

VELOCITY SURVEY

FROME BROKEN HILL CO. PTY., LTD.

PORT CAMPBELL NO. 2

VICTORIA, AUSTRALIA

BY

ROBERT H. RAY SERVICE COMPANY, INC.

DECEMBER, 1960



W463

VELOCITY SURVEY
OF
PORT CAMPBELL NO. 2
VICTORIA, AUSTRALIA
FOR
FROME-BROKEN HILL CO. PTY., LTD.

ROBERT H. RAY SERVICE COMPANY, INC.
HOUSTON, TEXAS

TABLE OF CONTENTS

- I. Index Map
- II. Summary of Survey
- III. Layout Diagram of Survey
- IV. Reduced Seismograms of Survey
 - Well Velocity Calculation Sheet
 - Well Velocity Summary Sheet
 - Graphic Presentation of Velocities
 - Plot of Refraction Arrivals from Reflection Seismograms*

* Reflection Seismograms are S.P.s 30 and 31 of Line 42
S.P.s 125 and 126 of Line 45

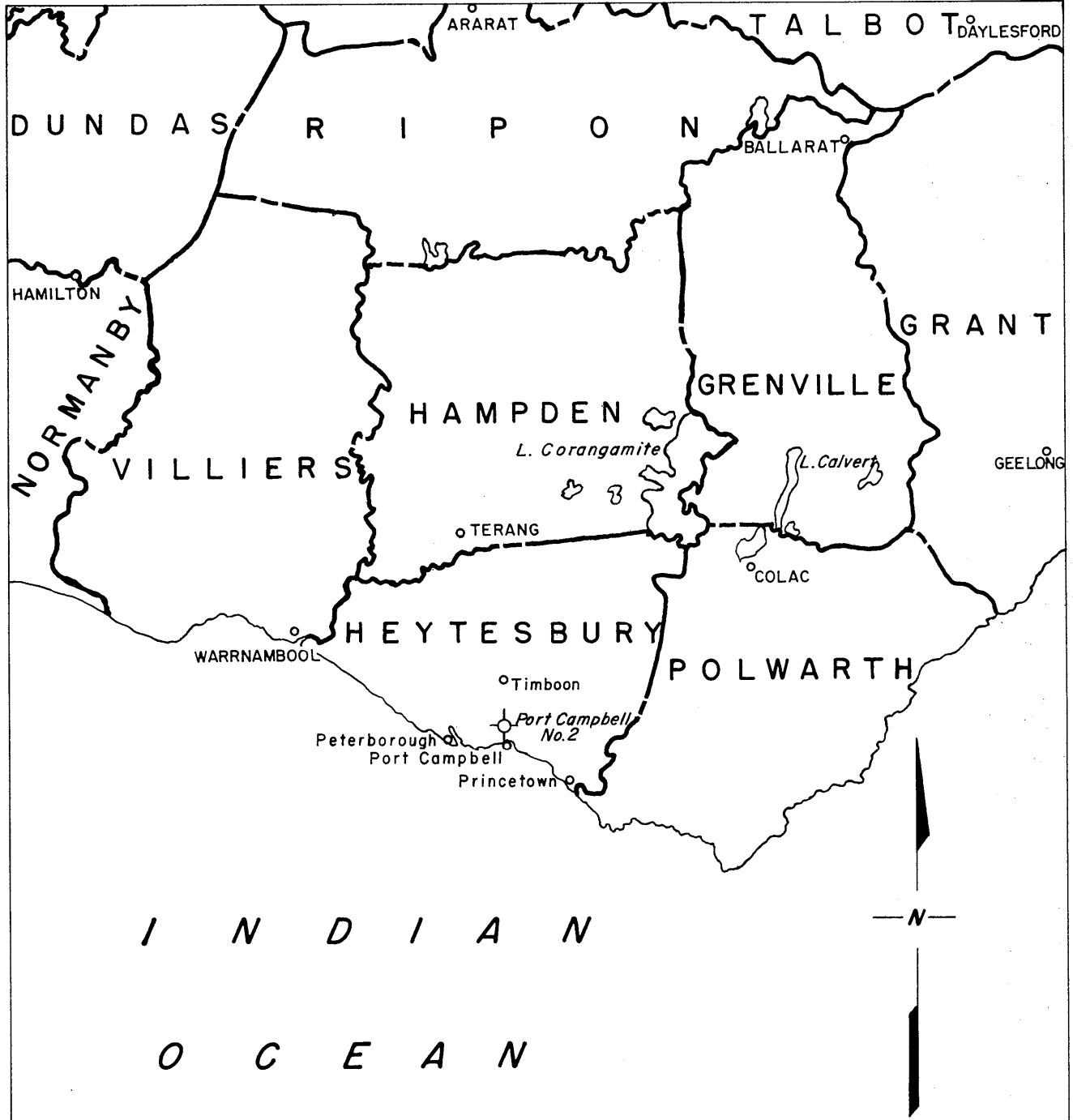
increasing fairly uniformly with depth. The most prominent interval velocity change is at 7900 feet, or at the approximate Top of Waarre.

Respectfully submitted,

ROBERT H. RAY SERVICE COMPANY, INC.

By _____
F. B. Sewell, Party Chief

December 2, 1960



LOCATION MAP
 OF
PORT CAMPBELL No.2
 VICTORIA, AUSTRALIA
 FOR
FROME BROKEN HILL CO. PTY. LTD.
 DECEMBER, 1960

SUMMARY OF WELL VELOCITY SURVEY OF PORT CAMPBELL NO. 2

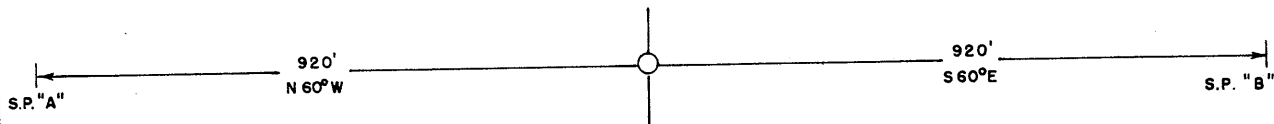
The velocity survey of Port Campbell No. 2 was conducted in accordance with specifications and standards of the Southern Well Shooting Association. This procedure is shown graphically by the layout diagram in this report.

Six shot holes were drilled at "A" location, 920 feet N 60° W of the well location and three shot holes at location "B", 920 feet S 60° E. The holes were placed in an arc array with twenty feet spacing between them. Shot hole charges varied from ten to fifty pounds of dynamite in single holes, (the mean depth of charge being used for calculations. A well geophone was supplied by the Bureau of Mineral Resources.

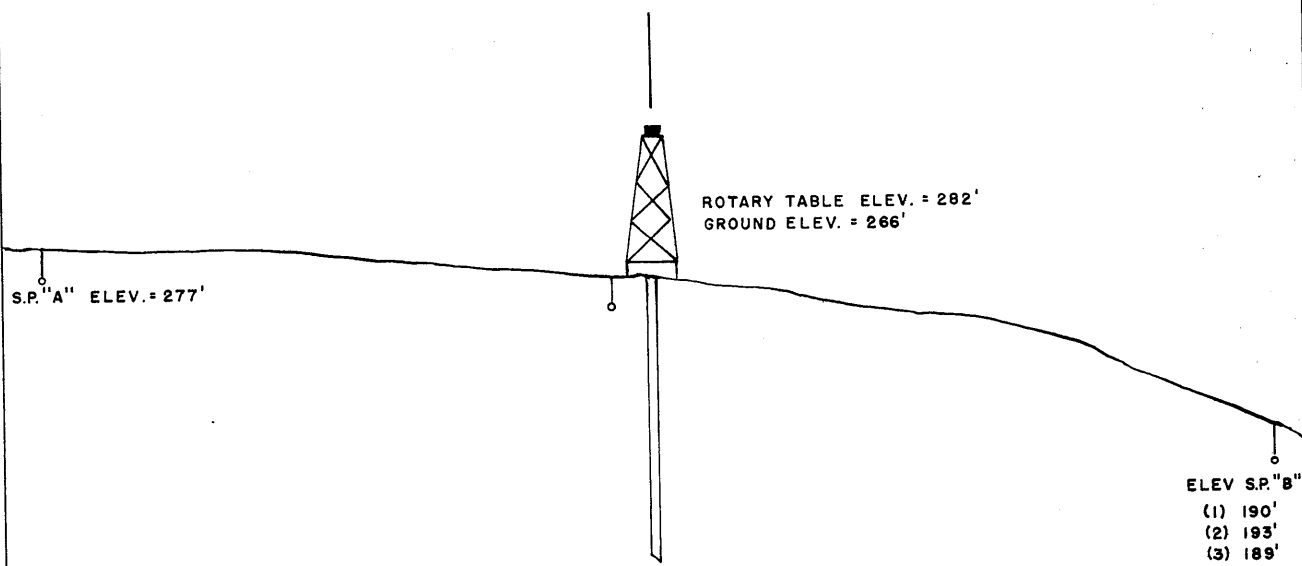
A reflection spread was not shot across the location since Lines 42 and 45 of the routine seismic survey fall adjacently. The time versus distance plots of the refraction arrivals from four of the nearby locations shot show an average 5600 ft. per second velocity; this velocity has been utilized in the computation of results.

The data secured are well regarded and accurate velocities have resulted. These velocities are in general agreement with those determined with a different geophone used for the initial survey conducted on November 11. The velocities computed are believed congruous with the type of geologic section encountered, i.e., the marls, sandstones, limestones, dolomite and mudstones found in the Wangerrip, Paaratte, Belfast and Waarre formations.

The Time vs Depth Curve shows average velocities to be



NOTE: SIX SHOT HOLES AT LOCATION "A" 20' APART
 UP-HOLE SEISMOMETER 10 FEET FROM HOLE
 REFERENCE GEOPHONE 20 FEET WEST OF WELL
 THREE SHOT HOLES AT LOCATION "B" 20' APART



ALL WELL GEOPHONE DEPTHS ARE
 MEASURED FROM ROTARY TABLE

LAYOUT AND DIAGRAM
 OF THE
 VELOCITY SURVEY
PORT CAMPBELL No.2
 VICTORIA, AUSTRALIA

FOR

FROME BROKEN HILL CO. PTY. LTD.

DECEMBER, 1960

PORT CAMPBELL NO. 2

Velocity Survey
Port Campbell No. 2
Shot No. 10 Hole B-2
25 lbs. @ 63-73'
Well Geophones: 8838 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2
Shot No. 11 Hole A-6
25 lbs. @ 70-80'
Well Geophones: 8838 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2
Shot No. 12 Hole A-6
25 lbs. @ 76-85'
Well Geophones: 8514 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2
Shot No. 13 Hole A-6
25 lbs. @ 75-82'
Well Geophone: 8188 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2
Shot No. 14 Hole A-5
25 lbs. @ 75-85'
Well Geophones: 7900 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2
Shot No. 15 Hole A-5
15 lbs. @ 80-86'
Well Geophones: 7300 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2
Shot No. 16 Hole A-5
15 lbs. @ 55-61'
Well Geophones: 6800 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2
Shot No. 17 Hole A-5
10 lbs. @ 50-54'
Well Geophones: 6300 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2
Shot No. 18 Hole A-5
10 lbs. @ 50-54'
Well Geophones: 5810 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2
Shot No. 19 Hole A-4
15 lbs. @ 62-68'
Well Geophones: 5500 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot Under Geophone

December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 1 Hole B-3
25 lbs. @ 76-86'

Well Geophone: 1230 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 2 Hole B-3
10 lbs. @ 77-81'

Well Geophone: 1450 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 3 Hole B-3
25 lbs. @ 77-85'

Well Geophone: 2500 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 4 Hole B-3
25 lbs. @ 79-85 ft.

Well Geophone: 3500 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 5 Hole B-3
50 lbs. @ 79-85'

Well Geophone: 5000 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 6 Hole B-3
50 lbs. @ 81-85'

Well Geophone: 5810 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 7 Hole B-3
50 lbs. @ 75-85'

Well Geophone: 7900 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 8 Hole B-2
25 lbs. @ 67-77'

Well Geophone: 8188 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 9 Hole B-1
25 lbs. @ 67-77'

Well Geophone: 8514 ft.
December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 20 Hole A-4
15 lbs. @ 61-67'
Well Geophones: 5000 ft.

December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 21 Hole A-4
10 lbs. @ 58-62'
Well Geophones: 4500 ft.

December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 22 Hole A-4
10 lbs. @ 55-59'
Well Geophones: 4000 ft.

December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 23 Hole A-4
10 lbs. @ 50-54'
Well Geophones: 3500 ft.

December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 24 Hole A-3
10 lbs. @ 75-79'
Well Geophones: 3000 ft.

December 2, 1960

Velocity Survey
Port Campbell No. 2

Shot No. 25 Hole A-3
25 lbs. @ 66-76'
Well Geophones: 2000 ft.

December 2, 1960

PE907150

This is an enclosure indicator page.
The enclosure PE907150 is enclosed within the
container PE907149 at this location in this
document.

The enclosure PE907150 has the following characteristics:

- ITEM_BARCODE = PE907150
- CONTAINER_BARCODE = PE907149
 - NAME = Well Velocity Calculation Form
 - BASIN = OTWAY
 - PERMIT = PEP6
 - TYPE = WELL
 - SUBTYPE = DIAGRAM
- DESCRIPTION = Well Velocity Calculation Form, Port
Campbell-2
- REMARKS =
- DATE_CREATED = 2/12/60
- DATE_RECEIVED =
 - W_NO = W463
 - WELL_NAME = PORT CAMPBELL-2
 - CONTRACTOR = ROBERT H.RAY SERVICE CO
 - CLIENT_OP_CO = FROME-BROKEN HILL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE907151

This is an enclosure indicator page.
The enclosure PE907151 is enclosed within the
container PE907149 at this location in this
document.

The enclosure PE907151 has the following characteristics:

- ITEM_BARCODE = PE907151
- CONTAINER_BARCODE = PE907149
- NAME = Well Velocity Summary Sheet
- BASIN = OTWAY
- PERMIT = PEP6
- TYPE = WELL
- SUBTYPE = DIAGRAM
- DESCRIPTION = Well Velocity Summary Sheet, Port
Campbell-2
- REMARKS =
- DATE_CREATED = 2/12/60
- DATE_RECEIVED =
- W_NO = W463
- WELL_NAME = PORT CAMPBELL-2
- CONTRACTOR = ROBERT H.RAY SERVICE CO
- CLIENT_OP_CO = FROME-BROKEN HILL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

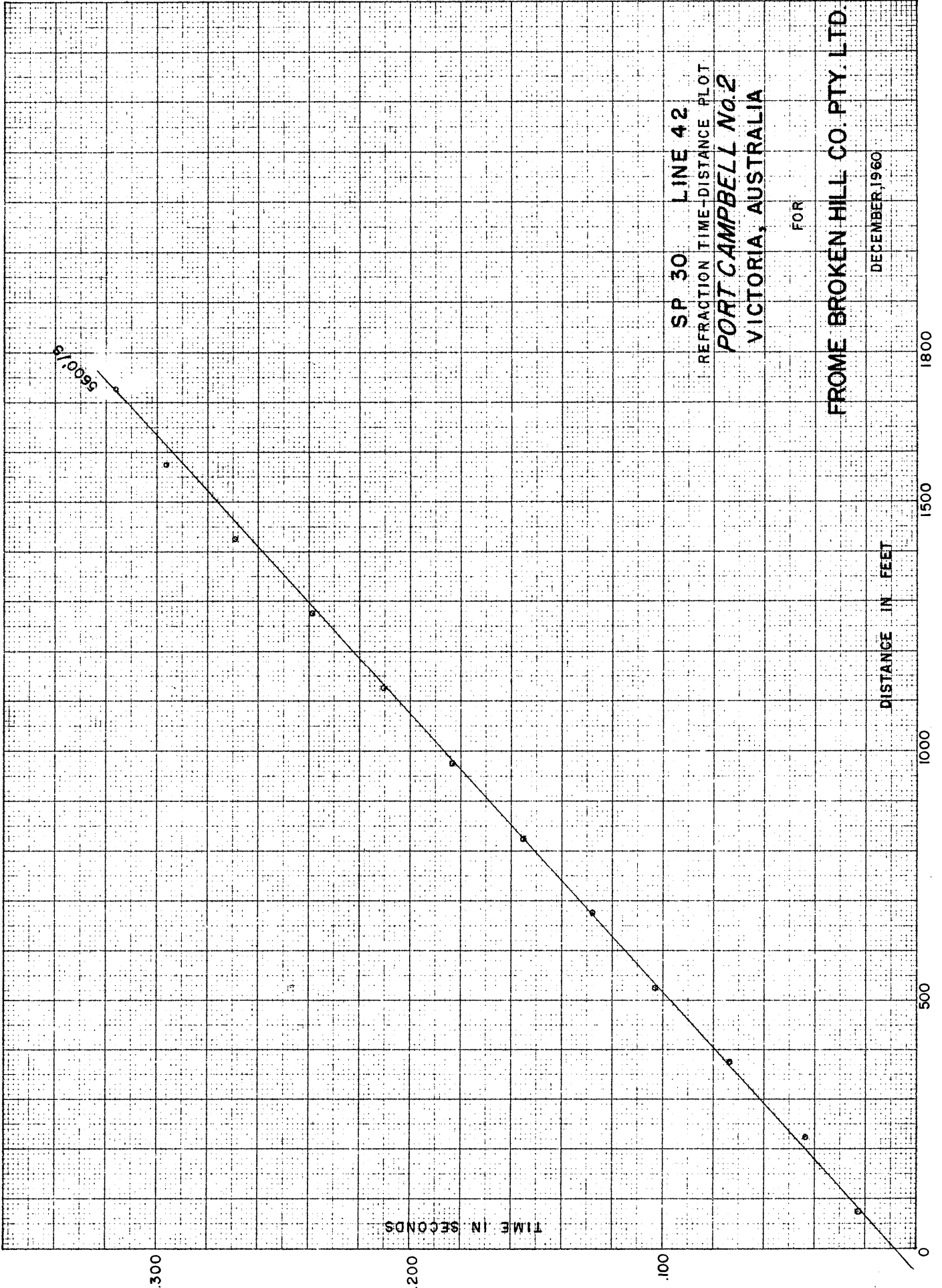
PE907152

This is an enclosure indicator page.
The enclosure PE907152 is enclosed within the
container PE907149 at this location in this
document.

The enclosure PE907152 has the following characteristics:

- ITEM_BARCODE = PE907152
- CONTAINER_BARCODE = PE907149
 - NAME = Time-Depth and Velocity Curves
 - BASIN = OTWAY
 - PERMIT = PEP6
 - TYPE = WELL
 - SUBTYPE = VELOCITY_CHART
- DESCRIPTION = Time-Depth and Velocity Curves, Port
Campbell-2
- REMARKS =
- DATE_CREATED = 31/12/60
- DATE_RECEIVED =
 - W_NO = W463
 - WELL_NAME = PORT CAMPBELL-2
 - CONTRACTOR = ROBERT H.RAY SERVICE CO
 - CLIENT_OP_CO = FROME-BROKEN HILL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)



SP 30 LINE 42

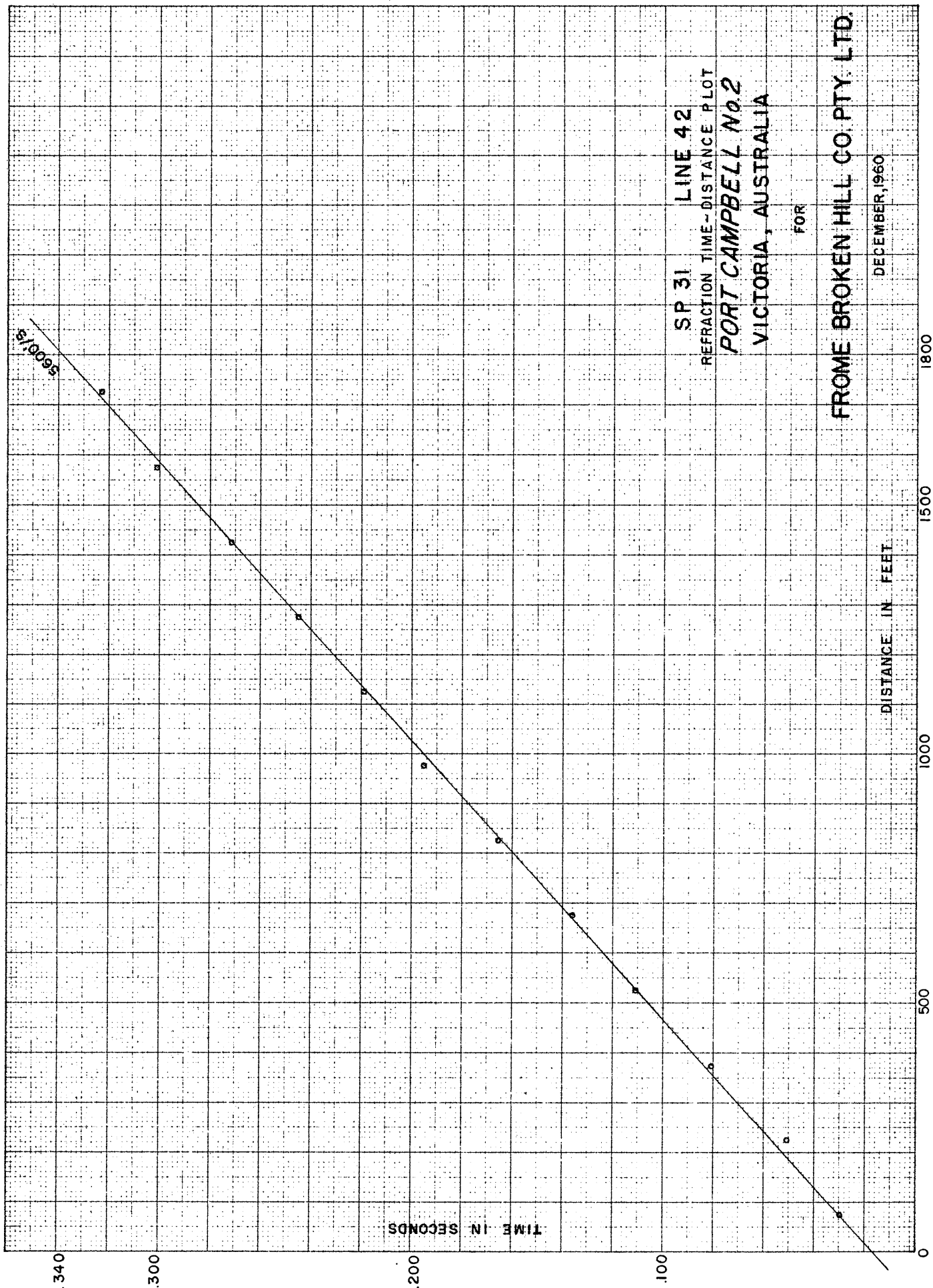
REFRACTION TIME-DISTANCE PLOT

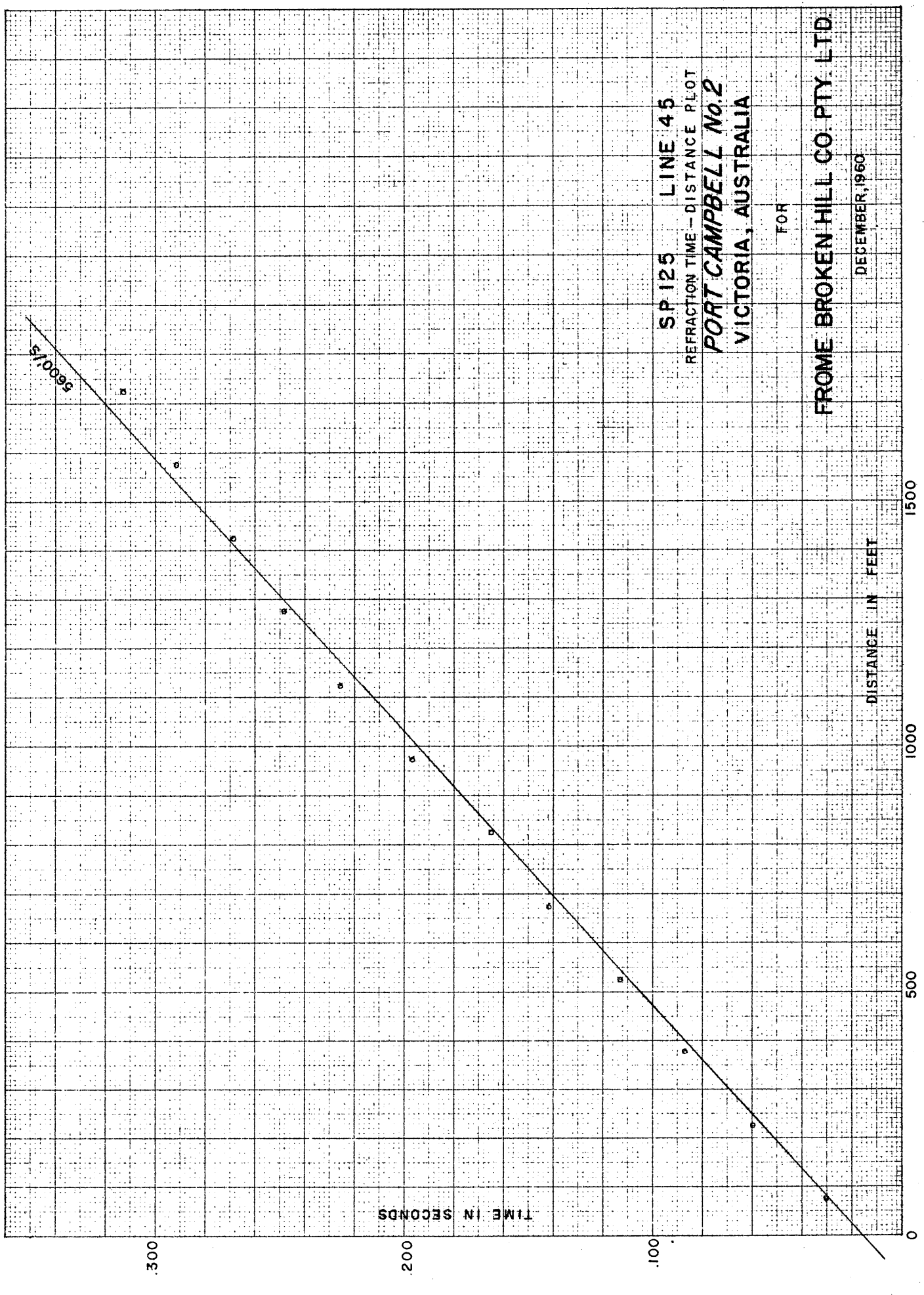
PORT CAMPBELL No. 2
VICTORIA, AUSTRALIA

FOR

FROM BROKEN HILL CO. PTY. LTD.

DECEMBER, 1960



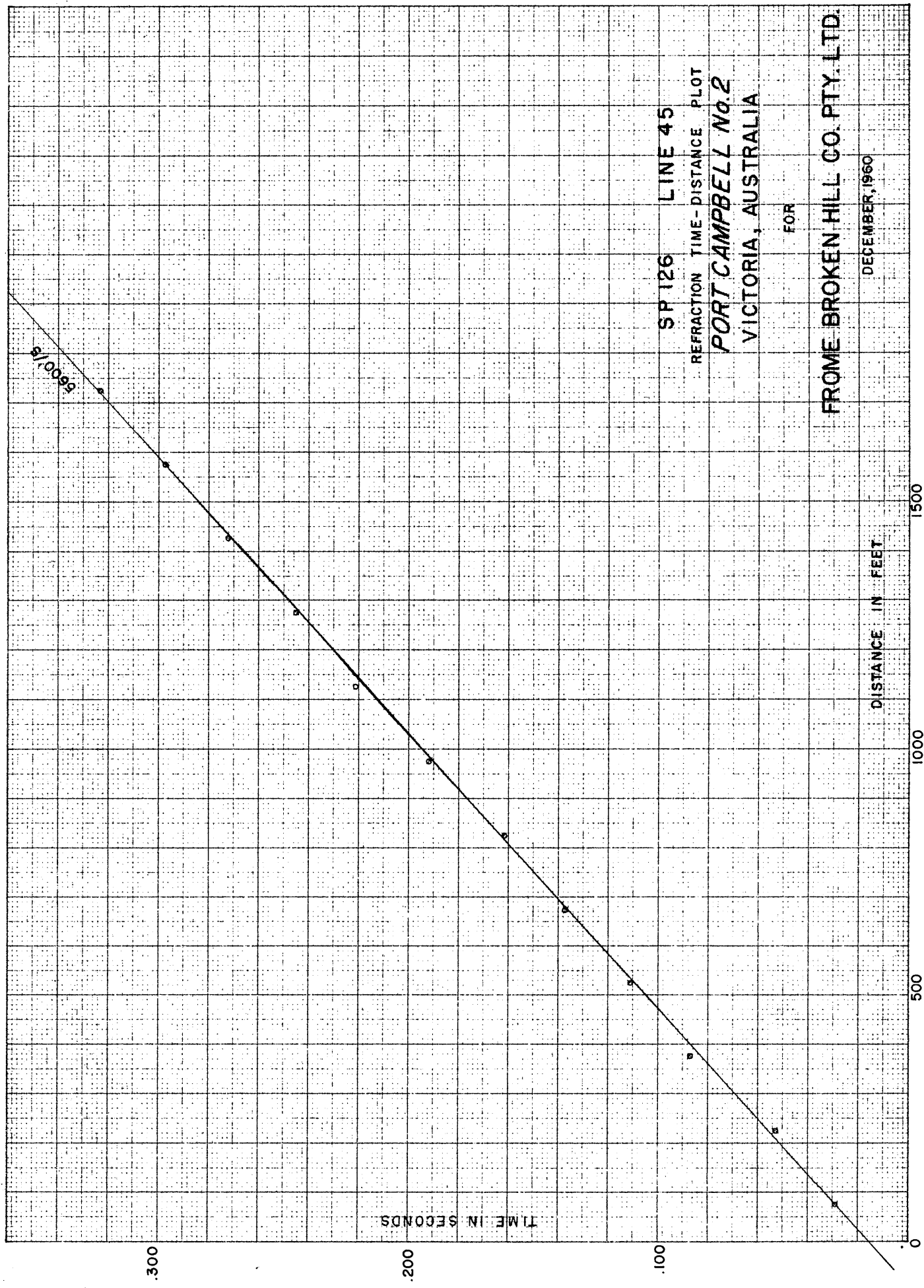


SP 125 LINE 45
REFRACTION TIME - DISTANCE PLOT
PORT CAMPBELL No. 2
VICTORIA, AUSTRALIA

FOR

FROM BROKEN HILL CO. PTY. LTD.

DECEMBER, 1960



PE907153

This is an enclosure indicator page.
The enclosure PE907153 is enclosed within the
container PE907149 at this location in this
document.

The enclosure PE907153 has the following characteristics:

ITEM_BARCODE = PE907153
CONTAINER_BARCODE = PE907149
 NAME = Time-Depth and Velocity Curves
 BASIN = OTWAY
 PERMIT = PEP6
 TYPE = WELL
 SUBTYPE = VELOCITY_CHART
DESCRIPTION = Time-Depth and Velocity Curves, Port
 Campbell-2
REMARKS =
DATE_CREATED = 30/04/62
DATE_RECEIVED =
 W_NO = W463
 WELL_NAME = PORT CAMPBELL-2
CONTRACTOR = ROBERT H.RAY SERVICE CO
CLIENT_OP_CO = FROME-BROKEN HILL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE907154

This is an enclosure indicator page.
The enclosure PE907154 is enclosed within the
container PE907149 at this location in this
document.

The enclosure PE907154 has the following characteristics:

ITEM_BARCODE = PE907154
CONTAINER_BARCODE = PE907149
NAME = Composite Time-Depth Curve
BASIN = OTWAY
PERMIT = PEP6
TYPE = WELL
SUBTYPE = VELOCITY_CHART
DESCRIPTION = Composite Time-Depth Curve, Port
Campbell-2
REMARKS =
DATE_CREATED = 30/04/62
DATE_RECEIVED =
W_NO = W463
WELL_NAME = PORT CAMPBELL-2
CONTRACTOR = ROBERT H.RAY SERVICE CO
CLIENT_OP_CO = FROME-BROKEN HILL COMPANY

(Inserted by DNRE - Vic Govt Mines Dept)

PE907155

This is an enclosure indicator page.
The enclosure PE907155 is enclosed within the
container PE907149 at this location in this
document.

The enclosure PE907155 has the following characteristics:

ITEM_BARCODE = PE907155
CONTAINER_BARCODE = PE907149
NAME = Velocity Survey
BASIN = OTWAY
PERMIT = PEP 6
TYPE = WELL
SUBTYPE = VELOCITY_CHART
DESCRIPTION = Velocity Survey, (Enclosure from
Velocity Survey Report), by Ray
Geophysics (Australia) Pty Ltd for
Frome-Broken Hill Co Pty Ltd, 2 December
1960, for Port Campbell-2.
REMARKS =
DATE_CREATED = 02/12/60
DATE_RECEIVED =
W_NO = W463
WELL_NAME = PORT CAMPBELL-2
CONTRACTOR = RAY GEOPHYSICS (AUSTRALIA) PTY LTD
CLIENT_OP_CO = FROME-BROKEN HILL COMPANY PTY LTD

(Inserted by DNRE - Vic Govt Mines Dept)