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*7*	*9*
Downtime	*TD*	*0*	*0*
Working	*OP*	*0*	*0*
Mobilisation / Demobilisation	*MOB/DEMO*	*17*	*17*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*0*	*22*
	TOTAL	*24*	*48*

GG. **EXPECTED WEATHER FOR NEXT 24 HOURS:**
NW 10-20 kn., bec SW 10-20 kn

HH. **TECHNICAL & PARTY CHIEF'S COMMENTS:**
SSS dynamic positioning check on Seahorse 1: Location 558 919.497 mE, 5 772 137.249 mN

SSS position: 558 926 mE 5 772 140 mN

II. **CLIENT REPRESENTATIVE'S COMMENTS:**
Nil

JJ. **PROGRAMME FOR NEXT 24 HOURS:**
Complete analogue acquisition, coring, return Beauty Pt.

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for Esso Australia Pty Ltd

Rick Glanville
(Client Representative)

913711 550

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3363C1*	REPORT No.:	*11*	DATE:	*25 March 2002*
To:	TGA Perth	Attn:	Operations - N. Mackay				Fax 08 9344 8783
To	Esso Australia Pty Ltd	Attn:	Chris Meakin			Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh			Via:	TGA Perth

AA. LOCATION AT 2359 hrs:
On Beardie 1 site

BB. WEATHER:
NW 20 kn, 1m seas

CC. OPERATIONAL DATA:
C2. PERSONNEL

	Racal	Sub-Cont	Client	Vessel	Today	Total Project To Date
No. of Persons	5	0	1	5	11	115
Man-Hours	120	0	24	120	262	2740
No. On Today	0	0	0	0	0	0
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	Percent Complete (at end of today)
Mobilisation	100
Beardie 1	70
Demobilisation	0

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				Total (hours)			
	Working	Transit	Downtime	Weather	Working	Transit	Downtime	Weather
Timings	17	7	0	0	17	9	0	0

DD. HSE REPORT:

	Today	To Date
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0

DETAILS OF INCIDENTS AND DRILLS TODAY: 0

EE. EVENT DIARY TODAY (all times WST)

From	To	Activity	Code	Hours
0000	*0700*	*Transit to Seahorse wellhead*	*TR*	*7*
0700	*2400*	*Anaolgue acquisition on Beardie 1 site*	*OP*	*17*

FF. TIME SUMMARY:

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*17*	*17*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*7*	*9*
Downtime	*TD*	*0*	*0*
Working	*OP*	*0*	*0*
Mobilisation / Demobilisation	*MOB/DEMO*	*17*	*17*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*0*	*22*
	TOTAL	*24*	*48*

GG. EXPECTED WEATHER FOR NEXT 24 HOURS:
NW 10-20 kn., bec SW 10-20 kn

HH. TECHNICAL & PARTY CHIEF'S COMMENTS:
SSS dynamic positioning check on Seahorse 1: Location 558 919.497 mE, 5 772 137.249 mN

SSS position: 558 926 mE 5 772 140 mN

II. CLIENT REPRESENTATIVE'S COMMENTS:
Nil

JJ. PROGRAMME FOR NEXT 24 HOURS:
Complete analogue acquisition, coring, return Beauty Pt.

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for Esso Australia Pty Ltd

Rick Glanville
(Client Representative)

913711 552

THALES

DAILY PROJECT REPORT

ALL TIMES ARE WST

VESSEL:	*Blue Fin*	PROJECT No.:	*3363C1*	REPORT No.:	*13*	DATE:	*27 March 2002*
To:	TGA Perth	Attn:	Operations - N. Mackay				Fax 08 9344 8783
To	Esso Australia Pty Ltd	Attn:	Chris Meakin			Via:	TGA Perth
Copy:	TGGL Compass House	Attn:	Audrey Maysh			Via:	TGA Perth

AA. LOCATION AT 2359 hrs:
Alongside Beauty Pt.

BB. WEATHER:
na

CC. OPERATIONAL DATA:
C2. PERSONNEL

	Racal	Sub-Cont	Client	Vessel	Today	Total Project To Date
No. of Persons	5	0	1	5	11	137
Man-Hours	120	0	24	120	262	3264
No. On Today	0	0	0	0	0	0
No. Off Today	0	0	0	0	0	0

C3. SURVEY PROGRESS

Area of Activity	Percent Complete (at end of today)
Mobilisation	100
Beardie 1	100
Demobilisation	100

C4. RE RUNS TODAY

C5. SUMMARY OF CHARGEABLE TIME

	Today (hours)				Total (hours)			
	Working	Transit	Downtime	Weather	Working	Transit	Downtime	Weather
Timings	0	5	0	0	24.5	30.5	0	0

DD. HSE REPORT:

	Today	To Date
TOTAL HAZARDS/INCIDENTS REPORTED:	0	0
TOTAL MINOR INJURIES:	0	0
TOTAL LTI:	0	0

DETAILS OF INCIDENTS AND DRILLS TODAY: 0

EE. **EVENT DIARY TODAY (all times WST)**

From	To	Activity	Code	Hours
0000	*0500*	*Transit to Beauty Pt.*	*TR*	*5*
0500	*2400*	*Demobilisation*	*MOB/DEMOB*	*19*

FF. **TIME SUMMARY:**

Rate	Code	Hours	Acc. Hours
Standby and/or Weather	*STBY*	*0*	*0*
Disputed Time	*DT*	*0*	*0*
Transit	*TR*	*5*	*30.5*
Downtime	*TD*	*0*	*0*
Working	*OP*	*0*	*24.5*
Mobilisation / Demobilisation	*MOB/DEMO*	*19*	*19*
Breakdown (Vessel)	*VD/STBY*	*0*	*0*
Other Nil Revenue Time	*CT*	*0*	*22*
	TOTAL	*24*	*96*

GG. **EXPECTED WEATHER FOR NEXT 24 HOURS:**
na

HH. **TECHNICAL & PARTY CHIEF'S COMMENTS:**
Nil

II. **CLIENT REPRESENTATIVE'S COMMENTS:**
Nil

JJ. **PROGRAMME FOR NEXT 24 HOURS:**
na

Signed for Thales GeoSolutions

Chris Shuttleworth
(Party Chief)

Signed for Esso Australia Pty Ltd

Rick Glanville
(Client Representative)

913711 554

Rig Acceptance Checklist

Rig Acceptance Checklist

Rig Acceptance Checklist				
BASS STRAITS	RIG: OCEAN BOUNTY		WELL: BEARDIE #1	16-MAR-02
ITEM		DATE	INITIALS	COMMENTS

TABLE OF CONTENTS

Rig Acceptance Checklist					
BASS STRAITS	RIG: OCEAN BOUNTY		WELL: BEARDIE #1		16-MAR-02
ITEM		DATE	INITIALS	COMMENTS	

Rig Acceptance Checklist				
BASS STRAITS	RIG: OCEAN BOUNTY		WELL: BEARDIE #1	16-MAR-02
ITEM	DATE		INITIALS	COMMENTS

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	DATE	INITIALS	COMMENTS

A. Derrick, Hoisting, and Rotary Equipment

1. Derrick and Substructure (Visual Inspection)

ITEM	DATE	INITIALS	COMMENTS
Check warning beacon operates and has battery back up	27-4-2002	HK	Satisfactory (293 Khz)
Inspect all legs, trusses, girders and bracing for bends, bows, and cracks	27-4-2002	HK	Satisfactory
Inspect pin holes for enlargement	02-2002	MSE	N/A
Verify that all pins are in place and filled with keepers	02-2002	MSE	N/A
Inspect derrick for loose bolts	27-04-2002	HK	Satisfactory
Visually inspect welds for cracks	02-2002	MSE	Satisfactory
Counterweight climbing assist is installed or derrick ladder caged	27-04-2002	HK	Satisfactory
Belt, line and counterweight rollers are in good condition	27-04-2002	HK	Satisfactory
Ensure lighting is adequate, explosion proof and equipped with safety cables	27-04-2002	HK	Satisfactory
Inspect handrails and ladders for damage	27-04-2002	HK	Satisfactory
Inspect working and racking platforms for damage, obstructions, etc.	27-04-2002	HK	Satisfactory
Inspect stabbing board cables and general board condition	27-04-2002	HK	Satisfactory
Verify that all stabbing board guards are installed	27-04-2002	HK	Satisfactory
Operate board up and down	02-2002	MSE	Satisfactory
Verify safety lines are attached to tugger line sheaves	27-04-2002	HK	Satisfactory
Hand rail in place and secure at crown	27-04-2002	HK	Satisfactory
No loose items in crown area	27-04-2002	HK	Satisfactory
All steps on ladders in place and secure	27-04-2002	HK	Satisfactory
Monkey board in good condition	27-04-2002	HK	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Fingers in good condition	27-04-2002	HK	Satisfactory
Tarp for heat shield from flare boom rigged up at monkey board	27-04-2002	HK	Satisfactory (steel enclosure)
Mud hose secure with safety sling	27-04-2002	HK	Satisfactory
2. Block, Hook and Swivel			
Visually check sheaves of block for wear, damage and misalignment	27-04-2002	HK	Satisfactory
Check grease fittings to verify proper lubrication	27-04-2002	HK	Satisfactory
Raise and lower blocks numerous times, observe for any unusual noise or movement on tracking system	27-04-2002	HK	Satisfactory
Visually check guide rails for wear	27-04-2002	HK	Satisfactory
Check sheaves for wobble, wear and play	02-2002	MSE	Satisfactory
Inspect the tongue and latch mechanism on hook for wear, damage, and freedom of operation			No hook (Block integrated with DSC)
Check all bolts and fasteners for wear	27-04-2002	HK	Satisfactory
Rotate hook, check for ease of movement	27-04-2002	HK	Satisfactory (Topdrive rotation checked)
Check hook-lock system in every position	27-04-2002	HK	Satisfactory
MPI hook, eyes, elevators, and bails (spot check items previously inspected by contractor) as per API RP-8B. Get copy of reports	12-05-2002	HK	Satisfactory During the tow a team of MPI inspectors inspected equipment. Certs. Are kept on the rig.
Raise and lower block numerous times, observe for any unusual noise or movement on tracking system	02-2002	MSE	Satisfactory
Visually check guide rails for wear and loose bolts	27-04-2002	HK	Satisfactory

Rig Acceptance Checklist			
BASS STRAITS RIG: OCEAN BOUNTY		WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Inspect swivel for wear, damage corrosion, etc.	27-04-2002	HK	Satisfactory
MPI inspection of swivel bail	27-04-2002	HK	Satisfactory
MPI and dimensionally check conventional swivel left-hand thread connection	12-05-02	HK	Satisfactory
3. Dead Line Anchor and Sensor			
Wireline anchor type: National EB	29-04-2002	HK	Satisfactory
Visually check all bolts and welds	29-04-2002	HK	Satisfactory
Visually check for cracks at base	29-04-2002	HK	Satisfactory
Inspect brass on tie down clamp	29-04-2002	HK	Satisfactory
Check sensor gap.	29-04-2002	HK	Satisfactory
Check weight indicator system for leaks	29-04-2002	HK	Satisfactory
Check anchor drum for wear	29-04-2002	HK	Satisfactory
MPI high stress area and hold down bolts	29-04-2002	HK	Satisfactory
Verify there is an installed back up safety clamp	27-04-2002	HK	Satisfactory
4. Top Drive System			
Type: TDS 4			The Top Drive mainshaft has to be NDT inspected as per Varco Service bulletin No 38 Rev F (yearly or 3000 Hours)
Monkey board camera/screen working	27-04-2002	HK	Satisfactory
PVT / FLO-SHO monitor working and unit grounded	02-2002	MSE	Satisfactory
Rig floor camera working	28-04-2002	HK	Satisfactory
Geolograph working			Available, not tested due to operations ongoing. Charts from previous well were on the rig.

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Check Guide Rail System alignment and dolley alignment on top drive	27-04-2002	HK	Satisfactory
Check for hydraulic leaks	02-2002	MSE	Satisfactory
Check for installation damage	27-04-2002	HK	Satisfactory
Observe Make-up and Break-out functions	02-2002	MSE	Satisfactory
Check Remote Actuated Valve for smoothness of operation	02-2002	MSE	Satisfactory
Pressure test hydraulic IBOP to 250 and working pressure high psi.	5-5-02	HK	Satisfactory
5. Rotary Table			
Rotary Table: 49-1/2" opening			
Check oil level. Assure that oil is free of water or other contaminants	28-04-2002	HK	Satisfactory
Check torque limiter	28-04-2002	HK	Satisfactory
Operate rotary 2 hours while observing for noise, oil leaks, vibrations, etc. Check operation of brake frequently Use both high and low gears during this test Determine accuracy of rotary speed indicator and recorder	28-04-2002	HK	Satisfactory performed complete function test including instrumentation.
Operate rotary in reverse	28-04-2002	HK	Satisfactory
Check recorder for RPM record calibration	28-04-2002	HK	Satisfactory
Rotary Amp gauge reads Amps & Torque	28-04-2002	HK	Satisfactory
Check bushing rollers for smooth operation			No Kelly
6. Rotary			
Function test iron roughneck	28-04-2002	HK	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Anti skid rubber mat in place at rotary	27-04-2002	HK	Satisfactory
Inspect drive pins and drive hole bushings			N/A
Rotary bushing locked & indicator installed	27-04-2002	HK	Satisfactory
7. Drawworks			
Visually inspect all chains for wear or damage	02-2002	MSE	Satisfactory
Visually check alignment of sprockets, bearing, and shafts	02-2002	MSE	Satisfactory
Check all air connections and hoses for leaks and repair as necessary	27-04-2002	HK	Satisfactory
Engage and disengage air clutches several times to verify that they will operate smoothly without slippage or overheating	27-04-2002	HK	Satisfactory
Check operation of drum drive clutches and ensure there is not slippage or overheating	27-04-2002	HK	Satisfactory
Function in both low and high gear.	29-04-2002	HK	Satisfactory
Check auxiliary brake lubrication	29-04-2002	HK	Satisfactory
Visually check wear on main drum, brake bands and brake linings	29-04-2002	HK	Satisfactory
Visually inspect drum grooving wear ring or kick back rollers	29-04-2002	HK	Satisfactory
Check tightness of brake lining blocks, bolts, and drum brake adjustment	29-04-2002	HK	Satisfactory
Remove brake bands and perform a full MPI of eye, linkages, bars, and pins	29-04-2002	HK	Satisfactory
Check for cables rubbing derrick	29-04-2002	HK	Satisfactory
Run blocks up and down several times and check overall operation of hoisting equipment Listen for bearing noise	29-04-2002	HK	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Operate catheads. Check overall operation.	29-04-2002	HK	Satisfactory
Check that catheads are smooth with rope divider installed	29-04-2002	HK	Satisfactory operation no rope divider installed
Operate auxiliary brake	29-04-2002	HK	Satisfactory
Inspect lubrication system and check for leaks	29-04-2002	HK	Satisfactory
Check spear connections to the drum shaft and auxiliary brake, verify packing condition, and check for leaks	29-04-2002	HK	Satisfactory
Function the Crown-O-Matic with the blocks moving and determine if effective	29-04-2002	HK	Satisfactory
Observe water pressure to brake drums and check for leaks	27-04-2002	HK	Satisfactory
Confirm that the water supply system will deliver sufficient water to the brake rims and the auxiliary brake	29-04-2002	HK	Satisfactory
Function all air controls at driller's station independently and check for leaks	29-04-2002	HK	Satisfactory
Verify proper operation of deadline and fastline stabilizers and counter weights and that safety cables are installed	29-04-2002	HK	No fastline spooler installed no deadman stabilizer installed.
Verify a locking system to prevent auxiliary brake from becoming disengaged	29-04-2002	HK	Satisfactory
8. Crown Block			
Crown protection installed	27-04-2002	HK	Satisfactory
Sheaves are proper size	27-04-2002	HK	Satisfactory
Visually inspect sheaves for wear, cracks and misalignment	27-04-2002	HK	Satisfactory
Check all grease fittings to verify proper lubrication	27-04-2002	HK	Satisfactory

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Run blocks up and down while visually observing sheaves for misalignment and worn or loose bearings	02-2002	MSE	Satisfactory
Ensure safety device in place to prevent wire from leaving sheave	27-04-2002	HK	Satisfactory
Check sheaves for play (if 1/8" or more bearings or spacers may be bad)	02-2002	MSE	Satisfactory
Visually check all bolts, welds and fasteners	27-04-2002	HK	Satisfactory
Verify that bumper blocks are installed	27-04-2002	HK	Satisfactory
9. Air Hoists			
Air hoists are properly mounted and secured	27-04-2002	HK	Satisfactory
Wireline in good condition (not exceeding 9 months useage)	27-04-2002	HK	Satisfactory
Drum guard or guide lines installed	27-04-2002	HK	Satisfactory
Chain or hook is properly installed	27-04-2002	HK	Satisfactory
Air hoist is clearly marked with SWL	27-04-2002	HK	Satisfactory
Auto brake installed on air hoist used to transport personnel	27-04-2002	HK	Satisfactory
A dedicated man-rider hoist should be provided	27-04-2002	HK	Satisfactory
B. BOP and Well Control Equipment			
1. BOP Lifting System			
BOP skidding system operational	27 April 02	J Hanton	Beams OK. BOP handled with Crane
Ensure safe working load is stenciled on each system and is readily visible	27 April 02	J Hanton	No
Verify the total safe working load is two (2) times the maximum total weight of the BOP system (BOP, bell nipple, mud cross, DSA's, spacer and adapter spools, etc.).	27 April 02	J Hanton	75 Ton / Side (168,000 lbs) BOP 185,000 lbs LMRP 125,000 lbs

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Winches for system are in good working order	27 April 02	J Hanton	Satisfactory
Safety Locks in place	27 April 02	J Hanton	Satisfactory
Ensure all components are visually checked for corrosion, excessive wear, kinks, twists, etc.	27 April 02	J Hanton	Satisfactory
Framework assembled properly	27 April 02	J Hanton	Satisfactory
PM includes periodic MPI in high stress areas	27 April 02	J Hanton	Satisfactory
Documented slip & cut schedule for wire rope	27 April 02	J Hanton	All wires were just replaced
2. Diverter			
Type of diverter:	27 April 02	J Hanton	Regan KFDS
List age, type, and condition of element	27 April 02	J Hanton	Unknown, insert packer in good condition.
Determine bore I.D. and check bore for damage	07-05-02	HK	Satisfactory Bore insert packer was 11-¼"
Check body, ring grooves, and studs for welding	27 April 02	J Hanton	Satisfactory
Check ring grooves and studs on diverter and spools for corrosion, pitting, wear, etc.	27 April 02	J Hanton	Some Corrision
Check I.D. of diverter spools, DSA & and related equipment to ensure full bore	27 April 02	J Hanton	Satisfactory
Check internal cylinder walls for scoring if diverter is opened	27 April 02	J Hanton	N/A
Check piston surfaces for scoring or pitting if diverter is opened	27 April 02	J Hanton	N/A
Replace sealing element if not in "new" condition	27 April 02	J Hanton	Satisfactory
Function test diverter and valves Record annular closing and valve opening times on morning report	09-05-02	HK	Due to operations diverter element could not be tested , shaker valve,overboard valve, triptank valve,fwd/aft valves worked all ok.

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Pump though diverter and lines before and after closing annular and opening valves	28 April 02	J Hanton	Unsatisfactory The overboard lines under the rig have unacceptable short 90 deg. bents and will cause back pressure, and possible blockage during diverting operations.
3. Annular BOPs			
Annular preventers will only be disassembled if there is visual damage, improper operation, or has a natural rubber element	12-05-02	HK	Satisfactory
State type of element (nitrile, neoprene, or camlest): ___Neoprene________	27 April 02	J Hanton	Satisfactory
List age, and condition of element: ______________________________ Elements should be renewed if in service for more than 12 months	28 April 02	J Hanton	Upper – Feb 2002 Lower – October 2000 (18 Months Old)
Determine I.D. and visually inspect bore for damage	28 April 02	J Hanton	18-¾" Keyseating on piston and intermediate body
Check piping on stripping bottles	28 April 02	J Hanton	1" hoses
Caliper bore for wear	28 April 02	J Hanton	Satisfactory
Check body and ring grooves for welding	28 April 02	J Hanton	Satisfactory
Check ring grooves and studs in annular for corrosion, pitting, wear, etc.	27 April 02	J Hanton	Some corrosion on studs
Drift test each annular Each must return to full bore within 30 minutes	12-05-02	HK	Satisfactory
Check piston surfaces for scoring or pitting.	28 April 02	J Hanton	Upper piston scored – To be replaced
Check internal cylinder walls for scoring	28 April 02	J Hanton	Will dress up during fitting new piston

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Sealing element replaced if not in "new" condition	28 April 02	J Hanton	See above
Verify ring gaskets are 304 / 316 Stainless for sour service	28 April 02	J Hanton	Satisfactory
Function test presenter and record closing time: Closing Time (Annular) 59U 53 L Closing Time (Rams)U21.4 M15.7 L17.8 S21.4	12-05-02	HK	Satisfactory only the annular preventers could be function tested, the ram function test was taken from previous records
Pressure test to 250 psi low and working psi high for 10 minutes Note: All pressure test will be done with freshwater and chart recorder	12-05-02	HK	Satisfactory Tested both annular preventers 2,500 psi/200 psi 10min
4. Ram BOPs			
Check ram rubbers Ram rubbers are to be replaced if there is visible damage	28 April 02	J Hanton	Satisfactory
Check bonnet seal areas and grooves	28 April 02	J Hanton	Satisfactory
Replace bonnet seals, if required Bonnets Replaced (Yes/No): __YES______	28 April 02	J Hanton	Satisfactory
Check piston rods for scoring	28 April 02	J Hanton	Satisfactory
MPI exposed rod components	28 April 02	J Hanton	Satisfactory
Check bore for damage or wear	28 April 02	J Hanton	Satisfactory
Check ram blocks for damage or wear	28 April 02	J Hanton	Satisfactory
MPI ram blocks	28 April 02	J Hanton	10-¾" will be new
Check clearance between top of ram block and seal seat according to manufacturer's tolerances	28 April 02	J Hanton	Satisfactory
Ensure that proper torque is applied to bonnet bolts and correct makeup procedures are used	28 April 02	J Hanton	Satisfactory
Verify secondary seal on ram BOP'S not energized	28 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Install VBRs as required and record placement :	28 April 02	J Hanton	3-½ - 5" MPR 10-¾ - Lower cavity
Pressure test all rams to 250 psi low for 5 minutes and working psi high for 10 minutes Rams should be tested with locking system engaged and closing pressure vented to zero VBRs should be tested against the largest and smallest size of drill pipe to be used			Tested: Shearrams 10,000/250 for 10 min UPR 5,000/250 for 10 min MPR 5,000/250 for 10 min VBR tested with 5 inch test plug.
5. Choke and Kill Line Valves			
List valve type(s):________________	27 April 02	J Hanton	Flowcon
Visually inspect sealing areas on all hydraulic choke/kill lines	28 April 02	J Hanton	Satisfactory
Verify components rated for sour service	28 April 02	J Hanton	Satisfactory
Verify ring gaskets are 304 / 316 Stainless for sour service	28 April 02	J Hanton	Satisfactory
Pressure test all valves, spools, etc. to 250 psi low and working psi high for 15 minutes	06-05-02	HK	Satisfactory Low 200psi high 10,000 psi
Choke/kill valves tested from top and bottom at low and high pressures	06-05-02	HK	Satisfactory Low 200psi high 10,000 psi bottom Low 200 psi high 5,000 psi top
Function test each hydraulic choke/kill valve twice from each pod Record closing and opening times and volumes	12-05-02	HK	Because stack was not assembled on the beams this test could not be performed
Hydraulic choke/kill valves are failsafe closed	28 April 02	J Hanton	Satisfactory
Assure that the manual valve(s) on BOP is positioned outboard of the HCR valve	28 April 02	J Hanton	No manual valves fitted
Verify kill line side has HCV next to BOP outlet or check valve (with check) installed downstream of manual valves	28 April 02	J Hanton	Double failsafe HCV – No check valve.

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Check valves internally if disassembled	28 April 02	J Hanton	N/A
6. Flex joints/Ball joints			
Visually inspect internal bore for wear	28 April 02	J Hanton	Satisfactory
Measure and record ID of wear ring			
7. LMRP, Stack, and Choke/Kill Line Connectors			
Disconnect LMRP and inspect sealing areas between LMRP and BOP	27 April 02	J Hanton	Satisfactory
Visually check exposed vertical bore and components (dogs, ring retainers, etc.)	27 April 02	J Hanton	Satisfactory
Function and hydro-test	12-05-02	HK	Satisfactory
Pressure test each connector to 250 psi low for 5 minutes and max psi for 10 minutes	12-05-02	HK	Satisfactory
Function test each connector once from each pod Record closing and opening times and volumes	12-05-02	HK	Satisfactory
MPI inspect connector flange/hub weld and mating mandrel	12-05-02	HK	MPI not performed
Pilot operated check valve on lock side of wellhead connector	28 April 02	J Hanton	Fitted to Cameron connector. SSE waiting on instructions regarding fitment with Vetco connector
By-pass ball valve installed around pilot operated check valve	27 April 02	J Hanton	Cut hose available for ROV
By-pass valve clearly marked and ROV attainable	27 April 02	J Hanton	Satisfactory
8. BOP Control System			
Well control chart located on rig floor	27 April 02	J Hanton	Satisfactory
Verify precharge on stack mounted accumulator bottles (1000 psi + hydrostatic pressure of proposed water depth)	06-05-02	HK	Satisfactory
Verify precharge on surface accumulator bottles (1000 psi)	06-05-02	HK	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Charge accumulator system to 3000 psi Record time for each 200 psi change	09-05-02	HK	Satisfactory Time 10 min 35 sec conform API Spec 16D
Verify that all bottles are usable and capacity meets Exxon's minimum. Calculate bottles required	06-05-02	HK	Satisfactory
Ram labels are visible	27 April 02	J Hanton	Satisfactory
Ram size labels are available on site	27 April 02	J Hanton	Dymo Tape – Printer on rig
Ensure regulators have manual over rides	27 April 02	J Hanton	Satisfactory
Ensure system is 3000 psi with 1500 psi manifold pressure and 1500 psi on annular manifold	27 April 02	J Hanton	Satisfactory
Accumulators contain 1.5 times the useable volume required to open and close all preventers and retain 1200 psi on the system without pump assistance Verify this by opening and closing all stack functions and checking that accumulator volume can maintain 1500 psi on system without pump assistance If this test is satisfactory, the extra 300 psi will satisfactorily do the half function			**See Addendum A** This has not yet been verified as the stack does not have ram blocks fitted
Verify cover installed on blind ram operating handles (main & remote units)	27 April 02	J Hanton	Satisfactory
Flush main control lines	09-05-02	HK	Satisfactory
List the type of control fluid Stackmagic See latest test reports	27 April 02	J Hanton	Satisfactory
Check that sample from control fluid reserve tank is contaminant free	27 April 02	J Hanton	Satisfactory
List the type of hydraulic oil ___N/A_______			N/A

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Check that all strainers on control unit are of size recommended by manufacturer	27 April 02	J Hanton	Satisfactory
Visually inspect all areas of pods and hose fittings for corrosion, damage, or leaks	27 April 02	J Hanton	Satisfactory
Operate hose reels forward and reverse	27 April 02	J Hanton	Satisfactory
Isolate accumulator bottles from the operating system and pressure test the system and BOP hydraulic functions to 3000 psi	12-05-02	HK	Satisfactory
Isolate accumulator bottles from system and close an annular on drill pipe and open upper chokes Pumps must complete functions in two minutes or less while maintaining 1200 psi on the closing system	12-05-02	HK	Satisfactory
Function accumulator charging pumps (triplex and air) independently to determine effective operation Triplex pumps set to come on at 2700 psi and off at 3000 psi Air pumps set to come on at 2400 psi and off at 2700 psi Relief valves set to vent at 3500 psi	27 April 02	J Hanton	Satisfactory
Function BOP operating fluid pumps independently to determine effective operation (On at 2700 psi, off at 3000 psi.)	27 April 02	J Hanton	Satisfactory
Check that all gauges and switches are labeled	27 April 02	J Hanton	Satisfactory
Check that auxiliary tie in with valve is available on closing unit manifold	27 April 02	J Hanton	Satisfactory
Verify two independent power supplies to control unit (air / electric, air / air w/appropriate volume bottles and isolation)	27 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
If electric pumps used, check for signs indicating "Automatic starting equipment"	27 April 02	J Hanton	Satisfactory
Function alarms if installed on BOP panel for: 1. Low accumulator pressure 2. Low fluid level 3. Low rig air 4. Loss of energy supply	27 April 02	J Hanton	4. Loss of energy supply not fitted – Required by API Spec 16D
Operate all hydraulic functions from remote panels	11-05-02	HK	Satisfactory for functions that could be done.
9. Flexible Choke/Kill Lines on LMRP and in Moonpool			
Inspected and tested per original equipment manufacturer specifications	27 April 02	J Hanton	1 Drape Hose and 1 LMRP Flex hose replaced on tow
Pressure test each hose to 250 psi low for 5 min and max psi high for 10 min	09-05-02	HK	Due to unavailability of test adapters this test cannot be performed.
10. Riser			
Inspect 25% of riser joints, pup joints, and adapters Percentage subject to change if visual inspection, UT, or MPI tests indicate possible problems	12-05-02	HK	Satisfactory Records kept on the rig
Clean and visually inspect for wear, pitting, and corrosion: 1. Riser inside and outside 2. Riser bolts (dogs & clamps) after removing from box 3. Riser O-ring groove (replace O-rings as necessary) Polypac style 4. Choke and kill line seal areas (replace box/pin packing as necessary)	27 April 02	J Hanton	Satisfactory
Clean and inspect with ultrasonics: 1. Riser wall thickness 2. Choke/Kill line tube wall thickness Done randomly	12-05-02	HK	Satisfactory Records were kept on the rig

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Clean and inspect for cracks with MPI: 1. Riser pin and pin grooves 2. Riser pin to tube weld 3. Riser box to tube weld 4. Riser box to dog window N/A 5. Riser box dog/clamp grooves N/A 6. Choke/Kill line pin to tube weld 7. Choke/Kill line box to tube weld	12-05-02	HK	Satisfactory Records were kept on the rig
11. Slip Joint			
Visually inspect inner barrel for excessive wear	06-05-02	HK	Satisfactory
MPI pad-eyes on tensioner ring	06-05-02	HK	Satisfactory
MPI bolts used to retain unit collapsed	06-05-02	HK	Satisfactory
Remove and inspect packing element Replace packing element as necessary and hydraulically pressure test	09-05-02	HK	Due to operations this task was not performed. New furbished slipjoint delivered Feb 2001, one new packer installed since.
Test slip joint packer(s) to 35 psi and 75 psi for 10 minutes	09-05-02	HK	Due to operations this task was not performed. New furbished slipjoint delivered Feb 2001, one new packer installed since.
12. Tensioner and Guideline System			
Check contractor's maintenance program on tensioner and guideline systems Slip and cut tensioner lines as necessary	27 April 02	J Hanton	Satisfactory
Visually inspect all guidelines Replace as required	27 April 02	J Hanton	Satisfactory
Check all tensioner rods for scoring	11-05-02	HK	Satisfactory
Check wear and alignment of sheaves	27 April 02	J Hanton	Satisfactory
Check for bearing wear or seizing	27 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Check for indications of hydraulic fluid leaks around tensioner systems If evidence of leaks are found, activate tensioners to check seal integrity	27 April 02	J Hanton	Satisfactory
13. Choke Manifold			
Verify that all required components are rated for sour service	27 April 02	J Hanton	Satisfactory
Determine that layout is acceptable (Minimum: 3 chokes, 1 remote, 1 manual)	27 April 02	J Hanton	Satisfactory
Verify layout meets minimum ExxonMobil standards and has 2 manual and 1 hydraulic chokes List all non-compliances	27 April 02	J Hanton	Satisfactory
Verify ring gaskets are 304 / 316 Stainless for sour service	27 April 02	J Hanton	Satisfactory
Verify a return line is installed from the downstream side of the choke manifold to the trip tank	27 April 02	J Hanton	Satisfactory
Verify permanently installed piping to burner booms	27 April 02	J Hanton	Satisfactory
Pressure gauges for pump and annular pressures are installed on manifold (for manual chokes)	27 April 02	J Hanton	Satisfactory
Verify all turns are properly targeted	07-05-02	HK	Unsatisfactory. Not all bents were targeted no long sweep bents availlable
Check that all connections are welded or flanged	27 April 02	J Hanton	Satisfactory
Assure that choke manifold and related piping agrees with rig drawings	27 April 02	J Hanton	Satisfactory
Pressure test all upstream valves to 250 psi low and working psi high. (Flush choke manifold with water until clean before testing.) Note: All pressure test will be done with freshwater and chart recorder	05-05-02	HK	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
All valves not successfully tested are repaired and retested	05-05-02	HK	Satisfactory
Check that mud leg height on the mud/gas separator is adequate Actual is '__	07-05-02	HK	Satisfactory As per API
Disassemble and inspect the hydraulic choke	27 April 02	J Hanton	Satisfactory
Disassemble and inspect one random valve, unless a valve was disassembled for repair	27 April 02	J Hanton	Satisfactory
Circulate water through choke manifold at up to 3500 psi (upstream of chokes), through poor-boy degasser for 15 minutes. Function all chokes	09-05-02	HK	Pumped through both automatic and both manual chokes. (1,000 psi as per DODC request)
Open choke and circulate throught poor-boy degasser @ 8 BPM for 15 minutes	09-05-02	HK	Satisfactory
Circulate down flare line(s) and check (visual) for leaks	11-05-02	HK	Flare booms were folded in
Observe proper operation of gauges, stroke counters and choke position indicator on choke operating panel (Flush system with fresh water upon finish)	10-05-02	HK	Pump No.2 under repair Choke manifold gauge need calibrating
Verify additional stems and seats available for adjustable chokes	27 April 02	J Hanton	Satisfactory
Verify seat opening is minimum of 1" on adjustable chokes	27 April 02	J Hanton	Satisfactory
Verify additional seats available for hydraulic choke	27 April 02	J Hanton	Satisfactory
High pressure side of choke manifold shall have at least two valves upstream of each choke	27 April 02	J Hanton	Satisfactory
Check stroke counters on hydraulic choke panel work for pump 1, pump 2, and both pumps 1 & 2	10-05-02	HK	Pump No.2 under repair. Others satisfactory.
Check ease of operation of choke manifold valves	27 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist			
BASS STRAITS / RIG: OCEAN BOUNTY		WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Verify hydraulic choke panel has auxiliary (manual) pump capability if power supply lost	27 April 02	J Hanton	Secondary air supply from standby APVs via a reducing regulator. Relief valve fitted downstream of regulator
14. Misc. Well Control Equip.			
Note the manufacturer for kelly and safety valves and inside BOPs for each size on site	07-05-02	HK	Satisfactory Varco valves Hydril string valves
Test the following to 250 psi low and working psi high with fresh water and chart recorder: Lower kelly valve _______________ Upper kelly valve _________________ Inside BOP _______________________ Rig floor safety valves _______________ Manual top drive valves ______________	05-05-02	HK	Satisfactory All valves were tested to 200 psi low and 5,000 psi high from the well bore side only.
C. Mud Pumping, Storage, Treatment, and Transfer System			
1. Mud Pumps, Charging, and Transfer Pumps			
Check precharge of suction dampeners. Inspect fluid ends internally	07-05-02	HK	Satisfactory
Check precharge of discharge dampeners. Inspect fluid ends internally	07-05-02	HK	Satisfactory
Open fluid ends of each pump and check for corrosion, wear, and damage	04-05-02	HK	Satisfactory
Determine liner sizes available and list: 5-1/2" - 6-1/2"	07-05-02	HK	Satisfactory Installed 6,5 inch
Determine operating hours for pistons, liners, valves, and seats	07-05-02	HK	Satisfactory Rig runs a rig specific system
Verify relief valves are piped back to mud pits, adequately secured and sloped downward into pit for line drainage	07-05-02	HK	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Check suction strainers and note strainer mesh ________________	07-05-02	HK	Satisfactory
Check discharge strainers and note strainer mesh ____________	07-05-02	HK	Satisfactory National strainer
Observe for unusual noise or vibration	Feb 02	MSE	Satisfactory
Visually inspect power end: crossheads, gears, sprockets, and chains	Feb 02	MSE	Satisfactory
Determine that a liner and rod lubrication system are functioning and is a closed system	Feb 02	MSE	Satisfactory
Pressure test each pump pop off to 200 psi over anticipated drilling pressure to ensure pop out will blow	09-05-02	HK	Satisfactory
Pressure test lines	09-05-02	HK	Satisfactory
Use mud pumps to pump through all normal lines and attempt to determine volumetric efficiency	09—5-02	HK	Satisfactory
Determine that the mud pump lubrication system is adequate for long term slow pump rates	09-05-02	HK	Satisfactory. Pums have independent oil (2 pumps) and cooling system
Check operation of charging pumps Disassemble and inspect if discharge pressures leave doubt as to condition of impeller or housing	Feb-02	MSE	Satisfactory
Operate pumps under load (3000 psi and 1000 gpm) for 2 hours	09-05-02	HK	Operated pumps with 1,000psi back pressure from auto choke.
Verify rotary and vibrator hoses are fitted with safety lines at each end	07-05-02	HK	No vibrator hoses fitted
Assure standpipe is clamped and secured	07-05-02	HK	Satisfactory
Determine type of seals (mechanical) or packing used (water lubricated or sealed)	07-05-02	HK	Satisfactory packing seals

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
2. Mud Pits and Transfer System			
Pressure test standpipe manifold, rotary hose, swivel, piping, and valves back to pump discharge to 5000 psi. *Warning: Note liner pressure rating	5-5-02	HK	Satisfactory Test 200 psi and 5,000 psi 10 min
Calculate total mud pit volumes	5-5-02	HK	Satisfactory
Obtain flow diagrams (suction and discharge)	6-05-02	HK	Satisfactory
Assure handles are on all valves.	6-05-02	HK	Satisfactory
Verify smooth operation of all gates	6-05-02	HK	Satisfactory
Verify operation of mud guns	6-05-02	HK	Satisfactory
Verify mud gun lines can be isolated from solids removal section (solids removal tanks can be gunned with liquid from the solids removal section)	6-05-02	HK	Satisfactory
Inspect mud tanks for rust and other debris accumulation	6-05-02	HK	Satisfactory
Ensure there are adequate number and size of water discharge points (minimum is 2" at shakers, 4" at slug pit and two (2) 4" for suction pits)	6-05-02	HK	Satisfactory
Verify maximum flow of water into the pits (minimum should be 10 bbls/min. through all water outlets)	6-05-02	HK	Satisfactory
Ensure redundant pump capability for transferring water to the mud pits	6-05-02	HK	Satisfactory
Operate all mud agitators; note any problems or excess noise	09-05-02	HK	Satisfactory
Fill each mud pit independently with seawater and check for leaks in piping, valves, dumps, frames, etc.	10-05-02	HK	Satisfactory
Use different pumps to transfer fluid from pit to pit. Observe PVT calibration.	29-04-02	HK	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Verify shearing capabilities: yes / no	6-05-02	HK	Satisfactory
Diesel to cmt unit availability	6-05-02	HK	Satisfactory
Check operation of mixing hoppers	10-05-02	HK	Satisfactory, tested newly installed shearing hopper.
Measure rate of transfer from rig systems to cement unit for drill water _____; seawater _______ ; and fluid from mud pits (Minimum 10 bbls/min)_________	06-05-02	HK	Not performed because no cementer on the rig, transfer pump was 100 HP and runs satisfactory
Check operation of all pumps	6-05-02	HK	Satisfactory
Determine if caustic barrel is acceptable	07-05-02	HK	Unsatisfactory To enter caustic buckets have to be lifted shoulder high.
3. Trip Tank			
Measure and verify the calibration of the level indicator and recorder in each tank	6-05-02	HK	Satisfactory
Determine alternate means of filling hole should tank pump(s) fail	6-05-02	HK	Satisfactory
Verify independent line available to pump fluid from trip tank direct to mud tanks	30-04-02	HK	Satisfactory
Verify two compartments (+/-50 bbls each)	30-04-02	HK	Satisfactory
Verify agitation in each tank			
Operate trip tank in normal fashion of usage. Note any stiffness or error of level indicator	30-04-02	HK	Satisfactory
Determine rate of fluid transfer (minimum should be 3 bbls/min. at bell nipple w/18.0mud)	30-04-02	HK	Satisfactory

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
4. Mud Processing Equipment			
List the types and ratings of: Shale Shakers : Desander: Mud Cleaner: Degasser: Desander Pump: Degasser Feed Pump: Trip Tank Pump:	6-06-02	HK	Satisfactory
Flow show installed and calibrated	6-05-02	HK	Satisfactory
Gumbo trap installed	6-05-02	HK	No gumbo trap installed
Type and number scalper shakers and flowline cleaners: 3 Brandt / 3 Derrick	6-05-02	HK	Satisfactory 4 each VSM 100
Number and size screens kept on location 20,30,40,60,80,120,140,180,210, 265	6-05-02	HK	Satisfactory 52-200 screens
Tarp is in place at shakers			
Number and size of desander cones:	6-05-02	HK	Satisfactory 16 each 4 inch
Number and size of desilter cones:	6-05-02	HK	Satisfactory 20 each 2 inch
Number and size of mud cleaner cones ____________________			N/A
Type of degasser:	6-05-02	HK	Satisfactory Swaco vacuum degasser
Verify desander pump discharge pressure (75' of head) ____________________	07-05-02	HK	Satisfactory
Verify desilter pump discharge pressure (75' of head) ____________________	07-05-02	HK	Satisfactory
Verify mud cleaner pump discharge pressure (75' of head) ____________			N/A
Verify correct placement of degasser feed pump: ______________	6-05-02	HK	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Run shale shakers for a minimum of ½ hour. Immediately afterwards, check motors and bearings for overheating	07-05-02	HK	Satisfactory
Verify ease of operation for leveling device (up and down) on flowline cleaner			N/A
Check shaker mounts for wear	07-05-02	HK	Satisfactory
Check for wear on deck rubbers for screens and replace as required	07-05-02	HK	Satisfactory
Inspect tension rails and bolts	07-05-02	HK	Satisfactory
Verify degasser and mud/gas separator are properly vented (150' minimum from well for sour service)	07-05-02	HK	Satisfactory
Run desander with water:Verify proper discharge patterns. Verify manifold pressure equal to manufacturer spec's	07-05-02	HK	Satisfactory
Run desilter with water:Verify proper discharge patterns. Verify manifold pressure equal to manufacturer spec's	07-05-02	HK	Satisfactory
Run mud cleaner with water.Verify proper discharge patterns. Verify manifold pressure equal to manufacturer spec's	6-05-02	HK	N/A
Inspect degasser float mechanism for free movement	6-05-02	HK	Satisfactory
Operate degasser. Record vacuum developed	6-05-02	HK	Satisfactory
Check drill cutting disposal troughs	6-05-02	HK	Satisfactory
D. Bulk Tank and Air Systems			
1. Cement and Barite Storage and Transfer Systems			
Ensure relief Valve Testing requirements and Documentation	04-05-2002	HK	Satisfactory, all safety valves were newly installed and were sent ashore every 2 years for recertification
Determine operating pressure 40 psi	04-05-2002	HK	Satisfactory

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Obtain Piping Diagram of bulk system	04-05-2002	HK	Satisfactory
List the capacity of each system: Cement: Gel: Barite:	04-04-2002	HK	Satisfactory
Pressure test bulk system: all lines, valves, and pods to rated working pressure with air (Progressively, from pod to pod, checking valves between each pod)	04-05-2002	HK	Satisfactory Cmt load line was leaking badly, but repaired under tow.
Check air compressor and air drier	04-05-2002	HK	Satisfactory
Inspect all cement pod fluffers for caked cement	04-05-2002	HK	Satisfactory
Verify all bulk lines are clear: including loading lines, all transfer lines to surge pods, and all related vent lines	04-05-2002	HK	Satisfactory
All bulk storage tanks to be equipped with safety valves or rupture disk to prevent excessive working pressure	04-05-2002	HK	Safety valves were installed at the vent lines in a horizontal position, not straight and direct on the tanks.
Determine transfer rates between cement pods and cement unit	04-05-2002	HK	Due to shortage of bulk this test was not performed
Determine transfer rate between barite pod and barite surge pod	04-05-2002	HK	Due to shortage of bulk this test was not performed
Determine positive means to isolate cement from barite loading systems	04-05-2002	HK	Satisfactory
E. Pipe Handling Equipment			
1. Rotary Slips, Bushings			
Check dimensions on master bushing and inserts	28-04-2002	HK	Satisfactory (entered in PM history)
Rotary slip dies sharp and pins in good condition	28-04-2002	HK	Satisfactory
Inventory spare jaw segments	28-04-2002	HK	Satisfactory
MPI high stress areas on slips	28-04-2002	HK	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Verify proper size slips for all sizes of drill pipe and drill collars to be used	28-04-2002	HK	Satisfactory
2. Tongs			
Visually inspect that tongs are free of field welds and cracks	28-04-2002	HK	Satisfactory
Verify that tong dies are sharp	28-04-2002	HK	Satisfactory
Verify that die keepers are installed	28-04-2002	HK	Satisfactory
Assure that handle safety pin is in place, no bolt substituted	28-04-2002	HK	Satisfactory
Assure that tong counter weights are safe and snubbed to prevent falling	28-04-2002	HK	Satisfactory
Inspect condition of snub lines and posts	28-04-2002	HK	Satisfactory
Ensure there is a policy for removing and replacing snub lines	28-04-2002	HK	Satisfactory
MPI complete tongs (full body)	6-05-02	HK	Satisfactory One tong had to be replaced
Verify proper size tong heads available for all sizes of drill string and BHA that will be used	28-04-2002	HK	Satisfactory
3. Spinning Wrench			
Operate spinning wrench in both directions	02-2002	MSE	Unsatisfactory. Unit was not powerfull enough
4. Elevators			
Visually inspect that elevators are free of field welds and cracks	28-04-2002	HK	Satisfactory
Inspect hinge pins for wear and corrosion	28-04-2002	HK	Satisfactory
MPI elevator ears and handles	28-04-2002	HK	Satisfactory
Verify "stop" installed at bottom of elevators for hinge pin (drill pipe elevators)	28-04-2002	HK	Satisfactory
Verify proper size elevator available for drill string and BHA	28-04-2002	HK	Satisfactory

913711 584

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
5. Dog Collars			
Verify proper sizes for all BHA components	28-04-2002	HK	Satisfactory
Verify keepers for inserts installed	28-04-2002	HK	Satisfactory
Verify proper wrenches available	28-04-2002	HK	Satisfactory
F. Power Systems: Engines and Generators			
Engines and generators free of major oil leaks and drip pans in place	28-04-2002	HK	Satisfactory (entered in PM history)
Determine for each engine: 1. Current hours: 2. Last major overhaul: 3. Last cooling system flush:	28-04-2002	HK	Satisfactory
Pressure cooling system is intact and free of leaks	28-04-2002	HK	Satisfactory
Air filters clean	28-04-2002	HK	Satisfactory
Fuel filters clean	28-04-2002	HK	Satisfactory
Verify centrifuges for fuel (yes / no) ___________			
Fuel line water trap working	28-04-2002	HK	Satisfactory
Function test each engine for pressurization of cooling, and cooling system antifreeze percentage	28-04-2002	HK	Satisfactory
Operate engine under at least 70% load for 45 minutes or up to reaching stable in and out water temperature, whichever comes last	28-04-2002	HK	Satisfactory
Operate all generators at overload Verify overspeed and overload trips operate satisfactorily	28-04-2002	HK	Satisfactory
Bearing and shafts free of noise	28-04-2002	HK	Satisfactory
Fuses are proper type and size	28-04-2002	HK	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Cables and leads are in good condition	28-04-2002	HK	Satisfactory
All equipment properly grounded	6-05-02	HK	Satisfactory One tong had to be replaced
Cable is properly placed in trays	28-04-2002	HK	Satisfactory
Electrical terminations are properly connected			
Plugs are properly installed (wires not pulled from connections, etc.)	02-2002	MSE	Unsatisfactory. Unit is not powerfull enough
Check for emergency lighting in SCR house			
Check to see if switchboards in good condition and safety devices are not bypassed	28-04-2002	HK	Satisfactory
G. Survey Equipment			
Check operation of clocks	28-04-2002	HK	Satisfactory
Insure equipment is available to drop and recover or run survey on .092" wireline	28-04-2002	HK	Satisfactory
Insure crossovers are available to recover survey using sand line	28-04-2002	HK	Satisfactory
Operate wireline unit Insure depth counter is operating properly and wireline is in good condition	28-04-2002	HK	Satisfactory
Inspect sheaves for wireline Verify that 15,000' of .092 line is available	28-04-2002	HK	Satisfactory
Insure swivel components are free and workable	28-04-2002	HK	Satisfactory
Verify adequate replacement parts available on location or that there is a second complete survey tool	28-04-2002	HK	Satisfactory
H. Instrumentation			
Observe effective operation of pit volume totalizer	28-04-2002	HK	Satisfactory
Check flow meter and alarm.	28-04-2002	HK	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Check operation for the following functions on the drilling recorder: 1. weight indicator 2. RPM (If switchable, test both table and TDS systems while testing rotary) 3. rotary torque (If switchable, test both table and TDS systems with rig tongs)	28-04-2002	HK	Satisfactory
Pump Pressure in psi ____________ (done while circulating through choke manifold)	28-04-2002	HK	Satisfactory
Pump Stroke Rate ________________	28-04-2002	HK	Satisfactory
Verify that tong line load cells are free of leaks and compatible with console gauge	28-04-2002	HK	Satisfactory
Calibrate EZ-Torq gauge against tong line load cell	28-04-2002	HK	Satisfactory

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
I. Drill String			
1. Inspection			
Verify T. H. Hill's Standard DS-1 is utilized for inspections (Drill Collars, Heviwates, Crossovers, Drill Pipe, Other contractor supplied rotary connection equipment) If not used, what specifications are used?	28-04-2002	HK	All tubulars inspected per DS1- Cat 5
Rotating hours since last inspection on drill collars ________________	28-04-2002	HK	0 Hours
Rotating hours since last inspection on HWDP __________	28-04-2002	HK	0 Hours
Rotating hours since last inspection on downhole crossovers __________	28-04-2002	HK	0 Hours
Date stabilizers last inspected ______________	28-04-2002	HK	No stabilizers on the rig
Rotating hours since last drill pipe inspection ___________________	28-04-2002	HK	290 hours
J. Miscellaneous Drilling Equipment			
1. Slings	6-05-02	HK	Satisfactory
Verify slings are certified and proper documentation available	28-04-2002	HK	Satisfactory
Review recertification procedures for all slings	28-04-2002	HK	Satisfactory. (Lifting survey every year, and all items were marked properly)
Verify proper storage for slings	28-04-2002	HK	Satisfactory
2. Cranes			
List types & ratings: 140' booms	29-04-05	HK	1 Link Belt ABS 238- 37,88 mt@ 35 ft 1 National OS 435- 46,23 mt@ 40 ft 1 Seatrax Monarch 6024 – 50,98mt @ 20 ft

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Check sheaves and wire for wear and corrosion (Port, Starboard, Forward)	04-05-2002	HK	Satisfactory
Test all limit switches (Port, Starboard)	04-05-2002	HK	Satisfactory
Calibrate crane load gauges (Port, Starboard)	04-05-2002	HK	Satisfactory Done with special test weight.
Review records for last test. If out of date, repeat test (Port, Starboard)	04-05-2002	HK	Satisfactory
Check hook and hook safety latches	04-05-2002	HK	Satisfactory
Check sling condition and hook for rating tags ________________	04-05-2002	HK	Satisfactory
Check for engine and hydraulic leaks	04-05-2002	HK	Satisfactory
MPI crane pedestal welds	04-05-2002	HK	Satisfactory Certification was present on the rig
Review PM documents and how work is documented	04-05-2002	HK	Satisfactory
3. Rig Hydraulic System			
Operate rig hydraulic system	29-04-2002	HK	Satisfactory
Check for leaks	29-04-2002	HK	Satisfactory
4. Potable Water Makers			
Run each unit independently for 24 hours and measure output. #1______#2______	29-04-2002	HK	Satisfactory (on one engine during the tow) 1=9.5 cub meter 2= 9.5 cub meter
5. Cement Unit & Discharge Line			
Test cement unit by mixing 16.0 ppg cement at 8 BPM	04-05-2002	HK	Not performed because we did not have a Halliburton cementer on board
Check for pressure relief valves on pumps	04-05-2002	HK	Not performed because we did not have a Halliburton cementer on board

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Test cement unit, valves, and lines to 250/10,000 psi.	04-05-2002	HK	Not performed because we did not have a Halliburton cementer on board
6. Deepwell Pumps			
Check Deepwell pumps are working without any mechanical problems	04-05-02	HK	N/A
Check pump is capable of pumping enough water to pits to run both mud pumps at maximum speed	04-05-02	HK	N/A
K. Stability and Loading			
1. Calculations			
Confirm available variable load margin at time of move-in	5-05-02	HK	Satisfactory
Verify that the variable load calculations are done daily	5-05-02	HK	Satisfactory
Check that tank sounding is done daily if no remote tank level indicators exist	5-05-02	HK	Satisfactory Remote system on the Ocean Bounty
Check internal draft gauge accuracy	5-05-02	HK	Satisfactory
Verify that variable load calculations account for storm conditions	5-05-02	HK	Satisfactory In the rigs PC calculation
Verify that a documented procedure exists for getting to survival conditions	5-05-02	HK	Satisfactory
Verify that a procedure exists for logging incoming and departing weights	5-05-02	HK	Satisfactory
2. Equipment			
Verify that all sounding tubes are operational	5-05-02	HK	CPT2 not operational All others satisfactory
Verify that all remote tank level indicators are operational and are calibrated against manual soundings	5-05-02	HK	Satisfactory

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Check that watertight doors are normally closed	5-05-02	HK	Satisfactory
Test manual override at hydraulic watertight doors for proper operation	5-05-02	HK	Satisfactory
Function test primary and back-up bilge pumps	5-05-02	HK	Satisfactory
3. Ballast System			
Inspect sea chest strainer/baskets (PORT/STBD)	5-05-02	HK	N/A
Check the sea chest valves for leaks from inside the pump room.	5-05-02	HK	Satisfactory
Function test remote-operated valves (PORT/STBD); Ballast system valves, Drill. Water system valves, and Fire Operation system valves.	5-05-02	HK	Satisfactory
Check the remote operated valves for fail-safe operation associated with the loss of power to the control system	5-05-02	HK	Satisfactory
Take manual tank soundings of all tanks, voids, etc. and compare with remote tank soundings where possible.	5-05-02	HK	Satisfactory
Confirm that Operating Manual states maximum angle of inclination at which ballast pumps can deballast corner tanks with the primary and back-up pumps.	5-05-02	HK	Satisfactory On this rig the fwd tanks were critical
Test operate ballast pump with emergency generator	5-05-02	HK	Not done due to operations (Tow)
Check that sea chest pump output is adequate to supply cooling water for engines and maintain enough volume in the mud pits to run both mud pumps at maximum rated speed with liners used to drill 26" hole	5-05-02	HK	Satisfactory
L. Towing and Anchoring			

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Inspect the primary tow components	5-05-02	HK	Satisfactory
Determine where the back-up tow equipment is stored	5-05-02	HK	Satisfactory 1 main bridle and two towlines of the center fwd colomns.
Determine the type, size, breaking strength, and length of the tow components provided: Primary : 3" 800 kips 140' Back-up: Same	5-05-02	HK	Satisfactory 3 " towline
Determine the minimum required towboat power for towing: By one towboat: 7500 hp By two towboats ________________	5-05-02	HK	Satisfactory Infield tow bollard pull 132 mt Ocean tow 132 mt
Verify that all shackles, swivels, and other jewelry are of forged construction	5-05-02	HK	Satisfactory
Check each windlass and winch for proper operation	25-04-02	HK	Satisfactory
Check that bits, cleats, padeyes, etc. are in good condition	5-05-02	HK	Satisfactory
Check for emergency release on tow and anchor systems	5-05-02	HK	Satisfactory Only present on anchor system
Check line out and tension measuring systems	5-05-02	HK	Satisfactory Chain used on the rig
Check that mooring chain is in good condition	5-05-02	HK	Satisfactory Chain was only three years old and has no connecting links installed
M. Life Saving Equipment and Emergency Preparedness			
1. Emergency Preparedness			
Spill Prevention Control and Containment plan	29 April 02	J Hanton	Satisfactory
Air Breathing Units	29 April 02	J Hanton	Satisfactory
Air Compressor	29 April 02	J Hanton	Satisfactory
2. Lifeboats (150% crew complement) 200% required MODU IMO 1989			

913711 592

Rig Acceptance Checklist			
BASS STRAITS RIG: OCEAN BOUNTY		WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Check general condition of lifeboats	29 April 02	J Hanton	Satisfactory
Review lifeboat maintenance records	29 April 02	J Hanton	Satisfactory
Each lifeboat equipped with emergency position indicating radio beacon or radar transponder.	29 April 02	J Hanton	One EPIRB on board rig at mast. SART bacons in all lifeboats
Each lifeboat equipped with VHF radio and radios are operational	29 April 02	J Hanton	Satisfactory
Adequate for all persons on rig	29 April 02	J Hanton	NO – 44 man boat too small for 97 POB
Start each lifeboat engine using primary and backup starting system (Port & Starboard)	5-05-02	HK	Unsatisfactory Two Hardings had to be started with ignition charges.
Launch and recover each lifeboat			Unable to perform on tow. Done every 90 days
Test davits	13 May 02	HK	Unsatisfactory. Davits were badly corroded at some places. The hang-off padeys for the safety sling were also corroded and some were bent. Some of the hooks were corroded.
Test bilge pumps	29 April 02	J Hanton	Satisfactory
Test hook release mechanism			Unable to perform on tow. Done every 90 days
Check that muster list is kept up to date at all times	29 April 02	J Hanton	Satisfactory
Determine if qualified lifeboat crews are assigned for abandonment	29 April 02	J Hanton	Satisfactory
Verify that contractors conduct onboard training on operation of the lifeboats	29 April 02	J Hanton	Satisfactory
Check records of previous lifeboat launches	29 April 02	J Hanton	Satisfactory
3. Man Overboard Boat			
Check general condition of MOB			Rig has an exemption from carrying a fast rescue boat. This boat was carried by the supply boats in attendance. However on the classcertificate No. 1 lifeboat was designated as a rescue boat. MOB drills were
Equipped with operational VHF radio			

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Qualified crew on each tour			
MOB drills are conducted routinely			
Review MOB rescue procedures			
Test bilge pump			
Launch and recover MOB			
4. Life Rafts			
Verify all service dates are valid			No life rafts were on board. DOGC state that they have an exemption from carrying rafts under MODU Code 1979.
Verify that spare life rafts are supplied when life rafts are removed for servicing			
Verify that launch path is free from obstruction			
5. Life Jackets			
Verify 200% capacity exist: 100% in quarters; 100% at lifeboats	29 April 02	J Hanton	Satisfactory
Check condition of a random sample of life jackets	29 April 02	J Hanton	Satisfactory
N. Alarms, Gas Detection, and Communications			
1. Gas Detection			
Check existence and condition of portable gas detectors	29 April 02	J Hanton	3 company owned units were being shipped ashore for repair. There was one rental unit on board
Equipment for measuring and warning of H_2S shall be installed with detectors situated in the same places as the gas detectors	29 April 02	J Hanton	Satisfactory
Test all installed gas and H_2S detectors and alarms to ExxonMobil specified limits	2-05-02	HK	Satisfactory. At random detectors were tested,all detectors were checked at least once a year per PM system
Test the general alarm	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist				
BASS STRAITS	RIG: OCEAN BOUNTY		WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
2. Communications			
Verify the existence and operability of: Intercom system OK Portable Radios OK Single Side Band Radio OK	29 April 02	J Hanton	Satisfactory
Verify the existence of primary and backup communication means for: Rig to shorebase__Phone & Inmarsat Rig to workboats______Radio _ Rig to helicopters Radio & Helicopter VHF Crane to workboats__VHF Radio___ Crane to interrig comm._Rig Phone ___	29 April 02	J Hanton	Satisfactory
O. Contractor Safety Program			
1. Meetings			
Specify, if not policy, weekly General Safety Meetings (minimum)	29 April 02	J Hanton	Satisfactory. Weekly for all personnel
Specify, if not policy, pre-tour safety meetings for each roustabout and floor crew	29 April 02	J Hanton	Satisfactory. Daily pre tour
2. Drills			
Emergency drills are conducted weekly in accordance with IADC guidelines for fire fighting and abandon ship: -Verify that station bill outlines responsibilities in case of fire and abandon -Review fire drill procedure -Review abandon ship drill procedure	29 April 02	J Hanton	Satisfactory
Review how blowout and trip drills are conducted and modify as required	29 April 02	J Hanton	Satisfactory
Verify that command station is designated and on station bill	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Verify that assembly point(s) and safe briefing areas are designated and on station bill	29 April 02	J Hanton	Satisfactory
Verify that well control procedures are posted on the rig floor	07-05-02	HK	Satisfactory Procedures have to be checked by Esso. DODC has different way of line up BOP than API
Review how H_2S drills are conducted and modify accordingly	29 April 02	J Hanton	Satisfactory
3. Administrative			
Contractor has a safety manual	29 April 02	J Hanton	Satisfactory GEMS
Contractor has an accident reporting procedure	29 April 02	J Hanton	Satisfactory
Ensure a procedure is in place to report and investigate all accidents	29 April 02	J Hanton	Satisfactory
A Hot and Cold Work Permit or other systems for tracking such work exist	29 April 02	J Hanton	Satisfactory
Review Tag & Lock Out Procedures and Permit System used	29 April 02	J Hanton	Satisfactory
P. Fire Fighting			
1. Equipment and Alarms			
Test each fire pump for adequate output pressure (Pressure measured exceeds 90 psi at any fire station and exceeds 50 psi at the nozzle--as measured with a pilot tube gauge with each pump operating independently and two nozzles open) Check for leaks	2-05-02	HK	Satisfactory
Determine how the pumps are actuated	29 April 02	J Hanton	Satisfactory Manual Start

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Test helideck foam monitors Determine how the monitors are actuated	2-5-02	HK	Unsatisfactory. During the foam monitor test 3 monitors were used with the foam aimed at the helideck, the foam and water amount that was deployed was more than the drains could handle, this caused overflow and the water/foam started to enter the motorroom ducting for engines/generators, etc. The engine room shut down the fire pump and the helicopter crew was left without water/foam.The monitors started manual or at switch board
Check that the foam system capacity is 250 liters	2-5-02	HK	Satisfactory
All fire extinguishers present and properly charged and tagged	29 April 02	J Hanton	Satisfactory
Fire extinguisher locations protected and accessible	29 April 02	J Hanton	Satisfactory
Verify all extinguisher locations are marked and extinguishers are properly stored	29 April 02	J Hanton	Satisfactory
Verify a fixed main fire extinguishing means is fitted in the engine room	29 April 02	J Hanton	Satisfactory foam & CO2
Fire extinguisher locations adequate	29 April 02	J Hanton	Satisfactory
Identify and test any installed fire detectors			
Inspect the installed inert gas systems	29 April 02	J Hanton	Satisfactory
Verify that areas protected by inert gas systems are marked as such	29 April 02	J Hanton	Satisfactory
Visually check fire hoses for wear and proper storage for deployment	29 April 02	J Hanton	Satisfactory. Outside fire station boxes were progressively being replaced

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Verify that redundant fire detection systems exist in the main and emergency generator rooms	29 April 02	J Hanton	Satisfactory
Verify visible alarms are installed in high noise areas such as the engine room	29 April 02	J Hanton	Satisfactory
Observe for warning signs on fuel tanks and transfer lines	11-05-02	HK	Satisfactory
Check for "No Smoking" signs	29 April 02	J Hanton	Satisfactory
Verify first aid kits are present and contain a fire fighting suit, axe, and pry bar	29 April 02	J Hanton	Satisfactory. 1st Aid boxes present axe, firefighting suit & pry bar were in Helicopter crash boxes and main firefighting boxes
Welding gas bottles are fitted with caps, labeled, stored upright, and kept segregated	29 April 02	J Hanton	Satisfactory
Verify that paint locker fire prevention, fire detection, and fire fighting equipment is adequate	29 April 02	J Hanton	Satisfactory
Q. General Safety and Work Environment			
1. First aid			
First aid kits available and complete on rig floor	29 April 02	J Hanton	Satisfactory
Stretcher on rig floor	29 April 02	J Hanton	Satisfactory
Eyewash stations present and functional at mixing hoppers, rig floor, and mud processing area	29 April 02	J Hanton	Satisfactory
30 minute SCBA's and equipment operational and properly stored	29 April 02	J Hanton	Satisfactory
Information on toxicological materials on location and available (MSDS)	29 April 02	J Hanton	Satisfactory
Stretchers present and in good condition	29 April 02	J Hanton	Satisfactory
Verify cleanliness of clinic and inventory is complete	29 April 02	J Hanton	Satisfactory
Oxygen equipment available (yes)	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist			
BASS STRAITS / RIG: OCEAN BOUNTY		WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Communication link to doctor or local hospital available	29 April 02	J Hanton	Satisfactory
Treatment log book up to date	29 April 02	J Hanton	Satisfactory
Medic qualified (experience level, recent training, and type) ————————————	29 April 02	J Hanton	Satisfactory. Level 4 Paramedic Advanced Dipl Health Sc. With current refresher
2. General Safety			
Helideck lighting fully operational	29 April 02	J Hanton	Satisfactory
Helicopter departure assembly area defined	29 April 02	J Hanton	Satisfactory
Non-slip surfaces, toe guards and handrails on walkways, stairs, and decks	29 April 02	J Hanton	Satisfactory
Hard hats / safety glasses available and being used	29 April 02	J Hanton	Satisfactory
Safety boots available and being used	29 April 02	J Hanton	Satisfactory
Work gloves available	29 April 02	J Hanton	Satisfactory
Safety harnesses or lifelines used (not riding belts) when working at height greater than 6' Inspect for wear and proper storage	29 April 02	J Hanton	Satisfactory
Inspect riding belts	29 April 02	J Hanton	Satisfactory
Adequate anti-fall devices installed on permanent ladders (derrick, barite and cement bulk tanks, etc.)	29 April 02	J Hanton	Satisfactory
Specialized protective equipment is available and being used in areas where noxious substances or other hazards exist	29 April 02	J Hanton	Satisfactory
Ear protection is available and being utilized in high noise areas	29 April 02	J Hanton	Satisfactory
High noise areas properly identified (signs)	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Diesel tanks and other flammable containers properly identified (signs)	29 April 02	J Hanton	Satisfactory
Paint, paint thinners, etc. properly stored (own storage container located 150' from well) with adequate fire protection	29 April 02	J Hanton	Satisfactory
Non-slip surface installed on rig floor	29 April 02	J Hanton	Satisfactory
Assure certified derrick escape mechanism is installed	29 April 02	J Hanton	Satisfactory
Check for loose items such as tools in derrick	29 April 02	J Hanton	Satisfactory
Hand tools in good condition and adequate quantity	29 April 02	J Hanton	Satisfactory
Tag lines being used on crane loads	29 April 02	J Hanton	Satisfactory
Proper ventilation exists in mud processing area	29 April 02	J Hanton	Satisfactory
Adequate bug blowers available	29 April 02	J Hanton	Satisfactory
V-door guard device available	29 April 02	J Hanton	Satisfactory
Fuel tank overflow prevention or catch-pan	29 April 02	J Hanton	Satisfactory
Guards on all motors and shafts	29 April 02	J Hanton	Satisfactory
Ventilation system constructed to prevent poisonous or noxious gases from penetrating the living quarters	29 April 02	J Hanton	Satisfactory Positive pressure in accommodation
Deck drains collected in a skimmer system	29 April 02	J Hanton	No. Many holes in decks. Potential oil spill hazard
Procedure in place to assure that doors are properly closed in emergency situations	29 April 02	J Hanton	Satisfactory
3. Living Environment			
Air conditioning of offices is functional	29 April 02	J Hanton	Satisfactory
Quarters generally orderly	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Galley using hot water in dishwasher 120 degree (F or C)	29 April 02	J Hanton	Satisfactory. Recommend increase temp of hot water heaters to 60°
Plumbing and sewage is functional and free of leaks.	29 April 02	J Hanton	Satisfactory
Internal communication system is functional and adequate	29 April 02	J Hanton	Satisfactory
Guards on all motors and shafts	29 April 02	J Hanton	Satisfactory
Observe system established for monitoring personnel on location.	29 April 02	J Hanton	Satisfactory
Adequate ventilation in galley	29 April 02	J Hanton	Satisfactory
4. Permit System			
Permit system in place for the operations listed on page 7-4 of the SMP Manual	29 April 02	J Hanton	Satisfactory
Standard work permit forms include the items listed on page 7-4 of the SMP Manual	29 April 02	J Hanton	Satisfactory
Work permits are logged, closed out, filed, and posted as described on page 7-4 and 7-5 of the SMP Manual	29 April 02	J Hanton	Satisfactory
R. Emergency Power			
Verify that the emergency generator is tested weekly	29 April 02	J Hanton	Satisfactory
Confirm that Operating Manual states maximum angle of inclination (list and trim) at which the emergency generator will operate	29 April 02	J Hanton	Satisfactory
Verify that the emergency generator automatically starts	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Test and list the emergency power source for the following equipment: 1. Helideck lighting _______________ 2. Navigation lights _______________ 3. Fog horn ______________________ 4. Fire pump ______________________ 5. Fire & gas detectors_______________ 6. Emergency alarms_______________ 7. Internal Communications __________ 8. External Communications__________	29 April 02	J Hanton	Satisfactory for all except fog horn. This was an air horn and relies on a compressor running to maintain air supply. Provided the emergency generator can be kept running the fog horn will comply with regulations
S. Electrical			
Necessary high voltage warning signs posted in English	29 April 02	J Hanton	Satisfactory
All electrical equipment is explosion and vapor proof: 1. In derrick 2. On rig floor 3. Within 5' of mud pits	29 April 02	J Hanton	Satisfactory
All rig lighting fixtures and components are properly grounded	29 April 02	J Hanton	Satisfactory
Verify safety cable installed on all light fixtures in derrick, on rig floor	29 April 02	J Hanton	Satisfactory
Rig wiring installed so it is protected from abrasion, trampling or burning Insulation is intact	29 April 02	J Hanton	Satisfactory
Floodlights mounted so they do not blind persons approaching or leaving	29 April 02	J Hanton	Satisfactory
Electrical motors fitted with lockout or kill switch	29 April 02	J Hanton	Satisfactory
Rubber or non-conductive mats installed in generator and SCR areas	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Switches and panels labeled	29 April 02	J Hanton	Satisfactory
Emergency shut down of engines at driller's panel	29 April 02	J Hanton	Satisfactory
Emergency lighting is battery powered	29 April 02	J Hanton	Satisfactory
Verify flashing warning light on crown is working	29 April 02	J Hanton	Satisfactory
All electrical outlets in good condition and guarded against ambient elements	29 April 02	J Hanton	Satisfactory
Lock out/Tag out system in use in SCR	29 April 02	J Hanton	Satisfactory
Hooks or special rubber gloves available in SCR	29 April 02	J Hanton	Satisfactory
1. Personnel			
Ensure that records regarding personnel qualifications and training are maintained and current	29 April 02	J Hanton	Satisfactory
Ensure that adequate job descriptions exist for all key personnel on the rig	29 April 02	J Hanton	Satisfactory
2. Materials			
Ensure materials transfer control records are complete and maintained on the rig	29 April 02	J Hanton	Satisfactory
Ensure transfer and receipt of all dangerous goods are accompanied by separate manifests that are correctly completed & checked by both the matl's man and the rig medic	29 April 02	J Hanton	Storekeeper only. No copy to medic
Ensure a spare parts storage system has been established in order to maintain document control over rig inventory	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist			
BASS STRAITS RIG: OCEAN BOUNTY		WELL: BEARDIE #1	16-MAR-02
ITEM	DATE	INITIALS	COMMENTS
U. Mobile Offshore Unit Marine Safety			
1. Fundamental Premises			
MOU structurally sound and in full compliance with applicable national regulations and classification society rules	13 May 02	HK	Unsatisfactory. During the anchoring up in calm waters the underwatership from below the drilling draft to the top of the hulls could be visually inspected no signs of coating was present, and the sacrifisial anodes were in bad condition. A few on the topside of the cross-tubulars were replaced (aft side of the rig.) Recommend to do a separate hull survey.
MOU has an Emergency Response Organization, contingency plans and trained personnel to deal with emergencies that could occur	13 May 02	HK	Unsatisfactory. The helicopter operations procedures have to be revised.
Ensure emergency response organization are documented in a brief Station Bill, which is unambiguous, conspicuously posted, with the MOU emergency chain of command including backups for emergency team leaders.	29 April 02	J Hanton	Satisfactory
Ensure that the Station Bill is posted in language(s) understood by the entire crew and shall include muster assignments, emergency duties, and emergency signals	29 April 02	J Hanton	Satisfactory
Ensure that the MOU has adopted a program of emergency scenario drills consistent with the 1985 IADC Guidelines and the 1989 IMO MODU Code	29 April 02	J Hanton	Satisfactory
MOU has an Evacuation Escape Rescue Plan	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Are MOU key personnel trained and experienced to carry out critical marine and emergency activities in accordance with approved procedures	29 April 02	J Hanton	Satisfactory
2. Stability			
Ensure system provide stabilitity within limits approved in the MOU operating manual over the full range of drafts	06-05-02	HK	Satisfactory MOM
Ensure tanks are manually sounded weekly and soundings are compared to remote tank indicator gauges	29 April 02	J Hanton	Satisfactory
Ensure MOU has documented on board up-to-date lightship weight and center of gravity values which reflect any changes since the last inclining test	06-05-02	HK	Satisfactory MOM
3. Ballast Control			
Ensure ballast system is capable of restoring the MOU to a draft not exceeding the limiting draft specified in the operating manual, with no trim or list, after damage to and flooding of any single watertight compartment or space	29 April 02	J Hanton	Satisfactory
Ensure ballast system can prevent the uncontrolled flow of water between ballast spaces in event of power failure	29 April 02	J Hanton	Satisfactory
Ensure operated ballast valves other than sea chest valves shall be fail-safe closed	29 April 02	J Hanton	Satisfactory
Ensure chain lockers are fitted with either flood detection systems and permanently installed efficient means to pump out water, or effective means of preventing flooding through the chain pipe	29 April 02	J Hanton	Satisfactory
Ensure markings on the hull are clearly marked and visible.	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Ensure semisubmersible units are equipped with remote-reading draft gauges	29 April 02	J Hanton	Satisfactory
Ensure two ballast pumps are available to pump out every ballast tank and that these pump can be separated so that loss of or damage to one pump will not result in the loss of or damage to the other pump	29 April 02	J Hanton	Satisfactory
4. Fire Protection System			
Ensure systems provided for detecting combustible gas, for detecting fire and smoke, and for extinguishing fires	29 April 02	J Hanton	Satisfactory
Ensure there are two independent fire pumps, including two independent water supply sources, physically separated so that loss of or damage to one pump will not result in loss of or damage to the other pump	29 April 02	J Hanton	Satisfactory
Ensure that it is possible to attack fire in any space in which fire is likely to occur on the MOU with two fire hoses attached to two separate hydrants	29 April 02	J Hanton	Satisfactory
Ensure that smoke detectors are installed in each compartment in the living quarters. They may be battery powered or powered by main generator if provided with emergency power back up	29 April 02	J Hanton	Satisfactory
Ensure two types of fire detectors (heat, flame, or smoke) are installed in machinery spaces	29 April 02	J Hanton	Under MODU Code 1979 two independent systems were not required. Smoke detectors or heat detectors fitted but not both
Ensure fixed inert gas extinguishing systems are installed in paint lockers and spaces containing internal combustion machinery with aggregate power of 1000 hp (750 kw) or more	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Ensure a fixed foam fire fighting system is installed to attach helideck fires if the MOU has helicopter refueling capable	29 April 02	J Hanton	Satisfactory
Ensure at least four fireman's outfits are on board the MOU and stored at the fire team's muster stations. These include bunker coats, helmets with face shield, boots, gloves, self-contained breathing apparatuses (SCBA) and flashlights. Each fire team shall have a safety line and harness. There shall be three spare air bottles for each SCBA	29 April 02	J Hanton	Satisfactory
5. Emergency Power System			
Ensure that a system is installed to provide an emergency source of power for control and communication systems, and for critical marine and emergency equipment in the event of a loss of main power or main power distribution system	29 April 02	J Hanton	Satisfactory
Ensure emergency generators are run for one hour each week under 50% of its rated load or full emergency load, whichever is greater	29 April 02	J Hanton	Load test once per month. Unscheduled additional runs with minimum loads as required for maintenance and system checks
Ensure emergency power is available for at least 18 hours after main power source has been disabled	29 April 02	J Hanton	Satisfactory
Ensure emergency power is available within 45 seconds after failure of main power supply	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02

ITEM	DATE	INITIALS	COMMENTS
Ensure emergency power system is provided simultaneously and directly from the emergency switchboard for the following equipment: 1. Navigation/helideck lights Emergency lighting in machinery spaces, accommodations, passageways, control stations, stairways, and exits 3. general alarm system 4. Internal and external communications 5. Combustible gas detection, fire detection, alarm and fire extinguishing systems 6. One fire pump (if electric) 7. Abandonment systems, where electrical power is required for use, including lighting at the embarkation areas 8. BOP control and riser disconnect systems (if electric) One bilge pump and one ballast pump for each hull 10. Starter for emergency generator 11. Navigation and steering equipment 12. Ballast control system (if electric) 13. Personnel transfer cranes, with only one crane operating at any time 14. Ballast valves (if electric) 15. Personnel elevators giving access to areas not accessible by stairways 16. Computers necessary for MOU emergency operations 17. Flooding alarms 18. Public address system	29 April 02	J Hanton	Satisfactory – All items comply

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
6. Communications and Alarms			
Ensure hand-held VHF radios are installed in battery chargers at every muster station; however, lifeboat stations may rely on the lifeboat VHF radios.	29 April 02	J Hanton	Handhelds were not kept at muster stations but brought to muster by crew
Ensure the emergency/rescue teams have intrinsically safe radios	29 April 02	J Hanton	Satisfactory
Ensure there are two independent means of communicating from the MOU to surface vessels, aircraft and an emergency control center off the MOU	29 April 02	J Hanton	Satisfactory
Ensure public address system is audible throughout the MOU	29 April 02	J Hanton	Satisfactory
Ensure general alarm is audible throughout the MOU. The audible alarm should be supplemented with visual signals in high noise areas	29 April 02	J Hanton	Satisfactory
Ensure pump rooms and thruster rooms have flooding alarms	29 April 02	J Hanton	Satisfactory
Ensure gas detectors are installed at the bell nipple, shale shaker, rig floor, in enclosed pit rooms and at any other locations where gas may accumulate	29 April 02	J Hanton	Satisfactory
Ensure fire, gas, and flooding alarms panels are located in a continuously manned space	29 April 02	J Hanton	Satisfactory
7. Escape, Evacuation and Rescue System (EER)			
Ensure that the MOU EER System is designed according to an EER strategy consistent with an EER analysis applicable to that particular MOU	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist

BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Ensure EER system encompasses escape pathways, evacuation methods and devices, and an emergency response organization that includes a command and control structure, station bill, muster, emergency teams and contingency plans	29 April 02	J Hanton	Satisfactory
Ensure there are two independent exits from every normally manned space, and at least two routes leading from each exit to the abandonment embarkation points	29 April 02	J Hanton	Satisfactory
Ensure that two independent methods (e.g. helicopters, supply boat, lifeboats) will enable evacuation to proceed in an orderly, controlled manner	29 April 02	J Hanton	Satisfactory
Ensure Escape route diagrams are conspicuously posted	29 April 02	J Hanton	Satisfactory
Ensure escape routes are clearly marked as such and have emergency lighting and arrows indicating preferred direction of travel.	29 April 02	J Hanton	Satisfactory
8. TEMPSC / Lifeboat			
Ensure the number and location of TEMPSCs are established by EER analysis such that there will be at least one seat available for everyone on board the MOU under the emergency scenarios requiring evacuation as identified in the EER analysis	29 April 02	J Hanton	Not in Conformance – See notes at addendum A
Ensure TEMPSCs are equipped with external strobe lights, Emergency Position Indicating Radio Beacons (EPIRBS) and permanently installed marine VHF radios connected to trickle chargers	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist			
BASS STRAITS	**RIG: OCEAN BOUNTY**	**WELL: BEARDIE #1**	**16-MAR-02**
ITEM	**DATE**	**INITIALS**	**COMMENTS**
Ensure TEMPSCs are inherently self righting when loaded with full or partial personnel complement, secured with seat belts, and with entrances and openings closed watertight	29 April 02	J Hanton	Satisfactory
Ensure TEMPSCs are equipped with self contained air support and fire protection sprinkler systems	29 April 02	J Hanton	Satisfactory
Ensure TEMPSCs release mechanisms are normally release "off load" with "on load" release backup capability	29 April 02	J Hanton	Satisfactory
Ensure life rafts are davit launched but can be deployed in the throw over mode	29 April 02	J Hanton	N/A - See Notes in Addendum A
Ensure there are devices (e.g. abseilers, ladders) to assist direct entry to the sea by personnel who may have no other means of evacuating the MOU	29 April 02	J Hanton	Satisfactory – Vertical ladder FWD and stairway AFT
If decent ropes are used, ensure they are used with personal abseilers	29 April 02	J Hanton	None provided
Ensure lifejackets are available in the living quarters for all personnel on board	29 April 02	J Hanton	Satisfactory. Life jackets in living quarters should have name of vessel stencilled on
Ensure sufficient lifejackets are available at the TEMPSCs as determined by the EER analysis	29 April 02	J Hanton	Satisfactory
Ensure TEMPScs are launched, operated and emergency equipment tested at least quarterly	29 April 02	J Hanton	Satisfactory
9. Personnel Qualifications / Training / Manning			
Ensure all personnel are in compliance with personnel qualifications, training, and manning requirements as listed in the Drilling Contract.	29 April 02	J Hanton	Satisfactory

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	DATE	INITIALS	COMMENTS

EMDC OPERATIONS SUPV: ______________________________ DATE: ____________________

OCEAN BOUNTY OIM: ________________________________ DATE: ____________________

EMDC OPERATIONS SUPT: ____________________________ DATE: ____________________

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	DATE	INITIALS	COMMENTS

ADDENDUM A.

Comments Regarding Lifeboat Capacity

The Republic of Panama Modu Safety Certificate for the Ocean Bounty states that the vessel is approved with 3 x 50 man TEMPSCs and one 44 man TEMPSEC and details the location of these survival craft. It also clearly states that there must be an inflatable rescue boat of 6 man capacity.

These boats are to satisfy the MODU Code 1979 requirements for 97 POB.

MODU Code 1979 states that there must be survival craft with aggregate capacity for twice the number of crewmembers on board. There must be sufficient TEMPSCs for all members on board plus sufficient liferafts or alternative urvival craft capable of breaking away should the unit sink, to accommodate all persons on board. These second survival craft can optionally be TEMPSCs.

The Ocean Bounty has sufficient TEMPSCs but does not carry the inflatable rescue boat.

Life Rafts

MODU Code 1979 does not require that the unit carry liferafts in addition to the 200% TEMPSC requirement as is required in MODU Code 1989. The Ocean Bounty is surveyed under MODU Code 1979.

BOP Control System

The BOP control system was an old Valvecon unit and was probably original equipment. The components of the system had been maintained but the overall appearance of the unit was poor. There was significant corrosion attack and the control manifold was in need of treatment and painting to prevent further deterioration.

Calculations of stored accumulator capacity indicate that the system has been designed for API RP 53, but has not been reviewed with the introduction of API Spec 16D.

Four new accumulator bottle had been installed on the LMRP.

<u>API CALCULATION</u>:

As per API 16 D 2.2.2.5 Calculated Accumulator Volumetric Requirements. The hydraulic control system for a subsea BOP stack shall have a minimum total stored hydraulic fluid volume, with the pumps inoperative, to satisfy the greater of the following requirements,

1. Open and close, at zero wellbore pressure , all of the ram type BOPs and one annular BOP in the BOP stack, with 50% reserve.

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	DATE	INITIALS	COMMENTS

2. The pressure of the remaining stored accumulator volume after opening and closing all of the ram type BOP's and one annular BOP, shall exceed the calculated minimum system operating pressure. The calculated minimum system operating pressure shall exceed the greater of the following minimum stack component operating pressures:

a. The minimum calculated operating pressure required (using the closing ratio) to close any ram BOP (excluding shearing pipe) at the maximum rated wellbore pressure for the stack.

b. The minimum calculated operating pressure required to open and hold open any choke or kill valve in the stack at the maximum rated well bore pressure of the stack.

Open volume ram type BOP 13.21 Gallons

Close volume ram type BOP 14.55 Gallons

Total open and close for BOP is 4 x (13.21+14.55)= 111.4 Gallons

Open volume annular preventer 37.61 Gallons

Close volume annular preventer 48.16 Gallons

Total open close for annular preventer is 75.77 Gallons

Total volume required for API Spec 16 D =111.4+75.77=187.17 Gallons.

Required for API is 150%=280 Gallons

A total of 40 x 15 Gallons (net) vol bottles were installed at surface precharge 1,000psi.

12 x 10 Gallons (net) were installed on the LMRP. Precharge for water depth of max 300 ft was 1,000psi + (300 x 445)=1,134psi

Usable from each 15 Gallon bottle:

P1V1=P2V2 1000X15/3,000 = 5 Gallons N2 and 10 Gallon fluid.

For 40 bottles, this would be 400 Gallons.

This would satisfy (1) which was 280 gallon.

Closing ratio rams was 7.11

Minimum required pressure was 10,000 / 7.11=1.407psi.

Rig Acceptance Checklist			
BASS STRAITS	RIG: OCEAN BOUNTY	WELL: BEARDIE #1	16-MAR-02
ITEM	DATE	INITIALS	COMMENTS

P2V2=P3V3 3,000X5/1,407= 10.67 Gallons N2=4.44 Gallons fluid

Usable would be 10 - 4.44=5.67 Gallons

For 40 bottles, this would be 227 Gallons, this was more than the required 187.17 Gallons, so this satisfied API Spec 16 D

ESSO AUSTRALIA CALCULATION

For Esso, an additional annular preventer would have to opened and closed.

Total required volume will be

Rams 114.4 Gallons

Two annulars 151.54 Gallons

Total would be 114.4+151.54=265.94 Gallons

The subsea bottles had a usable fluid supply of:

P1V1=P2V2 = 1,134 x 10 / 3,134=3.6 Gallons N2 and 6.4 Gallons fluid

P2V2=P3V3 = 3,134 x 3.6 / 1,541=7.3 Gallon N2 and 2.7 Gallons fluid

So usable would be 6.4-2.7= 3.7 Gallons X 12 bottles= 44.4 Gallons

Surface and Subsea would be 227 + 44.4=271 Gallons

This would be more than the 265.94 Gallons required.

These are theoretical figures. In practical term, losses would accur in operation of SPM valves and filling from the surge bottles on the annular preventers.

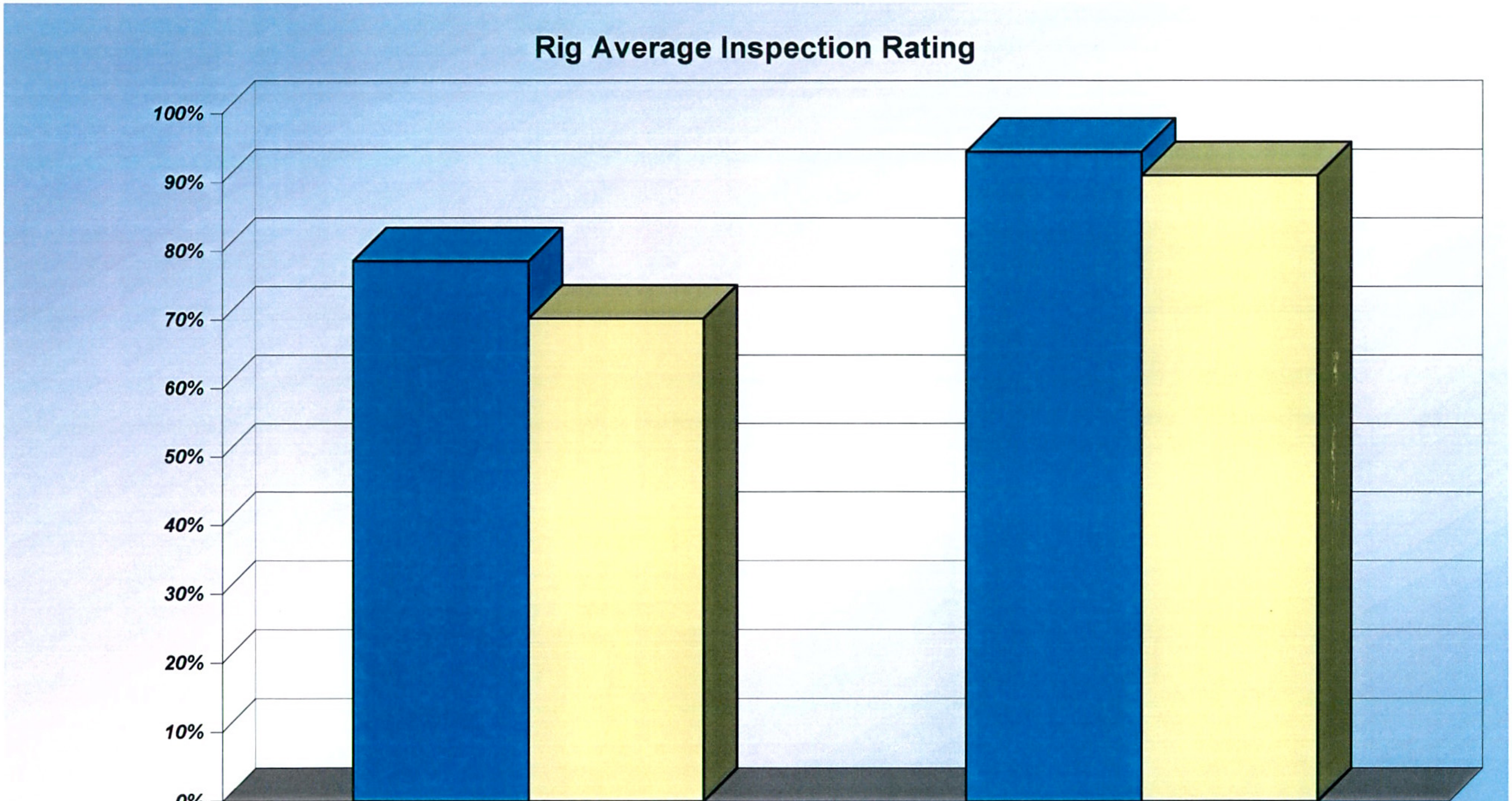
We recommend increasing the precharge to 1,200 psi.

This increase in precharge would give extra 53 gallons on the surface bottles and would be sufficient for the losses.

913711 615

Moduspec Inspection Report

Moduspec Inspection Report

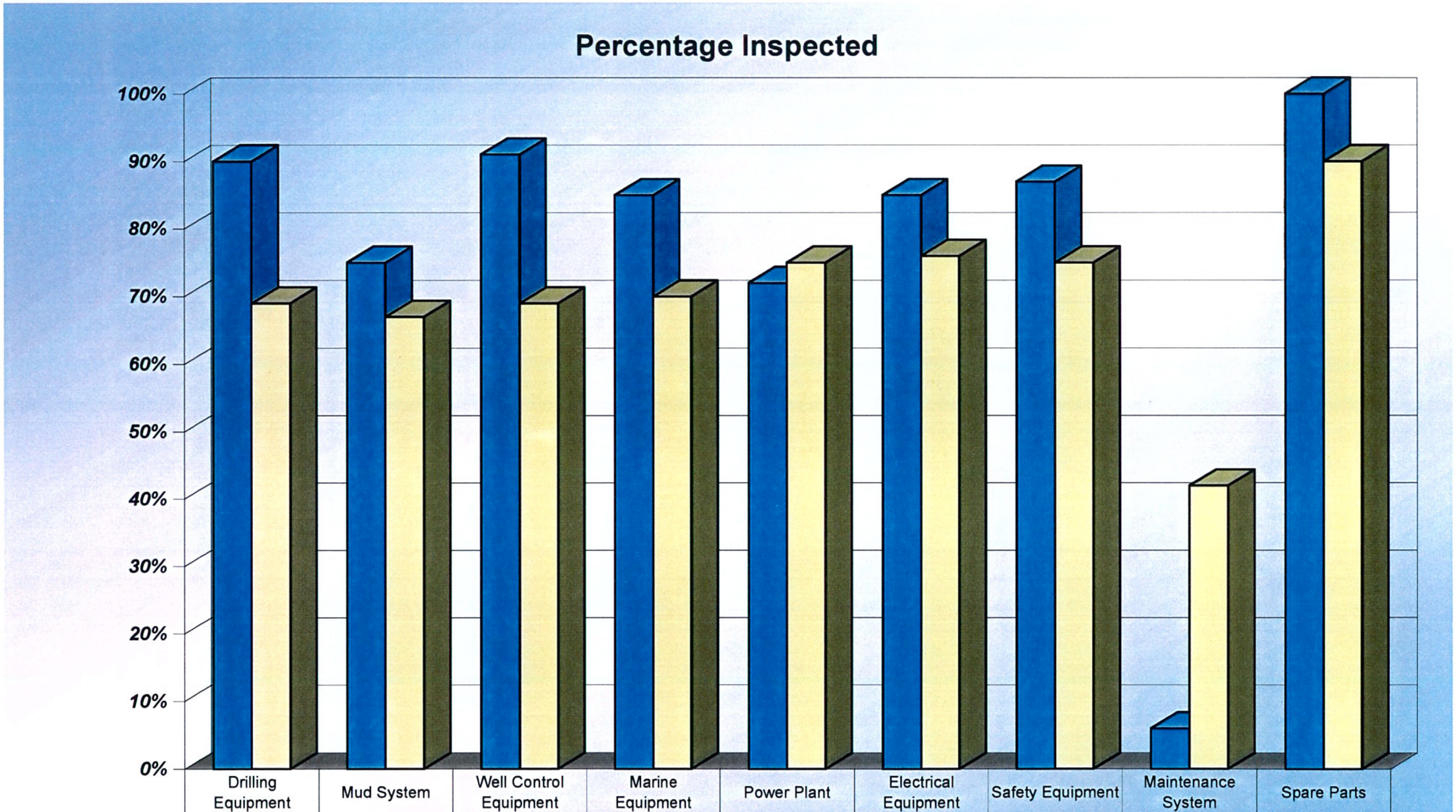


	Total Inspected	Average MER
OCEAN BOUNTY	79%	95%
Floaters Australia	70%	91%

913711 616

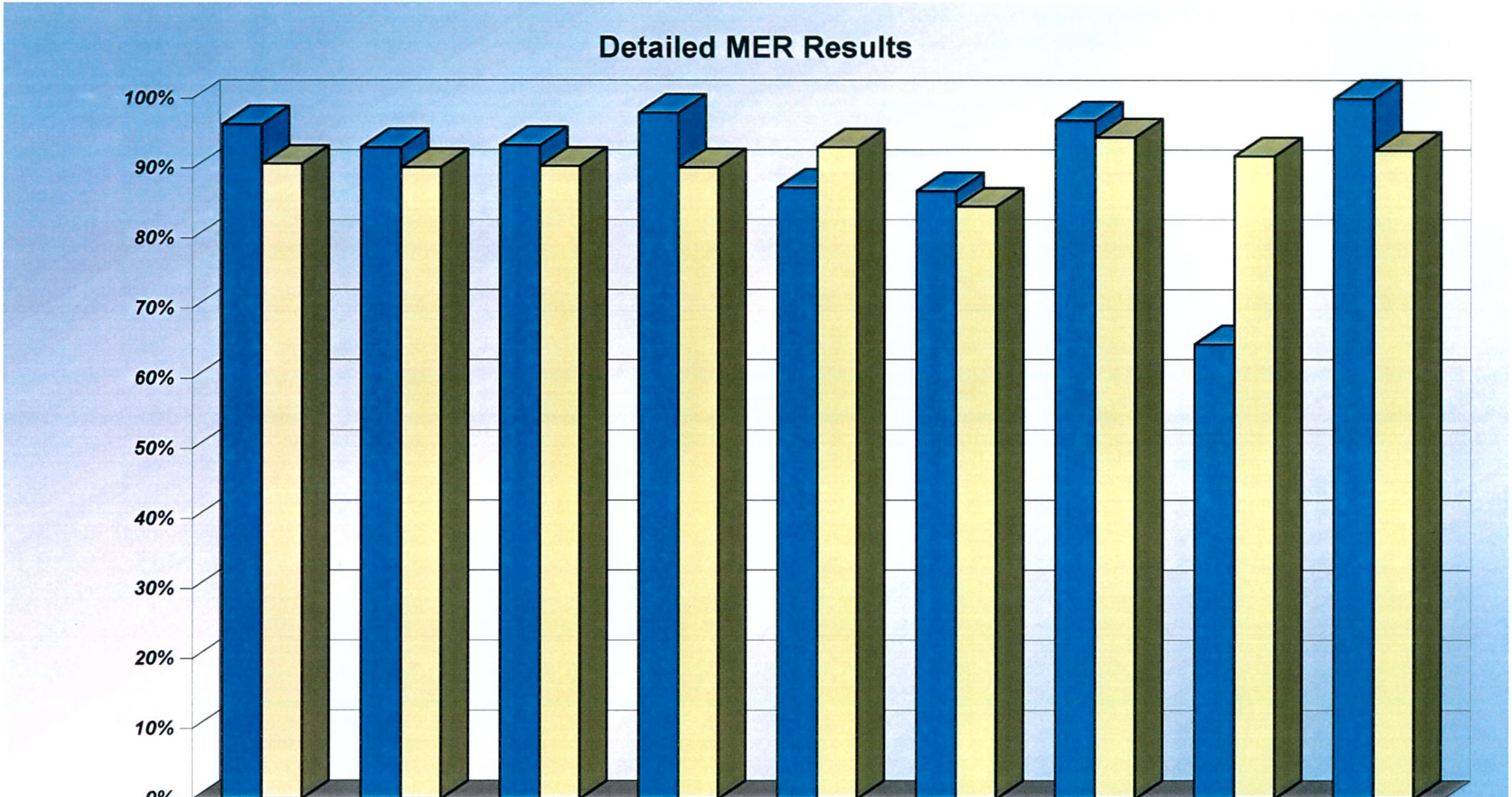
~~Pe913711 - colour Ø42~~

913711 617



	Drilling Equipment	Mud System	Well Control Equipment	Marine Equipment	Power Plant	Electrical Equipment	Safety Equipment	Maintenance System	Spare Parts
OCEAN BOUNTY	90%	75%	91%	85%	72%	85%	87%	6%	100%
Floaters Australia	69%	67%	69%	70%	75%	76%	75%	42%	90%

Chart No.3 ~~Pe 913711 = colour ø 43~~

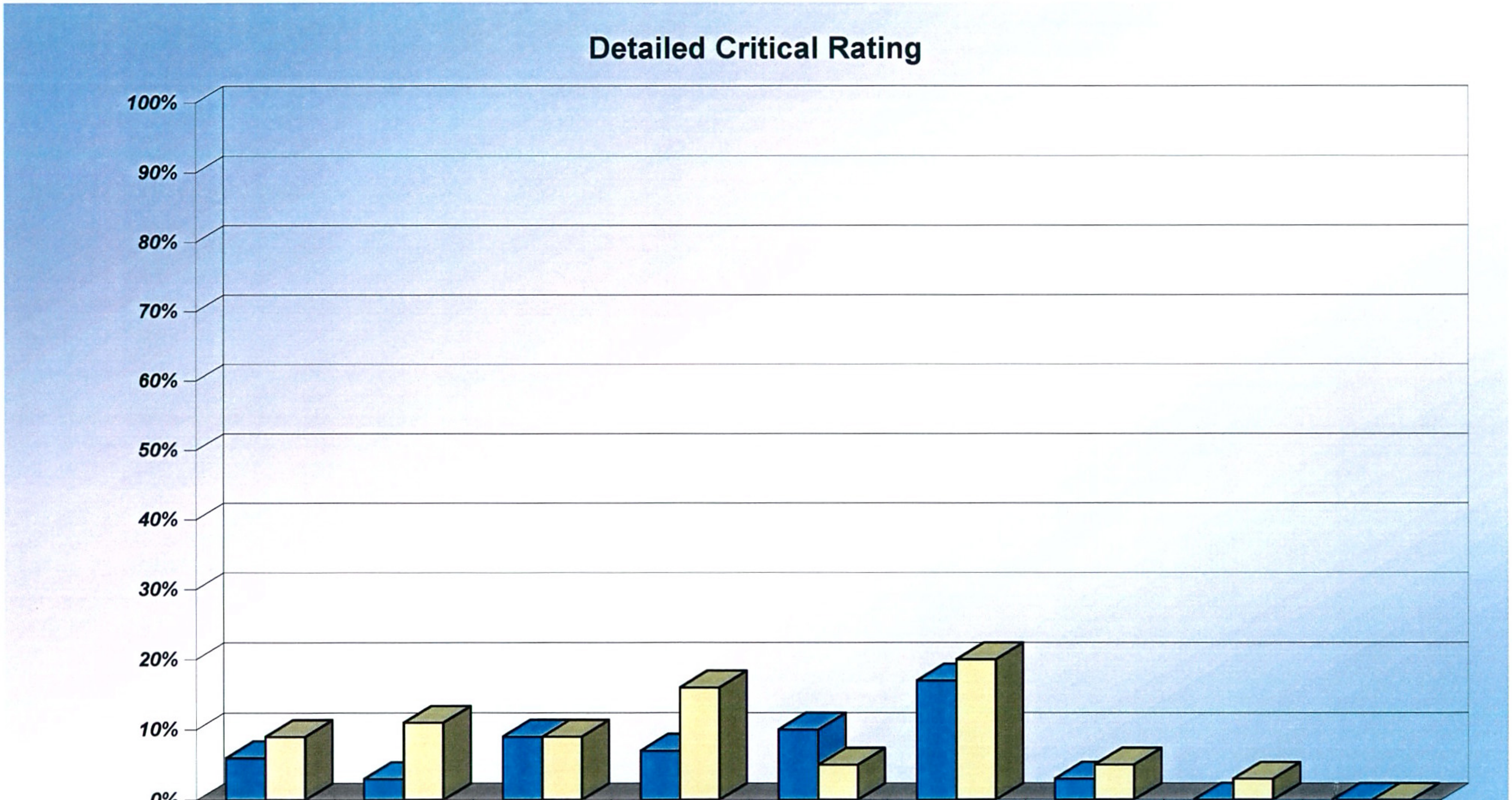


	Drilling Equipment	Mud System	Well Control Equipment	Marine Equipment	Power Plant	Electrical Equipment	Safety Equipment	Maintenance System	Spare Parts
■ OCEAN BOUNTY	96%	93%	93%	98%	87%	87%	97%	65%	100%
□ Floaters Australia	91%	90%	90%	90%	93%	85%	94%	92%	93%

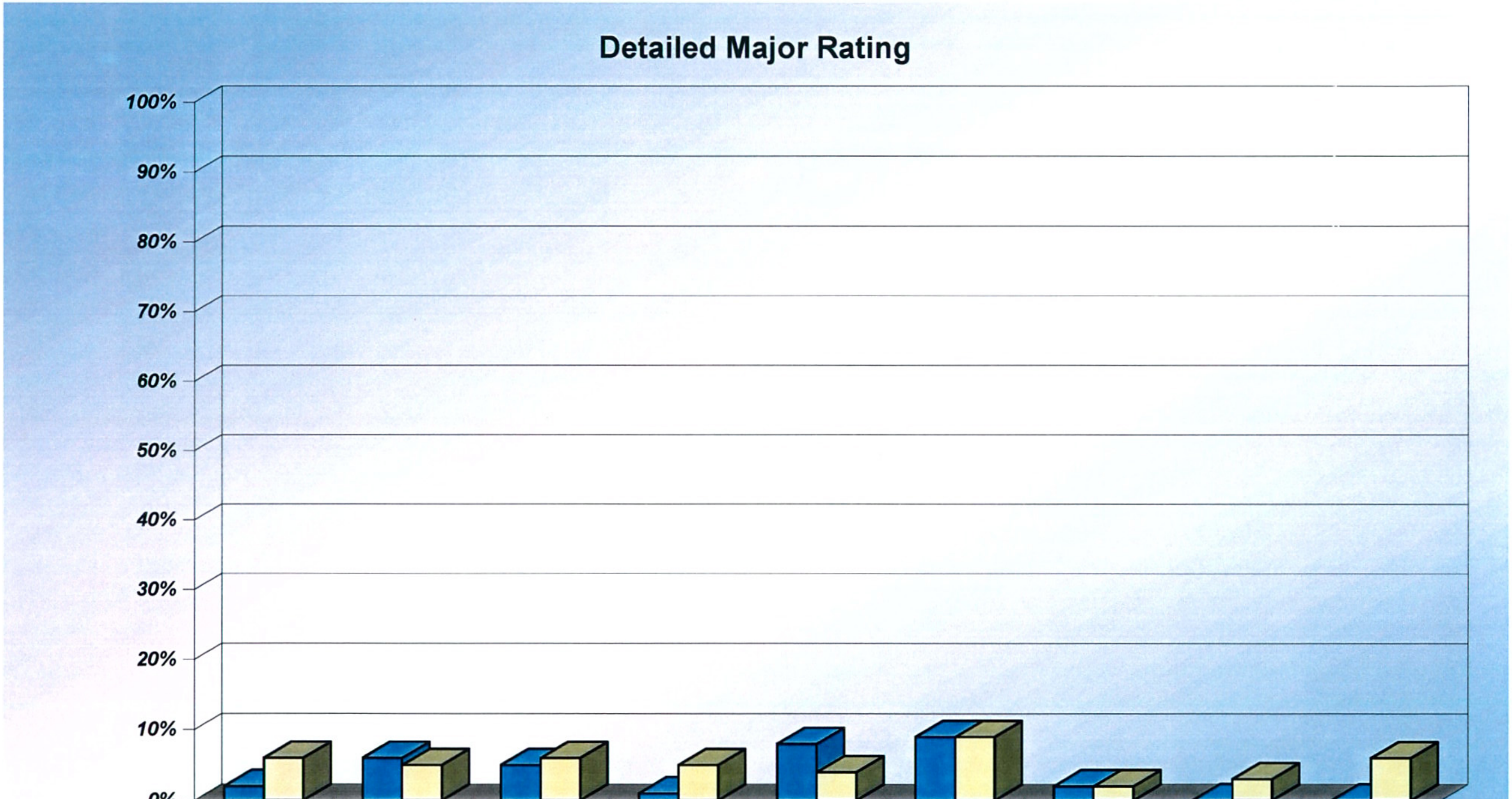
913711 618

~~Re 913711 colour 044~~

913711 619



	Drilling Equipment	Mud System	Well Control Equipment	Marine Equipment	Power Plant	Electrical Equipment	Safety Equipment	Maintenance System	Spare Parts
OCEAN BOUNTY	6%	3%	9%	7%	10%	17%	3%	0%	0%
Floaters Australia	9%	11%	9%	16%	5%	20%	5%	3%	0%

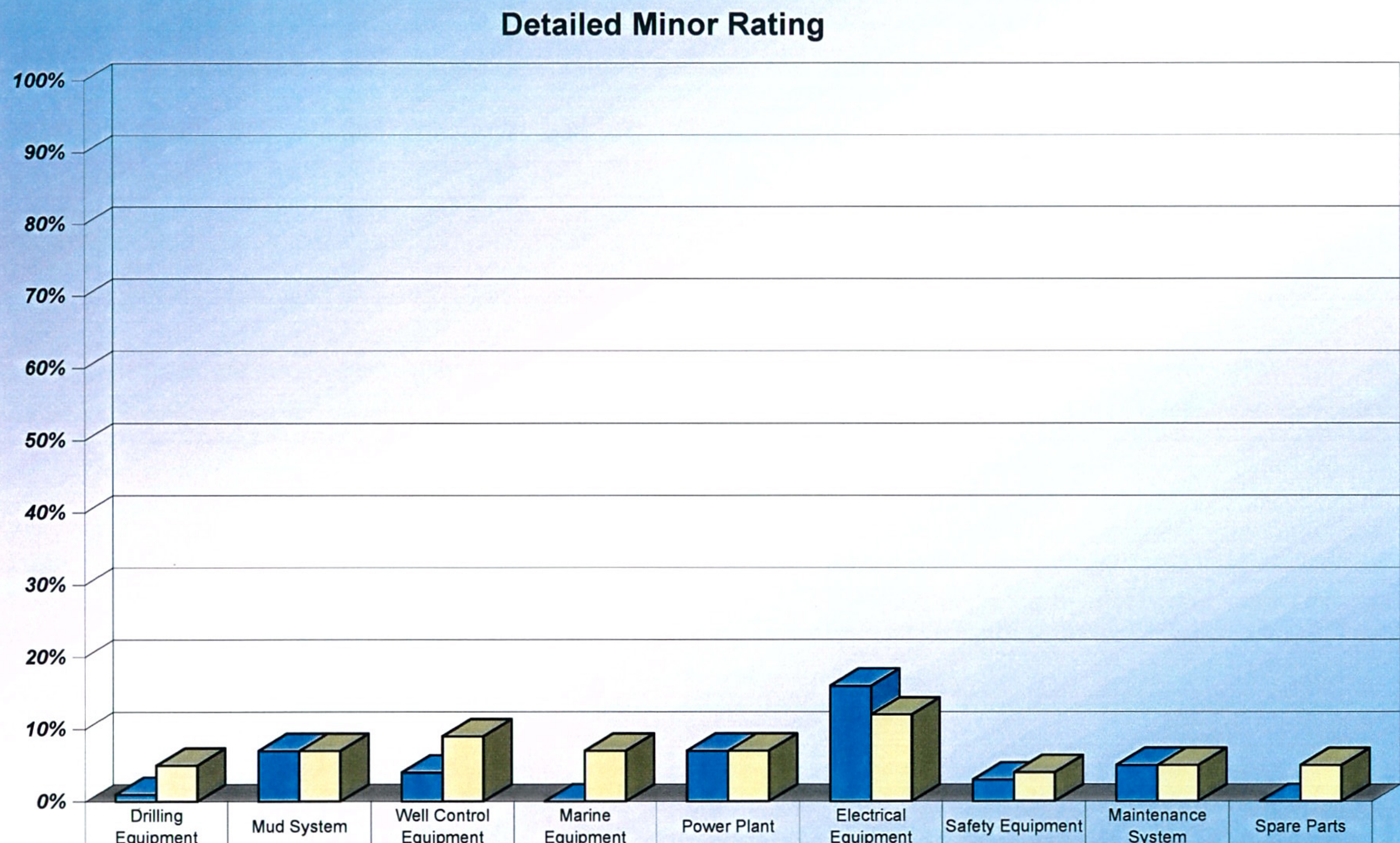


	Drilling Equipment	Mud System	Well Control Equipment	Marine Equipment	Power Plant	Electrical Equipment	Safety Equipment	Maintenance System	Spare Parts
OCEAN BOUNTY	2%	6%	5%	1%	8%	9%	2%	0%	0%
Floaters Australia	6%	5%	6%	5%	4%	9%	2%	3%	6%

913711 620

Pe913711 colour Ø46

913711 621



	Drilling Equipment	Mud System	Well Control Equipment	Marine Equipment	Power Plant	Electrical Equipment	Safety Equipment	Maintenance System	Spare Parts
OCEAN BOUNTY	1%	7%	4%	0%	7%	16%	3%	5%	0%
Floaters Australia	5%	7%	9%	7%	7%	12%	4%	5%	5%

ModuSpec

REPORT OF SURVEY

Semi-submersible OCEAN BOUNTY
(FOLLOW-UP)

Prepared for

ESSO AUSTRALIA PTY LTD
SANTOS
OMV

Melbourne, Australia

By

MODUSPEC INTERNATIONAL (L) LTD

Inspection dates: *25 April – 15 May* 2002

ModuSpec

1.0 TABLE OF CONTENTS

NOTE: The numbering system in this report corresponds with the ModuSpec survey programme and numbers which are omitted apply to equipment which was not reviewed during this survey.

ModuSpec

ModuSpec

913711 627

ModuSpec

2.0 INTRODUCTION

2.1 Rig Data

Vessel	:	OCEAN BOUNTY
Owner	:	Diamond Offshore General Company
Type	:	Semi-submersible
Built	:	1976, MHI Japan
Class	:	Ocean Victory
Classification: ABS		
Performance	:	Water depth 1,500 ft Drilling depth 25,000 ft
Location	:	Dampier, Australia
Inspection dates	:	*25 April – 15 May 2002*
References	:	*JH/HK/js/ - L02-033L*

2.2 Survey Workscope

In accordance with the instructions received, we attended on board the OCEAN BOUNTY to complete a *follow up* survey of the primary drilling equipment, mud system, well control equipment, power plant, electrical equipment, marine equipment. *Sections on safety and spare parts were also added to the report. An EERA analysis was also performed.*

On instructions from the client,the following were also included as Appendices with the report:

- *An Esso Australia Limited Rig Acceptance Checklist*
- *An EERA Emergency Escape and Rescue Analyses Report*
- *An Esso Exhibit G1 Drilling Rig Acceptance Report (completed in conjunction with the other reports)*

The aim of this survey was to determine the present general condition and state of maintenance of equipment, in order to minimize downtime caused by mechanical breakdown during drilling operations and to ensure that the equipment is kept in safe working order.

The audit was conducted in good faith, but the inspection of individual items of equipment was subjected to time and operational constraints imposed by the time of the survey.

2.3 Applicable Standards

The inspection criteria which have been used as reference during this inspection are internationally recognized standards, local legislative requirements, client's safety and operating standards, the original equipment manufacturer's maintenance and operating specifications and accepted oilfield operating and safety practices.

2.4 ModuSpec Equipment Rating

The ModuSpec Equipment Rating (MER) is a unique system to:

- measure the condition of an individual rig,
- compare the inspection results of an individual rig with the industry average for this particular type of rig, worldwide or in a specific area,
- visualize the strengths and weaknesses of an individual rig,
- benchmark the safety and maintenance standards of an individual rig against other rigs or against the results of previous inspections,
- use as a risk analysis tool to proactively prevent accidents and downtime.

The added value of the MER system is that it *visualizes* and *measures* the present condition of a rig and its equipment. The MER allows a direct *comparison* of a rig with other rigs of the same type (jack-ups with jack-ups etc.) located in a predefined area or worldwide.

A series of bar charts representing the inspection results of the rig is included in the final inspection report. These bar charts are only applicable to the scope of work as stated in section 2.2.

The MER is presented as an average figure for the entire rig (chart 1) and for each individual section of the inspection programme (chart 3).

A low MER is an indication that certain steps must be taken, for instance:

1. to address the recommendations made in the report,
2. to effect structural improvements to the maintenance management system,
3. to conduct a recheck after the recommendations made in the report have been addressed.

The following charts are included in the inspection report:

Chart 1: Rig Average Inspection Rating

In comparison with an industry average, this chart shows:

- the percentage of the ModuSpec inspection programme which was completed for the rig,
- the average MER for the entire rig.

Chart 2: Percentage Inspected

This chart shows the percentage inspected for each section of the rig in comparison with the average coverage during an inspection.

<u>Chart 3: Detailed MER Results</u>
This chart indicates how the rig is rated from a maintenance and safety-qualitative point of view, in comparison with an industry average for this type of rig for each individual section of the inspection.

<u>Chart 4: Detailed Critical Rating</u>
This chart shows the percentage of critical non-conformances identified for each section of the inspection programme in comparison with the industry average. This chart is an important indication of the risk to encounter a fatality or serious accident on the rig, and the possibility of environmental damage caused by the rig.

<u>Chart 5: Detailed Major Rating</u>
This chart shows the percentage of major non-conformances identified for each section of the inspection programme in comparison with the industry average. It is an important indication of the risk to encounter major equipment damage and/or operational downtime of the rig.

<u>Chart 6: Detailed Minor Rating</u>
This chart shows the percentage of minor non-conformances identified for each section of the inspection programme in comparison with the industry average. It is an important indication of the risk of lost-time incidents and it visualizes the overall safety and maintenance standards on the rig.

<u>Note</u>: *Charts 4, 5 and 6 indicate the probability for the rig to encounter accidents and operational downtime measured against the industry average. These charts are very important indicators to establish whether or not the rig is capable of operating in a safe and reliable manner.*

Validity of the MER

The MER is valid for the duration of one year after completion of the initial inspection.

If a recheck is conducted and completed within four months after the completion of the initial inspection, only the non-satisfactory and non-inspected items would be checked again. The MER is then valid for all equipment items which were inspected and found satisfactory during the initial inspection as well as during the recheck.

Revalidation of the MER must be completed within a year after completion of the initial inspection. An extension is possible for a maximum of three months after the expiry date so as to establish the revalidation of the MER, provided that:
- the inspection is completed within this three-month period,
- the inspection is requested prior to the initial expiry date.

ModuSpec

Note: The parts written in italics in this report are the findings, status updates and new recommendations resulting from this recheck survey.

3.0 CONCLUSION

The OCEAN BOUNTY was built in 1975. Since its new build, the rig had been upgraded with a number of modifications and improvements to comply with drilling requirements over the years. The major design of the rig had not been altered drastically and retained many of the original design functions.

During the inspection, the rig was between drilling contracts and anchored in the port of Dampier. The main purpose of this survey was to carry out a condition survey of drilling, mud, well control, engine room and electrical equipment. We were to report and catalogue defects in particular as well as compiling the ModuSpec survey recommendations.

At the time of the follow-up, the rig was on tow from Fremantle to Bass Straight. Mud pumps and much of the drilling equipment was partially dismantled for routine maintenance, which facilitated internal inspections, but prevented running of the units.

There was an extensive NDT inspection program in progress and this was to continue for most of the tow. Much of the riser string was not on board the rig but the coming well would be in 50 meter water depth so the main string would not be required.

Generally, the rig was found to be in an acceptable condition with a reasonable level of compliance being attained. The competence levels and good discipline of the crew were assets to the rig.

On the recheck, many of the original recommendations had been completed or necessary steps had been instigated to have the deficiencies corrected.

A number of items would need to be addressed as follows:

Preventive Maintenance System (PMS)
We would recommend that the PMS system be controlled and managed by the rig's chief engineer. As a licensed engineer, he would be in a position to coordinate and upgrade changes that are required in the maintenance system. The chief engineer could also apply for surveyor status from the classification society and carry out NDT inspection training. Both of these items would strengthen the PMS system.

The current maintenance system lacked a programmed approach, critical equipment **was** maintained, for example generators, cranes, mud pumps, air compressors, but equipment that could be vital to the operation of the rig were being neglected.

The level, depth and frequency of maintenance inspections should be upgraded to ensure equipment is fully overhauled within a five-year period.

An audit should be conducted to bring the main equipment list (MEL) fully up to date with **ALL** equipment on the rig being identified and given a unique numbering system. Once the MEL had been documented, each piece of equipment should be given a 5-year maintenance schedule according to the manufacturers guidelines. This should include daily: weekly: monthly: 6 monthly: 1 year and 5 year major overhauls.

We would recommend that a system be put in place to inform shore base management and rig management of the status of all machinery and equipment on the rig each month. (First the MEL should be completed and each item given its unique number)

The legend could be:

Status 1	Good condition, no defects
Status 2	Fair condition, no defects
Status 3	Working but needs repair; waiting for spares, give requisition number
Status 4	Working but needs repair, spare parts on board.
Status 5	Down, waiting for spare parts, give requisition number.
Status 6	Down spares on board.
Status 7	Not in service

Electrical

We tested the rig blackout procedures and operation of the emergency generator and emergency power distribution. All systems operated normally apart from the inability of the emergency generator to achieve a full load (loaded to 400amps and the cycles dropped, indicating overloading, the machine was designed for 535 amps and the switchboard was redlined at 570 amps)

We tested the propulsion system, which operated satisfactorily but the request for an extended load test (to load the main diesel engines to maximum rated power output) was declined because of operational circumstances.

The DC motor megger readings were unacceptably low. The main cause for this could be high humid weather conditions in the offshore location. The installation of heating elements to the motor windings would certainly help with keeping the interior of the motors dry and so raise the insulation resistance values to an acceptable level.

Megger testing needs to be introduced into the Preventive Maintenance System (PMS) for the smaller AC motors. This would assist with ensuring all Exd flamepaths and cable terminals are checked and that the condition of the motor would be suitable for hazardous area operation where required.

The general outdoor lighting levels on the rig would require upgrading. The present level of lighting may have been acceptable at new build but would require a lux level survey, and if found to be deficient, should be improved by installing additional fittings where necessary.

The excessive presence of dust in the MCC switchboards located in the auxiliary machine room raises a concern of the air quality in that area. The replacement of air filters would reduce the dust levels to an acceptable level.

The battery chargers were found to be in an unacceptable condition with the general alarm charger unserviceable at the time of inspection. These chargers were for back-up safety supplies and as such should be kept in top mechanical and electrical condition in order to sustain a high level of confidence in the safety systems in the event of power failure.

The unacceptable condition of some of the electrical equipment in hazardous areas would require critical assessment and attention to bring it up to the standard required. Updating of the hazardous area drawings and equipment register needs to be undertaken.

Well Control

The general impression of the subsea equipment was that it was in good condition and generally well maintained. Information was not easy to find as the subsea engineer on board was not permanent rig staff and unfamiliar with the office records etc. Due to this reason some of the information in the report may not be accurate although great effort was taken to avoid miss-information.

Maintenance records kept in the subsea department files were impressive in their content and the extent of the equipment covered. Items such as shuttle valves, SPM valves manifold valves and failsafe valves were all detailed with last overhaul dates included.

ModuSpec

Spot checks on equipment history in the Orion maintenance system showed that detailed work reports were being recorded in the system.

The major concerns regarding the equipment was corrosion of high pressure pipework and fittings, extensive key seating in the upper annular, scoring on the operating piston and the failure of the Ultra locks on the upper pipe rams.

The Ultra lock problem was solved prior to us leaving the rig.

The riser onboard was also found to have several faults, some would require workshop repair to correct.

A good selection of spare parts and spare reconditioned items were held on board.

The subsea engineer was waiting on a piston for the upper annular, which would be fitted prior to commencing the next drilling program.

The Cameron model 70 wellhead connector was replaced with a Vetco H4 connector. This change was to suit the wellhead program for the upcoming well.

A number of additional readout gauges are required to be fitted to the toolpusher's panel and an indication for "Pump Run' and 'Battery Power On" would need to be shown on both panels to bring the control system into compliance with API Spec 16D.

Calculations indicate that the system would achieve compliance with API Spec 16D for stored accumulator capacity in its present form. The calculations were so close to the limits that an increase in precharge pressure to 1200 psi is recommended This could not be checked as the BOP did not have ram blocks fitted.

Four new accumulator bottles were fitted on the LMRP during the tow.

The diverter overboard lines had short 90 degrees angle bends in them; these bents would cause backpressure and possible blockage during diverting operations.

Two out of four lifeboats would not start without the use of igniting cords, and this was a major concern, as personnel not experienced with this starting procedure would not be able to start the engine.

913711 635

ModuSpec

The helicopter operations/emergency procedures would need to be reviewed. During a foam test on the helideck, the firepumps were stopped by the engine room crew, as water and foam from the helideck was entering the vents in the engine room and equipment in the engine room was deemed to shut down automatically.

The underwater ship was inspected from the drilling draft to the top of the hulls. This area was corroded and no coating was present, the anodes were also in bad condition. We recommend an inspection of the hull and replacement off all anodes.

Particular thanks is extended to the OIM, drilling manager and the crew members of the OCEAN BOUNTY for the assistance rendered to the surveyors during the inspection.

They are also to be commended for the positive manner in which the inspection was received.

MODUSPEC INTERNATIONAL (L) LTD
c/o 1 Bukit Batok Street 22
GRP Industrial Building #03-01
Singapore 659592

Telephone	:	+65 6467 4009
Facsimile	:	+65 6467 4475
Email	:	singapore@moduspec.com
Website	:	http//www.moduspec.com

4.0 LIST OF RECOMMENDATIONS

The recommendations in this report are defined as follows:

Critical Recommendations
Critical recommendations are based on short comings which may lead to loss of life, a serious injury or environmental damage as a result of inadequate use and/or failure of equipment.

Major Recommendations
Major recommendations are based on short comings which may lead to damage to essential equipment or have a detrimental effect on the drilling operation as a result of inadequate use and/or failure of equipment.

Minor Recommendations
Minor recommendations are based on short comings which may lead to a situation that contributes to an incident or to circumstances in which the required standards of operation are not met.

5.0 Drilling Equipment

5.1.1 Drawworks:

Major:

1. Install a drill line spooler in the derrick.
   Status: *Outstanding.*
   The drill line spooler was not required by the contractor and was not installed.

Minor:

2. Grease the drill line.
   Status: *Completed.*
   The drilling line was slipped and cut several times after the first inspection and no obvious defects were noted.
3. Repair the damaged grease line inside the gearbox of the drawworks, as discussed with the driller.
   Status: *Completed.*

Major:

4. *Investigate the problem with the "High" and "Low" side chain and sprockets. The sprockets and chain were worn in an uneven pattern and the chains were pitted. The sprockets were also worn at 3 points.*
   Status: *Parts were on board and the special puller had been ordered.*
5. *Replace the onboard repaired brake linkage with original parts.*
   Status: *Completed.*

5.2.1 Rotary Table:

Minor:

1. Repair the lock dog on the Rotary table.
   Status:: *Completed.*
2. Rectify the vibration on the rotary table vent fan motor
   Status: *Outstanding.*
   Due to sand blast operations, the fan could not be inspected and no reports were available of repairs on the fan.
3. Grease the speed selector shifter on the rotary gearbox
   Status: *Completed.*

5.3.1 Top Drive:

Major:

1. Remove the main shaft from the TDS for full inspection and NDT at the next major overhaul (due at 5,000 hours)
   Status: *Outstanding.*
   Diamond had stated that when the main shaft is up for service, they would install a complete overhauled field spare.
   The time interval is yearly or 3,000 hrs as recommended by Varco and API RP 8B.

Minor:

2. Review the critical list of spare parts held for the rig, consider DC motor, main drive shaft and blower fan motor for the TDS unit to be held as spare.
   Status: *50% Outstanding.*
   A fan blower motor was kept as spare on the rig; the main drive shaft would not be stored.
3. Upgrade maintenance instructions to include: remove main shaft from the TDS unit for NDT inspection annually.
   Status: *Outstanding.*
   Diamond would not include the maintenance upgrade because they would be utilizing the field spare option.
4. Rectify the defective paint coating of the hydraulic pipelines for the TDS system. Steel pipelines were suffering major corrosion damage.
   Status: *Completed.*
   All pipe work on the pipe handler on the Top-Drive was made of stainless steel.

5.7.1 Crown Block:

Major:

1. Change out the bearings (as planned) on the fast line sheave.
Status: Completed.
The outher fastline sheave bearings were changed out on 21 April 2001.

5.11.1 Derrick:

Critical

1 Install safety wire through all sheaves in the derrick.
Status: Completed.

Major:

2. Prepare a paint survey by a 3rd party contractor. Paint protect the derrick. Rectify any corrosion defects first.
Status: Outstanding.
3. Inspect at every ladder clamp, from the rig floor to the monkeyboard for signs or indications of corrosion. Clamps should be removed from the structure and if wasted +10%, replaced.
Status: Completed.

Minor:

4. Install secondary locking nuts on the dead line sheave jumper bar fixing bolts. Also install locking nuts on other bolts on sheave jumper bars at the crown.
Status: Completed.
The nuts were locked in place with locking wire.
5. Replace safety wires and slings around all sheaves in the derrick that did not comply with the latest colour code. Replace with safety wires that had a current colour code (blue) Feb 2002
Status: Completed.

5.12.1 Casing Stabbing Board:

Critical:

1. Replace/repair the automatic air shut off switch at the top of the casing stabbing board.
Status: Completed.
The system had been changed to a manual emergency shut-off system.

Major:

2. Replace the two plastic aligning rollers at the top of the casing stabbing board
   Status: *Outstanding.*
3. Repair the non-functioning hand brake on the casing stabbing board.
   Status: *Completed.*
   The foot break and the automatic brake on the winch were tested and found to be satisfactory.
4. Service the two sheaves, one at the top and one at the basket.
   Status: *Completed.*

Minor:

5. Install remote grease points for the sheaves of the casing stabbing board. (Sheaves should be on the annual inspection of critical lifting gear.)
   Status: *Completed.*

5.13.1 Tuggers and Sheaves/Man-Riding Winches:

Major:

1. Adjust the pressure on each tugger winch according to the winch manufacturers recommendations. Lock the regulator after setting to prevent overload.
   Status: *Completed.*
2. Service the manual brakes of the drill floor man-rider tugger winches. Inspect for corrosion at the back of the lining material.
   Status: *Completed.*

Minor:

3. De-scale the brake bands of the moonpool tugger winches, service the brakes and inspect for corrosion at the back of the lining material. Corrosion would bust the rivets securing the lining.
   Status: *Completed.*

5.14.1 Survey Line:

Critical:

1. Install a mechanical guard for the survey line operator.
   Status: *Outstanding.*
   We discussed with the mechanic and he was to install the guard.

Minor:

2. Reeve out the wire off the wireline unit, reeve in and protect the wire with preservative. Protect the wire on the drum with a canvas shroud.
   Status: *Outstanding.*

5.15.1 Pipe-Spinning Wrench:

Major:

1. Replace the pipe spinning wrench with an air-operated unit with greater torque and reliability. (Or return the current hydraulic powered model to full original condition of torque and reliability)
   Status: *Outstanding.*
   The spinner was kept on the roof and no action had been taken to rectify the problem.

5.18.1 Iron Roughneck:

Minor:

1. Carry out a major inspection / overhaul of the Iron Roughneck once the unit had been returned back to service after the recent failure. Investigate the reason of failure. Use Varco acceptance criteria to ascertain make up/break out torques, speed spin settings, roller tolerances etc.
   Status: *Completed.*
   The unit was test run and all functions were satisfactory.
   One spinner motor was removed to be replaced.

Major:

2. *Install the missing spinner motor.*

5.19.1 Pipe-Racking System:

Major:

1. Replace the hydraulic hoses to the racking arm with ones that are the correct length to prevent damage.
   Status: *Outstanding.*
2. Replace the damaged piping support bracket on the hydraulic supply pipework.
   Status: *Outstanding.*

5.20.1 Drill String:

Major:

1. *Do not store equipment on top of pipe.*

5.21.1 Drilling Subs:

Major:

1. *Make sure that prior to use, the subs are inspected and certified.*

5.23.1 *<u>Power Tong:</u>*

Major:

1. *Store the unit at a location that is out of the weather, as it is not used for long periods of time.*
2. *Paint the handles, the safe areas for fingers and hands a different collar than the unit.*

6.0 Mud System

6.1.1 Mud Pumps:

Major:

1. Inform National Oilwell of the main bearing clearance readings (0.0015") in mud pump No.1 and mud pump No.2.
   Status: 50%
   The information had been forwarded to the Diamond and National office.
2. Mud pump No.1. Remove studs and bolts on the HP mud manifold at the mud pumps to check for necking due to corrosion. 1) Pump discharge flange: The studs had been recently replaced but corrosion was starting to settle. High pressure clean to remove rust and spray with preserving coating. 2) Pressure indicating flange: studs should be removed and inspected for necking, renewed if necessary. 3) Blank flange, flange studs were new and coated with grease. 4) Outlet flange: studs should be removed and inspected for necking, renew if necessary. 5) Pulsation damper flange: studs were new but corrosion was starting to settle. High pressure clean to remove rust and spray with preserving coating.
   ***Status:** Completed.*
3. Mud pump No.2. Remove studs and bolts on the HP mud manifold at the mud pumps to check for corrosion and necking. 1) Pump discharge flange: inspect for necking. 2) Blank flange, ok, studs had recently been replaced and had been greased. 3) Pressure indicating flange: ok, studs had recently been replaced. 4) Outlet flange: inspect for necking. 5) Pulsation damper flange: inspect for necking
   ***Status:** Completed.*
4. Mud pump No.2. Install a relief valve into the LP pressure side of the mud pump suction manifold.
   ***Status:** Completed.*
5. Mud pump No.3. Remove studs and bolts on the HP mud manifold at the mud pumps to check for corrosion and necking. 1) Pump discharge flange: ok, studs had recently been replaced and had grease coating. 2) Blank flange: ok, studs had recently been replaced and had been greased. 3) Pressure indicating flange: inspect for necking.4) Outlet flange: studs had recently been replaced but corrosion was starting to settle. High pressure clean to remove rust and spray with preserving coating. 5) Pulsation damper flange: inspect for necking.
   ***Status:** Completed.*
6. Mud pump No.3. Install a relief valve into the low-pressure side of the mud pump suction manifold.
   ***Status:** Completed.*

6.2.1 Shale Shaker:

Major:

1. Deep clean the electric motors of the shale shaker remove hard packed mud from the cooling ribs. Inspect the construction and check for degree of corrosion penetration (motor was an AC ex motor). Coat the motors with a corrosion preventative or replace if wastage is found.
   Status: *80%*
   The job was in progress during this survey.

Minor:

2. Replace corroded spring mounts on shale shaker No.4. Remove remaining springs and wire brush, then coat with grease before reinstating.
   Status: *Completed.*
3. Carry out a ventilation check in the shale shaker house during drilling operations. Ascertain that airflow is acceptable to ensure both cooling and fume/heat/moisture/gas extraction is sufficient.
   Status: *Completed.*

6.7.1 Centrifugal Pumps:

Minor:

1. Remove the cooling fan shrouds on the electric motors of the supercharge pumps. Check the fans and ensure free airflow. Corrosion flakes and corrosion sheets could be seen obstructing airways.
   Status: *Completed.*
2. Check the impellor clearances of brake cooling water pump No.1. Running electrical load in amps was unchanged when the discharge valve was closed.
   Status: *Outstanding.*
   No investigation was done.
3. Upgrade maintenance instructions to include running test of the centrifugal pump once per month. Run pump with open suction and discharge valves with a known fluid density, record load in amps and pressures. Close discharge valve and record load in amps and discharge pressure. Ascertain difference in amps and therefore wear of the pump impellor/casing/discharge valve.
   Status: *25%*
   The information was forwarded to the Diamond office,as they were the only ones that can change the software on the maintenance system.

6.9 Mud Mixing System:

Critical:

1. Install safety valves into the bulk hoppers in the sack store.
   Status: *Outstanding.*

Minor:

2. Remove any build up of mud or scale from inside the hopper tanks in the sack store.
   Status: *Completed.*
3. Discourage the use of mallets to settle bulk powder in the hopper tanks.
   Status: *Completed.*
4. Ensure pressure gauges are installed and working on the hopper tanks.
   Status: *Completed.*

6.10.1 Standpipe Manifold and Rotary Hoses:

Major:

1. Remove manifold securing clamps and check for corrosion behind.
   Status: *Completed.*

6.11.1 Bulk Air System and Tanks:

Major:

1. Certify the safety valves on the bulk air system by independent 3rd party contractors.
   Status: *Completed.*
   The valves would be brought to shore to be recertified, and the valve had been implemented in the PM system.
2. Install earth bonding between the rubber hoses on all bulk tank purge and transfer lines.
   Status: *Outstanding.*

Critical:

3. *The safety valves would to go on top of all the tanks including daytanks on the deck. The vent side would also have to be routed to a safe area.*

7.0 Well Control Equipment

7.1.1 Ram-Type BOPs:

Major:

1. Flush all functions with a proper Stack Magic mix.
   Status: *Completed. All functions and pod reels had been isolated prior to lowering the Stack Magic concentrations. Concentrations had been re-established and isolations removed.*
2. Ensure ram operator seals are replaced 3 yearly as per Shaffer PM manual Sect 1.
   Status: *Outstanding. Shear rams were the only outstanding set to have elastomers replaced. This would be conducted during tow to Bass Strait. This was tested in February 2002.*
3. Purchase updated hydraulic torque equipment for the BOP bonnets. Better and safer equipment is now available.
   Status: *New units of the same brand were on order.*

Major:

4. *Schedule changeout of upper ram double to eliminate worn sealing area in ram cavities*

7.2.1 Annular-Type BOPs:

Major:

1. Remove upper annular and had key seating and seal area scoring and pitting repaired as soon as possible.
   Status: *Outstanding. A new piston was due on board and would be fitted together with new seals, for the next well.*

Minor:

2. Contact Shaffer about the condition of the upper annular element, it might be worth sending back for analysis.
   Status: *Completed. The element was tested in the stack to 2,500 psi. Satisfactory.*

7.3.1 Gate Valves:

Major:

1. Pressure test failsafe valves from above, prior to running the BOPs.
   Status: *Completed. Planned for completion during tow.*

ModuSpec

7.4.1 Choke and Kill Manifold:

Critical:

1. Install a relief valve down stream of the regulator on the back up air supply to prevent APV pressure being applied to low-pressure air fittings and equipment in the event of regulator failure.
   Status: *Completed.*

Major:

2. Identify the gauge on the top of the choke control panel. This was believed to be kill line pressure.
   Status: *Completed*
3. Identify gauge at manual choke position believed to be drill pipe pressure.
   Status: *Completed*

Critical:

4. *Correct corrosion to all flanges on choke and kill lines below the drillfloor; in particular, the flange close to flowline diverter valves as shown in the photograph. This would be done during general rig maintenance.*

7.6.1 BOP-Handling Equipment:

Major:

1. Have the crane hoists, travelling sheaves and lifting blocks NDT inspected annually at the lifting gear inspection.
   Status: *Completed. New wires had been fitted and NDT inspected as at 27 April 2002.*
2. Replace the hydraulic winch supply and return hoses.
   Status: *Oustanding. The hoses were on order and would be fitted on arrival.*

Major:

3. *Serious consideration should be given to fitting limit switches on both transverse travel and upper hoisting extents.*

7.7.1 BOP Hydraulic Power Unit:

Critical:

1. Install 3,300 psi relief valves to the air pump high pressure outlets. API Spec 16D Sect 2.2.2.3
   Status: *Completed. Air pumps supplied a common manifold that was already protected by relief valves on both sides of unit. Further protection would not be required.*
2. Verify that all relief valves are within company specified testing requirements. Have date and pressure detailing labels fitted when next tested.
   Status: *Still outstanding. Parts were onboard.*

3. Install a relief valve down stream of the regulator on the back up air supply to prevent APV pressure being applied to low-pressure air fittings and equipment in the event of regulator failure.
   Status: *Still outstanding.*

Major:

4. Fit a secondary air supply and pressure switch to the back up air pumps to improve their performance.
   Status: *Still outstanding.*
5. Replace the hoses on the triplex pump high-pressure outlet side with hard piping. API Spec 16D Sect 2.2.1.3.
   Status: *Still outstanding.*
6. Repair fluid end leaks on triplex pump No.2.
   Status: *Completed.*
7. Repair fluid leaks at the fluid end body to suction manifold connection on pump No.1.
   Status: *Completed.*
8. Ensure a proper strength fluid mix is circulated throughout the BOP control system.
   Status: *Completed.*
9. *At least one triplex pump should be connected to the emergency switchboard. API RP section 53 12.4.5*
10. *Rework potable and drill water supply to the mix system as discussed in the narrative above.*

<u>Driller's panel.</u>

11. *Supply a pump running light indication for the panel.*
12. *Supply a "Battery Power" light indication for the panel.*
13. *Remove the alarm isolation switch.*
14. *Replace blown light bulbs.*

<u>Toolpushers Panel</u>

15. *Supply a "pump running" light indication for the panel.*
16. *Supply a "battery power" light indication for the panel.*
17. *Supply a "surface accumulator" pressure gauge.*
18. *Supply a "subsea manifold readback" pressure gauge.*
19. *Supply a "subsea annular readback" pressure gauge.*
20. *Replace the blown light bulbs.*

7.8.1 Diverter System:

Critical:

1. Verify that all relief valves are within company specified testing requirements. Have date and pressure detailing labels fitted when next tested.
   Status: *Still outstanding.*
2. *The overboard lines had sharp 90 deg bends. These created backpressure and could cause blockage during diverter operations.*

7.9.1 BOP Control System:

Major:

1. Replace the drive chains on both hose reels.
   Status: *Outstanding. This was not replaced.*
2. Replace the bent pilot hose fittings at the RBQ plates. Three on the blue reel and two on the yellow reel.
   Status: *Completed.*
3. Consider having the remaining pod receptacle packer seal areas that are required for control functions inlaid with stainless steel to prevent future problems.
   Status: *Outstanding. Not planned to be done in the foreseeable future.*
4. Rectify the long response time taken for the upper annular function. The annular should close within 60 seconds of the function being made. It took 80 seconds for the flow to start.
   Status: *Completed. This had been rectified.*
5. Install a hard piped permanent fluid supply to the mini-reel on the drawworks roof so that hydraulic fluid could be supplied to the ROV in as short a time as possible for emergency BOP functions.
   Status: *Outstanding. The mini reel had been decommissioned and was kept only as an emergency backup. A hotline connection would be used if required.*

Minor:

6. Repair the faulty lower annular open light on the remote panels when spare parts are received.
   Status: *Outstanding.*

Major:

7. *Fit replacement subsea accumulator bottle when it has been delivered. There was presently one unit removed from the LMRP.*
   Status: *Completed. All four were replaced.*
8. *Conduct an accumulator bleed down test and verify ability of system to achieve API Spec 16D performance with 1225 psi precharge.*

Minor:

9. *Control air supply hoses were old and kinked flat on both reels. They should have a 90° elbow added at the reel termination and new hoses installed.*

7.10.1 Marine Riser System:

Major:

1. Repair the choke and kill line pin seal areas on joints Nos.8 and 9.
   Status: *Outstanding. This had been sent to town.*
2. Repair the key seating in the pin end of joint No.11.
   Status: *Outstanding. The joints had been sent to town.*
3. Dress the sharp edge on the main pin of joint No.20
   Status: *Completed.*
4. Fit locking grub screws to choke/ kill retaining collars where missing.
   Status: *Outstanding. This was done per operation.*
5. Make up choke/kill retaining collar that had backed out (no joint identification found). Ensure proper end float is achieved.
   Status: *Outstanding. This had been sent to town.*
6. Replace the outdated torque equipment for the connection flange bolts.
   Status: *Outstanding. New units were on order.*

Minor:

7. Quality control of repaired riser should be questioned as one joint had a choke/kill line 1-3/8" longer than the other.
   Status: *Outstanding.*
8. Improve the riser identification method.
   Status: *Completed. The present method was reviewed and found to be satisfactory.*

7.11.1 Flex Joint/Ball Joint on LMRP:

Major:

1. Consider using a flex joint wear bushing to protect the riser adapter, flex joint and annulars from key seating and prevent expensive repairs.
   ***Status:** Outstanding. This had been considered as an option but was not planned at this time. Closer monitoring of the riser angle had been planned.*

7.13.1 Flexible High-Pressure Hoses:

Major:

1. Change out any hoses that had been overdue for their annual inspection.
   ***Status:** Outstanding. One drape hose and one LMRP flexible hose will be changed on the tow.*

7.14.1 Wellhead/Riser Connector:

Major:

1. Re-torque riser connector after pressure testing.
   ***Status:** Outstanding.*

7.15.1 Riser Tensioners:

Critical:

1. Verify that all tensioner and APV bottle relief valves are within company specified testing requirements. Have date and pressure detail labels fitted when next tested.
   ***Status:** Outstanding. One unit remained to be recertified or changed out.*
2. Clean up all high pressure piping and had wall thickness checks carried out to ascertain what remedial action is required.
   ***Status:** Completed 27 Apr 02. Results were satisfactory.*
3. Clean up all corrosion on the tensioner high-pressure accumulators and had wall thickness checks carried out in the deeply pitted areas to verify that wall thickness is adequate for 2,400 psi.
   ***Status:** Completed.*

Major:

4. Plan a piston rod change out program for the tensioner rods that were scored and pitted.
   Status: *Two were completed. One unit was in town for repairs. The balance would follow ASAP.*
5. Replace the badly corroded bolts in the APV isolation valves.
   Status: *DODI had planned to change valves, bolts and flanges. This would involve cutting out pipe sections and rewelding flanges. This would be completed as operations permit.*
6. Replace the badly corroded studs in the flanges between the tensioner cylinders and the high pressure accumulator bottles
   Status: *Completed.*
7. Replace the pigtails that connect the riser tensioner wires to the slip joint as they were heavily corroded.
   Status: *Completed.*

Minor:

8. Replace the wiper seal on tensioner No.8.
   Status: *Completed.*

Critical:

9. *Fit pipework to relief valve discharges on most APVs to ensure that personnel could not be effected by any high-pressure discharge.*

Major:

10. *Investigate and correct, as required, the apparent bent fitting on the tensioner relief valve.*
11. *Address severe corrosion on pipework and valves on guideline tensioner system below drillfloor; in particular, on the aft side of the moonpool.*

7.16.1 Guideline and Podline Tensioners:

Critical:

1. Have wall thickness checks carried out on the tensioners and related pipework.
   Status: *Completed.*

Major:

2. Replace tensioner No.4's rod.
   Status: *Completed.*

3. Replace the badly corroded bolts in the APV isolation valves.
   Status: *Outstanding. DODI had planned to change valves, bolts and flanges. This would involve cutting out pipe sections and rewelding flanges. This would be completed as operations permit.*
4. Verify that all tensioner and APV bottle relief valves are within company specified testing requirements. Have date and pressure detailing labels fitted when next tested.
   Status: *Completed.*

7.17.1 Drill String/Crown Block Compensator:

Major:

1. Plan for changing out the piston rods, as the damage on the sealing surfaces would lead to sealing problems.
   Status: *Outstanding. Packers have been changed. Rod change had been scheduled for the next PM. This would be done during the 5 yearly inspection.*
2. Remove and clean the oil level sight glasses on the air/oil accumulators.
   Status: *Completed*

8.0 Marine Equipment

8.1.1 Ballast and Bilge System:

Minor:

1. Rectify leaking shaft seals of all ballast pumps.
   Status: *Outstanding. No change. The pumps were checked twice a day and adjusted as required.*
2. Rectify leaking shaft seals of the seawater service pumps (mission pumps) in the pump rooms.
   Status: *Outstanding. No change. The pumps were checked twice a day and adjusted as required.*
3. Repair the corroded undersides of the ballast pump electric motors.
   Status: *Outstanding. This was in progress*

8.2.1 Overflow and Vent Checks:

Major:

1. Remove the damaged fuel tank vent heads around the main deck. Carry out maintenance; replace damaged stainless steel gauze. Replace security bolts and return to service.
   Status: *Completed.*

Minor:

2. Remove vent heads from ballast tanks and voids. Carry out maintenance. Check for corrosion weakening of internal components and ball float/ wooden cone seating integrity. Check vent pipe for corrosion weakening at clamps and hangers. After maintenance, return to service.
   Status: *Outstanding.*
3. Stencil in bolt hi-intensity marking the identification, location and contents of the vent head.
   Status: *Outstanding.*

8.3.1 *Watertight Integrity of Horizontal Tubulars:*

Critical:

1. *Perform a hull survey to determine the hull corrosion level, and reinstate the missing and worn out anodes. Recoat the underwater ship*

8.4.1 Mooring System:

Major:

1. Remove scale from the brake drums of each mooring winch.
   Status: *Outstanding.*

Minor:

2. Grease rotating slider clutches before mooring operations.
   Status: *Completed.*
3. Replace corroded and wasted machinery guards from below the mooring winches.
   Status: *Outstanding.*
4. Repair the defective coupling from the starboard side winch.

Major:

5. *Check the alignment of the pinion shaft on anchor winch Nos.5 and 6. The shafts appeared to be out of alignment or a shaft may be bent.*
   Status: *Completed.*

ModuSpec

9.0 Power Plant

9.1.1 Diesel Engine:

Minor:

1. Perform load testing of each of the main diesel engines monthly. Report the findings to shore base. Rectify any deficiencies that may restrict full power output.
   ***Status:** Outstanding.*
   Load testing was not on the PM and therefore not in the history files. Every 1000 hours, it is done as part of the 1000 hr service.
2. Replace the defective exhaust pyrometers on the main engines. (No.3)
   ***Status:** Outstanding.*
   The exhaust pyrometers on the main engines were replaced, but the replacements failed after three days.

9.2.1 Emergency Generator Set:

Critical:

1. Investigate emergency generator lack of 100% power. Conduct a power test after rectifying the defect.
   ***Status:** Completed.*
   The fuel filters were found to be faulty and were replaced.

Minor:

2. Replace the cooling water hoses at some future maintenance period. (Original items were showing signs of hardening and deteriation due to heat and age.)
   ***Status:** Outstanding.*
   The hoses were on order.
3. Remove all paint from the mechanical linkage of the shutdown system: grease the linkage.
   ***Status:** Completed.*
4. Post a single line diagramme in the emergency generator room at the switchboard.
   ***Status:** Completed.*
5. Replace the labels on the circuit breakers at the emergency switchboard.
   ***Status:** Completed.*
   The existing brass labels were taken off, cleaned and replaced.

ModuSpec

9.3.1 Air Compressors/Air System:

Major:

1. Test and recertify the air system relief valves.
Status: Completed.
The valves were integrated in the PM system, and were sent ashore every two years for recertification.

Minor:

2. Remove the guards and deep clean the air cooler coil on the emergency air compressor.
Status: Completed.

9.4.1 Refrigerating and Air-Conditioning:

Minor:

1. Housekeeping should be carried out in the accommodation fan room.
Status: Completed.
2. Plan a deep clean of the ventilation trunking in the accommodation. Cabin entry louvers were showing build up of dirt.
Status: Outstanding.
This recommendation was not addressed at this time.

9.6.1 Crane and Power System:

Major:

1. Grease the emergency stop linkage on the starboard forward crane. Check bolts for security, this was fretting due to vibration and a lack of lubrication could cut through the steel.
Status: Completed.

Minor:

2. Service the diesel engine on the starboard forward crane. The exhaust was black.
Status: Completed.
3. Remove the wind speed indicator and the red aircraft warning light from the starboard forward crane. Corrosion had weakened the security fasteners. Replace with new fixings.
Status: Completed.
4. Carry out housekeeping in the starboard aft crane engine compartment and remove obstructions from the driver's escape door. Paint protect the hydraulic pumps and steel piping.
Status: Completed.

913711 657

ModuSpec

9.7.1 Watermaker:

Minor:

1. Renew gaskets on the outboard Alfa Laval watermaker jacket water inlet pipe.
   Status: *Completed.*

9.9.1 Reduction Gearbox:

Minor:

1. Protect the foundation seating bolts from corrosion on both propulsion units.
   Status: *Outstanding.*

10.0 Electrical Equipment

10.1.1 Elmagco Brake:

Critical:

1. Replace the battery charger unit.
   Status: *Outstanding. The charger had been ordered and was waiting on delivery.*

Major:

2. Replace the standby cooling water pump starter.
   Status: *Outstanding. In progress.*
3. Test the cooling water temperature sensor.
   Status: *Completed.*

Minor:

4. Cut the floor plates at the Elmagco brake to allow removal of the lowest access plugs for gap measurement readings.
   Status: *Outstanding.*

10.2.1 Main Generator:

Minor:

1. Clean generator No.6 DC to return resistance readings to acceptable levels.
   Status: *Outstanding. DOGC had planned a routine change-out of the generator.*

10.3.1 Main Transformer (Three-Phase):

Major:

1. Perform a thermographic survey on all transformers.
   Status: *Outstanding. These surveys were an annual PM and were due to be conducted in June. They would be scheduled during drilling operations and consideration would be given to conducting them at a time when maximum drilling load would be in use.*

Minor:

2. Rectify the earth fault on the load consumer side of the auxiliary machine room lighting transformer.
   Status: *Outstanding. Investigation revealed more than one fault and remedial work was still in progress. Significant progress had been made.*

10.4.1 Converters (SCR and Variable Frequency):

Major:

1. Conduct a thermographic survey of the SCR panel.
   Status: *Outstanding. These surveys were an annual PM and would be due to be conducted in June. They would be scheduled during drilling operations and consideration should be given to conducting them at a time when maximum drilling load is in use.*

10.5.1 Main Switchboard:

Major:

1. Conduct a thermographic survey of all switchboards.
   Status: *Outstanding. These surveys were an annual PM and would be due to be conducted in June. They would be scheduled during drilling operations and consideration should be given to conducting them at a time when maximum drilling load is in use.*

10.6.1 Emergency Switchboard:

Major:

1. Conduct a thermographic survey of the switchboard.
   Status: *Outstanding. These surveys were an annual PM and would be due to be conducted in June. They would be scheduled during drilling operations and consideration should be given to conducting them at a time when maximum drilling load is in use.*
2. Install insulating matting around the switchboard.
   Status: *Completed.*

Minor:

3. Replace the illegible identification labels on the emergency switchboard.
   Status: *Completed.*
4. Install a laminated single line diagrams at the emergency switchboard.
   Status: *Completed.*
5. Install red line markings on the generator ammeter at the emergency switchboard. Install a kilowatt meter at the emergency switchboard
   Status: *Completed.*

ModuSpec

10.7.1 DC Motors:

Critical:

1. Replace the defective heating elements in the DC motors in all hazardous areas.
Status: Outstanding. Replacement units were being sourced.

Major:

2. Replace the cable glands on mud pump No.1 supply cable and replace the gland plate.
Status: Outstanding.

Minor:

3. The air pressure sensor piping to mud pump No.3 would require more support on the cable ladder. Re-routing the pipe onto the cable ladder and securing should be sufficient.
Status: Completed.
4. Ensure that nameplate details of all motors in hazardous areas are legible.
Status: Outstanding. Motors that had illegible nameplates should be removed from service and returned to an approved repair facility for inspection, repair as required and replacement of all required I/D plates.

10.8.1 AC Motors:

Critical:

1. Remove paint sealing Exd terminal box covers on agitator motors in the mud pit room.
Status: Completed.

Minor:

2. Ensure the nameplate of the motors in the mud pump room are legible. It is a requirement for motors in a hazardous area to have clearly legible nameplate showing serial number, size rating and type of Ex protection.
Status: Outstanding. Any explosion proof motors without correct plates should be removed from service and either replaced or sent to an approved repair facility for inspection, repair (as required) and re-attachment of I/D plates.
3. Upgrade the maintenance instructions for AC motors to cover ALL motors on the rig.
Status: Outstanding. In progress.

10.9.1 Motor Control Centres:

Major:

1. Conduct a thermographic survey of all MCCs.
   ***Status:** Outstanding. These surveys were an annual PM and would be due to be conducted in June. They would be scheduled during drilling operations and consideration should be given to conducting them at a time when maximum drilling load is in use.*
2. Carry out injection testing to motor starter overloads.
   ***Status:** Outstanding. Have this included in maintenance routines. This was not done at this time.*
3. Clean interior of all MCC starters.
   ***Status:** Completed.*

10.10.1 Lighting System (Main):

Major:

1. Carry out a full and extensive survey of all exterior areas using a Lux level light meter.
   ***Status:** Outstanding. Have the safety department conduct the survey and have additional lighting installed as required. This was not done at this time.*
2. Clean internals of rig floor lighting distribution board 1-L5-02.
   ***Status:** Completed.*
3. Clean internals of all lighting distribution boards.
   ***Status:** Outstanding. In progress.*
4. Replace circuit breakers Nos.7, 9 and 11 in rig floor lighting distribution board 2-L5 and investigate heat discolouration on the white phase of the supply cable.
   ***Status:** Completed.*

10.11.1 Lighting System (Emergency):

Major:

1. Install additional battery operated emergency escape lighting in the moonpool.
   ***Status:** Outstanding. Still in progress.*
2. Replace faulty lamps in emergency battery lighting where required.
   ***Status:** Completed.*
3. Install additional battery lighting at the top of stairways in the accommodation.
   ***Status:** Completed.*

Minor:

4. Install emergency battery lighting at the CO_2 station.
   ***Status:** Outstanding. Still in progress.*

10.12.1 Electrical Outlets:
Major:

1. Provide means of earth-leakage protection to electrical power outlets.
   Status: *Outstanding. To date, no protective device had been located but further investigation was still in progress.*

10.13.1 Cables and Cable Trays:
Minor:

1. Ensure all individual cables are properly supported.
   Status: *Completed.*

10.14.1 Batteries, Chargers and UPS:
Critical:

1. Replace all battery chargers.
   Status: *Outstanding. This had been planned and was awaiting approval.*

10.15.1 Alarm Systems: Fire, Gas, General, Flooding:
Critical:

1. Ensure all gas detectors are calibrated and tested.
   Status: *Completed. This was a monthly PM.*

Major:

2. Install audible alarms for gas in the gym.
   Status: *Completed.*

10.16.1 Navigation Lights and Foghorns:
Critical:

1. Rectify fault on navaids (navigation lights).
   Status: *70% completed and was ongoing.*

10.20.1 Earthing and Earth Bonding:
Major:

1. Repair the earth bond cables at drawworks motor A terminal box.
   Status: *Completed.*

ModuSpec

10.21.1 Hazardous Areas:

Critical:

1. Replace all DC motor heater elements and cable connectors in Hazardous areas.
   Status: *Outstanding. This was on order.*
2. Replace Exd rated light fitting adjacent to mud pump No.3.
   Status: *Completed.*
3. Replace Exd lighting junction box above mud pump No.3.
   Status: *Completed.*
4. Replace or remove all corroded lighting junction boxes and filler boxes in all hazardous areas.
   Status: *Outstanding. In progress.*
5. Clean flamepaths on Exd motor terminal boxes.
   Status: *Completed.*
6. Replace corroded shaker motor terminal box cover bolts.
   Status: *Completed.*
7. Replace corroded Shaker motors. See photo.
   Status: *Completed.*

Major:

8. Compile an updated hazardous area register.
   Status: *Completed. See operations manual.*

Minor:

9. Update P&ID drawings of the hazardous zones, indicating equipment located within the spaces.
   Status: *Completed.*

10.22.1 Miscellaneous Items:

Major:

1. Repair the UV sterilizer.
   Status: *Outstanding. This was awaiting delivery of parts.*

Minor:

2. Update planned maintenance instructions, daily inspect the potable water pumps and heaters and UV sterilizers. Check for operation, heating elements are without earth fault, and that the UV sterilizer is operable.
   Status: *Outstanding. In progress.*

11.0 Safety

11.1.2.1 <u>CO_2/Halon System for Fire Control:</u>

Major:

1. *The cement unit diesel engine room would have to be included in the system.*

11.1.3.1 <u>Fixed Fire-Extinguishing Systems:</u>

Major:

1. *Flush the system from each hydrant and have this on the PM system.*
2. *Change over from saltwater to potable water on the sprinkler system as per Solas II-2 Regulation 12.*

11.1.5.1 <u>Foam System for Heli-Deck:</u>

Critical:

1. *Review the procedures for helideck fire fighting regarding the interference with engine room and authority to start and stop the fire pump.*

Major:

2. *Install a foam level indicator.*

11.2.1.1 <u>Lifeboat:</u>

Critical:

1. *Completely remove all corrosion from the davit structure, MPI all welds and padeyes.*
2. *Inspect and MPI all hooks for the boats.*
3. *Repair/overhaul/modify engines so they could start without the aid of starting cords or gas.*

11.2.3.1 <u>Escape Routes:</u>

Critical:

1. *Overhaul the staircase and ladder.*
2. *Repaint the badly painted walkway sections on the decks (the yellow lines).*

11.3.1 <u>Flammable-Gas Detection:</u>

Major:

1. *One extra portable detector had to be added to the rig to comply with MODU Code 9.4.*

ModuSpec

11.4.1 Helicopter Operations:

Critical:

1. *See Section 11.1.5.1 Foam System for Heli-Deck for further recommendations.*

Major:

2. *Investigate the integrity of net support and rectify.*
3. *Coat the emergency escape ladder.*

11.6.1 First Aid and Sickbay:

Minor:

1. *Install a bath in the sick bay.*

11.7.1 Emergency Procedures Manual:

Critical:

1. *Review the helicopter emergency crash procedures. (See foam system for helideck.)*

11.8.1 Lifting and Handling:

Major:

1. *Enter all drillfloor equipment in the liftinggear inspection book (slings, elevators etc.)*

11.10.1 Pollution Control:

Major:

1. *A more vigilant programme should be set up to promote the pollution policy.*

12.0 Maintenance System

12.2.1 Preventive Maintenance:

Minor:

1. Implement a system of non-conformance reports from the rig to shore base management.
   ***Status:** Completed.*
   A system of non-conformance was in place in the onboard PM system.
2. Implement a system for to inform maintenance management at shore base the condition of equipment each month.
   ***Status:** Completed.*
   PM reports of all departments were sent to management every month.

12.5.2.1 NDT/Certification Drilling Equipment:

Critical:

1. Arrange an NDT inspection of critical sections of the Casing stabbing board. (Support points, lifting brackets, brake dogs, track stops, track brake dogs etc). The survey should be carried out by 3rd party personnel.
   ***Status:** Completed.*

Minor:

2. Prepare for a crown sheave 5-year inspection in December 2002; also consider installing a drill line stabiliser at this maintenance period.
   ***Status:** Completed.*
   Preperations were under way and implemented in the PM system.

5.0 DRILLING EQUIPMENT

5.1 Drawworks

The rig was equipped with a Continental Emsco C3-11 drawworks, which was driven by three DC traction motors. All three motors were inspected, covers removed and found in good acceptable condition. Megger readings were taken and could be found in the relevant section (all readings were acceptable).

All covers were removed from the drawworks for inspection of the gears and drive chain. No detrimental wear was observed on the gears, the chains were in good order without evidence of stress or stretch. The crankcase was clean without oil sludge build up.

The clutches were activated and found quick and responsive without drag; there was no air leakage in the system. The clutch plates and shoes were free of grease or corrosion, all springs were checked and found taut. We inspected the kickback rollers and all linkage below the drawworks for evidence of corrosion or seizure, none was found. All grease points around the drawworks were in good order without hose or fitment damage.

We tested the Elmagco brake shifter and found that the drawworks spider teeth were dry, without any grease. The coupling was pulled back and the teeth were wire brushed, cleaned and greased immediately.

The drilling line was inspected and we found the wire rope with crushed strands, not detached or broken or fractured, see photo for detail. There was no drilling line spooler installed in the derrick and this could contribute to the wire being damaged. The wire was also dry and should be greased.

5.1.1 Drawworks Recommendations:

Major:

1. Install a drill line spooler in the derrick.
   Status: *Outstanding.*
   The drill line spooler was not required by the contractor and was not installed.

Minor:

2. Grease the drill line.
   Status: *Completed.*
   The drilling line was slipped and cut several times after the first inspection and no obvious defects were noted.
3. Repair the damaged grease line inside the gearbox of the drawworks, as discussed with the driller.
   Status: *Completed.*

Major:

4. *Investigate the problem with the "High" and "Low" side chain and sprockets. The sprockets and chain were worn in an uneven pattern and the chains were pitted. The sprockets were also worn at 3 points.*
   Status: *Parts were on board and the special puller had been ordered.*
5. *Replace the onboard repaired brake linkage with original parts.*
   Status: *Completed.*

5.2 Rotary Table

Their running hours were 010.

The rig was equipped with an Oilwell 49½" rotary table. Covers were removed to allow access down into the rotary space. We inspected the foundations and the fixings. All seating bolts were intact without damage. The DC traction motor was clean and dry.

We operated the air blower and inspected the blower ducting for damage, no damage being evident. During operation of the blower, we inspected the motor and the fan located at the rear of the drill floor below the catwalk. The fan had a vibration above normal and should be checked for bearing or out of balance damage.

We inspected the rotary table gearbox and the drive coupling, we operated the high and low gearbox selection levers, all being acceptable.

We ran the rotary table over the full speed range, selecting high and low speeds via the gearbox.

5.2.1 Rotary Table Recommendation:

Minor:

1. Repair the lock dog on the Rotary table.
   Status:: *Completed.*
2. Rectify the vibration on the rotary table vent fan motor
   Status: *Outstanding.*
   Due to sand blast operations, the fan could not be inspected and no reports were available of repairs on the fan.
3. Grease the speed selector shifter on the rotary gearbox
   Status: *Completed.*

ModuSpec

5.3 Top Drive System

Running hours 6,465

The rig was equipped with a Varco TDS-4S top drive drilling system. We function tested the motor and controls over the full operating range.

We sighted the most recent service report dated 24th June 2001 conducted by Varco Systems. During this service, the TDS was NDT inspected and a replacement rotating head was fitted. The Varco engineer had verified all functions and that the unit was found to be in an acceptable condition. The main shaft endplay was checked during the Varco inspection (06/2001). Readings obtained were 0.002" (0.001" and 0.002" were acceptable). These readings would need to be checked again when 5,000hr service was due – the TDS would then be ready for overhaul.

A copy of the list of critical spare parts was obtained from the store; we noted there was no specific spare DC motor for the TDS, no main shaft for the TDS or blower motor for the TDS air-cooling fan.
We could find no history of the TDS main shaft being removed for inspection. We would recommend upgrading of the PMS system to include annual inspection of the main shaft by removal from the TDS.

5.3.1 Top Drive Recommendation:

Major:

1. Remove the main shaft from the TDS for full inspection and NDT at the next major overhaul (due at 5,000 hours)
   ***Status:** Outstanding.*
   Diamond had stated that when the main shaft is up for service, they would install a complete overhauled field spare.
   The time interval is yearly or 3,000 hrs as recommended by Varco and API RP 8B.

Minor:

2. Review the critical list of spare parts held for the rig, consider DC motor, main drive shaft and blower fan motor for the TDS unit to be held as spare.
   ***Status:** 50% Outstanding.*
   A fan blower motor was kept as spare on the rig; the main drive shaft would not be stored.

3. Upgrade maintenance instructions to include: remove main shaft from the TDS unit for NDT inspection annually.
   Status: *Outstanding.*
   Diamond would not include the maintenance upgrade because they would be utilizing the field spare option.
4. Rectify the defective paint coating of the hydraulic pipelines for the TDS system. Steel pipelines were suffering major corrosion damage.
   Status: *Completed.*
   All pipe work on the pipe handler on the Top-Drive was made of stainless steel.

5.7 Crown Block

We inspected the upper sections of the derrick and the crown platform. The fast line sheave bearings were worn and have been schedule to be replaced at the next opportunity; the rig management were aware of this.

The crown sheaves were installed during December 1997; the 5-year inspection interval would be due in December 2002. Please see recommendation in section 12.5.2.1.
We noted that there was no fast line stabiliser installed for the drill line; the recommendation to have a unit installed had been entered in the drawworks section.

5.7.1 Crown Block Recommendation:

Major:

1. Change out the bearings (as planned) on the fast line sheave.
   Status: *Completed.*
   The outher fastline sheave bearings were changed out on 21 April 2001.

5.9 Hook

This was not installed.

5.10 Drilling Instrumentation

We sighted the drilling instrumentation in the driller's doghouse during operation of the top drive and circulation of drilling muds. The MD Totco panel was tested and audible alarms functioned. RPM meters and torque meters were all operable.

5.11 **Derrick:**

We sighted the most recent derrick inspection reports from August 2000 carried out by Core Technical Services. Since then, the derrick had been surveyed by an independent 3rd party company for a dropped object strategy. We did not sight this report.

All ladders in the derrick had been fitted with stainless steel wire and fall arrestors. The policy on the rig had been upgraded so that all personnel must wear a safety harness while accessing ladders more than 3m from the deck.

We inspected the lower sections from the rig floor to the monkeyboard level. The sections were clean and free from drilling mud; there were no slip hazards.

Ladders and ladder cages were intact without visible damage.

The main structural sections around the drill floor had defective paint coat protection. Corrosion of medium intensity had penetrated into the beam clamps. We would recommend that a maintenance plan be formulated for these sections. The corroded areas should be shot blasted to SA 2-1/2 then coated with a quality paint protection. The clamping bolts in these sections were corroded and at least 2 bolts should be removed and the cross sectional area inspected for wastage.

We inspected the monkeyboard level and the tugger winches at the monkeyboard. The winches were operational without defects. We tested the camera system and the derrickman's talkback system, which was fully operational.

We climbed from the monkeyboard level to the crown and found during the accent two sections of serious corrosion, one on each ladder. The corrosion had weakened the strength of the vertical side construction of the ladder. We informed rig management who proceeded with repairs. During the inspection 18 Feb 2002, both ladders were inspected. Clamps were removed from the structure and if wasted +10% replaced.

The derrick paint coating was breaking down, surveys and derrick inspections had highlighted this situation, we would recommend that a programme was put in place to clean, inspect for corrosion and weakening of structural members. Check for strength and integrity of fixings and fittings. After completing any remedial work that may be necessary, coat the derrick with a quality paint programme. This would prevent any future corrosion defects.

5.11.1 Derrick Recommendation:

Critical

1 Install safety wire through all sheaves in the derrick.
Status: *Completed.*

Major:

2. Prepare a paint survey by a 3rd party contractor. Paint protect the derrick. Rectify any corrosion defects first.
Status: *Outstanding.*

3. Inspect at every ladder clamp, from the rig floor to the monkeyboard for signs or indications of corrosion. Clamps should be removed from the structure and if wasted +10%, replaced.
Status: *Completed.*

Minor:

4. Install secondary locking nuts on the dead line sheave jumper bar fixing bolts. Also install locking nuts on other bolts on sheave jumper bars at the crown.
Status: *Completed.*
The nuts were locked in place with locking wire.

5. Replace safety wires and slings around all sheaves in the derrick that did not comply with the latest colour code. Replace with safety wires that had a current colour code (blue) Feb 2002
Status: *Completed.*

5.12 Casing Stabbing Board

We carried out a full inspection of the casing stabbing board. The board was located behind the drawworks and was powered by an air operated tugger winch.

The stabbing board was a sound design with good controls and a robust construction. We tested all of the functions and inspected the safety features; a number of items need to be addressed and during the inspection, various items were completed.

After maintenance the stabbing board should be cleaned and critical sections NDT inspected for cracks. (Please see section 12.5.2.1 for recommendation)

The automatic stop, located at the top of the board would require replacing/maintenance; the stop did not shut off the air to prevent collision.

The plastic/PTFE rollers for aligning the pulley wires would require maintenance/replacing, one of the rollers was grooved and the other had been side loaded.

The spring return mechanism of the automatic brake should be retrofitted with stronger springs and of a non-ferrus type to prevent corrosion.

The hand brake should be returned to full working order.

Service the sheaves (top and bottom) to prevent cable twist; this was the primary cause of the plastic rollers being damaged.

5.12.1 <u>Casing Stabbing Board Recommendation:</u>

Critical:

1. Replace/repair the automatic air shut off switch at the top of the casing stabbing board.
   ***Status:** Completed.*
   The system had been changed to a manual emergency shut-off system.

Major:

2. Replace the two plastic aligning rollers at the top of the casing stabbing board
   ***Status:** Outstanding.*
3. Repair the non-functioning hand brake on the casing stabbing board.
   ***Status:** Completed.*
   The foot break and the automatic brake on the winch were tested and found to be satisfactory.
4. Service the two sheaves, one at the top and one at the basket.
   ***Status:** Completed.*

Minor:

5. Install remote grease points for the sheaves of the casing stabbing board. (Sheaves should be on the annual inspection of critical lifting gear.)
   ***Status:** Completed.*

5.13 Tuggers and Sheaves/Man-Riding Winches

The tugger winches and man-riding winches were all visually inspected. The systems were well maintained and free of any mechanical damage or serious defects. Cables were secured with poured sockets and were free from damage.

We noted that both man-riding tugger winches on the drill floor would require maintenance to the hand band brake. Corrosion had worked under the band brake material and was pushing the lining off the band.

The main tugger winches should had the pressure regulators set and then locked; excess pressures could result in overloading of the winch.

5.13.1 Tuggers and Sheaves/Man-Riding Winches Recommendation:

Major:

1. Adjust the pressure on each tugger winch according to the winch manufacturers recommendations. Lock the regulator after setting to prevent overload.
   ***Status:** Completed.*
2. Service the manual brakes of the drill floor man-rider tugger winches. Inspect for corrosion at the back of the lining material.
   ***Status:** Completed.*

Minor:

3. De-scale the brake bands of the moonpool tugger winches, service the brakes and inspect for corrosion at the back of the lining material. Corrosion would bust the rivets securing the lining.
   ***Status:** Completed.*

5.14 Survey Line

The wireline unit was located on a raised platform above the starboard rig floor. The area was clean and free from defects

We carried out a visual inspection of the survey line. The unit was a basic wireline unit, electric driven. It was reeved with a full drum of non-stainless wire 0.092".

The wire should be oil protected and shrouded with a canvas wrap. There was no protective guard for the operator.

ModuSpec

5.14.1 Survey Line Recommendation:

Critical:

1. Install a mechanical guard for the survey line operator.
   ***Status:** Outstanding.*
   We discussed with the mechanic and he was to install the guard.

Minor:

2. Reeve out the wire off the wireline unit, reeve in and protect the wire with preservative. Protect the wire on the drum with a canvas shroud.
   ***Status:** Outstanding.*

5.15 **Pipe-Spinning Wrench**

The standby Hawk pipe spinning wrench was brought on to the drill floor as a replacement for the Iron Roughneck. (The 'Varco' Iron Roughneck was down, waiting on spare parts).

The Hawk was a hydraulic powered unit with chain drive. This unit was underpowered and unable to be used with any effect. It was removed from the drill floor and manual tongs were used.

5.15.1 Pipe-Spinning Wrench Recommendation:

Major:

1. Replace the pipe spinning wrench with an air-operated unit with greater torque and reliability. (Or return the current hydraulic powered model to full original condition of torque and reliability)
   ***Status:** Outstanding.*
   The spinner was kept on the roof and no action had been taken to rectify the problem.

5.18 **Iron Roughneck**

During our visit, the Iron Roughneck was down, waiting on repair, spare parts were not on board. We could not witness the unit in operation, but from a visual inspection, we would recommend that when the next major service is due, a 5-year inspection / overhaul should be carried out.

All tolerances for rollers and track play should be checked. NDT inspections should be carried out. Hoses checked for leakage, speed functions checked, make up and break out functions checked and spin in speeds checked.

The original Varco acceptance criteria should be used for comparison.

5.18.1 Iron Roughneck Recommendation:

Minor:

1. Carry out a major inspection / overhaul of the Iron Roughneck once the unit had been returned back to service after the recent failure. Investigate the reason of failure. Use Varco acceptance criteria to ascertain make up/break out torques, speed spin settings, roller tolerances etc.
Status: Completed.
The unit was test run and all functions were satisfactory.
One spinner motor was removed to be replaced.

Major:

2. *Install the missing spinner motor.*

5.19 Pipe-Racking System

A Varco pipe-racking arm was installed above the drill floor level. The arm was function tested and was seen to work well.

The hydraulic hoses were poorly supported and one was damaged with the braided wire exposed. Most of the hoses were too long for their application and hung over the wind-walls, which exposed them to possible damage.

One of the support brackets for the hydraulic pipework had been cut from its mounting, which left the pipes holding up the support bracket.

5.19.1 Pipe-Racking System Recommendation:

Major:

1. Replace the hydraulic hoses to the racking arm with ones that are the correct length to prevent damage.
Status: *Outstanding.*
2. Replace the damaged piping support bracket on the hydraulic supply pipework.
Status: *Outstanding.*

ModuSpec

5.20 ***Drill String***

The tubular inventory list was as follows:

Drill Pipes 3-1/2 "
On the rig: 252 joints

Heavy Weight Drill Pipes 3-1/2 "
On the rig: 15 joints

Drill Pipe 5 "
On the rig: 306 joints
In town: 320 joints

Heavy Weight Drillpipe 5 "
On the rig: 27 joints
In town: 21 joints

Drill Collars 4-3/4"
In town: 89 joints

Drill Collars 6-1/2"
On the rig: 19 joints
In town: 13 joints

Drill Collars 8"
On the rig: 23 joints
In town: 20 joints

Drill Collars 9-1/2"
On the rig: 3 joints
In town: 7 joints

All drill collars had API stress relief groove features on the pins and DRILCO bore back or equivalent in the boxes.

Documentation regarding rotating hours, footage, Inspection dates, were kept up to date and were located in the toolpusher's office.

5.20.1 *Drill String Recommendation:*
Major:
1. *Do not store equipment on top of pipe.*

ModuSpec

5.21 **Drilling Subs**

The drilling subs as per equipment list were as follows:

BIT SUBS			
144 -001	0.99	BIT SUB	7 5/8" REG. BOX X BOX
144 -002	1.65	BIT SUB	7 5/8" REG. BOX X BOX
144- 003	1.32	BIT SUB	7 5/8" R. BOX X 6 5/8" R. BOX
144 - 006	0.41	FLOAT SUB	6 5/8" Pin x Box
144 - 008	0.72	BIT SUB	6 5/8" REG. BOX X BOX
144 - 009	0.68	BIT SUB	6 5/8" REG. BOX X BOX
144 - 011	0.98	BIT SUB	7-5/8" R BOX X 7-5/8" R BOX
144 - 012	0.98	BIT SUB	6 5/8" REG. BOX X BOX
144 - 073	0.87	BIT SUB	4 1/2" IF. BOX X 4 1/2" R. BOX
144 - 078	0.90	BIT SUB	4 1/2" IF. BOX X 4 1/2" R. BOX
144 - 327	1.22	BIT SUB	7 5/8" R. BOX X 6 5/8" R. BOX
JUNK SUBS			
144 - 014	1.02	JUNK SUB	6 5/8" REG. PIN X BOX
144 - 015	0.81	JUNK SUB	6 5/8" REG. PIN X BOX
144 - 018	0.71	JUNK SUB	4 1/2" REG PIN X BOX
144 - 017		JUNK SUB	4 1/2" REG PIN X BOX
BOTTLENECK CROSSOVERS			
144 - 020	1.08	B-N X/O	6 5/8" R. BOX X 7 5/8" Reg Pin
144 - 021	0.89	B-N X/O	7 58" R. BOX X 6 5/8" R. BOX
144-022	1.14	B-N X/O	6 5/8" REG.BOX X 7 5/8" Reg Pin
144-023	1.12	B-N X/O	6 5/8" REG.BOX X 7 5/8" Reg Pin
144-024	1.14	B-N X/O	6 5/8" REG.BOX X 7 5/8" Reg Pin
144 - 027	0.76	B-N X/O	6 5/8" R. BOX X 7 5/8" Reg Pin
144 - 029	0.61	B-N X/O	4 1/2" IF. PIN X 6 5/8" R. BOX
144 - 034	0.79	B-N X/O	4 1/2" IF. BOX X 6 5/8" Reg Pin
144 -036	1.03	B-N X/O	6 5/8" R PIN X 7 5/8" Reg Pin
144 - 037	1.14	B-N X/O	7 5/8" Reg Pin x 6 5/8" Reg Box
144 - 069	0.64	B-N X/O	4 1/2" IF BOX X 4 1/2" Reg Pin
144 - 070	0.68	B-N X/O	4 1/2" IF BOX X 4 1/2" Reg Pin
144 - 084	1.15	B-N X/O	4 1/2" IF BOX X 3 1/2" IF PIN
144 -103	0.72	B-N X/O	4 1/2" IF Box x 3 1/2" IF Pin
144 - 185	1.08	B-N X/O	4 1/2" IF Box x 6 5/8" Reg Pin

ModuSpec

144 - 186	1.10	B-N X/O	4 1/2" IF Box x 6 5/8" Reg Pin
144 - 188	1.08	B-N X/O	4 1/2" IF Box x 6 5/8" Reg Pin
144 - 190	1.16	B-N X/O	6 5/8" Reg Box x 7 5/8" Reg Pin
144 - 200	1.10	B-N X/O	4 1/2" IF Box x 6 5/8" Reg Pin
144 - 201	0.97	B-N X/O	4 1/2" IF Box x 6 5/8" Reg Pin
144 - 203	1.11	B-N X/O	7 5/8" Reg Pin x 6 5/8" Reg Box
144 - 204	1.07	B-N X/O	4 1/2" IF Box x 6 5/8" Reg Pin
144- 205	0.82	B-N X/O	7 5/8" Reg Pin x 6 5/8" Reg Box
144 - 206	1.09	B-N X/O	4 1/2" IF Box x 6 5/8" Reg Pin
144 - 207	1.08	B-N X/O	6 5/8" Reg Box x 7 5/8" Reg Pin
144 - 208	1.10	B-N X/O	4 1/2" IF Box x 6 5/8" Reg Pin
144 - 209	1.10	B-N X/O	4 1/2" IF Box x 6 5/8" Reg Pin
144 - 210	1.10	B-N X/O	6 5/8" Reg Box x 7 5/8" Reg Pin
144 - 211	1.10	B-N X/O	6 5/8" Reg Box x 7 5/8" Reg Pin
144 - 300	0.96	B-N X/O	6 5/8" Reg Box x 7 5/8" Reg Pin
144 - 320	1.10	B-N X/O	4-1/2" IF Pin x 3-1/2" IF Pin
		TOP DRIVE VALVES	
144 - 153		IBOP	I.B.O.P. - UPPER
144 - 154		IBOP	I.B.O.P. - UPPER
144 - 156		IBOP	I.B.O.P. - UPPER
144 - 159		IBOP	I.B.O.P. - UPPER
144 - 160		IBOP	I.B.O.P. - UPPER
144 - 155		TDS	I.B.O.P. - LOWER
144 - 157	0.38	TDS	I.B.O.P. - LOWER
144 - 161	0.38	TDS	I.B.O.P. - LOWER
144 - 099	0.76	IBOP	M&M Inter Upper IBOP
144 - 090	0.65	L.Safety Valve	M&M Inter L. Safety Valve
144 - 091	0.39	Canister Body	M&M Inter Canister Body

ModuSpec

CROSSOVER STRAIGHT SUBS AND SPACERS			
144 - 006	0.41	S-S X/O	6 5/8" Pin x Box
144 - 041	0.45	S-S X/O	7 5/8" R. PIN X PIN
144 - 043	0.54	S-S X/O	7 5/8" R. BOX X 4 1/2" IF. PIN
144 - 045	0.74	S-S X/O	6 5/8" R. PIN X PIN
144 - 052	0.68	S-S X/O	6 5/8" R. BOX X PIN
144 - 053	0.56	S-S X/O	4 1/2" IF PIN X 4 1/2" REG PIN
144 - 061	0.73	S-S X/O	4 1/2" IF. PIN X PIN
144 - 062	0.66	S-S X/O	4 1/2" IF. PIN X PIN
144 - 064	0.50	S-S X/O	4 1/2" IF. BOX X PIN
144 - 066	0.50	S-S X/O	4 1/2" IF. BOX X PIN
144 - 071	0.64	B-N X/O	4 1/2" Reg Pin x 3 1/2" Reg Pin
144 - 068	0.76	S-S X/O	4 1/2" IF. BOX X PIN
144 - 072	0.44	S-S X/O	4 1/2" IF. BOX X BOX
144 -075	0.85	S-S X/O	4 1/2" IF.BOX X 4" IF PIN
144 -076	0.85	S-S X/O	4" IF.BOX X 4 1/2" IF PIN
144 - 081	0.17	S-S X/O	3 1/2" Reg Pin x 3 1/2" IF PIN
144 - 065	0.70	S-S X/O	4 1/2" IF. BOX X PIN
144 - 044	0.78	S-S X/O	4 1/2" IF Pin x Pin
144 - 047	0.47	S-S X/O	7 5/8" Reg Box x 6 5/8" Reg Pin
144 - 049	0.30	S-S X/O	4 1/2" IF. PIN X PIN
144 - 330	2.06	S-S X/O	6-5/8" Reg Box x Pin
144 - 325	0.80	S-S X/O	4-1/2" IF BOX x 4-1/2" REG PIN
144 - 326	0.81	S-S X/O	4-1/2" IF BOX x 4-1/2" REG PIN
KELLY VALVE AND TOP DRIVE SUBS			
144 - 104	.74	GRAY VALVE	4 1/2" IF BOX X PIN
144 - 105	0.46	GRAY VALVE	4 1/2" IF BOX X PIN
144 - 102	0.68	HDIS. SUB	4 1/2" IF BOX X PIN
144 - 108	0.64	HDIS. SUB	4 1/2" IF BOX X PIN
144 - 101	0.45	HYDRIL SAFETY V	4-1/2" IF BOX X 4-1/2" IF PIN
144 - 107	0.45	HYDRIL SAFETY V	4-1/2" IF BOX X 4-1/2" IF PIN
144 - 136		FOSV VALVE	4 1/2" IF BOX X PIN
144 - 137		FOSV VALVE	4 1/2" IF BOX X PIN

SAVER SUBS			
3226		SAVER SUB	4 1/2 IF PIN X 6 5/8 REG PIN
3224		SAVER SUB	4 1/2 IF PIN X 6 5/8 REG PIN
MTI 24599		SAVER SUB	4 1/2 IF PIN X 6 5/8 REG PIN
3228		SAVER SUB	4 1/2 IF PIN X 6 5/8 REG PIN
3462-3		SAVER SUB	4 1/2 IF PIN X 6 5/8 REG PIN
3266		SAVER SUB	4 1/2 IF PIN X 6 5/8 REG PIN
3267		SAVER SUB	4 1/2 IF PIN X 6 5/8 REG PIN
3268		SAVER SUB	4 1/2 IF PIN X 6 5/8 REG PIN
3269		SAVER SUB	4 1/2 IF PIN X 6 5/8 REG PIN
LIFT SUBS			
144 - 110		LIFT SUB	7 5/8" R. PIN
144 - 116		LIFT SUB	7 5/8" R. PIN
144 - 120		LIFT SUB	7 5/8" R. PIN
144 - 113		LIFT SUB	6 5/8" R. PIN
144 - 117		LIFT SUB	6 5/8" R. PIN
144 - 118		LIFT SUB	6 5/8" R. PIN
144 - 119		LIFT SUB	6 5/8" R. PIN
144 - 180		LIFT SUB	6 5/8" R. PIN
144 - 115		LIFT SUB	4 1/2" IF. PIN
144 - 149		LIFT SUB	4 1/2" IF. PIN
144 - 150		LIFT SUB	4 1/2" IF. PIN
144 - 151		LIFT SUB	4 1/2" IF.PIN
144 - 152		LIFT SUB	4-1/2"IF. PIN
144 - 160		LIFT SUB	4-1/2" IF. PIN
144 - 161		LIFT SUB	6 5/8" R. PIN
144 - 162		LIFT SUB	6 5/8" R. PIN
144 - 163		LIFT SUB	6 5/8" R. PIN
144 - 164		LIFT SUB	6 5/8" R. PIN

ModuSpec

MISCELLANEOUS SUBS AND TOOLS			
144 - 132	0.31	PORTED SUB	4 1/2" IF. BOX X PIN
144- 321	0.80	PORTED SUB	4 1/2" IF. BOX x 4-1/2" IF PIN
144- 133	0.31	JETTING SUB	4 1/2" IF. BOX x BLANK END
			WITH 4 x 3/4" HOLES.
144 - 170		HANGOFF TOOL	VETCO H/OFF TOOL
144 - 171		HANGOFF TOOL	ACME AND (4 1/2" IF BOX X PIN)
144 - 172		HANGOFF TOOL	4 1/2" IF. BOX X ACME PIN
144 - 176		LIFT SUB	4 1/2" IF Pin x Lifting eye
SWEDGES			
144 - 140	0.43	CIRC SWEDGE	4 1/2" IF. PIN X 2" NPT X 1502
144 - 141	0.34	CIRC SWEDGE	4 1/2" IF. PIN X 2" NPT X 1502
144 - 144	0.79	CIRC SWEDGE	4 1/2" IF. BOX X 2" NPT X 1502
144 - 154	0.74	SIDE ENTRY	TEST SUB W/ 4 1/2" IF. BOX
144 - 131	0.46	SIDE ENTRY	4 1/2" IF Box x Pin x 1502
3 1/2" EQUIP			
144 - 121		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 122		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 123		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 124		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 125		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 126		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 127		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 128		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 129		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 144		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 145		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 146		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 147		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 148		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 - 139		LIFT SUB	3 1/2 ELEV. - 3 1/2" I.F.
144 -077	.99	BIT SUB	3 1/2" IF. BOX X 3 1/2" R. BOX
144 -106	0.66	GREY V/V	3 1/2" IF. BOX X 3 1/2" IF. PIN
144 -173	0.27	S-S X/O	3 1/2" IF. BOX X 2 7/8" R. PIN

144 - 085	0.32	B-N X/O	4 1/2" IF. PIN X 3 1/2" IF. PIN
144 - 210	0.76	BIT SUB	3 1/2" IF.BOX X 3 1/2 REG BOX
144 - 322	0.72	S-S X/O	3-1/2" IF PIN x 3-1/2" REG PIN
144 - 323	0.72	S-S X/O	3-1/2" IF PIN x 3-1/2" REG PIN
144 - 324	0.83	S-S X/O	3-1/2" IF BOX x 2-7/8" REG PIN

5.21.1 Drilling Subs Recommendation:

Major:

1. *Make sure that prior to use, the subs are inspected and certified.*

5.22 ***Fishing Tools***

The fishing tools as per equipment list is as follows:

Overshots

On the rig are the following overshots with sufficient spares for each size:

- *11-¾"*
- *8-3/8"*
- *8-1/8"*
- *5-¾"*

Other fishing tools are the following:

OTHER TOOLS AND ACCESSORIES				
11" REVERSE CIRCULATING JUNK BASKET				
MAXIMUM CATCH: 6-5/16"				
HOLE SIZE: 11-3/4" - 12 1/2"				
PART NO: 2690 COMPRISING				
ITEM	QTY	DESCRIPTION	PART NO.	COMMENTS
1	1	TOP SUB	2691	6-5/8" BOX
2	1	BARREL	2692	
3	1	VALVE CUP	2662	
4	1	STEEL BALL	2665	2-1/4" DIA.
5	1	VALVE SEAT	2663	
6	1	MAGNET INSERT	61973	
7	1	STANDARD CATCHER	21760-W	
8	1	TYPE "B" MILL SHOE	2698-B	
7 7/8" REVERSE CIRCULATING JUNK BASKET				

ModuSpec

MAXIMUM CATCH: 6-1/16"				
HOLE SIZE: 8-3/8" – 9-1/2"				
PART NO: 2567 COMPRISING				
ITEM	QTY	DESCRIPTION	PART NO.	COMMENTS
1	1	TOP SUB	2568	4-1/2" I.F. BOX
2	1	BARREL	2569	
3	1	VALVE CUP	2570	
4	1	STEEL BALL	2572	1-11/16" DIA.
5	1	VALVE SEAT	2571	
6	1	MAGNET INSERT	61953	
7	1	STANDARD CATCHER	18725-W	
8	4	TYPE "B" MILL SHOE	2574-B	1 X 8-3/8", 1 X 7 3/4", 2 X 8"
TAPER TAPS				
ITEM	QTY	DESCRIPTION	PART NO.	COMMENTS
1	1	4" TO 2 1/2"	19494	4-1/2" IF. BOX
2	1	4" TO 2 1/4"	15243	6-5/8" REG. BOX
SAFETY JOINTS				
ITEM		QTY	DESCRIPTION	
1		1	6-3/8" OD.	
2		1	6-3/8" OD.	
JUNK MILL				
1 EACH 8-1/4" OD WITH 4-1/2" REG. CONN'S				

ModuSpec

ROTARY SUBS				
1 EACH ROTARY SUB WITH 6-5/8" BOX CONN. INCLUSIVE WITH INSIDE MILL SECTION				
1 EACH ROTARY SUB WITH 4-1/2" BOX CONN. INCLUSIVE WITH INSIDE MILL SECTION				

5.23 Power Tong

The casing hydraulic power tong was a Weatherford Model 16 good for 18,000ft-lbs equipped for 7", 9-5/8", and 13-3/8" casing.

The segments were kept on board and no obvious problems were observed. The unit was in fair condition.

5.23.1 Power Tong Recommendations:

Major:

1. *Store the unit at a location that is out of the weather, as it is not used for long periods of time.*
2. *Paint the handles, the safe areas for fingers and hands a different collar than the unit.*

6.0 MUD SYSTEM

6.1 Mud Pumps

Mud Pumps, General Observations:
The rig was equipped with three national Oilwell mud pumps, type 12-P-1600. Pump No.3 had the least hours.

All suction and discharge valves were opened for inspection. The seats were clean and without marks or damage. Threads in the valves and modules were visually inspected and found without damage.

The pumps had been fitted with hydraulic clamps for the liners, clamps, studs and fittings were in good condition.

The crankcase covers, together with access covers for the crosshead slides, were removed on all three pumps. Bearing clearance were taken and recorded and dial gauge readings were taken of the crank bearings.

The readings were acceptable apart from the LH main bearing clearances of pumps No.1 and No.2. The clearances were quite tight at 0.0015" (1-1/2 thousands inch). There was no signs of overheating or blue marks, the oil was fresh and without signs of overheating.

We would recommend that the pump manufacturers be advised as they conducted a major overhaul in January 1998.

Fluid end module tie bolts on all three mud pumps should be removed for inspection for necking due to wastage, likewise the other retaining studs and bolts on the HP discharge piping of the mud pumps need to be inspected. Special inspection should be made of the bolts at the pulsation dampers.

We opened the suction strainer of mud pump No.3. The strainer body was sound without metal wastage or damage. We opened the suction damper of mud pump No.3 to inspect the diaphragm and metal supports. The diaphragm was in good condition without damage, the metal support plates were fouled with drilling fluid debris and were cleaned before re-assembly. The fluid inlet chambers were all inspected and found without damage.

ModuSpec

Mud Pump No.1:
Clearances

Crosshead slide right	0.021" / 0.019"
Crosshead slide left	0.019 / 0.022"
Crosshead slide centre	0.020"
Pinion bearing right	0.011"
Pinion bearing left	0.010"
Main bearing left	0.0015"
Main bearing right	0.006"
Crank bearing left	0.004"
Crank bearing right	0.006"
Crank bearing centre	0.008"
Chain sag left	2"
Chain sag right	2-1/8"

Mud Pump No.2:
Clearances

Crosshead slide right	0.019" / 0.018"
Crosshead slide left	0.018" / 0.016"
Crosshead slide centre	0.025"
Pinion bearing right	0.011"
Pinion bearing left	0.007"
Main bearing left	0.0015
Main bearing right	0.006"
Crank bearing left	0.005"
Crank bearing right	0.008"
Crank bearing centre	0.008"
Chain sag left	4-5/8"
Chain sag right	3-1/4"

Mud Pump No.3:
Clearances

Crosshead slide right	0.020"
Crosshead slide left	0.022"
Crosshead slide centre	0.019"
Pinion bearing right	0.005"
Pinion bearing left	0.006"
Main bearing left	0.004"
Main bearing right	0.004"
Crank bearing left	0.006"
Crank bearing right	0.005"
Crank bearing centre	0.003
Chain sag left	3-1/2"
Chain stretch right	4.0"

6.1.1 Mud Pumps Recommendations:

Major:

1. Inform National Oilwell of the main bearing clearance readings (0.0015") in mud pump No.1 and mud pump No.2.
   Status: 50%
   The information had been forwarded to the Diamond and National office.
2. Mud pump No.1. Remove studs and bolts on the HP mud manifold at the mud pumps to check for necking due to corrosion. 1) Pump discharge flange: The studs had been recently replaced but corrosion was starting to settle. High pressure clean to remove rust and spray with preserving coating. 2) Pressure indicating flange: studs should be removed and inspected for necking, renewed if necessary. 3) Blank flange, flange studs were new and coated with grease. 4) Outlet flange: studs should be removed and inspected for necking, renew if necessary. 5) Pulsation damper flange: studs were new but corrosion was starting to settle. High pressure clean to remove rust and spray with preserving coating.
   ***Status:** Completed.*
3. Mud pump No.2. Remove studs and bolts on the HP mud manifold at the mud pumps to check for corrosion and necking. 1) Pump discharge flange: inspect for necking. 2) Blank flange, ok, studs had recently been replaced and had been greased. 3) Pressure indicating flange: ok, studs had recently been replaced. 4) Outlet flange: inspect for necking. 5) Pulsation damper flange: inspect for necking
   ***Status:** Completed.*
4. Mud pump No.2. Install a relief valve into the LP pressure side of the mud pump suction manifold.
   ***Status:** Completed.*
5. Mud pump No.3. Remove studs and bolts on the HP mud manifold at the mud pumps to check for corrosion and necking. 1) Pump discharge flange: ok, studs had recently been replaced and had grease coating. 2) Blank flange: ok, studs had recently been replaced and had been greased. 3) Pressure indicating flange: inspect for necking.4) Outlet flange: studs had recently been replaced but corrosion was starting to settle. High pressure clean to remove rust and spray with preserving coating. 5) Pulsation damper flange: inspect for necking.
   ***Status:** Completed.*
6. Mud pump No.3. Install a relief valve into the low-pressure side of the mud pump suction manifold.
   ***Status:** Completed.*

6.2 **Shale Shaker**

The rig was equipped with four Thule VSM 100 shale shakers. The shaker house was compact and with basic ventilation installed. We inspected the shaker motors and found motors being operated with unacceptable levels of corrosion and wastage.

Compacted dried drilling fluids had been allowed to accumulate and block the cooling vanes of the motor. The corroding effect of the drilling muds had seriously eroded the motor structure. The air trunking at the shale shaker house was fouled with hardened drilling muds. The rig was not in drilling operations during our visit and we could not verify the ventilation in the space.
We would recommend that the trunking be deep cleaned and debris/mud/scale removed to assist the flow of ventilation.

We inspected the belts and running gear of all shakers; most of the units were in poor condition. Some were fitted with only two belts and others had the pulley jockey wheel incorrectly installed. Seals of the pulley drive bearing had failed on a number of the shakers. Rig staff was present during the inspection and carried out remedial repairs to the jockey wheel, belt drives and electric motor of shale shaker No.4.

6.2.1 Shale Shaker Recommendations:

Major:

1. Deep clean the electric motors of the shale shaker remove hard packed mud from the cooling ribs. Inspect the construction and check for degree of corrosion penetration (motor was an AC ex motor). Coat the motors with a corrosion preventative or replace if wastage is found.
   ***Status:** 80%*
   The job was in progress during this survey.

Minor:

2. Replace corroded spring mounts on shale shaker No.4. Remove remaining springs and wire brush, then coat with grease before reinstating.
   ***Status:** Completed.*
3. Carry out a ventilation check in the shale shaker house during drilling operations. Ascertain that airflow is acceptable to ensure both cooling and fume/heat/moisture/gas extraction is sufficient.
   ***Status:** Completed.*

6.7 Centrifugal Pumps

We visually inspected the mission mud pumps although we did not have the opportunity to test the pumps during drilling operations with mud-based fluids.

We did test the brake cooling pumps and found that pump No.1 should have the impeller clearances checked. The electrical load in amps recorded during operation with open discharge valves was similar to that with discharge valves closed.

The amps of brake cooling pump No.2 showed a considerable fall off when the discharge valve was closed.

Most of the centrifugal pumps had defects to the seating arrangements. Either corrosion below the frame or corrosion and damage of the shrouds of the cooling fans or inadequate seating fixings (low grade bolts/small bolts). We found a number of AC motors for centrifugal pumps with terminal boxes requiring maintenance and protection for the securing bolt heads. (This recommendation, that all AC motors on the rig be inspected and included on the updated MEL, and that maintenance for the motors was instigated, is included within the report.)

6.7.1 Centrifugal Pumps Recommendations:

Minor:

1. Remove the cooling fan shrouds on the electric motors of the supercharge pumps. Check the fans and ensure free airflow. Corrosion flakes and corrosion sheets could be seen obstructing airways.
   Status: *Completed.*
2. Check the impellor clearances of brake cooling water pump No.1. Running electrical load in amps was unchanged when the discharge valve was closed.
   Status: *Outstanding.*
   No investigation was done.
3. Upgrade maintenance instructions to include running test of the centrifugal pump once per month. Run pump with open suction and discharge valves with a known fluid density, record load in amps and pressures. Close discharge valve and record load in amps and discharge pressure. Ascertain difference in amps and therefore wear of the pump impellor/casing/discharge valve.
   Status: *25%*
   The information was forwarded to the Diamond office,as they were the only ones that can change the software on the maintenance system.

6.8 Mud Agitators

We visually inspected the mud agitators but did not carry out detailed inner inspections of the gearboxes. All agitators were operated on our last day when mud was mixed in the drilling mud pits.

No excess temperatures or vibrations were observed. Communication from the mixing area to the drill floor was good.

6.9 Mud Mixing System

The two mixing hoppers had visual sight indication for volume content. There were no load cells fitted. The two hoppers had no safety valve fitted.

We noted that the common policy was for the operator to tap the sides of the hopper with a rubber mallet to settle the drilling powder at the contents window. This practice should be frowned upon and discouraged through the use of a poster campaign.

Pressure vessels could become unstable and receive steel fracture of the shell if subjected to multiple blows from even soft mallets.

The hoppers should be opened and any scale or mud build up removed. Safety valves should be fitted into the hopper tanks.

6.9 Mud Mixing System Recommendation:

Critical:

1. Install safety valves into the bulk hoppers in the sack store.
   Status: *Outstanding.*

Minor:

2. Remove any build up of mud or scale from inside the hopper tanks in the sack store.
   Status: *Completed.*
3. Discourage the use of mallets to settle bulk powder in the hopper tanks.
   Status: *Completed.*
4. Ensure pressure gauges are installed and working on the hopper tanks.
   Status: *Completed.*

6.10 Standpipe Manifold and Rotary Hoses

The standpipe manifold valves had all been replaced with new Demco valves within the last 18 months. One valve was pulled for inspection and was found to be in need of a new gate and seats.

The pump room valves were also undergoing a change out with only one left to be done.

Wall thickness checks of the mud lines from the mud pumps to the derrick goosenecks were carried out in 1999.

The manifold and pump room valves were successfully pressure tested to 300/ 5,000 psi.

The manifold was considered to be in good condition with the only concern being corrosion behind the securing clamps.

6.10.1 Standpipe Manifold and Rotary Hoses Recommendations:

Major:

1. Remove manifold securing clamps and check for corrosion behind.
   ***Status:** Completed.*

6.11 Bulk Air System and Tanks

The rig was equipped with a good but basic system for bulk transfer. We observed the pressurisation of bulk tanks and the operation of the bulk transfer and monitoring panel.

Two compressors were locate in the auxiliary engine room and dedicated for the bulk system. One compressor was assigned for purge air and the other was assigned for transfer air. Both compressors were operating correctly. Compressor pressure was set at 42psi.

Compressor running hours were:

Bulk air compressor	4,367 hours
Purge air compressor	4,103 hours

The chief engineer maintained safety valves around the bulk system. Although acceptable in abnormal circumstances, we would recommend that an approved 3rd party contractor carry out periodic testing of safety valves, and issue the applicable certification.

Sections of the purge system pipework were linked with flex rubber hose, the hose should be earth bonded to prevent a build up of static electricity being discharged to personnel.

6.11.1 Bulk Air System and Tanks:

Major:

1. Certify the safety valves on the bulk air system by independent 3rd party contractors.
   Status: *Completed.*
   The valves would be brought to shore to be recertified, and the valve had been implemented in the PM system.
2. Install earth bonding between the rubber hoses on all bulk tank purge and transfer lines.
   Status: *Outstanding.*

Critical:

3. *The safety valves would to go on top of all the tanks including daytanks on the deck. The vent side would also have to be routed to a safe area.*

7.0 WELL CONTROL EQUIPMENT

7.1 Ram-Type BOPs

The rig was equipped with two Shaffer type SL 10K 18-3/4" double ram type preventers.

The ram bonnets were opened and the cavities, door and body surfaces and rod seal retaining rings were inspected. Measurements of the cavities were taken by the subsea engineer and all dimensions were found to be within Shaffer's limits of maximum height 8.078" for pipe rams, 8.052" for shear rams and width 26.092"

	F1	A1	F2	A2	F3	A3	F4	A4
H1	8.015	8.024	8.023	8.016	8.018	8.013	8.008	8.012
H2	8.023	8.025	8.022	8.027	8.015	8.014	8.008	8.009
H3	8.013	8.026	8.024	8.028	8.015	8.014	8.009	8.010
W	26.038	26.038	26.067	26.060	26.068	26.028	26.018	26.015

(All dimensions in inches)

Although the cavities were within specification, there was significant wear pattern evident in both the upper double cavities. This wear was at the top seal sealing area and was approximately 0.020" deep. Consideration should be given to plan to change out this double in the near future and have remedial work performed to bring the body back to original OEM dimensions

All open and close ram hydraulic operators were pressure tested to 2,000 psi and found to be in good condition with no leaks.

Rubber goods were in good condition and only the shear ram top seals required changing. The lower shear blade was also replaced due to damage.
New bonnet seals were fitted to all doors.

The upper shear rams were fitted with an extra hydraulic booster cylinder to increase the shearing ability. The shear rams with the booster were capable of shearing 5" S135 drill pipe at 1,400 psi. The normal pressure setting of 1,500 psi would cover this size of pipe. Any larger drill pipe and casing strings would require an increase in the manifold pressure setting.

The ram locking mechanisms were tested when the BOP was being pressure tested by bleeding off ram closing pressure prior to applying well bore pressure. It was found that the Ultra locks on the variable rams were not locking the rams in the close position. This was remedied during the survey.

All rams tested successfully although the upper variable rams required hydraulic closing pressure to attain a seal.

The BOP control fluid additive Stack Magic had been turned off from the mixing system for a specific reason and had not been reinstated prior to pressure testing. The untreated fluid would have to be flushed out of the system especially in functions such as connectors and failsafe valves where due to their low volumes some of the untreated fluid could remain in their operators.
The hydraulic tooling for the BOP bonnets was very old Christie HP 110. This equipment had been superseded with many improved designs that were better and safer to work with.

A full set of ram rubber goods was being held in the rig stores.

7.1.1 <u>Ram-Type BOPs Recommendations:</u>

Major:

1. Flush all functions with a proper Stack Magic mix.
   Status: *Completed. All functions and pod reels had been isolated prior to lowering the Stack Magic concentrations. Concentrations had been re-established and isolations removed.*
2. Ensure ram operator seals are replaced 3 yearly as per Shaffer PM manual Sect 1.
   Status: *Outstanding. Shear rams were the only outstanding set to have elastomers replaced. This would be conducted during tow to Bass Strait. This was tested in February 2002.*
3. Purchase updated hydraulic torque equipment for the BOP bonnets. Better and safer equipment is now available.
   Status: *New units of the same brand were on order.*

Major:

4. *Schedule changeout of upper ram double to eliminate worn sealing area in ram cavities*

7.2 Annular-Type BOPs

Dual Shaffer annulars were installed on the LMRP. Both were rated for 5,000 psi working pressure.

Open and close hydraulic operators were pressure tested to 1,500 psi on both annulars.

The lower annular tested successfully on both open and close functions.
The upper annular failed to test on the open function. Fluid was seen leaking into the well bore. The close side tested successfully.

After rebuilding with new seals and dressing up scores on the piston, both the open and close functions pressure tested successfully. This however could be short lived, as the piston scores would damage the seals with use.

Significant key seating was evident on the upper annular upper body, piston and lower body. When the annular was disassembled to change the seals, the key seating was measured and was considered to be in excess of 3/8", significantly more than 1/8", which was Shaffers recommended wear limit on any one point of the bore.

Both annular elements were viewed from above and appeared to be in good condition. The lower element was replaced in February 2001 and the upper replaced in July 2001. When the upper annular was disassembled, it was found that the element was in very poor condition around the outer area and a new one was installed. The condition of the annular (after only 7 months of use) would suggest that it was manufactured to a poor standard or a natural rubber element had been supplied instead of a Nitrile element. We would suggest that it be returned to Shaffer for analysis.

The upper annular piston was found to be scored and pitted around most of the seal areas. This, combined with the extensive key seating, compounded the urgency to have this annular re-worked.

7.2.1 Annular-Type BOPs Recommendations:

Major:

1. Remove upper annular and had key seating and seal area scoring and pitting repaired as soon as possible.
   Status: *Outstanding. A new piston was due on board and would be fitted together with new seals, for the next well.*

Minor:

2. Contact Shaffer about the condition of the upper annular element, it might be worth sending back for analysis.
   Status: *Completed. The element was tested in the stack to 2,500 psi. Satisfactory.*

7.3 Gate Valves

Six Flowcon dual block 3-1/16" 10,000 psi failsafe type valves were installed on the BOP.

The kill line entered the BOP at one point only below the lower rams. The choke line entered the BOP at two points; one below the middle rams and the other below the shear rams.

Records of maintenance showed that the valves and their operators had been regularly inspected and overhauled. Spare valves were available on the rig.

The tail rod seal on the lower inner choke valve was found to be leaking when the BOP was pressure tested. On inspection, a score on the tail rod had damaged the seal. The leak was remedied during the survey.

7.3.1 Gate Valves Recommendation:

Major:

1. Pressure test failsafe valves from above, prior to running the BOPs.
   Status: *Completed. Planned for completion during tow.*

7.4 Choke and Kill Manifold

The choke and kill manifold was made up of Flowcon 2-1/16" and 3-1/16" 10K valves and Shaffer 4-1/16" 5K valves.

Valve maintenance was inspected and found to be well up to date with all valves, with the exception of the 4-1/16" Shaffer valves having been stripped and inspected within the last 15 months. New internals had been fitted in most cases and some new valves had been installed.

The subsea department kept good maintenance records of all work carried out.

The manifold was pressure tested to 300 psi low pressure and 5,000/7,500 psi high pressure. All tests were good.

Two hydraulically operated Cameron chokes and two manually operated Flowcon chokes were installed in the manifold. Pressure gauges were mounted at the manual chokes; one gauge had no identification.

The choke control unit was considered to be in good condition and all functions were operational. The hydraulic choke operating times were within API specifications. A gauge mounted on the top of the choke control panel had no identification attached to it. It was believed to be kill line pressure.

A back up air supply from the high-pressure APV bottles had been installed with a regulator to reduce the pressure for the choke control functions. A relief valve should be installed downstream of the regulator to prevent a regulator failure resulting in the APV pressure being applied to the low-pressure systems of the choke control panel.

7.4.1 Choke and Kill Manifold Recommendations:

Critical:

1. Install a relief valve down stream of the regulator on the back up air supply to prevent APV pressure being applied to low-pressure air fittings and equipment in the event of regulator failure.
   Status: *Completed.*

Major:

2. Identify the gauge on the top of the choke control panel. This was believed to be kill line pressure.
   Status: *Completed*
3. Identify gauge at manual choke position believed to be drill pipe pressure.
   Status: *Completed*

Critical:

4. *Correct corrosion to all flanges on choke and kill lines below the drillfloor; in particular, the flange close to flowline diverter valves as shown in the photograph. This would be done during general rig maintenance.*

7.5 Cameron-Style Hub Clamps

No Cameron style clamps were fitted to the BOPs; all connections were of the flange type. The only clamps that were in use were on the moonpool drape hoses. The clamps were No.6 four-bolt type and were correctly made up with even spacing at each side.

7.6 BOP-Handling Equipment

The BOP handling system was manufactured by Houston Systems and consisted of an overhead trolley system powered by deck mounted hydraulic winches.

The lifting wires had recently been replaced and the new ones were well coated with anti-corrosion lubricant.

The cranes were seen in operation and worked smoothly. The brakes on the winches were tested by holding the BOP above the deck and were seen to be adequate.

No lifting gear inspection of the hoists, travelling sheaves or sheave blocks could be located.

ModuSpec

The hydraulic fluid supply and return hoses to the winches had damage to the outer rubber cover and significant corrosion to the steel braiding.

The cranes had been successfully load tested in January 2002.

At time of followup survey, all wires had been renewed and lifting attachment points had been MPI inspected.

7.6.1 BOP-Handling Equipment Recommendations:

Major:

1. Have the crane hoists, travelling sheaves and lifting blocks NDT inspected annually at the lifting gear inspection.
   Status: *Completed. New wires had been fitted and NDT inspected as at 27 April 2002.*
2. Replace the hydraulic winch supply and return hoses.
   Status: *Oustanding. The hoses were on order and would be fitted on arrival.*

Major:

3. *Serious consideration should be given to fitting limit switches on both transverse travel and upper hoisting extents.*

7.7 BOP Hydraulic Power Unit

A Valvcon BOP control unit was installed on the rig. The unit was the original rig installation with some improvements having been made over the years.
The general appearance of the unit was fair and in general, it was fit for purpose.

Two electrically driven triplex pumps and three air driven pumps were installed. No relief valves were connected to the air pump high-pressure outlet pipework.

Neither of the electric pumps was supplied from the emergency board, which left the air pumps as the only back up. The air pumps were supplied from a compressor on the emergency board.

The pumps were function tested and although they were both working, they were very slow and as they were the secondary pressure supply, improvements should be made to their performance. As both were supplied through one pressure switch they were basically starved of air. Isolating one pump almost doubled the speed of the remaining pump. By installing a second air supply and pressure switch, the pumps would be far more efficient.

ModuSpec

Triplex pump No.2 was leaking considerably at the fluid pistons when running. Triplex pump No.1 was leaking between the fluid end body and the suction manifold.

A stainless steel fluid reservoir had been installed with an automatic fluid mixing system. Stack Magic was used for the water based fluid additive although the supply valve to the mix system had been shut off and plain water was being used in the system while we were onboard.

Water supply to the mixing system was hard piped from the rig potable water system. However there was a "T" in the line and a connection from the rig water system was connected. There was no check isolation of the potable water or drill water and if the rig water valve was opened without closing the potable water valve, it was possible to backfeed drillwater into the drinking water supply.

Serious consideration should be given to terminating both water supply lines with a valve and a male camlock connection. A short flexible hose could then connect one supply nor the other, but not both at once, to the delivery line to the mix system.

A back up air supply from the high-pressure APV bottles had been installed with a regulator to reduce the pressure for the control unit functions. A relief valve should be installed downstream of the regulator to prevent a regulator failure resulting in the APV pressure being applied to the low pressure systems of the control unit.

The driller's panel was an older style unit with all controls graphically arranged to represent the BOP as required by API Spec 16 D. There was; however, no indication for pump running conditions and loss of main power to panel, as required by API Spec 16D section 2.2.2.7.6.1-8.

There was also a switch mounted in the panel to disable all alarms. This switch is not acceptable as it will disable the entire alarm system as required by API. Neither is intrinsically safe.

The toolpushers panel was likewise an older style unit with all controls graphically arranged to represent the BOP as required by API Spec 16 D.
It lacked the pressure gauge indication for "accumulator supply", "manifold readback", and "annular readback" as required by API Spec 16D section 2.2.2.7.2.3.1-8.

Also missing was the "pump running" indication and "battery power' lamps.

ModuSpec

7.7.1 BOP Hydraulic Power Unit Recommendations:

Critical:

1. Install 3,300 psi relief valves to the air pump high pressure outlets. API Spec 16D Sect 2.2.2.3
   Status: *Completed. Air pumps supplied a common manifold that was already protected by relief valves on both sides of unit. Further protection would not be required.*
2. Verify that all relief valves are within company specified testing requirements. Have date and pressure detailing labels fitted when next tested.
   Status: *Still outstanding. Parts were onboard.*
3. Install a relief valve down stream of the regulator on the back up air supply to prevent APV pressure being applied to low-pressure air fittings and equipment in the event of regulator failure.
   Status: *Still outstanding.*

Major:

4. Fit a secondary air supply and pressure switch to the back up air pumps to improve their performance.
   Status: *Still outstanding.*
5. Replace the hoses on the triplex pump high-pressure outlet side with hard piping. API Spec 16D Sect 2.2.1.3.
   Status: *Still outstanding.*
6. Repair fluid end leaks on triplex pump No.2.
   Status: *Completed.*
7. Repair fluid leaks at the fluid end body to suction manifold connection on pump No.1.
   Status: *Completed.*
8. Ensure a proper strength fluid mix is circulated throughout the BOP control system.
   Status: *Completed.*
9. *At least one triplex pump should be connected to the emergency switchboard. API RP section 53 12.4.5*
10. *Rework potable and drill water supply to the mix system as discussed in the narrative above.*

   Driller's panel.

11. *Supply a pump running light indication for the panel.*
12. *Supply a "Battery Power" light indication for the panel.*
13. *Remove the alarm isolation switch.*
14. *Replace blown light bulbs.*

Toolpushers Panel

15. *Supply a "pump running" light indication for the panel.*
16. *Supply a "battery power" light indication for the panel.*
17. *Supply a "surface accumulator" pressure gauge.*
18. *Supply a "subsea manifold readback" pressure gauge.*
19. *Supply a "subsea annular readback" pressure gauge.*
20. *Replace the blown light bulbs.*

7.8 Diverter System

The rig was equipped with a Regan KFDS type diverter system.
The flowline seals, diverter packer and insert packer were found to be in good condition.

The ball joint appeared to be in good condition and was well greased. The ball joint was fitted in January 2001.

The diverter panel was fitted with a relief valve to prevent over pressure of the flow-line seals. The valve was heavily corroded and had no indication of when it was last tested.

Function tests of the overboard, shaker and trip tank valves were successfully carried out. The knife valves worked without problem but the condition of the plated surfaces was poor. The piston rods of the operators were corroded but no air leaks were noted.

7.8.1 Diverter System Recommendation:

Critical:

1. Verify that all relief valves are within company specified testing requirements. Have date and pressure detailing labels fitted when next tested.
   Status: *Still outstanding.*
2. *The overboard lines had sharp 90 deg bends. These created backpressure and could cause blockage during diverter operations.*

7.9 BOP Control System

The control pods were the round 42 line retrievable Koomey type.
Records of maintenance were reviewed and considered to be of a high standard with all SPM valve and regulator rebuilds recorded and dated.

Some scoring had been noted in the blue pod body, a spare pod was to be fitted when available and the blue pod would be sent in for repairs.

The subsea department kept good records of SPM valve maintenance and regulator maintenance.

Pod receptacles were inspected and found to be in good condition, most packer seal areas had been inlaid with stainless steel. The remaining packer seal areas that were in use should also be inlaid with stainless steel to prevent future problems.

Most shuttle valves were tested while pressure testing the operators was being done and no leaking valves were found. Again good maintenance records were kept of the shuttle valve history and maintenance.

BOP hosing was found to be in good condition, all hoses were fitted with stainless steel fittings. A change out program on the rig was in place with four hoses being changed at every between well work over. The department kept full records of hoses changed out.

Both pod hoses had been fitted new in 1999. They were 2,200 feet in length and contained 50 pilot lines that gave ample spares. ABCO bend restrictors used above the pods ensured that no kinks were inflicted on the hoses.

The pod hose reels were found to be in good condition with the exception of the drive chains. The yellow chain was worst with some of the chain rollers worn through and need to be replaced; the blue reel chain should also be replaced as it was badly worn.

It was noted that there were several bent pilot hose fittings at both the blue and yellow RBQ plates.

New hard piping had been installed for the main fluid supplies from the control unit to the blue and yellow hose reels.

The capacity of the sub-sea accumulators did not comply with API RP 16E which would require capacity to close one annular three rams and had a 50% reserve.

ROV stab in ports were available for the following lower package functions

- Wellhead connector primary unlock
- Wellhead connector secondary unlock
- Wellhead connector gasket release
- Wellhead connector gasket release valve.

LMRP functions were

- Riser connector primary unlock
- Riser connector secondary unlock
- Riser connector gasket release
- Riser connector gasket release valve

The mini reel that would be needed to supply hydraulic fluid supply to the ROV had been relocated to the drawworks roof. The reel was complete but did not have a fluid supply from the control unit. This equipment could be required in an emergency situation and should be ready to operate.

The remote control panels located in the driller's doghouse and the tool pushers office were function tested. The only fault was the lower annular open light on both panels failed to illuminate. This fault had already been looked in to and parts for repairs were on order.

Calculation on required accumulator volumes:

<u>API CALCULATION</u>:
As per API Spec 16 D *section* 2.2.2.5 Calculated Accumulator Volumetric Requirements. The hydraulic control system for a subsea BOP stack shall have a minimum total stored hydraulic fluid volume, with the pumps inoperative, to satisfy the greater of the following requirements,

1. Open and close, at zero wellbore pressure , all of the ram type BOP's and annular BOP in the BOP stack, with 50% reserve.

2. The pressure of the remaining stored accumulator volume after opening and closing all of the ram type BOP's and one annular BOP, shall exceed the calculated minimum system operating pressure. The calculated minimum system operating pressure shall exceed the greater of the following minimum stack component operating pressures:
   a. The minimum calculated operating pressure required (using the closing ratio) to close any ram BOP (excluding shearing pipe) at the maximum rated wellbore pressure for the stack.
   b. The minimum calculated operating pressure required to open and hold open any choke or kill valve in the stack at the maximum rated well bore pressure of the stack.

913711 705

ModuSpec

Open volume ram type BOP 13.21 Gallons
Close volume ram type BOP 14.55 Gallons

Total open and close for BOP is 4 x (13.21+14.55)= 111.4 Gallons

Open volume annular preventer 37.61 Gallons
Close volume annular preventer 48.16 Gallons

Total open close for annular preventer is 75.77 Gallons

Total volume required for API Spec 16 D =111.4+75.77=187.17 Gallons.
Required for API is 150%=280 Gallons
A total of 40 x 15 Gallons (net) vol bottles were installed at surface precharge 1,000psi.

12 x 10 Gallons (net) were installed on the LMRP. Precharge for water depth of max 300 ft was 1,000psi + (300 x 445)=1,134psi

Usable from each 15 Gallon bottle:
P1V1=P2V2 1000X15/3,000 = 5 Gallons N2 and 10 Gallon fluid.
For 40 bottles, this would be 400 Gallons.
This would satisfy (1) which was 280 gallon.

Closing ratio rams was 7.11
Minimum required pressure was 10,000 / 7.11=1.407psi.

P2V2=P3V3 3,000X5/1,407= 10.67 Gallons N2=4.44 Gallons fluid
Usable would be 10 - 4.44=5.67 Gallons
For 40 bottles, this would be 227 Gallons, this was more than the required 187.17 Gallons, so this satisfied API Spec 16 D

ESSO AUSTRALIA CALCULATION

For Esso, an additional annular preventer would have to opened and closed.
Total required volume will be
Rams 114.4 Gallons
Two annulars 151.54 Gallons
Total would be 114.4+151.54=265.94 Gallons

The subsea bottles had a usable fluid supply of:
P1V1=P2V2 = 1,134 x 10 / 3,134=3.6 Gallons N2 and 6.4 Gallons fluid
P2V2=P3V3 = 3,134 x 3.6 / 1,541=7.3 Gallon N2 and 2.7 Gallons fluid
So usable would be 6.4-2.7= 3.7 Gallons X 12 bottles= 44.4 Gallons

ModuSpec

Surface and Subsea would be 227 + 44.4=271 Gallons
This would be more than the 265.94 Gallons required.

These are theoretical figures. In practical term, losses would accur in operation of SPM valves and filling from the surge bottles on the annular preventers.
We recommend increasing the precharge to 1,200 psi.

This increase in precharge would give extra 53 gallons on the surface bottles and would be sufficient for the losses.

7.9.1 BOP Control System Recommendations:

Major:

1. Replace the drive chains on both hose reels.
   Status: *Outstanding. This was not replaced.*
2. Replace the bent pilot hose fittings at the RBQ plates. Three on the blue reel and two on the yellow reel.
   Status: *Completed.*
3. Consider having the remaining pod receptacle packer seal areas that are required for control functions inlaid with stainless steel to prevent future problems.
   Status: *Outstanding. Not planned to be done in the foreseeable future.*
4. Rectify the long response time taken for the upper annular function. The annular should close within 60 seconds of the function being made. It took 80 seconds for the flow to start.
   Status: *Completed. This had been rectified.*
5. Install a hard piped permanent fluid supply to the mini-reel on the drawworks roof so that hydraulic fluid could be supplied to the ROV in as short a time as possible for emergency BOP functions.
   Status: *Outstanding. The mini reel had been decommissioned and was kept only as an emergency backup. A hotline connection would be used if required.*

Minor:

6. Repair the faulty lower annular open light on the remote panels when spare parts are received.
   Status: *Outstanding.*

Major:

7. *Fit replacement subsea accumulator bottle when it has been delivered. There was presently one unit removed from the LMRP.*
   Status: *Completed. All four were replaced.*
8. *Conduct an accumulator bleed down test and verify ability of system to achieve API Spec 16D performance with 1225 psi precharge.*

Minor:

9. *Control air supply hoses were old and kinked flat on both reels. They should have a 90° elbow added at the reel termination and new hoses installed.*

7.10 **Marine Riser System**

The Regan type HMF 20" riser was used by the rig. This riser was of the bolted flange type, which was considered to be more reliable, and would require less maintenance than the make up dog type.

The hydraulic tooling for making up and breaking out connection bolts was the same equipment that was used for the BOP bonnets and was outdated and slow to operate. Safety was always a concern with equipment of this age.

Four pup joints of 5, 10, 25 and 40 feet were available on board.

Some joints were fitted with floatation, which was in reasonable condition.

Riser deficiencies found during inspection were;

- Joints No.8 and 9 had scoring on the seal areas of the choke and kill pin ends.
- Joint No.11 had key seating on the pin end to a depth of ¼".
- Joint No.20 had damage to the main bore pin end resulting in a sharp edge that could damage the box end seal area.
- Joint No.11 choke and kill lines were differed in length by 1-3/8".
- Joint (unidentified) had no locking grub screws on one coke/kill line retaining collar.
- Joint (unidentified) choke/ kill line retaining collar no lock in grub screw and the collar was backed out from its proper position.

MPI inspection of riser joints and connection bolts were sighted on the rig.

Two Regan slip joints were available, one was onboard the rig at the time of the visit and one was believed to be in town for repairs.

The joint held on board was last NDT inspected in August 1996 according to records found onboard.

7.10.1 Marine Riser System Recommendations:

Major:

1. Repair the choke and kill line pin seal areas on joints Nos.8 and 9.
   ***Status:** Outstanding. This had been sent to town.*
2. Repair the key seating in the pin end of joint No.11.
   ***Status:** Outstanding. The joints had been sent to town.*
3. Dress the sharp edge on the main pin of joint No.20
   ***Status:** Completed.*
4. Fit locking grub screws to choke/ kill retaining collars where missing.
   ***Status:** Outstanding. This was done per operation.*
5. Make up choke/kill retaining collar that had backed out (no joint identification found). Ensure proper end float is achieved.
   ***Status:** Outstanding. This had been sent to town.*
6. Replace the outdated torque equipment for the connection flange bolts.
   ***Status:** Outstanding. New units were on order.*

Minor:

7. Quality control of repaired riser should be questioned as one joint had a choke/kill line 1-3/8" longer than the other.
   ***Status:** Outstanding.*
8. Improve the riser identification method.
   ***Status:** Completed. The present method was reviewed and found to be satisfactory.*

7.11 Flex Joint/Ball Joint on LMRP

The Oil States flex joint that was installed on the LMRP was in as new condition. It was fitted new in 28 February 2001 due to key seating damage to the old unit.

The riser adapter was also changed out at the same time due to key seating.

Consideration should be given to installing a flex joint wear bushing to prevent the expensive repair bills to annulars, flex joints and riser adapters.

7.11.1 Flex Joint/Ball Joint on LMRP Recommendation:

Major:

1. Consider using a flex joint wear bushing to protect the riser adapter, flex joint and annulars from key seating and prevent expensive repairs.
   Status: *Outstanding. This had been considered as an option but was not planned at this time. Closer monitoring of the riser angle had been planned.*

7.12 Choke and Kill Stabs

Male stabs were mounted on the lower BOP package. They were inspected and found to be in good condition with no damage to the seal areas. Protective covers were fitted when the BOP was on surface.

The kick-out subs on the LMRP were well secured and the box ends containing the choke/kill line seals were in good condition.

One spare kick out sub was held onboard.

7.13 Flexible High-Pressure Hoses

Coflexip high-pressure hoses were in use for the moonpool drape hoses and the LMRP flex hoses. All hoses were rated for 10,000 psi.

Three of 3" X 55 ft moonpool. Two were in use and one was spare.

Three of 3" X 16 ft LMRP hoses. Two were in use and one was spare.

According to records found, two hoses would be overdue for their annual inspection.

7.13.1 Flexible High-Pressure Hoses Recommendation:

Major:

1. Change out any hoses that had been overdue for their annual inspection.
   Status: *Outstanding. One drape hose and one LMRP flexible hose will be changed on the tow.*

7.14 Wellhead/Riser Connector

A model 70 Cameron collet connector rated for 10,000 psi was installed as the wellhead connector. Measurements taken in the lock position on and off the test stump showed that the connector had a reserve travel of 0.287", which was well above the minimum of 0.188".

In accordance with operational requirements for the forthcoming drilling program, the wellhead connector was changed out for a Vetco H4.

The lock and unlock hydraulic operators were successfully pressure tested to 2,500 psi. A reconditioned pilot operated check valve was fitted.

The riser connector was a Vetco H4 rated for 10,000 psi. The connector was installed during our visit and had been fully overhauled. The open and close hydraulic functions were pressure tested prior to installation. Hydraulic gasket retaining pins were fitted. A reconditioned pilot operated check valve was fitted.

7.14.1 Wellhead/Riser Connector Recommendation:

Major:

1. Re-torque riser connector after pressure testing.
   Status: *Outstanding.*

7.15 Riser Tensioners

The rigs riser tensioner system was made up of 8 x 80K Rucker Shaffer style tensioners.

The high-pressure air oil accumulator bottles were heavily corroded, in some areas the depth of the pitting was estimated to be ¼". Wall thickness checks would have to be carried out in the deeply pitted areas to verify that the accumulators were fit for use at the maximum rated pressure of the system of 2,400 psi.

Most piston rods were in poor shape with pitting and scoring in places. Tensioner No.8 wiper seal had slid up the piston rod.

High-pressure pipework for the tensioners at the APV bottles and tensioner control console was in poor condition with severe corrosion in several places.

Relief valves on the APV bottles and tensioners had no labels to indicate the last test date or pressure rating. Some were heavily corroded and appeared to have been in use for a very long time.

The pigtails for connecting the riser tensioners to the slip joint were heavily corroded and should be changed out.

7.15.1 Riser Tensioners Recommendations:

Critical:

1. Verify that all tensioner and APV bottle relief valves are within company specified testing requirements. Have date and pressure detail labels fitted when next tested.
   ***Status:** Outstanding. One unit remained to be recertified or changed out.*
2. Clean up all high pressure piping and had wall thickness checks carried out to ascertain what remedial action is required.
   ***Status:** Completed 27 Apr 02. Results were satisfactory.*
3. Clean up all corrosion on the tensioner high-pressure accumulators and had wall thickness checks carried out in the deeply pitted areas to verify that wall thickness is adequate for 2,400 psi.
   ***Status:** Completed.*

Major:

4. Plan a piston rod change out program for the tensioner rods that were scored and pitted.
   ***Status:** Two were completed. One unit was in town for repairs. The balance would follow ASAP.*
5. Replace the badly corroded bolts in the APV isolation valves.
   ***Status:** DODI had planned to change valves, bolts and flanges. This would involve cutting out pipe sections and rewelding flanges. This would be completed as operations permit.*
6. Replace the badly corroded studs in the flanges between the tensioner cylinders and the high pressure accumulator bottles
   ***Status:** Completed.*
7. Replace the pigtails that connect the riser tensioner wires to the slip joint as they were heavily corroded.
   ***Status:** Completed.*

Minor:

8. Replace the wiper seal on tensioner No.8.
   ***Status:** Completed.*

Critical:

9. *Fit pipework to relief valve discharges on most APVs to ensure that personnel could not be effected by any high-pressure discharge.*

ModuSpec

Major:

10. *Investigate and correct, as required, the apparent bent fitting on the tensioner relief valve.*
11. *Address severe corrosion on pipework and valves on guideline tensioner system below drillfloor; in particular, on the aft side of the moonpool.*

7.16 Guideline and Podline Tensioners

Rucker Shaffer 16K podline and guideline tensioners were in use on the rig. The tensioners sheaves and bearings were all inspected and found to be in good condition.

The piston rod on guideline tensioner No.4 was in poor condition with deep scoring and pitting in most areas.

The tensioners and their pipework were heavily corroded.

7.16.1 Guideline and Podline Tensioners Recommendations:

Critical:

1. Have wall thickness checks carried out on the tensioners and related pipework.
   Status: *Completed.*

Major:

2. Replace tensioner No.4's rod.
   Status: *Completed.*
3. Replace the badly corroded bolts in the APV isolation valves.
   Status: *Outstanding. DODI had planned to change valves, bolts and flanges. This would involve cutting out pipe sections and rewelding flanges. This would be completed as operations permit.*
4. Verify that all tensioner and APV bottle relief valves are within company specified testing requirements. Have date and pressure detailing labels fitted when next tested.
   Status: *Completed.*

ModuSpec

7.17 Drill String/Crown Block Compensator

The drill string compensator was 600K Rucker Shaffer type with a 25-foot stroke.

Inspection of the piston rods revealed several damaged areas to the chrome-sealing surface. The condition was thought to be acceptable at the time of the inspection and no leaks were noted but future change out should be planned.

The high-pressure air hoses were in good condition and well protected with a tie round cover. The compensator was functioned and worked smoothly with no visible fluid leaks. The lock pin operation was functioned without problem. All indications at the drillers control console were operational.

New pipe connections and valves had been installed on the compensator APV bottles.

The chains were measured for stretch and found to be well within the manufacturers limits.

Oil levels could not be verified due to the sight glasses being in need of cleaning.

7.17.1 Drill String/Crown Block Compensator Recommendations:

Major:

1. Plan for changing out the piston rods, as the damage on the sealing surfaces would lead to sealing problems.
   ***Status:** Outstanding. Packers have been changed. Rod change had been scheduled for the next PM. This would be done during the 5 yearly inspection.*
2. Remove and clean the oil level sight glasses on the air/oil accumulators.
   ***Status:** Completed*

7.18 Underwater TV System

A subsea system's underwater camera was installed on the rig.
The unit was not function tested but appeared to be in reasonable condition and was said to be used regularly without problems.

8.0 MARINE EQUIPMENT

8.1 Ballast and Bilge System

We carried out a visual inspection of the ballast and bilge system but not an operational test. Most of the ballast pump's shaft seals were leaking seawater into the bilges. The seawater was corroding and rust streaking the pump casings.

Mission pumps located in the pump rooms had leaking shaft seals and corrosion of the pump footings.

8.1.1 Ballast and Bilge System Recommendations:

Minor:

1. Rectify leaking shaft seals of all ballast pumps.
   Status: *Outstanding. No change. The pumps were checked twice a day and adjusted as required.*
2. Rectify leaking shaft seals of the seawater service pumps (mission pumps) in the pump rooms.
   Status: *Outstanding. No change. The pumps were checked twice a day and adjusted as required.*
3. Repair the corroded undersides of the ballast pump electric motors.
   Status: *Outstanding. This was in progress*

8.2 Overflow and Vent Checks

We walked the main deck of the rig and inspected numerous vent heads and overflows that required attention. The main defect had been caused by corrosion damaging the integrity of the vent head sealing. Corrosion had also weakened the strength of the construction.

Vent heads and overflows should be clearly marked with identification, location, and contents.

8.2.1 Overflow and Vent Checks Recommendations:

Major:

1. Remove the damaged fuel tank vent heads around the main deck. Carry out maintenance; replace damaged stainless steel gauze. Replace security bolts and return to service.
   Status: *Completed.*

Minor:

2. Remove vent heads from ballast tanks and voids. Carry out maintenance. Check for corrosion weakening of internal components and ball float/ wooden cone seating integrity. Check vent pipe for corrosion weakening at clamps and hangers. After maintenance, return to service.
   Status: *Outstanding.*
3. Stencil in bolt hi-intensity marking the identification, location and contents of the vent head.
   Status: *Outstanding.*

8.3 Watertight Integrity of Horizontal Tubulars

The underwater ship was visually inspected during the tow and the anchor place at Portland.

We found that the underwater ship (up to the point where we could observe and this was almost/just to the hulls) were bare metal. No traces of coating could be seen.

The sacrificial anodes were for the most part missing or used up, especially on the sides of the tubulars.

Some new anodes were installed on the aft side of the rig.

8.3.1 *Watertight Integrity of Horizontal Tubulars Recommendation:*

Critical:

1. *Perform a hull survey to determine the hull corrosion level, and reinstate the missing and worn out anodes. Recoat the underwater ship*

8.4 Mooring System

We witnessed the operation of all mooring winches during retrieval and deployment of anchors. All the systems and functions were operating correctly. Minor operating defects were encountered during the operations but this did not detract from the performance.

We did note that hard scale was forming on the main band brakes of the winches. Scale would inhibit the performance of the brakes (by reducing the cross sectional area) and would lead to overheating and slip.

A programme should be put in place to remove the scale from the drums.
Below the winches, inside the foundation we noted a severe build up of rust and corrosion attack on cylinders, hose fittings, linkage and adjusting screws.
Guards within this area had corroded away. Bearing grease sections on the winch had not been coated before the winching operation; pre-mooring procedures should be reviewed to ensure all rotating contact points were coated.

8.4.1 Mooring System Recommendations:

Major:

1. Remove scale from the brake drums of each mooring winch.
   Status: *Outstanding.*

Minor:

2. Grease rotating slider clutches before mooring operations.
   Status: *Completed.*
3. Replace corroded and wasted machinery guards from below the mooring winches.
   Status: *Outstanding.*
4. Repair the defective coupling from the starboard side winch.

Major:

5. *Check the alignment of the pinion shaft on anchor winch Nos.5 and 6. The shafts appeared to be out of alignment or a shaft may be bent.*
   Status: *Completed.*

ModuSpec

9.0 POWER PLANT

9.1 Diesel Engine

The rig was equipped with four Model 38D 8-1/8 Fairbanks Morse diesel engines.

All four engines were tested: all engines were fully operational. We tested basic load sharing in the port of Dampier and remote engine shut downs.

During transit to the drilling location, we requested running of the propulsion motors to a) test the propulsion plant and b) to load test the diesel engines.

Our request was met with some reservation but we did witness both the propulsion motors running, with two diesel engines supplying power. Our request for a 30-minute power run was declined.

The propulsion motors were operated at 150 revolutions but were reduced when excess smoking of the diesel engine exhausts was observed.

During this survey we could not ascertain the true potential of the diesel engines because of load restrictions. We would recommend rig management together with shore base design a monthly load test report. The test log should be a basic performance log utilizing the standard engine log sheet. The engine(s) should be loaded to maximum operating conditions and maintained at the power output until temperatures and thermostats stabilise (about 1 hour).

The test should be performed once each month for each main diesel engine. This would enable the condition of the coolers, injection equipment, cylinder peak pressures, supercharger condition etc to be monitored.

9.1.1 Diesel Engine Recommendations:

Minor:

1. Perform load testing of each of the main diesel engines monthly. Report the findings to shore base. Rectify any deficiencies that may restrict full power output.
   Status: *Outstanding.*
   Load testing was not on the PM and therefore not in the history files. Every 1000 hours, it is done as part of the 1000 hr service.
2. Replace the defective exhaust pyrometers on the main engines. (No.3)
   Status: *Outstanding.*
   The exhaust pyrometers on the main engines were replaced, but the replacements failed after three days.

9.2 Emergency Generator Set

The rig was equipped with a model Detroit diesel 16V71, as the emergency generator.

The engine set was housed in a dedicated room above the waterline and with an exit direct to the main deck. The engine had its own dedicated fuel tank and an engine radiator cooling fan. There were two methods of starting the engine; the normal method by battery, the secondary starting method was by an air starting motor.

Prior to departure from Dampier, we conducted a black start exercise, stopping the main engines from the emergency shutdown on the drill floor (to simulate gas escape from the drilling area). Engine No.3 was operating when the instructions were given. The diesel engine stopped immediately blacking out the rig, battery operated lighting came into operation at stairwells, escape areas and emergency stations. 1 minute and 28 seconds after the main diesel engine stopped, the emergency generator started (this long delay was because the timer was set incorrectly, it had now been adjusted to 18 seconds).

Emergency power was instantly available for distribution and all lighting returned to the rig. We started the emergency air compressor; to ensure ballast control could operate ballast valves and started one ballast pump. The electrical load on the emergency switchboard was indicating 200 Amps (the generator was rated for 375 kW / 570 Amps). We started the emergency fire pump, the load on the emergency switchboard indicated 400 Amps but the engine cycles dropped to 56Hz from 60Hz. Despite attempts at manually raising the engine cycles, the increase could not be achieved. Engines were returned to normal after the test.

The Detroit Diesel engine had accumulated 866 hours since 1975; although not many running hours had been recorded the engine was idle with heaters. The engine had external evidence of hardening of the cooling water hoses, which could fail under extended operating conditions. We would recommend that a set of water and fuel hoses were procured and that a planned maintenance schedule be planned at some future date for the replacement of these items.

ModuSpec

9.2.1 Emergency Generator Set Recommendations:

Critical:

1. Investigate emergency generator lack of 100% power. Conduct a power test after rectifying the defect.
   Status: *Completed.*
   The fuel filters were found to be faulty and were replaced.

Minor:

2. Replace the cooling water hoses at some future maintenance period. (Original items were showing signs of hardening and deteriation due to heat and age.)
   Status: *Outstanding.*
   The hoses were on order.
3. Remove all paint from the mechanical linkage of the shutdown system: grease the linkage.
   Status: *Completed.*
4. Post a single line diagramme in the emergency generator room at the switchboard.
   Status: *Completed.*
5. Replace the labels on the circuit breakers at the emergency switchboard.
   Status: *Completed.*
   The existing brass labels were taken off, cleaned and replaced.

9.3 Air Compressors/Air System

Two Sullair compressors supply general purpose rig air, the compressors were model 20-125. These compressor sets were located in the auxiliary machinery room. The air was dried by a compressed refrigeration system.

We tested the compressors and witnessed auto cut in/cut out on demand. The quality of the rig air was good. Safety valves on the compressor were dated last test 06/1997; we would recommend a frequency rate for test and re-certificate of one or two years on a MODU for pressure relief valves.

Accumulated compressor running hours were sighted, rig air compressor No.1 had accumulated 15,276 hours total and was overdue for a module change out (its due change out would be at 4,000, current 4,233 on the oil). Rig air compressor No.2 had accumulated 4,323 hours; its next module change out would be due at 4,000 hours, current 2,071.

There was an electric driven emergency air compressor located in the auxiliary room; this was successfully tested during the emergency generator blackout tests.

There were three air compressors in the main engine room, two were electric driven, max pressure 250psi for charging the main engine starting air receivers, and the other compressor was a diesel engine cold start compressor.

We tested both air start compressors and the cold start diesel compressed satisfactorily. As with the other compressors, the safety valves on the compressors and on the air receiver were last tested June 1997.

9.3.1 Air Compressors/Air System Recommendations:

Major:

1. Test and recertify the air system relief valves.
   Status: *Completed.*
   The valves were integrated in the PM system, and were sent ashore every two years for recertification.

Minor:

2. Remove the guards and deep clean the air cooler coil on the emergency air compressor.
   Status: *Completed.*

9.4 Refrigerating and Air-Conditioning

The air conditioning system on the rig was found to be very efficient with no obvious defects noted. The fan room should be given attention regarding housekeeping. All non-essential items from the fan room should be removed to alternative storage locations.

We checked a number of air outlets in the cabins and the public rooms and found them dirty with dirt and dust deep seated within the trunking. The dirt was especially in the lower levels of the accommodation

The galley freezer and chiller rooms were found clean and in good condition; door locks and seals were good and the temperatures were correct, the temperatures read +4 deg C for the chiller room and –18 deg C for the freezer rooms. The refrigerant compressors were located outside of the accommodation at the rear of the engine room. We visually inspected them in operation, no defects were noted.

9.4.1 Refrigerating and Air-Conditioning Recommendations:

Minor:

1. Housekeeping should be carried out in the accommodation fan room.
   Status: *Completed.*
2. Plan a deep clean of the ventilation trunking in the accommodation. Cabin entry louvers were showing build up of dirt.
   Status: *Outstanding.*
   This recommendation was not addressed at this time.

9.6 Crane and Power System

The rig was equipped with three cranes.

The one at starboard aft was a National OS-345

The one at port aft was a Seatrax 6032; this crane had only recently been installed and commissioned.

The starboard forward unit was a Seatrax. This crane was transferred from the port aft location in December 2001.

All three cranes were fully operational.

We inspected the function controls of all three cranes. The National crane was tested over the range including radio contact, self-centring handle controls, speed control etc. We inspected the Seatrax cranes during supply boat operations and also tested the boom safety limits. All functions operated satisfactorily.

9.6.1 Crane and Power System Recommendations:

Major:

1. Grease the emergency stop linkage on the starboard forward crane. Check bolts for security, this was fretting due to vibration and a lack of lubrication could cut through the steel.
   Status: *Completed.*

Minor:

2. Service the diesel engine on the starboard forward crane. The exhaust was black.
   Status: *Completed.*

3. Remove the wind speed indicator and the red aircraft warning light from the starboard forward crane. Corrosion had weakened the security fasteners. Replace with new fixings.
   Status: *Completed.*
4. Carry out housekeeping in the starboard aft crane engine compartment and remove obstructions from the driver's escape door. Paint protect the hydraulic pumps and steel piping.
   Status: *Completed.*

9.7 Watermaker

There were two Alfa Laval water makers installed in the engine room, average daily production was 26m^3 / 24hr. Slight evidence of leakage was observed from the seawater inlet of unit No.1. At the next overhaul, the gaskets should be renewed.

Both watermakers were operating satisfactorily; water purity readings were displaying 0.6 ppm. Chemical injection was 90cc/min

9.7.1 Watermaker Recommendation:

Minor:

1. Renew gaskets on the outboard Alfa Laval watermaker jacket water inlet pipe.
   Status: *Completed.*

9.8 Boiler

There was no boiler installed on the rig.

9.9 Reduction Gearbox

Both propulsion motors were test ran. The motors were taken up to 150 revolutions and then down to 100 revolutions for a short period. All ancillary pumps and coolers were operational without indication of alarms or abnormal pressures/temperatures.

9.9.1 Reduction Gearbox Recommendation:

Minor:

1. Protect the foundation seating bolts from corrosion on both propulsion units.
   Status: *Outstanding.*

ModuSpec

9.10 Thruster Unit

There were no thrusters motors fitted.

9.11 DP System

There was no DP system installed.

10.0 ELECTRICAL EQUIPMENT

10.1 Elmagco Brake

The Elmagco brake on the OCEAN BOUNTY was a reconditioned Baylor 7838. It was installed during 2000.

The air gap readings were taken from four positions (the fifth position was inaccessible due to a welded deck plate obstructing the plug) on both sides and were found to be between 0.061 and 0.065 which brings them within the manufacturers acceptable limits. There was no excessive corrosion evident at the rotor gap. An inhibitor was used in the cooling water and the cooling water drains into an open funnel.

A flow meter and temperature sensor was installed: the flow meter was seen working, we could not verify the condition of the temperature sensor due to lack of suitable test equipment at the time.

The value of brake coil resistance and insulation resistance between coils was recorded.

Coil Resistance
F1-F2 = 14.02Ω
F3-F4 = 13.99Ω
F5-F6 = 14.12Ω
F7-F8 = 14.05Ω
These readings were taken with the brake cold and were acceptable.

Megger Test
Insulation between coils = 50+ Mohms.
Insulation between coils to earth = 50+ Mohms.
These readings were acceptable.

The Elmagco brake had a battery back up system to provide power in the event of total loss of rig power.

The capacity of the back up system was sufficient to lower the blocks over the complete distance of the derrick. The battery bank was in good condition and regularly maintained providing sufficient power for a four-minute operation during the drain test.

A warning light and audible alarm was witnessed at the driller's console when the power was switched off to test the brake back up supply. The battery voltage was measured before the test at 214V and measured again after discharge at 211V. This was acceptable.
The battery charger was found to be defective. The door to the unit could not be opened.

10.1.1 Elmagco Brake Recommendations:

Critical:

1. Replace the battery charger unit.
   Status: *Outstanding. The charger had been ordered and was waiting on delivery.*

Major:

2. Replace the standby cooling water pump starter.
   Status: *Outstanding. In progress.*
3. Test the cooling water temperature sensor.
   Status: *Completed.*

Minor:

4. Cut the floor plates at the Elmagco brake to allow removal of the lowest access plugs for gap measurement readings.
   Status: *Outstanding.*

10.2 Main Generator

There were four Fairbanks and Morse diesel engines each driving a train of one AC and two DC generators.

AC generators No.1 and No.4 were Fairbanks and Morse 460V/1,450kW. Generators No.2 and No.3 were EMD 460V/1,500kW.

The eight DC generators were GE 5GT 567 CI providing 600V/1,600kW.

DC power was supplied to the drawworks, mud pumps, anchor winches and rotary table.

The AC power was supplied to all auxiliary equipment and the Top Drive SCR unit. The Varco TDS-4S Top Drive and SCR unit were installed in 1992. To provide additional power for the Top Drive, an additional two AC generators were installed to engines No.2 and No.3, which also had their rpm increased from 720 to 900.

The generator supply cable connections were open and exposed with tape insulation and were without additional mechanical protection.

The generators were well maintained. There was no evidence of streaking, grooving or copper drag. The brushes were in good condition.

Under-voltage trip checks were successfully conducted on engine No.1.

Generator Megger Readings:

Generator No.1	1 AC	1 DC	2 DC	Comments
	100 Mohms	5 Mohms	2 Mohms	Acceptable
Generator No.2	**2 AC**	**3 DC**	**4 DC**	
	5 Mohms	5 Mohms	6 Mohms	Acceptable
Generator No.3	**3 AC**	**5 DC**	**6 DC**	
	8 Mohms	6 Mohms	1.25 mohms*	Acceptable*
Generator No.4	**4 AC**	**7 DC**	**8 DC**	
	50 Mohms	5 Mohms	6 Mohms	Acceptable

* Note – This generator was due for its PM where it would be cleaned, this would increase the resistance reading.

10.2.1 Main Generator Recommendation:

Minor:

1. Clean generator No.6 DC to return resistance readings to acceptable levels.
   Status: *Outstanding. DOGC had planned a routine change-out of the generator.*

10.3 Main Transformer (Three-Phase)

There were five AC Transformers – three Lighting 460V/115V and two 460V/230V located in the engine room and transfer room on the upper deck.

The auxiliary machine house lighting transformer was inspected and tested and found to be in good order. The primary and secondary windings were megger tested to earth with outgoing cables connected: Primary – infinity, Secondary – 0 ohms.

The low reading on the secondary side (load) was indicative of an earth fault on a consumer circuit.

10.3.1 Main Transformer (Three-Phase) Recommendations:

Major:

1. Perform a thermographic survey on all transformers.
Status: Outstanding. These surveys were an annual PM and were due to be conducted in June. They would be scheduled during drilling operations and consideration would be given to conducting them at a time when maximum drilling load would be in use.

Minor:

2. Rectify the earth fault on the load consumer side of the auxiliary machine room lighting transformer.
Status: Outstanding. Investigation revealed more than one fault and remedial work was still in progress. Significant progress had been made.

10.4 Converters (SCR and Variable Frequency)

The Ross Hill SCR installed for the Arco Top Drive was inspected and found to be in good order. The loss of cooling ventilation alarm was tested and found to operate correctly.

10.4.1 Converters (SCR and Variable Frequency) Recommendation:

Major:

1. Conduct a thermographic survey of the SCR panel.
Status: Outstanding. These surveys were an annual PM and would be due to be conducted in June. They would be scheduled during drilling operations and consideration should be given to conducting them at a time when maximum drilling load is in use.

10.5 Main Switchboard

The main AC switchboard located in the engine control room was inspected and found to be well maintained and in good order with no heat discolouration of the main or secondary busbar. All outgoing circuits were clearly marked with lockout devices available. Existing electrical isolations (for the work permit system) were locked out with numbered locks as per the Client's offshore procedures.

Generator No.3 incomer circuit breaker was removed to inspect the rear and auxiliary connections these were found to be in good, well-maintained order.

ModuSpec

The bus-tie breaker was operated satisfactorily.

It was reported that the last thermographic survey of the switchboard was carried out in September 2000.

Performance testing of the engines was restricted while anchored inshore at Dampier due to the low available base load of 700kW due to pre-contract preparation and ModuSpec inspection (the covers had been removed from mud pumps); however engine No.1 was tested successfully for over-speed alarm (engine dropped off at 961 rpm or approx 10%).

Engines No.1 and No.4 were paralleled to share load while a drop-off test performed by engine No.4, which dropped off with a differential of 50 kW.

10.5.1 Main Switchboard Recommendation:

Major:

1. Conduct a thermographic survey of all switchboards.
   Status: *Outstanding. These surveys were an annual PM and would be due to be conducted in June. They would be scheduled during drilling operations and consideration should be given to conducting them at a time when maximum drilling load is in use.*

10.6 Emergency Switchboard

The emergency switchboard located in the emergency generator room was inspected and found to be well maintained and in good order with no heat discolouration of the main or secondary busbar. All outgoing circuits were clearly marked with lockout devices available.

At the time of inspection, the deck in the generator room was being painted so that there was not an insulating mat around the switchboard.

10.6.1 Emergency Switchboard Recommendations:

Major:

1. Conduct a thermographic survey of the switchboard.
   Status: *Outstanding. These surveys were an annual PM and would be due to be conducted in June. They would be scheduled during drilling operations and consideration should be given to conducting them at a time when maximum drilling load is in use.*
2. Install insulating matting around the switchboard.
   Status: *Completed.*

Minor:

3. Replace the illegible identification labels on the emergency switchboard.
   ***Status:** Completed.*
4. Install a laminated single line diagrams at the emergency switchboard.
   ***Status:** Completed.*
5. Install red line markings on the generator ammeter at the emergency switchboard. Install a kilowatt meter at the emergency switchboard
   ***Status:** Completed.*

10.7 DC Motors

The DC motors windings, commutator, brushes and general condition were inspected and tested. Not all winch motors were tested due to time constraints.

An internal inspection of the motors clearly showed that the brushes and commutator to be well maintained and in good order. A further inspection of the maintenance records on the PM system confirmed this opinion. However, the megger readings for the mud pump motor windings were very low. This was probably caused by high humidity.

The installation of heater elements in the winding body would help increase the insulation values to an acceptable level.

The external inspection showed that the terminal boxes on mud pumps No.1 and No.2 were badly corroded.

Mud pump No.1 terminal box was in an unacceptable condition and the cable glands were oversized and unacceptable.

The heating elements presently installed in the mud pump and drawworks terminal boxes were unacceptable. These motors were situated in a hazardous area – Zone 2 and all components must be certified for use within that area.

The motors did have a means of air purging before use but the heating elements were designed for use with the motor at standstill and therefore open to exposure to flammable and explosive gases when the motors were not in use.

ModuSpec

The nameplate of the mud pump motors were illegible. It was a requirement for motors in a hazardous area to have clearly legible nameplate showing serial number, size rating and type of Ex protection (API RP 14F 2.3).

Motor	Megger Reading (Mohm)	
Drawworks A	Field – 3	Arm - 4
Drawworks B	Field – 3	Arm – 4
Drawworks C	Field – 3	Arm - 4
Mud Pump 3 A	Field – 0.15	Arm – 0.15
Mud Pump 3 B	Field – 0.15	Arm – 0.15
Anchor Winch 7	Field – 3	Arm - 4
Anchor Winch 8	Field – 3	Arm - 4
Top Drive	Field – 10	Arm - 12

10.7.1 DC Motors Recommendations:

Critical:

1. Replace the defective heating elements in the DC motors in all hazardous areas.
   Status: *Outstanding. Replacement units were being sourced.*

Major:

2. Replace the cable glands on mud pump No.1 supply cable and replace the gland plate.
   Status: *Outstanding.*

Minor:

3. The air pressure sensor piping to mud pump No.3 would require more support on the cable ladder. Re-routing the pipe onto the cable ladder and securing should be sufficient.
   Status: *Completed.*
4. Ensure that nameplate details of all motors in hazardous areas are legible.
   Status: *Outstanding. Motors that had illegible nameplates should be removed from service and returned to an approved repair facility for inspection, repair as required and replacement of all required I/D plates.*

10.8 AC Motors

A visual inspection of AC motors around the rig found most with illegible nameplates, the flamepaths (on Exd rated motors) were painted over and a number had corroded cover-fixing bolts.

Although still operational these motors would require upgraded maintenance and preventative maintenance procedures carried out at closer intervals in order to keep them up to recognised international standards.

A number of motors were found with damaged fan cowls and corroded foundations. An inspection of the PM system files revealed that there were no records of insulation resistance (megger readings) tests carried out.

10.8.1 AC Motors Recommendations:

Critical:

1. Remove paint sealing Exd terminal box covers on agitator motors in the mud pit room.
   Status: *Completed.*

Minor:

2. Ensure the nameplate of the motors in the mud pump room are legible. It is a requirement for motors in a hazardous area to have clearly legible nameplate showing serial number, size rating and type of Ex protection.
   Status: *Outstanding. Any explosion proof motors without correct plates should be removed from service and either replaced or sent to an approved repair facility for inspection, repair (as required) and re-attachment of I/D plates.*
3. Upgrade the maintenance instructions for AC motors to cover ALL motors on the rig.
   Status: *Outstanding. In progress.*

10.9 Motor Control Centres

The main motor control centre located in the engine control room was inspected and found to be well maintained and in good order with no heat discolouration of the main or secondary busbar. All outgoing circuits were clearly marked with lockout devices available.

The thermal overloads for the motor starters had never been injection tested to test accuracy and reliability.

The last thermographic survey of the switchboard was conducted in September 2000.

ModuSpec

A visual inspection was carried out on MCC No.3, No.4 and No.5 located in the auxiliary machine room. An unacceptable level of dust ingress was discovered in the starter cubicles that could be attributed to recent grit blasting activity on the rig.

Cleaning of all interior components, contacts and spaces should be incorporated into the PM system.

10.9.1 Motor Control Centres Recommendations:

Major:

1. Conduct a thermographic survey of all MCCs.
   Status: *Outstanding. These surveys were an annual PM and would be due to be conducted in June. They would be scheduled during drilling operations and consideration should be given to conducting them at a time when maximum drilling load is in use.*
2. Carry out injection testing to motor starter overloads.
   Status: *Outstanding. Have this included in maintenance routines. This was not done at this time.*
3. Clean interior of all MCC starters.
   Status: *Completed.*

10.10 Lighting System (Main)

Most of the exterior areas inspected were considered to be below current international standard illumination levels, specifically the drill floor, derrick, moonpool, walkways, stairways, lifeboat stations and escapes.

It is recommended that a full and extensive survey of all exterior areas be carried out using a Lux level meter to calculate the average lighting levels and ensure that present international standards were met.

Rig floor lighting distribution board 1-L5-02 had an excessive build up of dust on internal components. It was reported that this was a recent build-up caused by current grit blasting activities on the rig.

Rig floor lighting distribution board 2-L5 had heat discolouration on the white phase of the supply cable. Circuit breakers Nos.7, 9 and 11 had badly corroded terminals.

10.10.1 Lighting System (Main) Recommendations:

Major:

1. Carry out a full and extensive survey of all exterior areas using a Lux level light meter.
   Status: *Outstanding. Have the safety department conduct the survey and have additional lighting installed as required. This was not done at this time.*
2. Clean internals of rig floor lighting distribution board 1-L5-02.
   Status: *Completed.*
3. Clean internals of all lighting distribution boards.
   Status: *Outstanding. In progress.*
4. Replace circuit breakers Nos.7, 9 and 11 in rig floor lighting distribution board 2-L5 and investigate heat discolouration on the white phase of the supply cable.
   Status: *Completed.*

10.11 Lighting System (Emergency)

The lighting system was supplied normally from the main power source and was changed over automatically via an automatic changeover switch onto the emergency generator supply on loss of main power.

On loss of total power (black ship), the ship's service battery provided power to DC voltage lighting.

An inspection was carried out with the power to all lighting on the rig switched off and just battery powered lights operational. We found that there was enough light out on deck to proceed to all escape routes and lifeboat stations.

The only external areas of concern where it was considered that there was not enough battery operated light was the moonpool.

In the accommodation, the exit signs above exit doors did not operate and additional emergency lights should be installed at the top of the stairways in the accommodation.

10.11.1 Lighting System (Emergency) Recommendations:

Major:

1. Install additional battery operated emergency escape lighting in the moonpool.
   Status: *Outstanding. Still in progress.*
2. Replace faulty lamps in emergency battery lighting where required.
   Status: *Completed.*
3. Install additional battery lighting at the top of stairways in the accommodation.
   Status: *Completed.*

Minor:

4. Install emergency battery lighting at the CO_2 station.
   Status: *Outstanding. Still in progress.*

10.12 Electrical Outlets

The power supply to all Rig electrical outlets was 2-phase from a Delta connected secondary winding of a supply transformer.

Residual Current Circuit Breaker (RCCB) earth-leakage protection was not provided to the rig electrical outlets.
The characteristics of a 2-phase supply make RCCB operation in the event of a fault unreliable. However, it was now current international standards (API RP 54 Section 5.6) to have RCCB protection to all electrical power outlets and it was a recommendation that a means of earth-leakage protection be investigated and provided.

10.12.1 Electrical Outlets Recommendation:

Major:

1. Provide means of earth-leakage protection to electrical power outlets.
   Status: *Outstanding. To date, no protective device had been located but further investigation was still in progress.*

10.13 Cables and Cable Trays

While generally the main cable runs were adequately supported, there were still some areas where corrosion had occurred; furthermore, additional supports were required for individual cables in numerous places around the rig.

10.13.1 Cables and Cable Trays Recommendation:
Minor:

1. Ensure all individual cables are properly supported.
   Status: *Completed.*

10.14 Batteries, Chargers and UPS

An inspection of the batteries found them to be in good condition, well maintained and generally in good order.

An inspection of the chargers however, found them to be generally defective and would require to be replaced.

The general alarm battery charger had already failed and had two portable battery chargers temporarily installed within the cabinet.

The battery charger for the emergency generator was incorporated into the switchboard and not readily accessible.

It was critical that the chargers for the BOP, Elmagco brake, general alarms, navaids, emergency lighting and emergency generator units be maintained in top condition.

10.14.1 Batteries, Chargers and UPS Recommendation:
Critical:

1. Replace all battery chargers.
   Status: *Outstanding. This had been planned and was awaiting approval.*

10.15 Alarm Systems: Fire, Gas, General, Flooding

An inspection of the alarms found the system to be generally in good order.

Two smoke detectors and a manual alarm point in separate fire zones were tested in the accommodation. The correct audible and visual indication was witnessed.

Three H_2S detectors were tested (mud pump room, shaker house and drill floor) with test gas. The correct audible and visual indication was witnessed.

ModuSpec

Five CH4 detectors were tested (accommodation air intake, galley air intake, drill floor, mud tank exhaust, mud pump room) with test gas.

There was no audible alarm on detection of gas from the mud tank exhaust and the low level alarm did not operate until 20% LEL. The high level alarm did not operate. This was reported to the rig electrician and the fault was investigated immediately. The fault was reported as rectified later that day.

A test was carried out on all audible and visual fire and gas alarms and found to be acceptable with satisfactory coverage over the rig and accommodation with all high noise areas having flashing beacon alarms.

The only area within the accommodation that proved to be unsatisfactory was the gym/locker room.

There was no means of automatic shutdown of the electrical power system or ventilation incorporated into the fire and gas detection system. This was by manual means only.

10.15.1 Alarm Systems: Fire, Gas, General, Flooding Recommendations:

Critical:

1. Ensure all gas detectors are calibrated and tested.
   Status: *Completed. This was a monthly PM.*

Major:

2. Install audible alarms for gas in the gym.
   Status: *Completed.*

10.16 Navigation Lights and Foghorns

A visual inspection of the navigation lights found all obstruction lights operating on the crown and crane boom and pedestals.

The navigation "U" lights were not operational at time of survey and fault-finding work was ongoing.

A foghorn was not installed.

The operation of the rigs air horn was witnessed.

10.16.1 Navigation Lights and Foghorns Recommendation:

Critical:

1. Rectify fault on navaids (navigation lights).
   Status: *70% completed and was ongoing.*

10.17 **Communication: Telephone and PA System**

The telephone and PA system was witnessed to be operating and audible in all areas.

10.18 **Electric Welding**

The rig welding outlets were hard wired back to two welding units in the welder's workshop. There was no means of isolating individual outlets.

10.20 **Earthing and Earth Bonding**

The earth bonding cables at drawworks motor 'A' terminal box had corroded with exposure to the atmosphere

10.20.1 Earthing and Earth Bonding Recommendation:
Major:

1. Repair the earth bond cables at drawworks motor A terminal box.
   Status: *Completed.*

10.21 **Hazardous Areas**

An inspection of hazardous areas found some concerns.

The DC motor heater elements in the brush terminal boxes of the mud pump and drawworks drive motors were not rated for the hazardous area in which they were located. These elements should be replaced with a suitably certified Exe rated heat element and the heater supply cable that was looped from the terminal box should be connected with certified cable connectors.

The Exd rated light fitting adjacent to mud pump No.3 was defective. It had silicon sealer in place of the certified type of hardened sealing compound around the glass lamp housing and should be replaced.

The Exd lighting junction box above mud pump No.3 was defective. The conduit filler boxes threaded into it were badly corroded and compromised the flameproof effectiveness of the junction box in the hazardous area. This condition was reflected in most of the mud pump room lighting fittings.

The shaker motors had corroded terminal box covers and cover fixing bolts. Two shaker motors were corroded beyond repair and should be replaced immediately.

ModuSpec

Some Exd motors in hazardous areas had the terminal box covers sealed with paint.

The flamepaths on Exd rated equipment must be kept clean and free from obstruction and also from corrosion. One single wrap of a non-hardening tape (Denso tape for example) was acceptable, but any hardened seal (enamel paint) would compromise the explosion-proof integrity of the equipment. Corrosion compromised the integrity of the equipment by increasing the gap in the flamepath, therefore the machined surfaces should be kept smooth and clean with a light smear of lubricant.

To obtain an accurate assessment of the condition of each and every piece of hazardous area equipment would require a comprehensive survey solely for that purpose.

It would require a systematic "mapping" of all hazardous areas to identify and log each piece of electrical equipment into a hazardous area register. Once compiled, this register could be used to assist with inspection, assessment and maintenance of each piece of equipment.

10.21.1 Hazardous Areas Recommendations:

Critical:

1. Replace all DC motor heater elements and cable connectors in Hazardous areas.
   Status: *Outstanding. This was on order.*
2. Replace Exd rated light fitting adjacent to mud pump No.3.
   Status: *Completed.*
3. Replace Exd lighting junction box above mud pump No.3.
   Status: *Completed.*
4. Replace or remove all corroded lighting junction boxes and filler boxes in all hazardous areas.
   Status: *Outstanding. In progress.*
5. Clean flamepaths on Exd motor terminal boxes.
   Status: *Completed.*
6. Replace corroded shaker motor terminal box cover bolts.
   Status: *Completed.*
7. Replace corroded Shaker motors. See photo.
   Status: *Completed.*

Major:

8. Compile an updated hazardous area register.
   Status: *Completed. See operations manual.*

Minor:

9. Update P&ID drawings of the hazardous zones, indicating equipment located within the spaces.
   Status: *Completed.*

10.22 Miscellaneous Items

We visually inspected switches, sockets and other electrical equipment. The electric heaters operated satisfactorily with all heating banks in use and without earth fault indication.

We witnessed the change over of the potable water pumps. We did note that the UV sterilizer status lamp was not indicating. Further investigation revealed that one of the control transformers had failed.

10.22.1 Miscellaneous Items Recommendations:

Major:

1. Repair the UV sterilizer.
   Status: *Outstanding. This was awaiting delivery of parts.*

Minor:

2. Update planned maintenance instructions, daily inspect the potable water pumps and heaters and UV sterilizers. Check for operation, heating elements are without earth fault, and that the UV sterilizer is operable.
   Status: *Outstanding. In progress.*

11.0 SAFETY

11.1 Fire Control

11.1.1 Automatic Fire Detection System

This was installed at the ballast control room and the radio room had an automatic Minerva Marine fire controller that "guarded" 80 zones on the rig.

The system would checks for heat, smoke, and radiation.
The sensors were tested every month with a system that all sensors were tested yearly. Each room was equipped with one detector.

11.1.2 CO_2/Halon System for Fire Control

No Halon was deployed on the rig, it had been replaced by the more environmental friendly CO_2.

The following areas were CO_2-protected:

- *Engine room*
- *Paint locker*
- *Emergency generator room*
- *Auxiliary machine space*
- *Propulsion room port, starboard side.*
- *Radioroom/toolpushers office.*
- *Ballast control room*

The protected areas had automatic shutting of mechanical ventilation.
The remote release was located at the ballast control room.

11.1.2.1 CO_2/Halon System for Fire Control Recommendation:

Major:

1. *The cement unit diesel engine room would have to be included in the system.*

11.1.3 Fixed Fire-Extinguishing Systems

Both fire pumps were run and the pressures were recorded.
The engine room fire pump was dead ended at 85 psi. One hydrant tested to 80 psi and two hydrants tested to 70 psi.

The emergency fire pump was dead ended and one hydrant tested to 60 psi.

MODU Code 79 calls for 50 psi with two fire hoses in use with 19 mm nozzles. Furthermore, the pump should be capable maintaining 100 psi at the foam system.

The foam system on the helideck was supplied by a dedicated fire pump and the output complied with MODU Code 1979

If any other fire-fighting equipment on the installation requires more than the above, this equipment would be the determining factor for the calculation.
The system complied with the MODU Code requirements.

During the test, we noted that the water that was released was black, indicating that the hydrants were not flushed often enough.

The accomodation sprinkler system was operated with salt water from the fire mains; this had to be sweet water as per Solas II2 Regulation 12.

11.1.3.1 <u>Fixed Fire-Extinguishing Systems Recommendation:</u>
Major:
1. *Flush the system from each hydrant and have this on the PM system.*
2. *Change over from saltwater to potable water on the sprinkler system as per Solas II-2 Regulation 12.*

11.1.4 <u>Portable Extinguishers and Fire-Fighting Equipment</u>

The portable fire extinguishers were inspected to ensure that they were in good condition and located in accordance with the fire plan.

The fire extinguishers were inspected by a third party in February 2002 and were also on a PM task.

11.1.5 <u>Foam System for Heli-Deck</u>

The foam unit in use was located on the port side of the helideck.
Clear instructions on the operations of the system were posted.

The unit was tested and found to be operating satisfactory. During the test, the pump was stopped by engine room personnel because they had trouble with the water that came from the helideck and had seeped to the motor-room vents.

If this had happened during the real event of a helideck fire it would have been catastrophic.

11.1.5.1 Foam System for Heli-Deck Recommendations:

Critical:

1. *Review the procedures for helideck fire fighting regarding the interference with engine room and authority to start and stop the fire pump.*

Major:

2. *Install a foam level indicator.*

11.2.1 Lifeboat

Four lifeboats were installed on the OCEAN BOUNTY. Three were Hardings with a capacity for 50 persons and one was a Watercraft, with a capacity for 44 persons. The total capacity was for 194 persons.

MODU Code 1979 states in Article 10.1.1 "Each unit should be provided with survival craft of such aggregate capacity as will accommodate twice the total number of persons on board. The installation has accommodation for 97 persons. According to MODU Code, the maximum number of persons on board could be 194/2=97 persons.

Practically, the case could be that a Watercraft would be involved during an evacuation, thus only 94 persons could be evacuated from the rig on that side.

An exception had been made by the Panamanian Republic for this situation, i.e. if an inflatable rescue boat that could accommodate six persons was on the rig.

The lifeboat system was in a poor condition. The hooks in some cases were badly corroded and the cable blocks were in bad condition. The padeyes for the safety slings were also badly corroded.

*The davits in general were in bad condition. One boat hung low in the davit and this made entry to the boat difficult. (**Note:** It should take 3 min to load 50 people in the boat as per MODU Code 1979.)*

The boats were on the rig's PM system and also on a rig check sheet, and were checked on a regular basis. The boats were lowered to the water every three months.

Lifeboat No.2 had to be started with ignition cords, or cold start gas, in event of a emergency. It was questionable if the engine would start with a person not familiar with the boat and the place to find the gas and cords.

ModuSpec

11.2.1.1 Lifeboat Recommendations:
Critical:
1. *Completely remove all corrosion from the davit structure, MPI all welds and padeyes.*
2. *Inspect and MPI all hooks for the boats.*
3. *Repair/overhaul/modify engines so they could start without the aid of starting cords or gas.*

*11.2.2 **Davit-Launched Life-Raft Station***

There are no Davit-Launched life rafts on the OCEAN BOUNTY.

*11.2.3 **Escape Routes***

The escape routes on the vessel were clearly identified with arrows that led to the exits. Luminescent arrows were located at foot level towards the nearest exit.

The emergency battery operated lights were tested and were suitable for escape in blackout situations.

The escape staircase to the sea showed the effect of the waves and weather and were corroded badly. The ladder down to the sea level was damaged and would repairs; furthermore, it did not enter to the sea during a tow.
There was a sign posted at the ladder regarding the situation.

11.2.3.1 Escape Routes Recommendations:
Critical:
1. *Overhaul the staircase and ladder.*
2. *Repaint the badly painted walkway sections on the decks (the yellow lines).*

*11.2.4 **Breathing Apparatus***

An inspection was made on the breathing apparatus and they were found to be good condition. The make of the units was Sabre Pathfinder or Sabre Centurian.

The rig also carried Sabre/Elsa escape sets.

All maintenance on the units came under the PM system.

The locations for the BA set were as follows:

- *Drillfloor (forward)*
- *Drillfloor (port)*
- *MCR room*
- *BCR*
- *Pipe deck (starboard)*
- *Forward deck*
- *Store No.5*
- *Mud pits*
- *Conference room*
- *Aux motor room*

11.3 Flammable-Gas Detection

The rig was equipped with a Drager Regard Hydrocarbon CH_4 and H_2S detection system. The master unit was installed in the ballast control room that was manned 24 hrs a day.
The unit had 11 CH_4 and three H_2S sensors.

The locations are shown in the table below:

Drager Regard Hydrocarbon CH_4 and H_2S Detection System	
CH_4	**H_2S**
No 1 Exhaust	
No 2 Exhaust	
No 3 Exhaust	
Mud tanks exhaust	
Shaker exhaust	
Accommodation inlet air	
Galley	
Drillfloor	
Sack room	
Mud pump room	
Shaker roof	
	Mud pump room
	Shakers
	Drillfloor

The alarms were set for:
CH_4 Low 20% LEL High 40%LEL
H_2S Low 10 ppm High 20 ppm

At random, detectors were tested and operated satisfactorily. The test was written into the PM system.

The portable gas detectors were Drager Mini Warn type. One was present and worked well, and the other two were sent for repairs. Two units would have to be on the rig according to MODU Code 9.4.

11.3.1 Flammable-Gas Detection Recommendation:

Major:

1. *One extra portable detector had to be added to the rig to comply with MODU Code 9.4.*

11.4 Helicopter Operations

The heli-deck was inspected and found to be in good condition, the supports for the steel netting were badly corroded. The emergency escape ladder was also badly corroded.

The heli deck was rated for a Sikorsky S-61.
It complied with the general and MODU Code regulations regarding marking and required illumination.

Adequate fire fighting equipment was located at the helideck and were in good condition. A helicopter crash kit was located on the helideck with various tools like, cutters, hacksaw, hand tools, fire axe and fire blankets.

11.4.1 Helicopter Operations Recommendations:

Critical:

1. *See Section 11.1.5.1 Foam System for Heli-Deck for further recommendations.*

Major:

2. *Investigate the integrity of net support and rectify.*
3. *Coat the emergency escape ladder.*

11.5 Drilling Facilities Safety

No drilling was ongoing during our inspection. The drilling line was slipped and cut and the Top Drive BOP was changed out.

During both operations, the available and necessary safety facilities were used. The jobs were carried out in a controlled manner; safety talk was held and recorded prior to both jobs. The emergency and safety equipment was readily available on the rig floor and mud pit area.

11.6 First Aid and Sickbay

The sick bay was inspected and found to be in good order.

A well-stocked medicine cabinet contained a supply as required by Diamond Offshore.

*All the medicine that were checked were found to be within date.
The accident and treatment logs were also readily available for inspection. The safety and health data sheets were kept in the safety office.
The hospital was clean and orderly.*

11.6.1 First Aid and Sickbay Recommendation:

Minor:

1. *Install a bath in the sick bay.*

11.7 Emergency Procedures Manual

The emergency procedure manual covered the following items:

- *General emergency procedures*
- *Severe weather warning*
- *Well control*
- *Serious spill of oil or gas*
- *Storm or severe weather conditions*
- *Structural failure*
- *Equipment failure effecting the safe operation of the unit*
- *Man overboard*
- *Serious or fatal accident*
- *Evacuation, medivac or emergency evacuation*
- *Emergency signals*
- *Helicopter emergency landing or crash*

11.7.1 Emergency Procedures Manual Recommendation:

Critical:

1. *Review the helicopter emergency crash procedures. (See foam system for helideck.)*

ModuSpec

11.8 **Lifting and Handling**

The lifting gear register book was inspected and was kept up to date. New lifting gear was kept in a separate locked storeroom and when new equipment was taken from this store, the numbers were noted in the book.

When a sling was thrown out, the number would be noted and would be removed from the book. Several items were checked and were all handled correctly.

A lifting gear inspection was conducted every 12 months.

11.8.1 Lifting and Handling Recommendation:

Major:

1. *Enter all drillfloor equipment in the liftinggear inspection book (slings, elevators etc.)*

11.9 **Accommodation**

The accommodation could accommodate 97 people (including the two bunks in the sick bay). The air-conditioning worked well.

The accommodation was kept very clean and tidy, the sinks, toilets and showers were kept clean and tidy.

For recreation, a well-equipped gymnasium, recreation room, and a computer room with email access were present.

11.10 **Pollution Control**

The rig had a 2m^3 waste oil tank in the engine room. All waste oil from the engine room entered this tank. This tank was emptied in holding tanks on the deck and this was sent ashore.

The drains from the rig floor could be routed straight to the sea or to a holding tank at the moonpool. From the tank, it would be pumped over the shakers and into the mud pits.

Spillage from the mudpumps were contained and pumped to the shakers, or dumped in the sea. Halon fire fighting equipment was not used on the rig.

Diamond Offshore had a pollution policy, but it was not posted on the safety notice board; a pollution team was in place during the day and night.

ModuSpec

11.10.1 *Pollution Control Recommendation:*

Major:

1. *A more vigilant programme should be set up to promote the pollution policy.*

11.11 ***Housekeeping***

The housekeeping of the vessel was good. Machinery spaces were orderly, well maintained and clean.

11.12 ***General Safety Items***

A lot of additional and out of the normal drilling work was happening during the tow. These jobs were carried out in a controlled and safe manner; the crew used their resources well.

Signs were set up where needed, permits were obtained, pre-tour meeting are held for all personnel and safety meetings were held where necessary.

11.13 ***Work Permits***

A permit to work system was in use onboard the rig, and covered the following items:

- *Hot work*
- *Electrical work*
- *Entry to confined spaces*
- *Working over the side*
- *Pressure testing*

The O.I.M. and Rig Superintendent would sign all permits.

The barge controller took care of the administration.

12.0 MAINTENANCE SYSTEM

12.1 Maintenance Organization

The maintenance protocol had been sectioned into Marine: Mechanical and Marine Barge and Drilling Mechanical.

The rig mechanic was accountable for the maintenance of the drilling equipment and the chief engineer was accountable for the rest of the equipment. We found the crew to be responsible and knowledgeable of the equipment they were operating but unable to retrieve information or history from other departments.

We recommend that the PMS system be controlled and managed by the rig's chief engineer. As a licensed engineer, he would be in a position to coordinate and upgrade changes that were required in the maintenance system.

The chief engineer could also apply for surveyor status from the classification society and carry out NDT inspection training. Both of these items would strengthen the PMS system.

The current maintenance system lacks a programmed approach, critical equipment **was** being maintained, for example generators, cranes, mud pumps, air compressors, but equipment that could be vital to the operation of the rig were being neglected.

The level, depth and frequency of maintenance inspections should be upgraded to ensure equipment was fully overhauled within a five-year period.

12.2 Preventive Maintenance

The rig had a preventative maintenance system (PMS) supplied by ORION. Like all PMS systems, it relied on the input from organisations to make it prevent maintenance. By performing regular daily, weekly and/or monthly routine tasks the potential for equipment downtime and poor performance could be eliminated. We could find little evidence that the PMS system was being used as a tool to prevent potential failures. Main equipment on OCEAN BOUNTY was being maintained, but the equipment that fed and supported the main equipment was not being maintained to the same degree of importance.

We asked for copies of non-conformance reports; this was a system that was not being used by rig management to report equipment that was less than 100% operative to shore based management.

We would recommend that a review of the PMS system be undertaken and that the ORION system be fully utilised to its full potential.

1. An audit should be conducted to bring the MEL (main equipment list) fully up to date with <u>ALL</u> equipment on the rig being identified and given a unique numbering system.

2. Once the MEL had been documented, each piece of equipment should be given a 5-year maintenance programme according to the manufacturers guidelines. This should include daily: weekly: monthly: 6 monthly: 1 year: 5 year. The information would need to be collated by rig personnel who had access to the many maintenance manuals in the PMS office.

3. After completing the audit, each item of equipment should be evaluated for condition (and given a budget allocation after inspection). Some equipment on the rig had suffered serious corrosion or had not been fully maintained for some time. The decision would need to be taken by management with regards replacement/renewal.

4. We would recommend that a system be put in place to inform shore base management and rig management of the status of all machinery and equipment on the rig each month. (First the MEL should be completed and each item given its unique number.)
   This could be in a format such as:

   Status 1 Good condition, no defects.
   The equipment is in pristine condition.

   Status 2 Fair condition, no defects.
   Normal wear and tear, operating satisfactory.

   Status 3 Working but needs repair; waiting for spares, give requisition number.
   Working but not at acceptable condition, leaking seal, poor engine power output, vibrating fan because of bearing damage. Also spare parts had been ordered but not received on the rig. Waiting to receive the spares before carrying out maintenance.

   Status 4 Working but needs repair, spare parts on board.
   Working but not at an acceptable level. Spares are on the rig but operations prevent maintenance.

   Status 5 Down, waiting for spare parts, gives requisition number.
   Down, red alert high priority, shore base to expedite the equipment.

Status 6 Down spares on board.
Down, rig management need to prioritise maintenance to rectify down status.

Status 7 Not in service.

12.2.1 Preventive Maintenance Recommendations:

Minor:

1. Implement a system of non-conformance reports from the rig to shore base management.
   ***Status:** Completed.*
   A system of non-conformance was in place in the onboard PM system.
2. Implement a system for to inform maintenance management at shore base the condition of equipment each month.
   ***Status:** Completed.*
   PM reports of all departments were sent to management every month.

12.3 Analysis and Reporting

A number of electric motors had been prepared for vibration analysis. Probes had been installed at the drive end and at the free end.

12.5 Organization Drilling

12.5.2 NDT/Certification Drilling Equipment

Please see recommendations in section 12.5.2.1

12.5.2.1 NDT/Certification Drilling Equipment Recommendations:

Critical:

1. Arrange an NDT inspection of critical sections of the Casing stabbing board. (Support points, lifting brackets, brake dogs, track stops, track brake dogs etc). The survey should be carried out by 3rd party personnel.
   ***Status:** Completed.*

Minor:

2. Prepare for a crown sheave 5-year inspection in December 2002; also consider installing a drill line stabiliser at this maintenance period.
   ***Status:** Completed.*
   Preperations were under way and implemented in the PM system.

13.0 SPARE PARTS

The rig had one main store that covered two levels. There were also three satellite stores.

The store value was US$1,700,000 and was of a high value compared with similar rigs. All major spares (as per API) were available on the rig.

None of the items from the checklist were missing, and there were sufficient numbers on stock.

The storeman held the key and even at night, this storeman would come out if spares were required.

The stores were clean and shelves and parts were clearly marked and all were entered in the store computer system.

*13.1 **Drilling Equipment***

There were sufficient spares for the drilling department.

*13.2 **Mud System***

There was a sufficient supply of spares for the mud system.

*13.3 **Well Control Equipment***

Necessary spares were available; e.g. seals, ring gaskets, packing sets, ram rubbers in various sizes and annular element.

*13.4 **Marine Equipment***

There were sufficient spares onboard for the marine department.

*13.5 **Power Plant***

There were sufficient spares on board for the engine room department.

*13.6 **Electrical Equipment***

Electric spares had the normal stock level.

*13.7 **Safety Equipment***

Safety belts, fall arrestors, clothing and personal protective equipment were all easily available.

ModuSpec

REPORT OF SURVEY

Semi-submersible OCEAN BOUNTY
(Escape Evacuation Rescue Analysis)

Prepared for
ESSO AUSTRALIA PTY LTD
SANTOS
OMV

Melbourne, Australia

By

MODUSPEC INTERNATIONAL (L) LTD

Inspection dates: 25 April – 16 May 2002

ModuSpec

1. Introduction

An Escape, Evacuation and Rescue Analysis (EERA) of the Mobile Offshore Drilling Unit (MODU), OCEAN BOUNTY, was performed by ModuSpec.

The EERA demonstrated that under reasonable emergency scenarios, personnel could muster and perform an orderly, controlled evacuation if need be, and be rescued with low, yet reasonably practical risk to its personnel.

The assessment was carried out under the guidance of the "Guidelines on Assessment of EER Facilities" produced by Exxon Production Research Company (EPR).

The objectives of this analysis, which was conducted on May 2002, were:

1. To perform an EERA using this guidance document.
2. To satisfy the requirement for an EERA to be conducted for OCEAN BOUNTY.

2. EERA Methodology

The EERA was carried out as a part of an ESSO Australia Mobile Rig Acceptance Checklist survey and a ModuSpec recommendations recheck of a condition survey which was carried out in Febuary 2002.

The assessment was carried out principally by observing the actual conditions and practices on the MODU and by interviewing a range of personnel with operational responsibilities. The study was essentially an assessment of practices rather than a description of procedures in documentation.

An informal meeting with the OIM, and the ESSO Australia representative was conducted prior to the start of the EERA on the OCEAN BOUNTY.

Informal interviews with crewmembers were conducted in order to assess the practices and procedures on the MODU and the manner in which the personnel carried out these practices and procedures.

3. MODU Description

The OCEAN BOUNTY was a semi-submersible mobile offshore drilling rig.

The rig was built in 1976 by Mitsubishi Heavy Industries Japan and outfitted for drilling at 70-76 feet draft in water depths of 1,500 ft.

The OCEAN BOUNTY was classed by American Bureau of Shipping (ABS as: Maltese Cross A 1 Column Stabilized Drilling Unit).

The rig was a Ocean Victory class and was designed to drill wells up to a depth of 25,000 feet.

4. Location and Activities

At the time of the assessment, the OCEAN BOUNTY was being towed to the Bass Straits.

During the tow, major maintenance was carried out on the mud system and well control system. MPI inspections were carried out on equipment and structural sections.

5. Emergency Scenarios

The Surveyor considered a total of eight emergency scenarios. The scenario relating to explosion or fire was further broken down into seven settings. It was anticipated that an in-depth review of the initial scenario would provide the majority of the information required for the analysis. The review of other scenarios would focus on potential variations to Scenario 1, rather than repeat discussions already covered.

The scenarios considered were:

1. Blow-Out (Near or At Rig Floor)
2. Blow-Out (Subsea Level, Including Shallow Gas)
3. Explosion or Fire (Not as a Result of Blow-Out)
   a. Helicopter Crash
   b. Engine Room
   c. Galley/Accommodation
   d. Mud Pits/Pump Rooms
   e. Sack Room
   f. Helicopter Refueling
   g. Well Test Related
4. Loss of Stability (Collision or Leak)
5. Man Overboard
6. Heavy Weather (Hurricane Procedures)
7. Major Well Control (Pre-Blow-Out)
8. Major Equipment Loss (E.G. Power)

ModuSpec

6. Findings

6.1 Scenario 1 Blow-Out (Near or At Rig Floor)

(Q 2.3.1) Can all offshore personnel detect the alarm, which alerts them when an emergency is in progress?

Observations:

Audible emergency alarms were provided throughout the MODU in each normally manned and accessed area. They were normally powered by the main generators and backed up by the emergency generator. Emergency power would automatically be provided by the general alarm battery system.

There were three types of emergency alarms:

- Intermittent Ringing:
  - Fire and Emergency signal
  - Blow-out signal
  - Collision/Damage/Flooding
  - Helicopter Crash signal

- Continuous Ringing:
  Abandonment alarm

- Whooping Alarm:
  Gas release (10% LEL CH_4)

In noisy areas and in the event of a gas release, audible alarms were supplemented by visual alarms.

Alarms could be activated manually by the operation of a manual alarm actuator or automatically via the Fire and Gas detection systems.

Alarms were normally supplemented by an announcement that provided additional information such as type of emergency and muster or boat details.

In addition to the general alarms and PA system, supplemental internal communications were as follows:

- The rig telephone system
- Marine VHF sets in the radio room, ballast control room (BCR), cranes, SCR room, anchor winch rooms, and pilot house
- Hand-held VHF sets
- Drilling rig floor PA

Access to areas, which were not normally entered, was controlled under the work permit system. In the event of an emergency, a rescue team would be organized to retrieve personnel not accounted for.

Comments:

The rig PA and alarm system worked well.

Crew members might be over-reliant on receiving verbal instructions over the PA or from their direct supervisors. Consideration should be given to include the non-availability of the PA system in drills.

(Q 2.3.2) Is there an adequate system to alert personnel to the emergency should the primary alarm fail or have been suppressed?

Observations:

Emergency power was automatically supplied to the public address and telephone systems from the emergency switchboard, with backup from the general alarm battery system.

Alarms, which were suppressed or isolated for maintenance purposes, were subjected to the controls of the Work Permit System and such work required authorization by the OIM.

Emergency alarm systems that were subjected to repair or maintenance were checked and authorized by the Chief Engineer before they were brought back into service.

Should both backup power systems for emergency alarms fail, communications would be effected by:

- Word of mouth
- Sound powered telephones
- Hand held radios
- Rig floor PA

<u>Comments:</u>

It is recommended that the contingency arrangements for emergency communications be tested during emergency drills and exercises.

(Q2.3.3) Can all personnel escape from their location?

<u>Observations:</u>

There were two independent exit routes from all areas on the MODU except for the following locations:

<u>Derrick</u>
One could exit by a vertical ladder or a controlled descent device. Both however led to the same location. The controlled descent device was routed from the monkeyboard to the drill floor.

The vertical ladder from the crown also led to the drill floor.

The derrickman was in PA contact with the driller.

<u>Main Columns</u>
There were two exit routes from each column, which was the elevator (depending on the column) and a series of vertical ladders that led through the MODU's flats and terminated at the main deck level.

Personnel entering columns (lower hulls) were required to report to the BCR. There was only a single escape route from cranes.

Comments:

Derrick
It is recommended that the controlled descent device be tested with a weighted dummy to ensure that the system/unit is safe and functional.

Main Columns
Personnel who needed to enter the columns should receive clear instructions regarding emergency escape routes and procedures.

Other areas with only a single means of escape were considered to be acceptable.

(Q 2.3.4) Are exit widths and distances of contained areas suitable for the personnel exiting?

Observations:

Accommodation Module
Luminous signs had been provided at levels containing sleeping quarters and the emergency battery pack lights illuminated the corridors during a black out.

Corridors and stairways were generally 1.2m (4'0") wide.

A limited number of emergency escape route drawings were installed in the accommodation module, but none elsewhere on the MODU.

Emergency exit doors were generally provided with appropriate signs. External escape routes were also marked with yellow paint. We were informed that these floor markings also provided clear guidance for storage arrangements, ensuring that escape routes were normally kept free of obstructions.

Comments:

We found that exit widths and distances were, in general, acceptable and appropriate to the hazards and number of personnel involved.

Fire team personnel would wear BA sets and fire clothing, but they were unlikely to cause delays to the muster given the size and number of escape routes available.

Consideration should be given to providing escape route drawings throughout the MODU.

The existing route markings consisted of a pathway defined by a 3-inch wide yellow painted line on the deck at either side of the pathway. The walkways normally painted black inside the yellow lines should also showed large white painted arrows at frequent intervals (within sight of each other) to direct personnel to the nearest life-boat station and indicated the number of that station painted inside the arrow in black.

(Q 2.3.5) Are there tenable routes to the muster stations? Are routes impaired by hydrocarbon release, jet fire, pool fire, smoke or debris? Are routes (including stairs and other restrictions) wide enough and tenable for personnel to move to their muster station within the target time.

Observations:

There were numerous and diverse escape routes on the MODU.

In addition to the main exterior routes, travel to muster points could be made through store rooms and machinery spaces, which would provide significant protection in the event of a well blow-out.

The principal muster stations were the lifeboat stations, in the case of a H_2S muster; the station was the middle recreation room.

Comments:

We considered the tenable escape routes that were available to personnel in event of an emergency acceptable.

(Q 2.3.6) What protection is afforded personnel moving toward a muster station?

Observations:

A firewater deluge system was provided over the drill floor.
This system was intended to provide better control over fires and suppress thermal flux levels to assist personnel in making an emergency escape.

It was possible to utilize the interior of the MODU to provide cover/shelter for significant portions of the routes to the principal muster points.

Comments:

We considered the protection given to personnel moving towards a muster station adequate.

(Q 2.3.7) Are personnel knowledgeable about the route to their muster station?

Observations:

Personnel new to the MODU, and visitors, were required to attend the rig safety induction talk/briefing.

The induction briefing was given by the safetyman onboard and the last two hours of the session included a quiz on the items covered in the briefing.
It included a discussion of the appropriate responses that should be taken in the event of an emergency, escape routes and muster stations.

Personnel were also given a tour of the MODU, during which time the location and identities of muster points were drawn to their attention.

Various scenarios were employed during muster drills, which utilized both primary and secondary muster points.

Comments:

Crew knowledge regarding muster station routes was considered to be adequate.

To maintain this competency level, it is recommended that emergency drills be carried out occasionally and it should include blocked route and stretcher parties scenarios.

(Q 2.3.8) Can personnel find designated muster stations using signs and other direction aids and lighting?

Observations:

An emergency lighting system was provided throughout the MODU, which consisted of continuously trickle charged battery backed-up lights.

In emergency situations, as far as practically possible, the OIM would provide information over the PA system.

Information would be provided regarding the nature of the emergency, location of fires etc. escape routes and muster stations.

Escape route signs were provided throughout the MODU.

Comments:

The routes to the principal muster stations were provided with adequate signs and emergency lighting. Personnel with emergency duties were provided with handheld radio sets.

(Q2.3.9) Are routes (including stairs and other restrictions) wide enough for personnel to move to muster station within the target time?

Refer to Q 2.3.4

ModuSpec

(Q 2.3.10) Can injured personnel be moved to the muster stations?

Observations:

The following equipment was provided to assist the movement of injured personnel:

- Casualty chair
  This was fitted with securing straps and carrying handles to enable the safe negotiation of stairs and other awkward locations.

- Backboard stretcher
  This type of stretcher was provided with straps and hooks suitable for lifting or lowering injured personnel.

- A scoop stretcher and a winch tripod were also available to assist in rescuing or recovering injured personnel.

Comments:

We concluded that adequate arrangements were in place for the safe and timely evacuation of personnel.

During the drill, a casualty was evacuated in a stretcher to the lifeboat station.

(Q 3.4.1) Can available muster stations/TRs accommodate all people on board (POB)?

Observations:

Muster stations:
The three muster area designations on the station bill were confusing.
The station bill sketch showed:

- Muster point A to be the helideck
- Muster point B to be on the fore deck port side (near the forward lifeboat station and the forward helideck stairs)
- Musterpoint C to be the main entrance door to the sack room on the pipe deck, aft of and below the drill floor V-door.

The text of the relevant portion of the station bill however read as follows:

Musterpoint for Emergency:

Musterpoints would be advised by PA announcement

- A - Main sack room door
- B - Forward deck
- C - Helideck

There was no PA that mentioned "go to primary A then B".

The above-mentioned wording and sketch appeared contradictory.
It could give rise to confusion in an emergency and should be revised.

Each of the designated muster points would be of sufficient size to accommodate all POB.

Temporary Refuges (TR):

With regards to the Temporary Refuges (TR), the total approved persons on board at the time of survey were 63 persons.

The lifeboat muster areas external to the main structure were as follows:

- No.1 was on the starboard side amidships, between the starboard winches and outboard of the mudpump/pit room.
- No.2 was port side amidships, under the helideck overhang and outside the engine room.
- No.3 was right forward below the pilothouse.
- No.4 was right aft, between the centerline columns across the stern box girder.

In circumstances where direct shelter from fire or gas was not required, there was adequate deck area adjacent to, and within a reasonable distance from each lifeboat boarding area to permit the mustering of personnel and donning of the survival suits.

The primary identified Temporary Refuge as per rig's safety case was the main accommodation.

An analysis of other available options, should particular fire or gas situations dictate the need for alternative protected refuge shelters, follows below:

A Temporary Refuge (TR) for the forward (No.3) lifeboat station could be in the upper and middle levels of the accommodation and the pilothouse.

Access from the upper accommodation would be via the forward door to the helideck landing and via the walkways to the bow area, similarly for the middle level. In most circumstances, this should be a preferred location for temporary refuge/evacuation to lifeboats on the rig, due to the size of safe haven, the sheltered proximity to the lifeboat launching station and the degree of resources (food, water, medical-stores, clothing, communications, etc.) available inside the main accommodation.

There were no particularly suitable alternatives for a TR at or near the starboard (No.1) lifeboat station. The station was immediately outside the mud pit room, between the starboard side winch sets. Two watertight doors adjacent to the lifeboat station allowed access to the mud pump room and mud pit room. Personnel could shelter there but in most scenarios involving fire or gas, these co-joined spaces would almost certainly be compromised.

The only viable alternative in this area would be to take shelter in the upper levels of the starboard outer side columns. These columns could be accessed at the main deck level via vertical watertight doors located adjacent to each winch. Co-ordination and communication between the columns would be difficult, however the winch control house telephones could be used.

A Temporary Refuge (TR) from the port (No.2) lifeboat station could be found in the main accommodation middle and lower levels. There was an exit stairway/door from the rear door of the galley as well as from the lower/middle deck accommodation passageways to the sheltered landing below the helideck, where No.2 lifeboat was located.

In the event of an engine room fire or helideck fire, this location would be the least preferred location. However, this would be the preferred location for temporary refuge/evacuation to the live boats on the rig, due to the size of the safe haven, the sheltered proximity to the lifeboat launching station and the degree of resources (food, water, medical stores, clothing, communications, etc) available inside the main accommodation.

A Temporary Refuge (TR) for the aft (No.4) lifeboat station could be found in the aft box girder area immediately forward of and below the lifeboat station.

There were four below deck store/workshops located across the stern of the rig in this area, each pair of rooms were interconnected below decks and each store/workshop room had a vertical watertight door connecting it to the main deck. If these rooms were not available, due to fire, damage etc, the aft lifeboat station could be out of contention as a safe disembarking point during a blow out or major fire.

It could be seen from the above analysis that the main accommodation in conjunction with lifeboat station No.3 and No.2 would represent the best possible combination of protection and facilities in event of most emergencies involving rig or gas scenarios.

None of the areas listed above were formally described on the station bill as TR nor were they marked as such.

A limited number of survival suits (max 8) were stored in the life jacket lockers at the lifeboat stations.

Other personnel were expected to bring/collect life jackets and or survival suits from their cabins in the event of a drill or genuine emergency.

Comments:

There were adequate arrangements in place for the maximum number of POB to be accommodated at the three designated musterpoints and at the lifeboat muster stations.

We were concerned about the procedures controlling the distribution of the life jackets and exposure suits.

Drills should be conducted to ensure that personnel bring their life jackets/survival suit to the boat station and that adequate spares were available to personnel who could not return to quarters to collect their life jackets/survival suit.

(Q 3.4.2) Is there a system to identify and locate personnel unaccounted for?

Observations:

Muster lists were updated within a few hours of personnel arrivals/departures.

A muster checker was appointed for each station.
He was responsible for collecting the POB listing from the muster container, identifying the personnel at his muster station and informing the Emergency Control Center (ECC) of personnel accounted for, missing and injured.

Personnel who could not be accounted for were identified and if appropriate, a search and rescue team was organized.

This system was applied for each muster point: primary, secondary and others.

If the OIM decided to abandon the rig, a second confirmation muster was taken to clearly identify personnel who had boarded the lifeboats.

Comments:

The method of identifying missing people was adequate.

A "T-card" system or a state board system was not used to assist the muster at each lifeboat station and consideration should be given to implementing either of these systems.

(Q 3.4.3) Is there communication between the OIM and mustered personnel and could it be maintained?

Observations:

In addition to the PA system, additional internal communications were as follows:

- The rig telephone system
- Marine VHF sets in the BCR
- Hand held radio's
- The rigs PA system

Comments:

The communication arrangements took into consideration a diverse yet adequately duplicated system.

(Q 3.4.4) Will the muster stations/TRs remain tenable until the evacuation is completed or until the incident is under control?

Observations:

The escape routes leading to the primary muster stations and to the lifeboat stations were accessible through the inner corridors of the rig and accommodations, which provided some protection from a well control event at the rig floor.

Depending on the wind and sea state, the No.2 (port) lifeboat musterstation would probably be the most desirable one, due to the overhanging helidec structure that provided greater protection from the main drill floor area, until it was time to board the life boats.

The No.3 (forward) lifeboat station would also be preferable in that it should usually be upwind of a drill floor event.

Comments:

The muster station/TRs would provide adequate protection for safe evacuation of all personnel.

(Q 3.4.5) Are there adequate control, communication and monitoring systems in the TR in cases where it has to act as the control center?

Observations:

The pilothouse and the main accommodation area were both well equipped with communications and monitoring systems and could adequately cover lifeboats No.2 and No.3.

The aft No.4 lifeboat TR in the below-deck storerooms had telephone communication via VHF portables and the bosun's store telephone.

Lifeboat No.1 could use the mud pump room telephone if this space were available, or the telephones in the starboard winch deckhouses, in conjunction with VHF portables. Portable VHF radios would always be available to the OIM for command and control.

Comments:

There would be adequate communications available in the main TR (pilothouse/accommodation for No.2 and No.3 lifeboat stations).

There would be adequate communications available in the aft No.4 lifeboat TR (below-deck stores), provided that the bosun's store was available.
If this were not the case, the TRs in the standard column tops would have to rely on VHF portables and/or the winch deckhouse telephones.

Due consideration could also be given to increasing the communications equipment available in the potential TR at No.1 lifeboat station.

(Q 3.4.6) Will personnel at the command point know if the environment in TR/muster station is deteriorating?

Observations:

Contact between the command center and TRs/muster stations would be maintained using the rig telephones, walkie-talkies and PA system.

The muster stations could not be monitored with portable gas detectors in the event of a gas release, as only one functional portable gas detector was available on board.

Comments:

The communication arrangements were deemed to be satisfactory.
However, the monitoring arrangement could be improved by expediting the return of the two detectors that were under repair.

(Q 4.3.1) Does everyone on the installation receive the order to abandon, if given?

Observations:

The abandonment signal would be given along with an announcement from the OIM, requiring personnel to board their prescribed lifeboat.

The actual instruction to abandon would be given verbally by the OIM to each lifeboat commander via radio and the PA system.

Comments:

The signal for launching lifeboats during MODU abandonment was by word-of-mouth from the OIM.

A back-up procedure should be established and communicated to people on board to ensure that the lifeboats receive the launch signal given by the OIM or person in charge.

(Q 4.3.2) Do off-installation authorities, including Company Crisis Management Team, know of the abandonment?

Observations:

The off-installation authorities would be informed immediately according to emergency contingency plan by means of radio/satellite communications.

Comments:

The ranges of radio/satellite communications available were satisfactory to ensure that communications with off-installation authorities would occur.

Testing of external emergency communications as part of emergency drills should be given consideration.

(Q 4.3.3) Do personnel know where they are to abandon from and by what means?

<u>Observations:</u>

Information regarding abandonment was provided during the rig safety induction.

The abandonment facilities available were:

- Helicopters to shore,
- Helicopters to supply boat,
- Basket transfer direct to supply boat,
- Lifeboats, and
- Direct to sea in survival suits and or life jackets.

<u>Comments:</u>

Abandonment scenarios, other than by lifeboat, should be included during emergency drills and exercises to ensure that the personnel were familiar with the full range of abandonment arrangements available to them.

The priority of abandonment arrangements should also be discussed and evaluated during emergency drills.

(Q 4.3.4) Can personnel get to the means of abandonment?

<u>Observations:</u>

The abandonment points were duplicated, other than the helideck that was directly accessible from the accommodation module.

<u>Comments:</u>

Access was considered to be satisfactory due to the duplication of abandonment points and the diversity of access routes.

ModuSpec

(Q 4.3.5) What abandonment facilities and means are available?

Observations:

Abandonment would be considered from the following prioritized list:

- Helicopters,
- Transfer to supply boat,
- Lifeboats, and
- Ladders to the sea.

Consideration would be given to the escalation of the incident and the availability of helicopters and supply vessels.
The weather and the sea state were other factors that would impact the method of abandonment.

The emergency equipment was subject to inspection and routine maintenance.

Comments:

We conducted an inspection on all the lifeboats on the rig, and were concerned about the condition of the boats and launching system. Two out of the four boats would not start unless an igniting cord or starter gas was applied. The gas and cords were stored in the storage area under the seats.

The boats would not be able to be started in an emergency by an unfamiliar member of the crew. A serious threat to life would exist if launched without the engine.

The davits system structure, safety sling pad-eyes, and boat lowering hooks/blocks were situated at very badly corroded places and some pad-eyes were bent.

The escape ladder was under construction and was not functional at present.

The abandonment facilities were considered to be inadequate.

(Q 4.3.6) Are helicopters a reasonable choice for abandonment?

Observations:

If a rapid evacuation was required, abandonment by helicopter was not a practicable option in this scenario.

Helicopters would be mustered depending on the emergency. However, the response would reflect the flying time from the helicopter base. The helicopter response time might, in some cases, be shorter during periods of daylight if the helicopters were already in the field serving other installations. Furthermore, the abandonment time required by helicopters could be reduced by shuttling personnel to other installations in the area.

Comments:

Helicopters were likely be used for rescue from the MODU for slow developing/escalating incidents that presented no immediate threat to life, such as the total loss of power. Hence, helicopters could not be relied upon for rapid abandonment.

(Q 4.3.7) Can personnel evacuate to another connected installation or be lifted to a support vessel?

Observations:

The MODU would be working in stand-alone mode and was not connected to another installation.

A personnel basket was available for the transfer of personnel to supply vessels. However, the supply vessels only visited the MODU on an ad-hoc basis.

Comments:

The Coast Guard would organize and direct vessels as part of the overall rescue plan.

Due to the lead times required, the option of evacuating to a support vessel might not be available. Further, rough weather would inhibit the use of support vessels. As the MODU was in a stand-alone mode, a connected installation to which personnel could alternately evacuate to, was unavailable.

(Q 4.3.8) Is there sufficient lifeboat (TEMPSC) capacity available for all personnel under likely scenarios?

Observations:

There were a total of four lifeboats on the MODU, one at each of the forward, port, starboard and aft side.

Three different types of lifeboats were installed:

- Fwd Harding 50-man
- Starboard Harding 50-man
- Port Harding 50-man
- Aft Watercraft 44-man

MODU Code 1979 states:
Each unit should be provided with survival of such aggregate capacity as would accommodate twice the total number of persons on the unit, including:

1. Rigid totally enclosed motor propelled and fire protected survival craft of such capacity as would accommodate all persons on the unit; and
2. Survival craft, capable of floating and breaking free in the event of the unit becoming submerged, such capacity as would accommodate all persons on board.

In complying with the provisions above, not less than two survival craft should be provided.

A rescue boat was not present on the rig, and the maximum amount people that the boats were rated for were 194 persons.

The maximum allowed people on board would be 194/2=97 people.

Comments:

We consider that the arrangements in place were adequate. However, given the maximum POB that could be accommodated, the MODU should consider undertaking frequent lifeboat loading drills to effect efficient abandonment.

(Q 4.3.9) Are there specific factors that will affect the ability to launch the lifeboats or will increase risk in using them?

Observations:

The prevailing sea state, wind and weather conditions might prevent the launching of some or all of the lifeboats, in an extreme weather event.
However, as the lifeboats were designed only for use in extremis, there would be an inherent risk in their use, the alternative usually being extinction.

The accumulation of ice on the lifeboat falls and hook releases that might prevent the boats from launching, was unlikely in the water, even during the winter months.

Comments:

Consideration should be given to the provision of a standby vessel during well testing operations in the event that one of the lifeboat stations becomes unavailable due to the well testing operation.
See also **(Q 4.3.5)**

(Q 4.3.10) Are life raft arrangements adequate for an abandonment (escape to the sea)?

Observations:

The rig was not fitted with life rafts, and this question was not considered further.

(Q 4.3.11) Can personnel, where there is no alternative, "safely" enter the sea directly?

Observations:

There were two ladders to the sea level from the main deck level, one fitted at the port aft and one at the starboard forward corner of the rig.

Comments:

The arrangements for entering the sea directly were considered to be adequate for the stairs. The ladder was under repair at the starboard forward side of the rig and was inadequate at the time of inspection.

(Q 4.3.12) Consider the effectiveness of the means of evacuation and escape to the sea.

Observations:

For emergency scenarios, an escape to the sea was the least preferred option.

Comments:

See **(Q 4.3.11)**

(Q 5.3.1) What is the expected survival time of people entering the sea?

Observations:

Exposure suits were provided for all personnel, and life jackets were worn in addition to the exposure suits. It should be noted, however, that the suits themselves were buoyant.

Depending on the seawater temperature and surface weather condition, the survival time in the water in the Bass Straits in winter was estimated at less than two hours, even with an exposure suit being worn.

Comments:

The requirement of wearing the exposure suits should be stressed regularly at safety meetings, and the advantages in terms of survival time, even in the summer months, should be fully explained.

(Q 5.3.2) At what time do rescue craft arrive at the scene and begin the rescue operation?

Observations:

The time to reach the OCEAN BOUNTY would depend on the precise location at which the rig was working, and other traffic in the area at the time.

A standby vessel could be expected to be available with the rig at minimum time.

Other supply vessels might also be available within reasonable steaming time, if they were operating in the area.

Comments:

There was also the possibility of other vessels being in the area, which could provide assistance in the rescue operations. Supply vessels would be fitted with life-support equipment for survivors and for personnel rescue and support in cold water.

(Q 5.3.3) Can all personnel be located?

Observations:

The lifejackets were provided with a strobe light, reflector tape and a whistle. The lifeboats were equipped with an Emergency Position Indicating Radio Beacon (EPIRB) and a marine radio.

It was understood that the Coast Guard vessel would be equipped with appropriate search-and-rescue equipment; however other craft would have no (or minimal) equipment.

A copy of the muster list would be carried in each lifeboat to provide a record of rescued/missing personnel.

Personnel rescued by helicopter would be subject to individual accounting.

Comments:

The arrangements for locating all personnel on board and for locating survivors in the water during an emergency were considered to be adequate.

(Q 5.3.4) Can the rescue craft get to the personnel?

Observations:

It was understood that the Coast Guard vessel would be fitted with appropriate rescue equipment.

The offshore supply vessels would also be fitted with appropriate rescue equipment. The MODU's lifeboats were provided with quoits and lines.

Comments:

It was anticipated that the Coast Guard would provide the most effective and safe means for rescue from the sea.

Other vessels were unlikely to have suitable rescue equipment, such as a fast rescue craft (Zodiac), rescue zone nets and survivor first aid stores, on board.

(Q 5.3.5) How long could rescue craft stay at the scene?

Observations:

It was projected that rescue vessels would be able to remain at the scene until directed otherwise by the Coast Guard. Helicopters would have limited rescue operation time due to the remote location of the MODU.

Comments:

The relatively short rescue time capability of helicopters due to the remoteness of the site needs to be considered.

This might be mitigated by utilizing support facilities available at other offshore installations.

(Q 5.3.6) Can all personnel be picked-up before exposure time exceeds the survival time?

<u>Observations:</u>

Personnel entering the sea directly would have a low probability of survival, especially in extreme surface weather conditions, such as darkness, high wind/wave conditions and heavy rain.

Under these circumstances, drowning due to ingestion of salt-water spray and spume. Also, hypothermia, a likely cause of death could occur within minutes of entering the water.

Personnel entering the water in lifeboats should have a good rate of survival, all other factors being equal.

Significant injuries to survivors could reasonably be expected when personnel attempt to disembark from the lifeboats into the rescue vessel, unless fortuitous weather conditions were available.

It would be extremely difficult to transfer casualties from one vessel to another without special equipment and well-trained personnel.

The best course of action in this case might be to remain in the lifeboats until weather conditions improve.

Comments:

The survival of all personnel who enter the water, either in a lifeboat or in survival suits could not be guaranteed.

(Q 5.3.7) What facilities are immediately available for the aftercare of survivors?

Observations:

Some aftercare facilities might be available on Coast Guard vessels.
Aftercare facilities on supply vessels and other platforms in the area ought to be adequate, once survivors were transferred and or recovered from the water.

The availability of facilities on other vessels would be a matter of chance.

Comments:

The immediate provision of aftercare equipment at the location would be by supply vessels taking part in the rescue operations and platforms/other rigs in the immediate area.

Specialist medical resources would be limited to the offshore medics and first-aid trained persons initially but this could soon be supplemented by trained personnel from shore or by evacuating the survivors to shore facilities.

The provision of aftercare equipment at the supply boat base should be considered so that equipment was immediately available for use by vessels taking part in rescue operations. Such equipment would include, but not be limited to, dry clothing, blankets, food and drink, etc.

(Q 5.3.8) What reception facilities are available onshore?

Observations:

Survivor aftercare facilities onshore should be adequate and quickly available, as similar contingencies would have been established and exercised/used by other operators.

The relative proximity to Melbourne would also prove useful should more in-depth resources be required.

Comments:

The process to identify shore reception facilities for each specific area of operations was considered to be adequate.

6.2 *Scenario 2: Blow-Out (Subsea Level, Including Shallow Gas)*

Observations:

Drilling operations performed prior to the fitting of the BOP stack were closely supervised and CCTV was used to monitor the subsea wellhead area/surface hole entrance for the appearance of well fluids, particularly gas bubbles.

Standard well control measures, utilizing a 9-7/8 inch pilot hole in a riser-less drilling mode would initially be employed. If the control measures failed, the main concern was the migration of substantial amounts of gas to the surface of the sea directly below the MODU. Fundamentally, the appearance of gas below the MODU presents similar hazards to those considered in Scenario 1 and many of the same comments apply.

The basic emergency strategy was as follows:

- Attempt to control the well,
- If the gas remains unignited, muster in the TR,
- If attempts at well control fail, pull away using anchor tension, and
- If unable to pull away, apply standard emergency procedures as discussed.

A further consideration in this scenario was the reduction in density of the seawater around the MODU due to the flow of gas bubbles, which might have an effect on the buoyancy of the MODU.

These effects were not considered to be significant and were mitigated by the upward pressure on the MODU created by the flow of gas and the MODU's inherent buoyancy.

Comments:

The hazards associated with this scenario were similar to those for Scenario 1 that should be referred to.

Semi-submersible rigs operating in shallow waters might also have problems in pulling away clearly due to the limited distance that they would be able to pull away on relatively short anchor lengths.

6.3 Scenario 3a: Explosion or Fire - Helicopter Crash

Observations:

For the purpose of the assessment, it was assumed that the crash had occurred on the helideck.

The helideck was provided with foam monitors and a helicopter crash rescue kit.

The helideck was located partly above the accommodation module with drainage from the helideck directed overboard. This would include the drainage of spilled aviation fuel.

Helicopter landings were attended by a crash and fire fighting team and the safety representative. The crash team had received training in helicopter rescue and fire fighting techniques.

In order to bring the helideck back into operation, the MODU's cranes were available for the removal of debris.

During an exercise done specially for the purpose of the EERA, three monitors with foam were used to cover up the helideck with foam. The amount of foam and water produced could not be drained fast enough through the existing drainage system. The water overflowed from the drains and entered the vents/ducting system from the engine room below the helideck.

The running equipment in the engine room was about to shut down automatically. However, before this could happen, the engine room personnel had shut down the fire pump.

This action left the firefighters on the helideck without water pressure. In a real event, this could have been catastrophic for the helicopter crew and the firefighters.

Comments:

The arrangements for dealing with a helicopter crash on the helideck were considered to be satisfactory.

If the incident escalated beyond the helideck, the observations and comments for scenario 1 would generally apply.

The emergency procedures have to be reviewed and changes were needed to prevent a shutdown of the helideck fire pump by personnel other than or directed by the firefighting crew.

The eventuality of a helicopter crash elsewhere on the MODU was considerably generally addressed in the assessment of other fire and explosion scenarios.

Scenario 3b: Explosion or Fire - Engine/SCR Room

Observations:

The engine room was protected by a fixed, manually operated CO_2 flooding system that required authorization by the OIM.

The engine room was provided with two emergency exits, and was normally manned by a maximum of four to six personnel.

The SCR room was adjacent to the engine room and serves as the primary muster point for the chief engineer, electrician and motorman. In the event of an emergency, engine shutdown would be considered taking into account drilling requirements.

The SCR room was also a designated alternate ECC and was provided with back-up engine controls.

The engine control/switchboard room had an internal entrance into the middle level accommodation passageway outside the OIM's office.

Comments:

The SCR room was the primary muster point for the chief engineer, motorman and electrician. We were concerned that a fire in this location might present a number of problems, for example:

- Loss of a primary muster station,
- Loss of a secondary ECC, and/or
- Loss of engine controls.

Such a scenario could also result in confusion if the SCR room personnel tried to muster at the location as the fire and rescue team arrived to carry out their duties.

Consideration should be given to including this scenario in emergency drills and musters, and in providing clear instructions concerning secondary mustering arrangements for the SCR room personnel.

Any arrangements should take into account that the personnel mustering at the SCR room might have significant emergency duties to carry out and their availability might be critical.

Scenario 3c: Explosion or Fire - Galley/Accommodation

Observations:

The accommodation module was equipped with smoke and fire detection, and an automatic sprinkler system.

Smoking was permitted in most areas; however smoking in bed was prohibited.

The module contained the ECC, radio room and was the primary TR. Luminescent escape route arrows were provided at low level in corridors, which were accessed directly from cabins.

In the event of an emergency, galley crew/stewards would carry out a check of cabins to ensure that personnel had evacuated. They were trained to check for, and not to enter, smoke-filled cabins.

There was an adequate provision of portable fire extinguishers and fire hydrants/hoses throughout the accommodation.

A galley electrical isolation button was located next to the alternative escape doorway from the rear galley, into the small flat inside the accommodation escape door to the No.2 lifeboat station.

A fire blanket was present in the galley and the steel shutters into the mess room were good working order.

Comments:

A fast developing fire could have serious consequences, and contingency arrangements for such a situation should be strictly enforced.

We were concerned that personnel entering cabins to collect their life jackets and exposure suits, and galley crew/stewards when checking cabins, might be putting themselves at risk.

Consideration should be given to reinforcing existing instruction and training regarding the hazards associated with an accommodation fire.

Scenario 3d: Explosion or Fire - Mud Pit/Mud Pump Room

Observations:

The mud pit room was a common space with the mud pump room and was connected with the sack room.

The mud pump room had two exits that led to the weather deck on the starboard side adjacent to No.1 lifeboat station and one exit to the weather deck at the aft bulkhead.

The mud pit room had exits via the mud pump room doors, a doorway into the walkway adjacent to the cellar deck and via the sack room cargo door, to the pipe deck.

Comments:

We consider the emergency arrangements to be satisfactory.

Scenario 3e: Explosion or Fire - Sack Room

Observations:

The sack room was provided with three exits. One exit led to the moonpool cellar deck via a watertight door and one into the mud pit/pump-room via an open common area. Both of these escape routes were located at the forward end of the compartment.

The escape route from the aft end of the compartment was through the sack room had adequate ventilation, gas and fire detection sensors and fire hydrants/equipment.

Comments:

Consideration could be given to deck marking the exits and routes in the sack room, as they might be blocked by pallets of material.

Scenario 3f: Explosion or Fire - Helicopter Refueling

Observations:

The helicopter fuel tank was built into the box girder structure of the rig below the diesel generator room, with the fuel transfer pumps in a segregated bund inside the port forward corner of the engine room and with the pipe work to the helideck leading up to the out side of the engine room bulkhead.

The jet fuel pumping system, the connecting hoses, the fuel filters and the helicopter refueling hose reel were all in good condition.

The onboard marine crew was trained in helicopter support and servicing operations.

Comments:

In the event of a fuel spill and subsequent fire, emergency escape routes would be jeopardized, but it was considered that there were adequate alternative routes.

Scenario 3g: Explosion or Fire - Well Test Related

Observations:

Well testing was recognized by the MODU management as a potentially hazardous operation.

Consequently, personnel were on a high state of alert for the period of testing which normally lasted for between seven and 10 days, and during which period, additional contractor personnel would be onboard the MODU.

Additional equipment would be located on the decks, including a separator unit and temporary connected hoses that utilized chiksan joints. Isolation valves were provided at strategic locations around the installed equipment.

A high heat flux would be created at the flare boom and a deluge system was employed to reduce the radiated heat to local equipment. Portable multigas detectors were installed at critical locations and tied into the MODU's alarm system, and fire hoses were run out in readiness for emergencies. However, the equipment introduced might compromise the emergency escape routes.

Comments:

We were satisfied that MODU's Management were fully aware of the hazards associated with well testing. Nonetheless, consideration should be given to developing/upgrading a well testing plan that addresses the emergency arrangements during well testing.

The plan should cover:

- Preparation of well test equipment layout plans,
- An assessment of the effects on emergency escape routes and equipment,
- Emergency contingency arrangements,
- An assessment for the need for a standby vessel, and
- Revised safety induction arrangements, and briefings for rig crews

Scenario 4: Loss of Stability

Observations:

The OCEAN BOUNTY had four pontoons, each with a pump room. The two center pontoons contained a combined pump room and propulsion room.
Eight ballast pumps were fitted in four separate pump rooms, i.e. two ballast pumps in each of the aft columns of all four pontoons.

The ballast pumps could only take suction from the tanks in their respective pontoons, e.g. a ballast pump in the port outer pontoon could not take suction from a tank in the port inner pontoon, or any of the starboard pontoons, and so on.

Within each pump room, both ballast pumps were physically located in the same compartment and would be susceptible to the same dangers of fire or flooding. Hence, there could not be any guarantee that damage to one pump would not result in damage to the adjacent pump.

This was a design feature of the rig that had been there since the rig was build.

We recommend noting and accepting this potential limitation.

All ballast valves actuation was by pneumatic valves that failed to shut position. The valves would return to their previous position when air supply was re-applied, unless their control lever had been put to the shut position when air failure occurred.

This system feature was well known by the ballast control operators and all valve levers would be put to the shut position in the event of an air failure. The pneumatic air supply from the rig air was backed up by a reduced supply from the HP air bottles, in the event of a rig air failure.

In the event that a bow down angle develops, an air assist emergency de-ballasting system had been installed into the forward ballast tanks in each column. The system allowed for the pressurization of the forward ballast tank in each column to force water into the ballast pump suctions and assist in complete de-ballasting.

ModuSpec

Stability calculations were performed daily by computer, and the ballast control room was continuously manned by a qualified ballast control operator.
The need to abandon as a result of lack of stability was considered to be a remote possibility that would only occur following major structural damage.

This was considered to be most likely to arise from a collision or possibly from a structural failure of a pontoon or a column element. Arrangements were in place for the mustering of personnel and abandonment while the damage was being assessed.

If the MODU was listed at a severe angle, emergency escape via vertical ladders and heavy doors and hatches could be impeded.

Comments:

We noted that an event such as a vessel collision might also cause damage that could lead to serious loss of stability and structural integrity.

Following such events, an assessment of potential structural damage, in addition to assessing the MODU's stability, should be made.

It was noted that previous incidents had been exacerbated by incorrect ballasting decisions.

The current training regime should ensure that this situation does not recur.

Scenario 5: Man Overboard

Observations:

The person overboard procedure was described on the Station Bill and referred to during the safety induction.

Life buoys and life jackets were available for providing support for persons overboard and for helping in the identification their location.

Rescue of a person overboard could be achieved by the use of a lifeboat or the crane and personnel basket.

The MODU was not equipped with a fast rescue boat to facilitate safer recovery of a man overboard casualty.

The guardrails onboard were of adequate height and in reasonable condition.

All personnel working over the side or at height were required to get an approved work permit and/or to have adequate PPE in place prior starting the job.

Comments:

Personnel overboard drills were, presently, not undertaken on a frequent basis. We recommend carrying out bi-weekly person overboard drills, and the opportunity should be taken to practice personnel rescue techniques.

Personnel, particularly service hands, should be instructed on the proper actions required in a person overboard situation.

Scenario 6: Heavy Weather (Hurricane Procedures)

Observations:

The arrangements were as described in the Diamond Drilling Hurricane Procedure Manual.

As far as practicable, non-essential personnel would be evacuated early by helicopter.

Comments:

We consider the arrangements for heavy weather to be satisfactory.

Scenario 7: Major Well Control (Pre-Blow-Out)

Observations:

The OIM had overall control of the rig and would become involved in the drilling operations, along with the rig Superintendent (Senior Toolpusher) when a problem arose, that could compromise the safety of either personnel or MODU.

Emergency actions that were required would be discussed with the company representative. The OIM had the final decision for initiating emergency procedures should he consider that personnel (or the MODU) might be put in danger by the drilling activities.

The OIM on duty during the assessment had received formal training in well control techniques.

Comments:

Bridging documents to the client's procedures manuals for operations, which coordinate emergency systems into a specific project would be necessary, as the contractor's operations manuals were company and rig -specific.

Scenario 8: Major Equipment Loss

Observations:

The impact of the loss of major equipment would be assessed and appropriate action would be taken in conjunction with weather reports, drilling activities and other relevant factors.

Comments:

Consideration should be given for the provision of guidance for actions to be taken following major equipment loss, to ensure that a consistent approach was adopted and local legislation was complied with.

For example, it was understood that a US Coast Guard requirement would be for non-essential personnel to be evacuated on the loss of emergency power.

Emergency Drill

Observations:

Two emergency drills were organized to coincide with the visit to the MODU. The drill scenario was based on a fire in the SCR room and an injured electrician in the SCR room. After this drill was completed, an abandon rig drill was performed.

We acted as observers and noted the following:

- The fire alarm/emergency was initiated and additional information was provided via the PA system, including the location of the fire and the selected muster stations.
- Two fire and rescue teams mustered and attacked the fire location using the correct fire fighting equipment for the SCR room.
- The two lead hose men on each team were outfitted in full firemen's outfits and were wearing SCBA.
- The other members of the teams were wearing standard rig kit.
- The injured person was located by the rescue teams, and was then attended to by the casualty team, which was led by the medic. The injured person was given first aid and examination. The stretcher party then took him to the sick bay for further treatment.

Other personnel assembled at their muster stations and nominated muster checkers, utilizing POB lists that provided details of the muster to the ECC.

Following the rescue of the missing person, the OIM gave the signal to prepare to abandon the MODU. Personnel at the boat station wore life jackets.

The boats were not entered, and thus the time for boarding could not be established.

Comments:

The following comments should be considered as areas for improvement concerning the drill scenarios.

Consider including the following:

- Disablement of the PA system and
- Non-availabilty of primary muster stations e.g. SCR room, emergency equipment lockers etc.

The abandonment muster procedure, in which missing persons were clearly identified by a different colored highlighter from that used to indicate those accounted for, should be adopted for the initial mustering arrangements.

Drills should be conducted to test the requirement for personnel off duty in the living accommodation to bring their life jackets and exposure suits to the muster station, as well as other personnel who were on duty, but with no assigned emergency duties to collect their life jackets and exposure suits from the living accommodation.

Personnel in not normally accessed locations work in these locations under the work permit system. In an emergency, this situation could present difficult search and rescue problems, and arrangements should be regularly tested during emergency drills.

The drill was not evaluated with all persons involved in the drill, but an evaluation would provide important information for all persons involved and should be held after each drill.

Documentation and Training Review

<u>Observations:</u>

The OIM and his alternate both held OIM licenses and well control subsea certificates.

The barge master and his alternate both held master licenses.

The chief engineer and his alternate both held chief engineer licenses.

The ballast control operators held ballast control licenses.

The integrated ratings of the marine crew all held coxswain licenses.

All members of the crew held a basic survival certificate or approved equivalent.

Comments

The review of documentation and training records showed that the crew was well trained and aware of their duties and responsibilities.

7. Recommendations

7.1

Emergency drill reports should include comments for satisfactory and unsatisfactory aspects, to enable areas for improvement to be identified and logged.

Scenarios for emergency drills and exercises should be extended to include:

- Alternative emergency communications, e.g. disablement of PA system,
- Blocking of one or more principal escape routes,
- Non availability of primary muster stations, e.g. SCR Room, Emergency Equipment Lockers,
- Alternative abandonment procedures e.g. Helicopters,
- Collection of life jackets and exposure suits from the accommodation module,
- Personnel missing/injured in not normally accessed areas e.g. structural ties, and
- External communications, e.g. Exxon, Diamond Drilling, Coast Guard, and Onshore Emergency arrangements e.g. Exxon, Diamond Drilling.

7.2

Consideration should be given to providing emergency escape route drawings throughout the MODU.

The emergency exit signs that had been painted over should be reinstated, and consideration should also be given to reinstating the emergency escape route floor markings on deck.

7.3

Further instruction should be provided regarding the collection of life jackets and exposure suits from cabins in actual emergency situations.

The requirement for the wearing of exposure suits should be stressed at safety meetings, and the advantages in terms of survival time, even in the summer months, should be fully explained.

Instruction and training should be provided regarding the hazards associated with an accommodation fire. This was particularly relevant to catering staff and stewards who were charged with checking the accommodation in musters, and for personnel collecting life jackets and exposure suits from their cabins.

7.4
The abandonment muster procedure, in which missing persons were clearly identified by a different colored highlighter from that used to indicate those accounted for, should be adopted for the initial mustering arrangements.

Consider a T-card system to simplify and faster muster at the muster stations.

7.5
Consideration should be given to developing a well testing plan that addresses the emergency arrangements during well testing.

The plan should cover:

- Preparation of well test equipment layout plans,
- An assessment of the effects on emergency escape routes and equipment,
- Emergency contingency arrangements,
- An assessment for the need for a standby vessel,
- Revised safety induction arrangements, and
- Safety meetings and briefings for rig crew.

7.6
The signal for launching lifeboats during MODU abandonment was by word-of-mouth from the OIM. A back-up procedure should be established and communicated to personnel onboard to ensure that the OIM or person in charge would give the launch signal and would be received by the lifeboats.

7.7
Consideration should be given to the provision of containerized, or similar, aftercare equipment at the supply boat base, so that they were immediately available for use during emergencies.

7.8
In addition to assessing the MODU's stability, following vessel collisions and other similar occurrences, an assessment should be made of potential structural damage.

7.9
Consideration should be given to formalizing arrangements for potential safety critical situations such as well control incidents arising so that responsibilities were clearly defined.

7.10
The alternative emergency command center in the pilothouse should be clearly identified as on the station bill.

7.11
The wording and sketch on the station bill regarding muster stations was contradictory and should be revised.

7.12
Monitoring arrangements in the TR could be improved by the expedited acquisition of the two portable gas detectors that were sent ashore for repairs.

7.13
The emergency procedures regarding helideck/emergency would have to be reviewed and changes were needed to prevent a shutdown of the helideck fire pump by personnel other than the firefighting crew or directed by the firefighting crew.

7.14

We inspected all the lifeboats on the rig, and were concerned about the condition of the boats and launching system.

Two out of the four boats would not start unless an igniting cord or starter gas was applied. The gas and cords were stored in the storage area under the seats. The boats would not be able to be started in an emergency by an unfamiliar member of the crew, and would, if launched without the engine running could pose a serious threat to life.

7.15
The davits system structure, safety sling pad-eyes, and boat lowering hooks/blocks were at very badly corroded places and some pad-eyes were bent.

7.16
The escape ladder was under construction and was not functional at present.

ModuSpec

8. Conclusion

The report included detailed observations and comments generated in response to the question sets contained in the EERA Guidelines.

These observations and comments would provide an explanation of, and a basis for, the recommendations for improvement that had been offered for consideration.

The overall conclusion was that the emergency escape, evacuation and rescue arrangements in place on OCEAN BOUNTY were, for the most part, satisfactory for its current operation and location except where noted otherwise in Section 7.

On this note, we must state that we were impressed by the high level of knowledge and competency demonstrated throughout the management and personnel structure.

May 2002

MODUSPEC INTERNATIONAL (L) LTD
c/o 1 Bukit Batok Street 22
GRP Industrial Building #03-01
Singapore 659592

Telephone : +65 6467 4009
Facsimile : +65 6467 4475
Email : singapore@moduspec.com
Website : http//www.moduspec.com

ModuSpec

OCEAN BOUNTY - MODUSPEC WORK LIST

SUMMARY OF OUTSTANDING CRITICAL RECOMMENDATIONS

The recommendations in this report are defined as follows:

Critical Recommendations
Critical recommendations are based on short comings which may lead to loss of life, a serious injury or environmental damage as a result of inadequate use and/or failure of equipment.

Major Recommendations
Major recommendations are based on short comings which may lead to damage to essential equipment or have a detrimental effect on the drilling operation as a result of inadequate use and/or failure of equipment.

Minor Recommendations
Minor recommendations are based on short comings which may lead to a situation that contributes to an incident or to circumstances in which the required standards of operation are not met.

Note: The parts written in italics in this report are the findings, status updates and new recommendations resulting from this recheck survey.

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
5.0	**DRILLING EQUIPMENT**								
5.14.1	Survey Line:								
Survey Line		**Critical:**	1.	Install a mechanical guard for the survey line operator. ***Status:*** *Outstanding.* *We discussed with the mechanic and he was to install the guard.*			Will fabricate when hot work allowed	OK	

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR	ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
6.0	**MUD SYSTEM**							
6.9.1	Mud-Mixing System:							
Mud-Mixing System		**Critical:** 1.	Install safety valves into the bulk hoppers in the sack store. ***Status:*** *Outstanding.*			Discuss with maintenance manager Tank is not designed for a relief valve and we will not alter tank design to install one. The tank is designed with a open vent line. DB	Agree - Bigby	25/06/02
6.11.1	Bulk Air System and Tanks:							
Bulk Air System and Tanks		**Critical:** 3.	*The safety valves would to go on top of all the tanks including daytanks on the deck. The vent side would also have to be routed to a safe area.*			Weld barrier around existing v/vs if considered necessary This is not considered a hazard. DB	Do not agree –This is in reference to the burst plates on the side of the bulk tanks. Better to have on top of tank to prevent blockage from harden or packed bulk materials. Lets review..	

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
7.0	**WELL CONTROL EQUIPMENT**								
7.4.1	Choke and Kill Manifold:								
Choke and Manifold		**Critical:**	4.	*Correct corrosion to all flanges on choke and kill lines below the drillfloor; in particular, the flange close to flowline diverter valves as shown in the photograph. This would be done during general rig maintenance.*			Awaiting paint crew We agree that corrosion protection is needed and will correct when time permits; however this is not a critical item. DB	Agree-Bigby	25/06/02
7.7.1	Surface Hydraulic BOP Control Unit:								
Surface Hydraulic BOP Control Unit		**Critical**	2.	Verify that all relief valves are within company specified testing requirements. Have date and pressure detailing labels fitted when next tested. ***Status:*** *Still outstanding. Parts were onboard.*			Labels fitted also log maintained on computer A log is maintained and the surveyor would have been allowed access if requested. DB	OK Need to review log book	
Surface Hydraulic BOP Control Unit		**Critical**	3.	Install a relief valve down stream of the regulator on the back up air supply to prevent APV pressure being applied to low-pressure air fittings and equipment in the event of regulator failure. ***Status:*** *Still outstanding.*			There is 1 x relief v/v fitted to this line at present. Will not be done because one is already there. DB	Agree-Bigby	25/06/02
7.8.1	Diverter System:								

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Diverter System		**Critical:**	1.	Verify that all relief valves are within company specified testing requirements. Have date and pressure detailing labels fitted when next tested. ***Status:*** *Still outstanding.*			See 7.7.1 See above .	OK Need to review log book	
Diverter System		**Critical**	2.	*The overboard lines had sharp 90 deg bends. These created backpressure and could cause blockage during diverter operations.*			Original rig installation. Major mods to change installation The surveyor did not check for backpressure. The lines are as per original design. They do not cause a problem and we have no reason to change them. DB	Agree-Bigby Will MOC	25/06/02
7.15.1	Riser Tensioner:								
Riser Tensioner		**Critical:**	1.	Verify that all tensioner and APV bottle relief valves are within company specified testing requirements. Have date and pressure detail labels fitted when next tested. ***Status:*** *Outstanding. One unit remained to be recertified or changed out.*			See 7.7.1 See above comments on relief valves. DB	What about one bottle to be recertified	

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Riser Tensioner		**Critical**	2.	Clean up all high pressure piping and had wall thickness checks carried out to ascertain what remedial action is required. ***Status:*** *Completed 27 Apr 02. Results were satisfactory.*			100% This has been done and all was found to be ok. DB	One accumulator bottle from the West Coast inspections (04/05/02) was identified as 12.8mm	
Riser Tensioner		**Critical**	9.	*Fit pipework to relief valve discharges on most APVs to ensure that personnel could not be effected by any high-pressure discharge.*			This is being reviewed and a hazard assessment is being conducted. Any valves where the discharge is considered a safety risk will be altered. DB	OK	

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR	ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
8.0	**MARINE EQUIPMENT**							
8.3.1	Watertight Integrity of Horizontal Tubulars:							
Watertight Integrity of Horizontal Tubulars		**Critical:**	1. Perform a hull survey to determine the hull corrosion level, and reinstate the missing and worn out anodes. Recoat the underwater ship			Inspection eng was confused about this because old worn anodes are still in place along side of new ones fitted – More new Anodes on order for other areas. The surveyor did not perform a hull survey and did not ask enough questions about the anodes. (See above statement) DODI hull survey is conducted every 5 years and is due again in 2003. This is not a critical item.	Agree-Bigby	25/06/02

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
10.0	**ELECTRICAL**								
10.1.1	Elmagco Brake:								
Elmagco Brake		**Critical:**	1.	Replace the battery charger unit. ***Status:*** *Outstanding. The charger had been ordered and was waiting on delivery*			Currently under investigation about new unit / lead acid batteries This will be done. DB	OK	
10.7.1	DC Motors:								
DC Motors		**Critical:**	1.	Replace the defective heating elements in the DC motors in all hazardous areas. ***Status:*** *Outstanding. Replacement units were being sourced.*			Elements not defective but what eng is pointing out there are not Hazardous area heaters. Motor is pressurised. This is not required as per tech services Houston. DB	Agree-Bigby	25/06/02
10.14.1	Batteries, Chargers and UPS:								
Batteries, Chargers and UPS		**Critical:**	1.	Replace all battery chargers. ***Status:*** *Outstanding. This had been planned and was awaiting approval.*			Currently under investigation about new unit / lead acid batteries This will be done. DB	OK	
10.16.1	Navigation Lights and Foghorns:								
Navigation Lights and Foghorns		**Critical:**	1.	Rectify fault on navaids (navigation lights). ***Status:*** *70% completed and was ongoing*			On going Wait parts on order	OK	
10.21.1	Hazardous Areas:								

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Hazardous Areas		**Critical:**	1.	Replace all DC motor heater elements and cable connectors in Hazardous areas. ***Status:*** *Outstanding. This was on order.*			Elements not defective but what eng is pointing out there are not Hazardous area heaters. Motor is pressurised. This is not required as per our Teck Services Dept Houston. DB	Agree- Bigby	25/06/02
Hazardous Areas		**Critical:**	4.	Replace or remove all corroded lighting junction boxes and filler boxes in all hazardous areas.			On going This will be done. DB	OK	

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
11.0	**SAFETY**								
11.1.5.1	Foam System for Heli-Deck:								
Foam System for Heli-Deck		**Critical:**	1.	*Review the procedures for helideck fire fighting regarding the interference with engine room and authority to start and stop the fire pump.*			Interference? Procedures have been reviewed and no interference exists. DB	OK See comments 11.7.1	
11.2.1.1	Lifeboat:								
Lifeboat		**Critical:**	1.	*Completely remove all corrosion from the davit structure, MPI all welds and padeyes.*			Will arrange MPI with West Coast This will be done. DB	OK	
Lifeboat		**Critical**	2.	*Inspect and MPI all hooks for the boats.*			Will arrange MPI with West Coast This will be done. DB	OK	
Lifeboat		**Critical**	3.	*Repair/overhaul/modify engines so they could start without the aid of starting cords or gas*			On weekly lifeboat checks all lifeboats started good. Engines start as designed. DB Two started w/o AeroStart & two started w/ AeroStart as per Saab instruction book..	Would like to conduct a drill with all lifeboat commanders not present to ensure others can start lifeboats	27/06/02
11.2.3.1	Escape Routes:								
Escape Routes		**Critical:**	1.	*Overhaul the staircase and ladder.*			Will be done during 5 year hull survey. DB	Agree-Bigby	25/06/02
Escape Routes		**Critical**	2.	*Repaint the badly painted walkway sections on the decks (the yellow lines).*			This is not a critical item and will be corrected when painters are allowed on board. DB	Agree-Bigby	25/06/02

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
11.4.1	Helicopter Operations:								
Helicopter Operations		**Critical:**	1.	*See Section 11.1.5.1 Foam System for Heli-Deck for further recommendations.*			Procedures have been reviewed and no changes are necessary. DB	OK See Comments 11.7.1	
11.7.1	Emergency Procedures Manual:								
Emergency Procedures Manual		**Critical:**	1.	*Review the helicopter emergency crash procedures. (See foam system for helideck.)*			Procedures have been reviewed and a revised procedure for the OIM audit # 46 for engine room watch keeper duties on shutting down of engine room supply fans in the event of helicopter crash. DB	Would like to conduct a drill and activate the helideck foam system To ensure compliance	

913711 808

ModuSpec

913711 809

OCEAN BOUNTY - MODUSPEC WORK LIST

SUMMARY OF MAJOR OUTSTANDING RECOMMENDATIONS

The recommendations in this report are defined as follows:

Critical Recommendations
Critical recommendations are based on short comings which may lead to loss of life, a serious injury or environmental damage as a result of inadequate use and/or failure of equipment.

Major Recommendations
Major recommendations are based on short comings which may lead to damage to essential equipment or have a detrimental effect on the drilling operation as a result of inadequate use and/or failure of equipment.

Minor Recommendations
Minor recommendations are based on short comings which may lead to a situation that contributes to an incident or to circumstances in which the required standards of operation are not met.

Note: The parts written in italics in this report are the findings, status updates and new recommendations resulting from this recheck survey.

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
5.0	**DRILLING EQUIPMENT**								
5.1.1	Drawworks:								
Drawworks		**Major:**	1.	Install a drill line spooler in the derrick. ***Status:** Outstanding.* ***The drill line spooler was not required by the contractor and was not installed.***					

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Drawworks		**Major:**	4.	*Investigate the problem with the "High" and "Low" side chain and sprockets. The sprockets and chain were worn in an uneven pattern and the chains were pitted. The sprockets were also worn at 3 points.* ***Status:** Parts were on board and the special puller had been ordered.*					
5.3.1	Top Drive System:								
Top Drive System		**Major:**	1.	Remove the main shaft from the TDS for full inspection and NDT at the next major overhaul (due at 5,000 hours) ***Status:** Outstanding.* *Diamond had stated that when the main shaft is up for service, they would install a complete overhauled field spare.* *The time interval is yearly or 3,000 hrs as recommended by Varco and API RP 8B.*					
5.12.1	Casing Stabbing Board:								
Casing Stabbing Board		**Major:**	2.	Replace the two plastic aligning rollers at the top of the casing stabbing board ***Status:** Outstanding.*					
5.15.1	Pipe-Spinning Wrench:								

913711 810

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Pipe-Spinning Wrench		**Major:**	1.	Replace the pipe spinning wrench with an air-operated unit with greater torque and reliability. (Or return the current hydraulic powered model to full original condition of torque and reliability) ***Status:*** *Outstanding.* *The spinner was kept on the roof and no action had been taken to rectify the problem.*					
5.18.1	Iron Roughneck:								
Iron Roughneck		**Major:**	2.	*Install the missing spinner motor.*					
5.19.1	Pipe-Racking System:								
Pipe-Racking System		**Major:**	1.	Replace the hydraulic hoses to the racking arm with ones that are the correct length to prevent damage. ***Status:*** *Outstanding.*					
Pipe-Racking System		**Major:**	2.	Replace the damaged piping support bracket on the hydraulic supply pipework. ***Status:*** *Outstanding.*					
5.20.1	Drill String:								
Drill String		**Major:**	1.	*Do not store equipment on top of pipe.*					
5.21.1	Drilling Subs:								
Drilling Subs		**Major:**	1.	Make sure that prior to use, the subs are inspected and certified.					
5.23.1	Power Tong:								

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Power Tong		**Major:**	1.	Store the unit at a location that is out of the weather, as it is not used for long periods of time.					
Power Tong		**Major:**	2.	Paint the handles, the safe areas for fingers and hands a different collar than the unit.					

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
6.0	**MUD SYSTEM**								
6.1.1	<u>Mud Pumps:</u>								
Mud Pumps		**Major:**	1.	Inform National Oilwell of the main bearing clearance readings (0.0015") in mud pump No.1 and mud pump No.2. ***Status: 50%*** *The information had been forwarded to the Diamond and National office.*					
Mud Pumps		**Major:**	6.	Mud pump No.3. Install a relief valve into the low-pressure side of the mud pump suction manifold. ***Status:*** *Completed..*					
6.2.1	<u>Shale Shaker:</u>								
Shale Shaker		**Major:**	1.	Deep clean the electric motors of the shale shaker remove hard packed mud from the cooling ribs. Inspect the construction and check for degree of corrosion penetration (motor was an AC ex motor). Coat the motors with a corrosion preventative or replace if wastage is found. ***Status:*** *80%* *The job was in progress during this survey.*					
6.11.1	<u>Bulk Air System and Tanks:</u>								

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Bulk Air System and Tanks		**Major:**	2.	Install earth bonding between the rubber hoses on all bulk tank purge and transfer lines. ***Status:*** *Outstanding.*					

913711 814

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
7.0	**WELL CONTROL EQUIPMENT**								
7.1.1	Ram-Type BOP:								
Ram-Type BOP		**Major:**	2.	Ensure ram operator seals are replaced 3 yearly as per Shaffer PM manual Sect 1. ***Status:*** *Outstanding. Shear rams were the only outstanding set to have elastomers replaced. This would be conducted during tow to Bass Strait. This was tested in February 2002.*					
Ram-Type BOP		**Major:**	3.	Purchase updated hydraulic torque equipment for the BOP bonnets. Better and safer equipment is now available. ***Status:*** *New units of the same brand were on order.*					
Ram-Type BOP		**Major:**	4.	*Schedule changeout of upper ram double to eliminate worn sealing area in ram cavities*					
7.2.1	Annular-Type Preventers:								
Annular-Type Preventers		**Major:**	1.	Remove upper annular and had key seating and seal area scoring and pitting repaired as soon as possible. ***Status:*** *Outstanding. A new piston was due on board and would be fitted together with new seals, for the next well.*					
7.6.1	BOP-Handling Equipment:								

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
BOP-Handling Equipment		**Major:**	2.	Replace the hydraulic winch supply and return hoses. ***Status:*** *Oustanding. The hoses were on order and would be fitted on arrival.*					
BOP-Handling Equipment		**Major:**	3.	*Serious consideration should be given to fitting limit switches on both transverse travel and upper hoisting extents.*					
7.7.1	Surface Hydraulic BOP Control Unit:								
Surface Hydraulic BOP Control Unit		**Major:**	4.	Fit a secondary air supply and pressure switch to the back up air pumps to improve their performance. ***Status:*** *Still outstanding.*					
Surface Hydraulic BOP Control Unit		**Major:**	5.	Replace the hoses on the triplex pump high-pressure outlet side with hard piping. API Spec 16D Sect 2.2.1.3. ***Status:*** *Still outstanding.*					
Surface Hydraulic BOP Control Unit		**Major:**	9.	*At least one triplex pump should be connected to the emergency switchboard. API RP section 53 12.4.5*					
Surface Hydraulic BOP Control Unit		**Major:**	10.	*Rework potable and drill water supply to the mix system as discussed in the narrative above.*					
Surface Hydraulic BOP Control Unit		**Major:**	11.	*Supply a pump running light indication for the panel*					

913711816

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Surface Hydraulic BOP Control Unit		**Major:**	12.	*Supply a "Battery Power" light indication for the panel.*					
Surface Hydraulic BOP Control Unit		**Major:**	13.	*Remove the alarm isolation switch.*					
Surface Hydraulic BOP Control Unit		**Major:**	14.	*Replace blown light bulbs.*					
Surface Hydraulic BOP Control Unit		**Major:**	15.	*Supply a "pump running" light indication for the panel.*					
Surface Hydraulic BOP Control Unit		**Major:**	16.	*Supply a "battery power" light indication for the panel.*					
Surface Hydraulic BOP Control Unit		**Major:**	17.	*Supply a "surface accumulator" pressure gauge.*					
Surface Hydraulic BOP Control Unit		**Major:**	18.	*Supply a "subsea manifold readback" pressure gauge.*					
Surface Hydraulic BOP Control Unit		**Major:**	19.	*Supply a "subsea annular readback" pressure gauge.*					

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Surface Hydraulic BOP Control Unit		**Major:**	20.	*Replace the blown light bulbs.*					
7.9.1	BOP Control System:								
BOP Control System		**Major:**	1.	Replace the drive chains on both hose reels. ***Status:*** *Outstanding. This was not replaced.*					
BOP Control System		**Major:**	3.	Consider having the remaining pod receptacle packer seal areas that are required for control functions inlaid with stainless steel to prevent future problems. ***Status:*** *Outstanding. Not planned to be done in the foreseeable future.*					
BOP Control System		**Major:**	5.	Install a hard piped permanent fluid supply to the mini-reel on the drawworks roof so that hydraulic fluid could be supplied to the ROV in as short a time as possible for emergency BOP functions. ***Status:*** *Outstanding. The mini reel had been decommissioned and was kept only as an emergency backup. A hotline connection would be used if required.*					
BOP Control System		**Major:**	8.	*Conduct an accumulator bleed down test and verify ability of system to achieve API Spec 16D performance with 1225 psi precharge.*					
7.10.1	Marine Riser System:								

913711 819

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Marine Riser System		**Major:**	1.	Repair the choke and kill line pin seal areas on joints Nos.8 and 9. ***Status:*** *Outstanding. This had been sent to town.*					
Marine Riser System		**Major:**	2.	Repair the key seating in the pin end of joint No.11. ***Status:*** *Outstanding. The joints had been sent to town*					
Marine Riser System		**Major:**	4.	Fit locking grub screws to choke/ kill retaining collars where missing. ***Status:*** *Outstanding. This was done per operation.*					
Marine Riser System		**Major:**	5.	Make up choke/kill retaining collar that had backed out (no joint identification found). Ensure proper end float is achieved. ***Status:*** *Outstanding. This had been sent to town.*					
Marine Riser System		**Major:**	6.	Replace the outdated torque equipment for the connection flange bolts. ***Status:*** *Outstanding. New units were on order*					
7.11.1	Flex Joint / Ball Joint on LMRP:								

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Flex Joint / Ball Joint on LMRP		**Major:**	1.	Consider using a flex joint wear bushing to protect the riser adapter, flex joint and annulars from key seating and prevent expensive repairs. ***Status:*** *Outstanding. This had been considered as an option but was not planned at this time. Closer monitoring of the riser angle had been planned.*					
7.13.1	<u>Flexible High-Pressure Hoses:</u>								
Flexible High-Pressure Hoses		**Major:**	1.	Change out any hoses that had been overdue for their annual inspection. ***Status:*** *Outstanding. One drape hose and one LMRP flexible hose will be changed on the tow.*					
7.14.1	<u>Well-Head / Riser Connector:</u>								
Well-Head / Riser Connector		**Major:**	1.	Re-torque riser connector after pressure testing. ***Status:*** *Outstanding.*					
7.15.1	<u>Riser Tensioner:</u>								
Riser Tensioner		**Major:**	4.	Plan a piston rod change out program for the tensioner rods that were scored and pitted. ***Status:*** *Two were completed. One unit was in town for repairs. The balance would follow ASAP.*					

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Riser Tensioner		**Major:**	5.	Replace the badly corroded bolts in the APV isolation valves. ***Status:*** *DODI had planned to change valves, bolts and flanges. This would involve cutting out pipe sections and rewelding flanges. This would be completed as operations permit.*					
Riser Tensioner		**Major:**	10.	*Investigate and correct, as required, the apparent bent fitting on the tensioner relief valve.*					
Riser Tensioner		**Major:**	11.	*Address severe corrosion on pipework and valves on guideline tensioner system below drillfloor; in particular, on the aft side of the moonpool.*					
7.16.1	<u>Guideline and Podline Tensioners:</u>								
Guideline and Podline Tensioners		**Major:**	3.	Replace the badly corroded bolts in the APV isolation valves. ***Status:*** *Outstanding. DODI had planned to change valves, bolts and flanges. This would involve cutting out pipe sections and rewelding flanges. This would be completed as operations permit.*					
7.17.1	<u>Drill String / Crown Block Compensator:</u>								

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR	ACTION REQUIRED		ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Drill String / Crown Block Compensator		**Major:**	1.	Plan for changing out the piston rods, as the damage on the sealing surfaces would lead to sealing problems. ***Status:*** *Outstanding. Packers have been changed. Rod change had been scheduled for the next PM. This would be done during the 5 yearly inspection.*					

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR	ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
8.4.1	Mooring System:							
Mooring System		**Major:**	1. Remove scale from the brake drums of each mooring winch. ***Status:*** *Outstanding.*					

913711 824

ModuSpec

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
10.0	**ELECTRICAL**								
10.1.1	Elmagco Brake:								
Elmagco Brake		**Major:**	2.	Replace the standby cooling water pump starter. ***Status:*** *Outstanding. In progress.*					
10.3.1	Main Transformer, Three-Phase:								
Main Transformer, Three-Phase		**Major:**	1.	Perform a thermographic survey on all transformers. ***Status:*** *Outstanding. These surveys were an annual PM and were due to be conducted in June. They would be scheduled during drilling operations and consideration would be given to conducting them at a time when maximum drilling load would be in use.*					
10.4.1	Converters (SCR and Variable Frequency):								
Converters (SCR and Variable Frequency)		**Major:**	1.	Conduct a thermographic survey of the SCR panel. ***Status:*** *Outstanding. These surveys were an annual PM and would be due to be conducted in June. They would be scheduled during drilling operations and consideration should be given to conducting them at a time when maximum drilling load is in use.*					
10.5.1	Main Switchboard:								

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Main Switchboard		**Major:**	1.	Conduct a thermographic survey of all switchboards. ***Status:*** *Outstanding. These surveys were an annual PM and would be due to be conducted in June. They would be scheduled during drilling operations and consideration should be given to conducting them at a time when maximum drilling load is in use.*					
10.6.1	Emergency Switchboard:								
Emergency Switchboard		**Major:**	1.	Conduct a thermographic survey of the switchboard. ***Status:*** *Outstanding. These surveys were an annual PM and would be due to be conducted in June. They would be scheduled during drilling operations and consideration should be given to conducting them at a time when maximum drilling load is in use.*					
10.7.1	DC Motors:								
DC Motors		**Major:**	2.	Replace the cable glands on mud pump No.1 supply cable and replace the gland plate. ***Status:*** *Outstanding.*					
10.9.1	Motor Control Centres:								

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Motor Control Centres		**Major:**	1.	Conduct a thermographic survey of all MCCs. ***Status:*** *Outstanding. These surveys were an annual PM and would be due to be conducted in June. They would be scheduled during drilling operations and consideration should be given to conducting them at a time when maximum drilling load is in use.*					
Motor Control Centres		**Major:**	2.	Carry out injection testing to motor starter overloads. ***Status:*** *Outstanding. Have this included in maintenance routines. This was not done at this time.*					
10.10.1	Lighting System (Main):								
Lighting System (Main)		**Major:**	1.	Carry out a full and extensive survey of all exterior areas using a Lux level light meter. ***Status:*** *Outstanding. Have the safety department conduct the survey and have additional lighting installed as required. This was not done at this time.*					
Lighting System (Main)		**Major:**	3.	Clean internals of all lighting distribution boards. ***Status:*** *Outstanding. In progress.*					
10.11.1	Lighting System (Emergency):								
Lighting System (Emergency)		**Major:**	1.	Install additional battery operated emergency escape lighting in the moonpool. ***Status:*** *Outstanding. Still in progress.*					

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
10.12.1	Electrical Outlets:								
Electrical Outlets		**Major:**	1.	Provide means of earth-leakage protection to electrical power outlets. ***Status:*** *Outstanding. To date, no protective device had been located but further investigation was still in progress.*					
10.22.1	Miscellaneous Items:								
Miscellaneous Items		**Major:**	1.	Repair the UV sterilizer. ***Status:*** *Outstanding. This was awaiting delivery of parts.*					

913711 828

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
11.0	**SAFETY**								
11.1.2.1	<u>CO_2/Halon System for Fire Control:</u>								
CO_2/Halon System for Fire Control		**Major:**	1.	*The cement unit diesel engine room would have to be included in the system.*					
11.1.3.1	<u>Fixed Fire-Extinguishing Systems:</u>								
Fixed Fire-Extinguishing Systems		**Major:**	1.	*Flush the system from each hydrant and have this on the PM system.*					
Fixed Fire-Extinguishing Systems		**Major:**	2.	*Change over from saltwater to potable water on the sprinkler system as per Solas II-2 Regulation 12.*					
11.1.5.1	<u>Foam System for Heli-Deck:</u>								
Foam System for Heli-Deck		**Major:**	2.	*Install a foam level indicator.*					
11.3.1	<u>Flammable Gas Detection:</u>								
Flammable Gas Detection		**Major:**	1.	*One extra portable detector had to be added to the rig to comply with MODU Code 9.4.*					
11.4.1	<u>Helicopter Operations:</u>								
Helicopter Operations		**Major:**	2.	*Investigate the integrity of net support and rectify.*					
Helicopter Operations		**Major:**	3.	*Coat the emergency escape ladder*					
11.8.1	<u>Lifting and Handling:</u>								

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Lifting and Handling		**Major:**	1.	*Enter all drillfloor equipment in the liftinggear inspection book (slings, elevators etc.)*					
11.10.1 <u>Pollution Control:</u>									
Pollution Control		**Major:**	1.	*A more vigilant programme should be set up to promote the pollution policy.*					

913711 830

ModuSpec

OCEAN BOUNTY - MODUSPEC WORK LIST

SUMMARY OF MINOR OUTSTANDING RECOMMENDATIONS

The recommendations in this report are defined as follows:

Critical Recommendations
Critical recommendations are based on short comings which may lead to loss of life, a serious injury or environmental damage as a result of inadequate use and/or failure of equipment.

Major Recommendations
Major recommendations are based on short comings which may lead to damage to essential equipment or have a detrimental effect on the drilling operation as a result of inadequate use and/or failure of equipment.

Minor Recommendations
Minor recommendations are based on short comings which may lead to a situation that contributes to an incident or to circumstances in which the required standards of operation are not met.

Note: The parts written in italics in this report are the findings, status updates and new recommendations resulting from this recheck survey.

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
5.0	**DRILLING EQUIPMENT**								
5.2.1	Rotary Table:								
Rotary Table		**Minor:**	2.	Rectify the vibration on the rotary table vent fan motor ***Status:*** *Outstanding.* *Due to sand blast operations, the fan could not be inspected and no reports were available of repairs on the fan.*					
5.3.1	Top Drive System:								

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Top Drive System		**Minor:**	2.	Review the critical list of spare parts held for the rig, consider DC motor, main drive shaft and blower fan motor for the TDS unit to be held as spare. ***Status:*** *50% Outstanding.* *A fan blower motor was kept as spare on the rig; the main drive shaft would not be stored.*					
Top Drive System		**Minor:**	3.	Upgrade maintenance instructions to include: remove main shaft from the TDS unit for NDT inspection annually. ***Status:*** *Outstanding.* *Diamond would not include the maintenance upgrade because they would be utilizing the field spare option.*					
5.14.1	Survey Line:								
Survey Line		**Minor:**	2.	Reeve out the wire off the wireline unit, reeve in and protect the wire with preservative. Protect the wire on the drum with a canvas shroud. ***Status:*** *Outstanding.*					

913711 833

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
6.0	**MUD SYSTEM**								
6.7.1	Centrifugal Pumps:								
Centrifugal Pumps		**Minor:**	2.	Check the impellor clearances of brake cooling water pump No.1. Running electrical load in amps was unchanged when the discharge valve was closed. ***Status:*** *Outstanding.* *No investigation was done.*					
Centrifugal Pumps		**Minor:**	3.	Upgrade maintenance instructions to include running test of the centrifugal pump once per month. Run pump with open suction and discharge valves with a known fluid density, record load in amps and pressures. Close discharge valve and record load in amps and discharge pressure. Ascertain difference in amps and therefore wear of the pump impellor/casing/discharge valve. ***Status:*** *25%* The information was forwarded to the Diamond office,as they were the only ones that can change the software on the maintenance system.					

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
7.0	**WELL CONTROL EQUIPMENT**								
7.9.1	BOP Control System:								
BOP Control System		**Minor:**	6.	Repair the faulty lower annular open light on the remote panels when spare parts are received. ***Status:*** *Outstanding.*					
BOP Control System		**Minor:**	9.	*Control air supply hoses were old and kinked flat on both reels. They should have a 90° elbow added at the reel termination and new hoses installed.*					
7.10.1	Marine Riser System:								
Marine Riser System		**Minor:**	7.	Quality control of repaired riser should be questioned as one joint had a choke/kill line 1-3/8" longer than the other. ***Status:*** *Outstanding.*					

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
8.0	**MARINE EQUIPMENT**								
8.1.1	Ballast and Bilge System:								
Ballast and Bilge System		**Minor:**	1.	Rectify leaking shaft seals of all ballast pumps. ***Status:*** *Outstanding. No change. The pumps were checked twice a day and adjusted as required.*					
Ballast and Bilge System		**Minor:**	2.	Rectify leaking shaft seals of the seawater service pumps (mission pumps) in the pump rooms. ***Status:*** *Outstanding. No change. The pumps were checked twice a day and adjusted as required.*					
Ballast and Bilge System		**Minor:**	3.	Repair the corroded undersides of the ballast pump electric motors. ***Status:*** *Outstanding. This was in progress.*					
8.2.1	Overflow and Vent Checks:								
Overflow and Vent Checks		**Minor:**	2.	Remove vent heads from ballast tanks and voids. Carry out maintenance. Check for corrosion weakening of internal components and ball float/ wooden cone seating integrity. Check vent pipe for corrosion weakening at clamps and hangers. After maintenance, return to service. ***Status:*** *Outstanding.*					

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Overflow and Vent Checks		**Minor:**	3.	Stencil in bolt hi-intensity marking the identification, location and contents of the vent head. ***Status:*** *Outstanding.*					
8.4.1	<u>Mooring System:</u>								
Mooring System		**Minor:**	3.	Replace corroded and wasted machinery guards from below the mooring winches. ***Status:*** *Outstanding.*					
Mooring System		**Minor:**	4.	Repair the defective coupling from the starboard side winch.					

913711 836

913711 837

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
9.0	**POWER PLANT**								
9.1.1	Diesel Engine:								
Diesel Engine		**Minor:**	1.	Perform load testing of each of the main diesel engines monthly. Report the findings to shore base. Rectify any deficiencies that may restrict full power output. ***Status:*** *Outstanding.* *Load testing was not on the PM and therefore not in the history files.* *Every 1000 hours, it is done as part of the 1000 hr service.*					
Diesel Engine		**Minor:**	2.	Replace the defective exhaust pyrometers on the main engines. (No.3) ***Status:*** *Outstanding.* *The exhaust pyrometers on the main engines were replaced, but the replacements failed after three days.*					
9.2.1	Emergency Generator Set:								
Emergency Generator Set		**Minor:**	2.	Replace the cooling water hoses at some future maintenance period. (Original items were showing signs of hardening and deteriation due to heat and age.) ***Status:*** *Outstanding.* *The hoses were on order*					
9.4.1	Refrigerating and Air-Conditioning:								

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
Refrigerating and Air-Conditioning		**Minor:**	2.	Plan a deep clean of the ventilation trunking in the accommodation. Cabin entry louvers were showing build up of dirt. ***Status:*** *Outstanding.* *This recommendation was not addressed at this time*					
9.9.1	Reduction Gearbox:								
Reduction Gearbox		**Minor:**	1.	Protect the foundation seating bolts from corrosion on both propulsion units. ***Status:*** *Outstanding*					

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
10.0	**ELECTRICAL**								
10.1.1	Elmagco Brake:								
Elmagco Brake		**Minor:**	4.	Cut the floor plates at the Elmagco brake to allow removal of the lowest access plugs for gap measurement readings. ***Status:*** *Outstanding.*					
10.2.1	Main Generator:								
Main Generator		**Minor:**	1.	Clean generator No.6 DC to return resistance readings to acceptable levels. ***Status:*** *Outstanding. DOGC had planned a routine change-out of the generator.*					
10.3.1	Main Transformer, Three-Phase:								
Main Transformer, Three-Phase		**Minor:**	2.	Rectify the earth fault on the load consumer side of the auxiliary machine room lighting transformer. ***Status:*** *Outstanding. Investigation revealed more than one fault and remedial work was still in progress. Significant progress had been made.*					
10.7.1	DC Motors:								

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
DC Motors		**Minor:**	4.	Ensure that nameplate details of all motors in hazardous areas are legible. ***Status:*** *Outstanding. Motors that had illegible nameplates should be removed from service and returned to an approved repair facility for inspection, repair as required and replacement of all required I/D plates.*					
10.8.1	AC Motors:								
AC Motors		**Minor:**	2.	Ensure the nameplate of the motors in the mud pump room are legible. It is a requirement for motors in a hazardous area to have clearly legible nameplate showing serial number, size rating and type of Ex protection. ***Status:*** *Outstanding. Any explosion proof motors without correct plates should be removed from service and either replaced or sent to an approved repair facility for inspection, repair (as required) and re-attachment of I/D plates.*					
AC Motors		**Minor:**	3.	Upgrade the maintenance instructions for AC motors to cover ALL motors on the rig. ***Status:*** *Outstanding. In progress.*					
10.11.1	Lighting System (Emergency):								
Lighting System (Emergency)		**Minor:**	4.	Install emergency battery lighting at the CO_2 station. ***Status:*** *Outstanding. Still in progress.*					

913711 841

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
10.22.1	Miscellaneous Items:								
Miscellaneous Items		**Minor:**	2.	Update planned maintenance instructions, daily inspect the potable water pumps and heaters and UV sterilizers. Check for operation, heating elements are without earth fault, and that the UV sterilizer is operable. ***Status:*** *Outstanding. In progress.*					

ModuSpec

EQUIPMT / RECS	RIG EQUIPMT REF	CRIT MAJOR MINOR		ACTION REQUIRED	ACTION BY	TARGET DATE	COMMENTS	COMPLETED BY (NAME)	% COMPLETE OR CLOSEOUT DATE
11.0	**SAFETY**								
11.6.1	First Aid and Sickbay:								
First Aid and Sickbay		**Minor:**	1.	*Install a bath in the sick bay.*					

Drills

DIAMOND OFFSHORE

Emergency Drill & Exercise Review Sheet
Ocean Bounty

Description of Exercise / Fire Drill **ESSO- Beardie-1** **28.07.02**
please tick appropriate box:
DRILL [X] **EXERCISE** [ ]

1030: Fire alarms sounded, P.A. Announcement made, Reported a Fire in Paint Locker. Primary fire team to scene of fire, backup fire team to muster outside Sack room, all none essential personnel muster at lifeboats 1 and 4, Pacific Conqueror & Pacific Sentinel advised.
1034: Primary fire team has 5 Personnel & 1 personnel in B.C.R.
1034: Primary fire team run fire hoses for boundary cooling. And discussing the application of CO2 extinguishers.
1035: Back up fire team has 16 personnel mustered.
1037: Boat 1 has 8 personnel mustered.
1039: Boat 4 has 15 personnel mustered. All personnel accounted for, Completed discussions on use of Fire Extinguishers and boundary cooling.
1040: Fire drill complete. Fallowed by Abandon Drill.

Comments:

	Yes	No
Was muster effective and efficient?	X	
Was equipment used efficiently?	X	
Did personnel respond effectively?	X	
Was preparation of personnel efficient?	X	
Was equipment maintained and ready?	X	
Are personnel efficient?	X	
Are current procedures effective?	X	
Are communications effective?	X	
Are teams effective?	X	
Are instructions understood?	X	

Time taken to muster: 9 **Minutes (if applicable)**

***Review Comments*:**

Management Review / Comment:

O.I.M.	D.DERON.	signed		Date	28.07.02
Rig Manager.	J R MOORE	signed		Date	

913711 845

Emergency Drill & Exercise Review Sheet
Ocean Bounty

DIAMOND
OFFSHORE

Description of Exercise / Abandon Rig Drill **ESSO– Beardie-1** **28.07.02**
please tick appropriate box:

DRILL [X] **EXERCISE** [ ]

1040: Abandon Rig Alarm sounded. P. A. announcement made. All personnel to muster at Lifeboats 1 & 4, P. Conqueror & P. Sentinel informed.
1042: Boat 4 report 34 personnel mustered.
1042: Boat 1 report 29 personnel mustered.
1043: All personnel accounted for. Resume Loading boats with personnel for Operation & Launching demonstration.
1055: Debrief completed, all personnel clear of the Lifeboats, End of the Drill & Stand by boats advised.

Comments:

	Yes	No
Was muster effective and efficient?	X	
Was equipment used efficiently?	X	
Did personnel respond effectively?	X	
Was preparation of personnel efficient?	X	
Was equipment maintained and ready?	X	
Are personnel efficient?	X	
Are current procedures effective?	X	
Are communications effective?	X	
Are teams effective?	X	
Are instructions understood?	X	

Time taken to muster: 3 **Minutes (if applicable)**

***Review Comments*:**

Management Review / Comment:

O.I.M. D.DERON signed: ____________ 28.07.02
Date

Rig Manager. J R MOORE signed; ____________ Date ____________

913711 846

BEARDIE

Emergency Response Exercise Report
Exercise "Beardie"

PERMIT: **VIC/L2**

RIG: **OCEAN BOUNTY**

(Beardie Drilling Campaign)

July 2002

DOCUMENT REVISION RECORD					
Title:	Exercise Mariners Plight Report				
Job No:	W2342				
Rev	**Description**	**Prepared by:**	**Checked by:**	**Approved by:**	**Date:**
A	Report	Helen Creed	Kerri Reeks	Kerri Reeks	01/08/02

CONTENTS

1. EXECUTIVE SUMMARY

On Monday the 29th of July 2002, Esso Australia Pty Ltd (**EAPL**) successfully conducted a desktop exercise "Beardie" in order to test and enhance emergency preparedness for **EAPL**'s Bass Strait "Beardie"drilling campaign.

Exercise "Beardie" was an effective exercise which offered the opportunity for the drilling Incident Management Team associated with the drilling campaign to walk through a scenario specific to the campaign and to test their respective responses and interfaces. Some external notifications and callouts were conducted and for the most cases proved to be appropriate.

The desktop did expose some minor areas where notifications, roles, responsibilities and interfaces would benefit from additional exercise training at a later date. In this case, recommendations have been provided to ensure future exercises and incident responses will be more effective.

In brief, the scenario involved a helicopter (carrying seven passengers and two crew) being struck by lightening in the vicinity of the MODU "Ocean Bounty" and was forced to ditch into the sea. As the scenario unfolded, the support vessel and a SAR helicopter were dispatched to the helicopter crash site. Seven survivors were located in a liferaft, and two passengers remained missing.

The conduct of the exercise was particularly useful in promoting familiarization of the Exportation IMT with the details of the Beardie Bridging Emergency Response Plan and supporting resources. Exercise "Beardie" provided a worthwhile familiarisation and training opportunity in addition to highlighting a range of minor issues.

2. EXERCISE OBJECTIVES

The following exercise objectives were discussed with all participants of Exercise "Beardie". The objectives of the exercise were to:

- Promote familiarisation for the EAPL Exploration IMT with the details of the Beardie Bridging Emergency Response Plan, including individual roles and responsibilities;
- Promote familiarisation for the EAPL Exploration IMT with the operation of the supporting resources including Emergency Response Room establishment, information management, IMT operation, critical stakeholders and communication interfaces and reporting requirements ;
- Test and confirm the notification and call-out and contact detail aspects of the ERP; and
- Test understanding of Victorian regulatory and the EAPL management of safety systems requirements.

Participants

The following personnel were involved as EAPL participants.

- Frank Kratzer (Esso Drilling Superintendent)
- Ray Wylde (Beardie SRO)
- Eric Jakobsen (DOGC Rig Manager)
- Andy Zannetos (EAPL)
- Kumar Kuttan (EAPL)
- Andrew Hodgson (EAPL)

Facilitating Staff

- Kerri Reeks (Worley)
- Ian Wall (Worley)

A full extract of the exercise guidelines for "Exercise Beardie" are provided in Appendix X of this report.

3. EXERCISE SCENARIO

The 'Ocean Bounty' (MODU) was on location at Beardie #1 Well. A regular crew change was underway, personnel (including Halliburton etc) were flying out from EAPL Longford Heliport on EAPL Sikorski S-76 call sign EXU.

There were a total of 7 pax and 2 crew on board.

Weather:

- The weather in the area was generally unstable with a strong easterly wind and the sky was heavily overcast.
- Gusts of up to 28-33 kts had been experienced from nearby thunderstorms.
- Seas were 4-5$^{+/-}$ mtrs.

Vessels:

The support vessel ***"Pacific Conqueror"*** was close-by the MODU.

The ***"Pacific Sentinel"*** was on its way back to the MODU after loading supplies at BBMT.

00.00 (Esso Drilling Ops. Supervisor to determine kick-off time) IMT

MODU had received a "MAYDAY" call from EXU. The aircraft had suffered a lighting strike and they were experiencing extreme vibration instability from the rotor system. They were attempting to make it to the MODU as it is the closest location.

The MODU radio room has passed this information to the Longford Control Room.

00.00 (+ 2 mins from previous call) Esso Drilling Ops. Supervisor Advises IMT

The MODU radio room advised that EXU had reported they were ditching. Their reported position was Latitude 38°15'16.3"S Longitude 147°48'24.6"E. The radio room had also advised that radio contact was lost during the transmission.

The OIM had dispatched the ***"Pacific Conqueror"*** to the ditch site, ETA is about 20 minutes.

00.00 (+ 5 mins from previous call) Esso Drilling Ops. Supervisor Advises IMT

Longford Heliport had advised they were mobilising the SAR helicopter. They had contacted other EAL helicopters to see who else could come to EXU's assistance.

SAR Aircraft ETA was 30 mins to location.

00.00(+ 5 mins from previous call) Esso Drilling Ops. Supervisor Advises IMT

"We can see the ditched EXU from the Rig, it had hit pretty hard by the looks of it and it had broken up. We can see one liferaft. Weather is too heavy for us to put our FRC in the water".

00.00(+ 5 mins from previous call) Esso Drilling Ops. Supervisor Advises IMT

EAPL Heliport Longford advised the MODU that AusSar had picked up the EPIRB signal of the ditched EXU and had been in contact.

00.00 (+10 Minutes from previous call) Esso Drilling Ops. Supervisor Advises IMT
The SAR helicopter was over the site and reported that EXU was in pieces and there was still only one (1) liferaft nearby.

They were starting to winch survivors up.

00.00 (+10 Minutes from previous call) Esso Drilling Ops. Supervisor Advises IMT

The ***Pacific Sentinel*** reported that it had reached the ditch site and had come alongside the liferaft.

00.00 (+10 Minutes from previous call) Esso Drilling Ops. Supervisor Advises IMT

The ***Pacific Sentinel*** had reported there were 7 survivors in the liferaft.

Three were being transferred to the ***Pacific Sentinel***. They reported two passengers did not get to the liferaft.

There was no sight of the missing men, one was thought to be a Halliburton pax and the other was a Diamond pax.

00.00 (+10 Minutes from previous call) Esso Drilling Ops. Supervisor Advises IMT

EAPL Heliport Longford advises a second helicopter had refuelled on Snapper Platform and was conducting a grid search for the missing men.

No sighting had been made. It had now been confirmed the men were the Halliburton and Diamond passengers.

00.00 (+10 Minutes from previous call) Esso Drilling Ops. Supervisor Advises IMT

Helicopter reports sighting both men in the water some distance from the ditched helicopter, both men appeared to be OK.

4. FINDINGS AND CONCLUSIONS

The exercise objectives were to induct and test the emergency response capabilities of the **EAPL** IMT in Melbourne. The findings presented in this section represent the results of the desktop exercise. In general, the exercise was found to be an appreciable success. The primary objectives of Exercise "Beardie", were achieved as follows.

1. **Promote familiarization for the EAPL Exploration IMT with the details of the Beardie Bridging Emergency Response Plan, including individual roles and responsibilities.**

This objective was achieved successfully. The exercise provided all members with meaningful exposure to the **EAPL** Drilling Campaign Emergency Response Plan. Likewise, through the direct involvement of the "Ocean Bounty" and the Rig Manager in the exercise scenario, Diamond Offshore Management gained a first hand, operational appreciation of interfacing with the **EAPL** IMT and the ERP.

The exercise provided the IMT with a direct opportunity to comprehend their individual roles and responsibilities as part of an IMT and as part of a greater EAPL response organisation.

There are no recommendations provided to better achieve this objective.

2. **Promote familiarisation for the EAPL Exploration IMT with the operation of the supporting resources including Emergency Response Room establishment, information management, IMT operation, critical stakeholders and communication interfaces and reporting requirements**

This objective was only partially achieved as the ERP room was occupied by a meeting at the time the exercise kicked off. The exercise was conducted in the office of the Drilling Operations Superintendent.

The IMT Wall Charts were displayed and discussed at length, and provided a significant resource to the IMT throughout the desktop. The Government Notification Matrix was also reviewed and used throughout.

There are no recommendations provided to better achieve this objective.

3. **Test and confirm the notification and call-out and contact detail aspects of the ERP.**

This objective was achieved successfully. Many numbers from the Contact Directory were live tested and all numbers required were found to be available and accurate.

There are no recommendations provided to better achieve this objective.

4. Test understanding of Victorian Regulatory and the EAPL management of safety systems requirements.

This objective was achieved successfully. Full compliance with the requirements of the ERP would have been achieved had the desktop been a practical exercise or a live incident response event.

The conduct of such simulated training exercises is a regulatory requirement. In conducting the exercise, the associated response met with the emergency response regulatory requirements identified in the Bridging Document.

Recommendation #1: It is recommended that a full scale emergency response exercise be conducted with the Drilling IMT prior to the next drilling campaign commencing.

5. Testing the EMEC Exploration IMT structure to facilitate a credible response and raise the level of awareness and understanding of individual roles and responsibilities and the relevant reporting interfaces.

This objective was only partially achieved as the exercise was only conducted as an induction and desktop exercise.

The contact tracking methodology was discussed as was the method for ensuring that the various worked very successfully. However it was identified that during the various interfaces, other IMT members were so busy making their calls or initiating response requirements, that they were not fully aware of many of the contacts that were being made. It would be beneficial during a response, for the LOR to periodically call all IMT members to a 'communications free' halt, and provide a quick overview briefing.

In Conclusion:

The overall collective response to the exercise scenario was credible and effective and left all participants with the expectation that had the scenario been an actual event, the **EAPL** response would have been adequate but with scope for improvement.

5. RECOMMENDATIONS

Recommendation 1: It is recommended that a full scale emergency response exercise be conducted with the Drilling IMT prior to the next drilling campaign commencing.

Appendix 1 – Exercise Guidelines

913711 857

Esso Australia Pty Ltd

EMERGENCY RESPONSE EXERCISE

"BEARDIE"

EXERCISE GUIDELINES 2002

Introduction

An Emergency Response exercise will be conducted for Esso Australia Pty Ltd (EAPL), on the 29th July 2002, involving the MODU "Ocean Bounty".

The exercise will take place in ESSO House, during the "Beardie" drilling campaign in Bass Strait and will take approximately 2 hours.

All potential participants are requested to review this exercise document, be familiar with the Beardie ERP, with any other appropriate response plans and be available to commence the exercise if notified.

The exercise will be initiated from the "Ocean Bounty" and will involve the Exploration IMT and other support personnel as required

Exercise Objectives

The objective of the exercise is to test an emergency response from the 'Ocean Bounty' to the Exploration IMT (and the CMT as appropriate) in Melbourne.

Primary Objectives are to:

- *Comply with Victorian regulatory and the EAPL management of safety systems requirements;*
- *Promote familiarisation for the EAPL Exploration IMT and DOGC Management with the EAPL Beardie ERP;*
- *Test and confirm the notification and call-out and contact detail aspects of the ERP;*
- *Determine likely response times, mobilisation of personnel and equipment and the effectiveness of associated logistics support;*
- *Test emergency response communications and interrelationships between the EAPL Exploration IMT, DOGC and associated regulatory authorities;*
- *Testing the EAPL Exploration IMT structure to facilitate a credible response and raise the level of awareness and understanding of individual roles and responsibilities and the relevant reporting interfaces.*

Participants

The following personnel will be involved as participants. Some external response agencies may be role played on the day.

Esso

- **EAPL** Exploration IMT (Melbourne)
- **EAPL** CMT (Melbourne)
- **EAPL** Support Groups (Melbourne)
- **"Ocean Bounty"**
- **DOGC** (Melbourne)

External Agencies

- **EMEC** (Houston) will be role played on the day
- Relevant Govt. Authorities may be role played on the day.

Media

- Local and National Media (Role played)

Directing Staff and Role Players

WSRM personnel will direct the exercise and assume Role playing positions.

Limitations

Initial incident notification will be made in accordance with the Esso incident notification structure identified in the Beardie ERP.

All responses and decisions are to be actual, utilising the logistics available on the day excluding weather conditions, which will be provided by exercise staff prior to the exercise commencing.

Safety

All relevant safety procedures should be observed by all participants throughout the exercise.

Actual Emergency

In the event of an actual emergency during the exercise, a communication prefixed **"EXERCISE HOLD"** is to be relayed immediately to all exercise participants. All exercise events will be suspended immediately on receipt of this communication until further notice

Exercise Management

Exercise events will unravel subject to the response actions and decisions made by participants, as Directing staff or role players introduce changes or inject new information and reports.

Participants should utilise exercise information provided, to consider and execute practical decisions and responses, in line with relevant emergency plans.

Please Note: For the sake of exercise expediency, the timing of some exercise scenario events may be extended or condensed to ensure a continuous flow of exercise activities which will accommodate the exercise time frame.

Exercise Communications

All ***verbal*** communications must start with:
<u>"THIS IS EXERCISE "BEARDIE"</u>

All ***written*** communications must finish with:
<u>"FOR EXERCISE PURPOSES ONLY"</u>

Support and Logistics

Any <u>support</u> requirements to be clearly identified as '**determining availability and lead times only**' and should be identified as:

<u>"NOT FOR DEPLOYMENT"</u>

> **<u>REMEMBER</u>: It is every participant's responsibility to ensure, when communicating both written and/or verbally with other parties, that they are clearly aware:**
> **<u>"THIS IS AN EXERCISE ONLY"</u>**

Recording

All exercise Participants, Observers and Role Players are required to compile a timed log, recording:

- Events and responses;
- Appropriate comments on decisions and actions taken.

Logsheets will be distributed prior to the exercise if required.

External Interest

Should inquiries be made from any party not involved in the exercise regarding the exercise activities, all participating personnel are requested to make the following statement:

"We can confirm that an ExxonMobil sponsored emergency exercise is being conducted today. Any further inquiries should be addressed to;
ExxonMobil's Public Affairs Manager in Melbourne": Mr Nick Thomas: (03) 9270 3437, Ms Anna Schulze (03) 9270 3182 or Mr Alan Bailey: (03) 270 3126.

Exercise Conclusion

All participants will be notified when the exercise is concluded.

Debriefing

An immediate debrief will be conducted with all participating groups on completion of the exercise.

The debrief is designed to assess the exercise play and results of response decisions. Debriefs should be attended by all participants, either in person or via telephone.

Exercise Records

Completed log sheets should be submitted to Exercise Staff at the conclusion of the exercise or faxed to WSRM.

Exercise Report

WSRM will prepare a brief exercise report. Comments from Participants logsheets, and the debrief comments will be used for inclusion in this report.

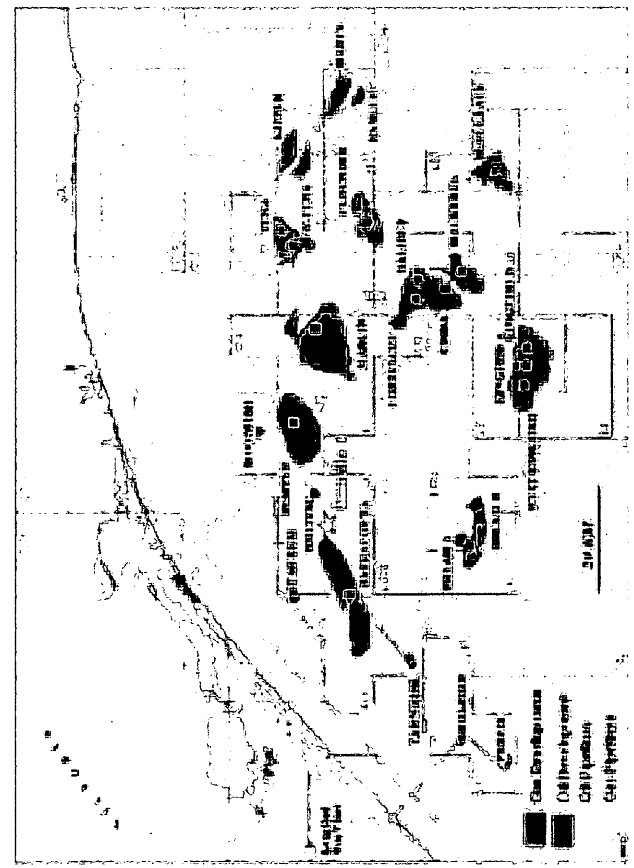
Submissions should be forwarded to Directing Staff as soon as possible after the exercise but no later than the following Friday. These can be faxed to:

Exercise "Beardie"
Attention: Kerri Reeks
Worley Safety & Risk Management
Tel: ++ 61 (0)3 9205 0457
Fax: ++ 61 (0)3 9205 0505

Queries

Any exercise questions or uncertainties encountered during the course of events should be directed to the Exercise Staff present, as soon as possible, for clarification.

Exercise Map



913711 858