



Company : Esso Australia Limited
Well : Scallop # 1

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CONSTANT MASS STUDY
@ 243 °F
On MDT Bottom Hole Sample from cylinder # 841218

Pressure (psig)	Relative Volume (V/Vsat) (1)	Formation Volume Factor (Bg) (2)	Gas Expansion Factor (E) (3)	Deviation Factor (Z)	Specific Volume (CFT/LB)	Gas Viscosity (Centipoise) (4)
5000	0.9138	0.00389	257.18	0.982	0.06180	0.0315
4900	0.9267	0.00394	253.60	0.976	0.06267	0.0310
4800	0.9401	0.00400	249.97	0.970	0.06358	0.0305
4700	0.9541	0.00406	246.30	0.964	0.06452	0.0301
4600	0.9687	0.00412	242.59	0.958	0.06551	0.0296
4548 *	0.9757	0.00415	240.86	0.954	0.06598	0.0293
4500	0.9829	0.00418	239.08	0.951	0.06647	0.0291
4450	0.9908	0.00422	237.18	0.948	0.06700	0.0289
4400	0.9989	0.00425	235.27	0.945	0.06755	0.0286
4395 **	1.0000	0.00426	235.00	0.945	0.06763	0.0286

* Reservoir Pressure
** Dew Point Pressure

- (1) Cubic feet of gas at indicated pressure and temperature per cubic foot at reservoir pressure
 (2) Cubic feet of gas at indicated pressure and temperature per cubic foot at 14.696 psia and 60 °F
 (3) Cubic feet of gas at 14.696 psia and 60 °F per cubic foot at indicated pressure and temperature
 (4) Calculated from correlation of Lee, Gonzales and Eakin



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CONSTANT MASS STUDY @ 243 °F

On MDT Bottom Hole Sample from cylinder # 841218

Pressure (psig)	Relative Volume (V/Vsat) (1)	Retrograde Liquid Deposit	
		(Bbl/MMSCF) (2)	(Volume%) (3)
4395 *	1.0000	0.00	0.00
4300	1.0134	0.61	0.08
4200	1.0308	1.52	0.20
3850	1.0988	4.62	0.61
3500	1.1869	7.58	1.00
3150	1.3020	10.38	1.37
2800	1.4539	12.96	1.71
2450	1.6585	15.46	2.04
2100	1.9418	17.05	2.25
1750	2.3534	17.13	2.26
1400	2.9884	15.76	2.08
1050	4.0497	13.72	1.81

* Dew Point Pressure

- (1) Cubic feet of gas at indicated pressure and temperature per cubic foot at saturation pressure
- (2) Barrels of liquid at indicated pressure and temperature per MMSCF of original reservoir fluid
- (3) Percent of reservoir hydrocarbon pore space at dew point

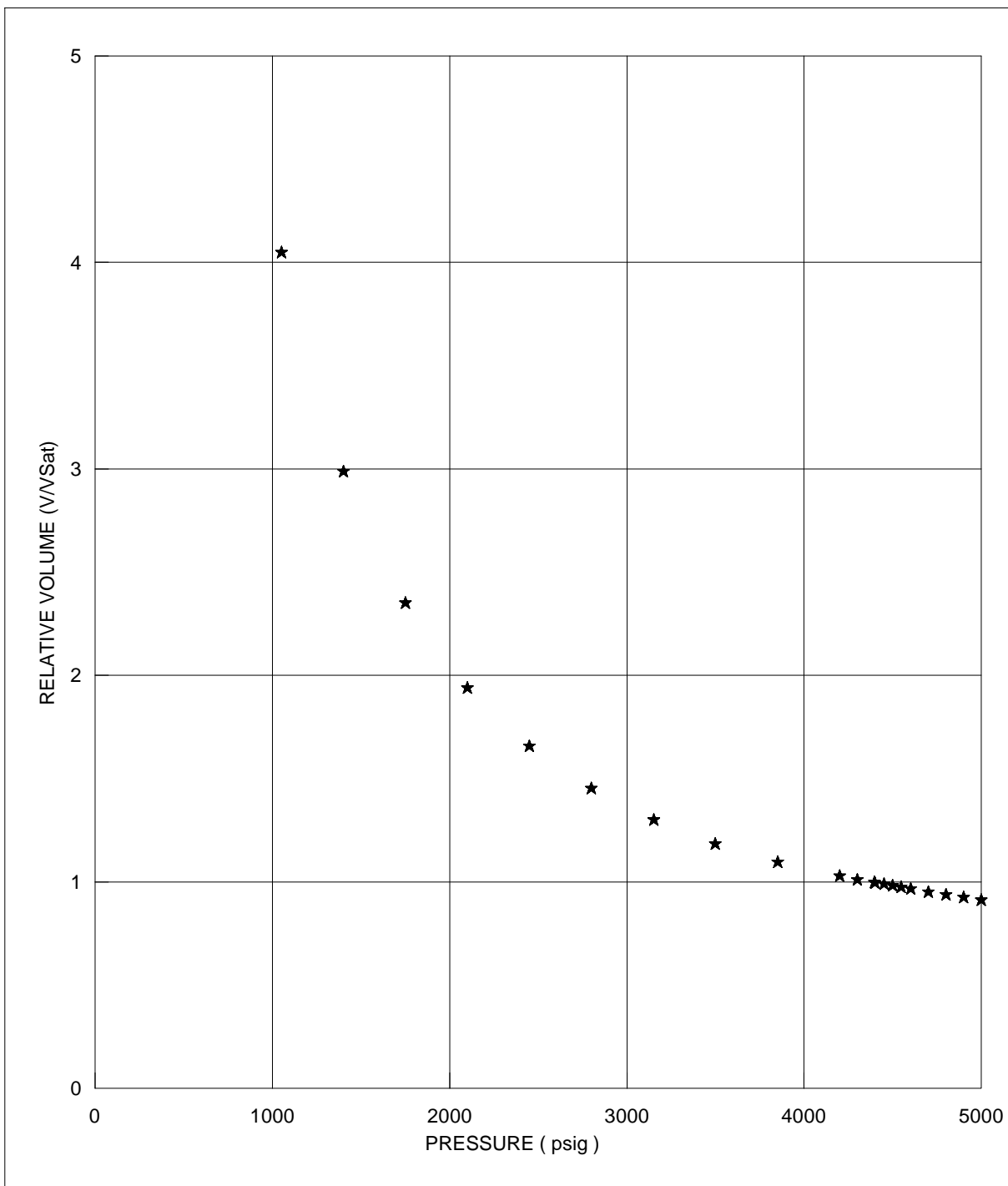


RELATIVE VOLUME

Equation of best fit

V/V_{Sat}

$$V/V_{Sat} = +9.86E+00 - 8.29E-03 * P + 3.14E-06 * P^2 - 5.49E-10 * P^3 + 3.62E-14 * P^4$$





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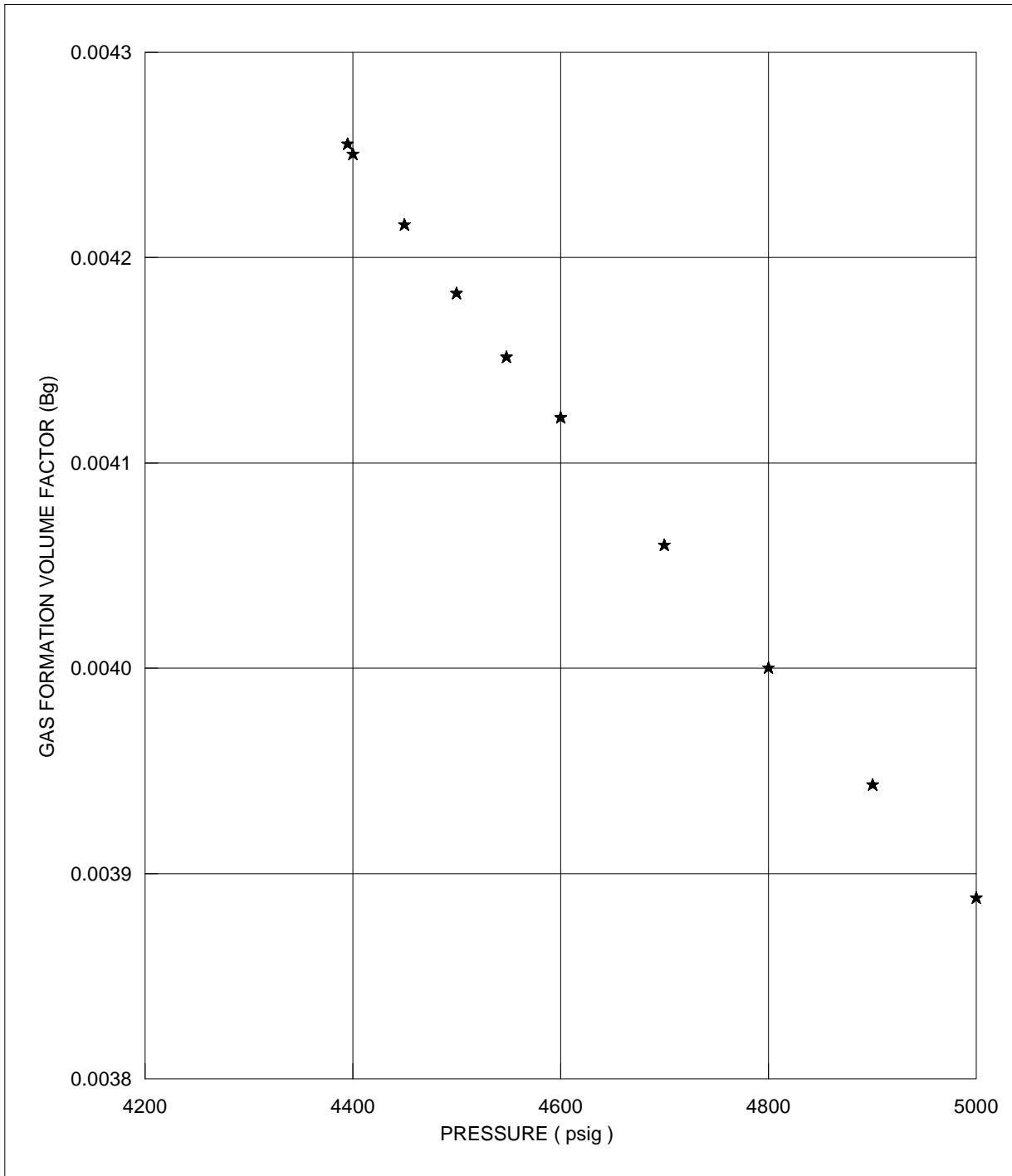
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GAS FORMATION VOLUME FACTOR

Equation of best fit

B_g

$$B_g = +1.98E-02 - 8.34E-06 * P + 1.54E-09 * P^2 - 1.01E-13 * P^3 + 0.00E+00 * P^4$$





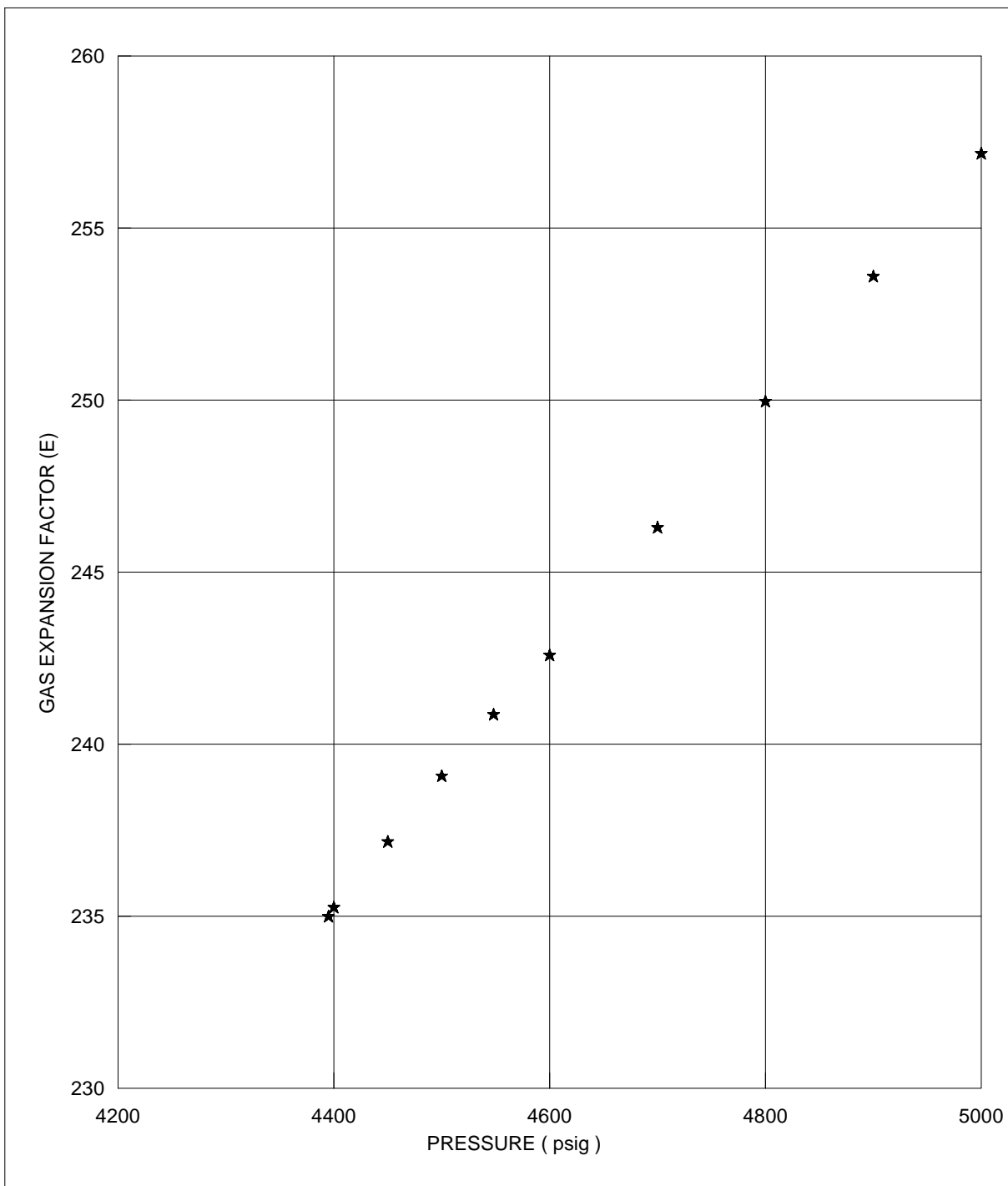
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GAS EXPANSION FACTOR

Equation of best fit

$$E = -4.29E+02 + 3.53E-01 * P - 6.61E-05 * P^2 + 4.60E-09 * P^3 + 0.00E+00 * P^4$$





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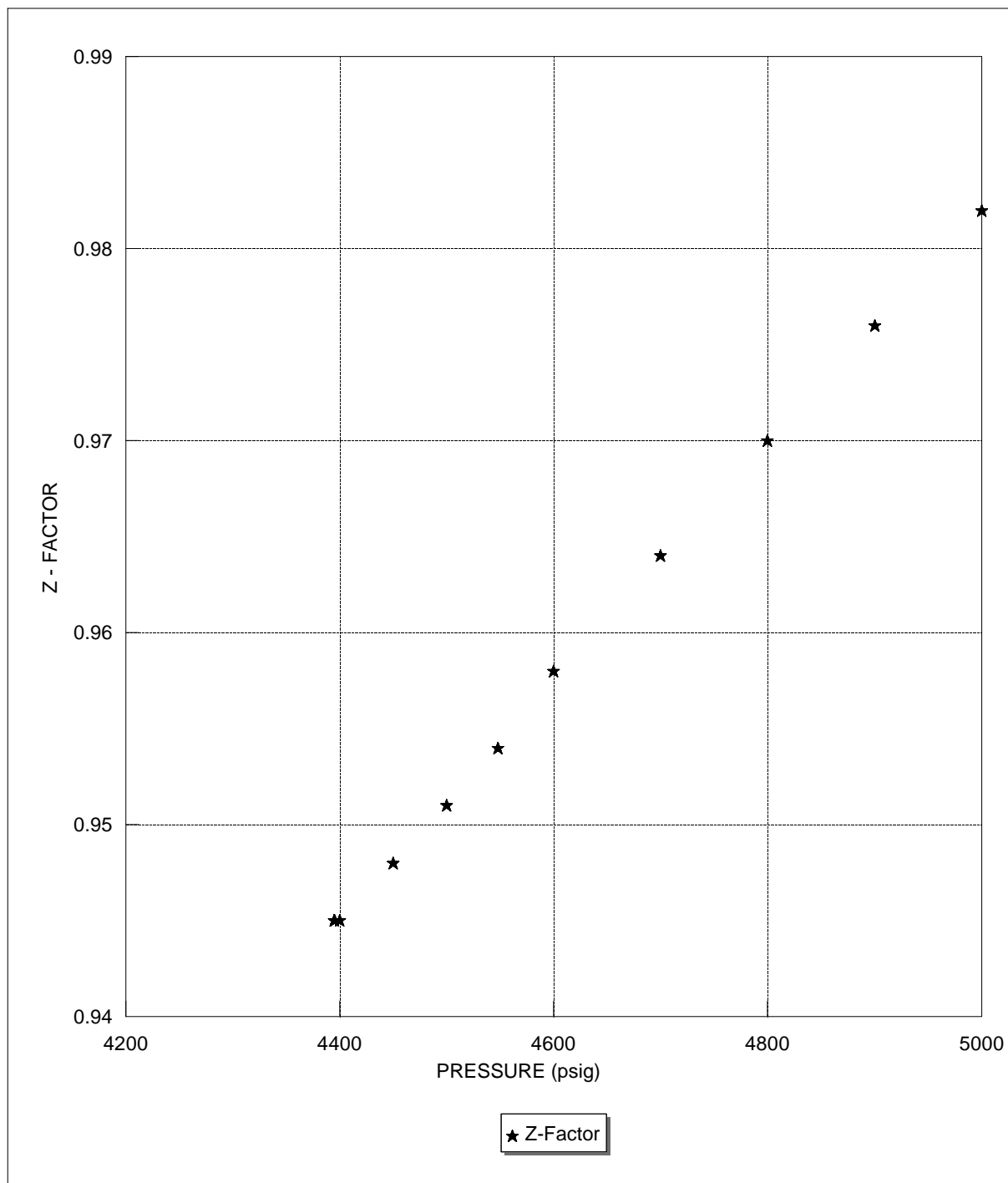
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GAS DEVIATION FACTOR

Equation of best fit

Z

$$Z = +3.19E+00 -1.56E-03 * P +3.49E-07 * P^2 -2.50E-11 * P^3 +0.00E+00 * P^4$$





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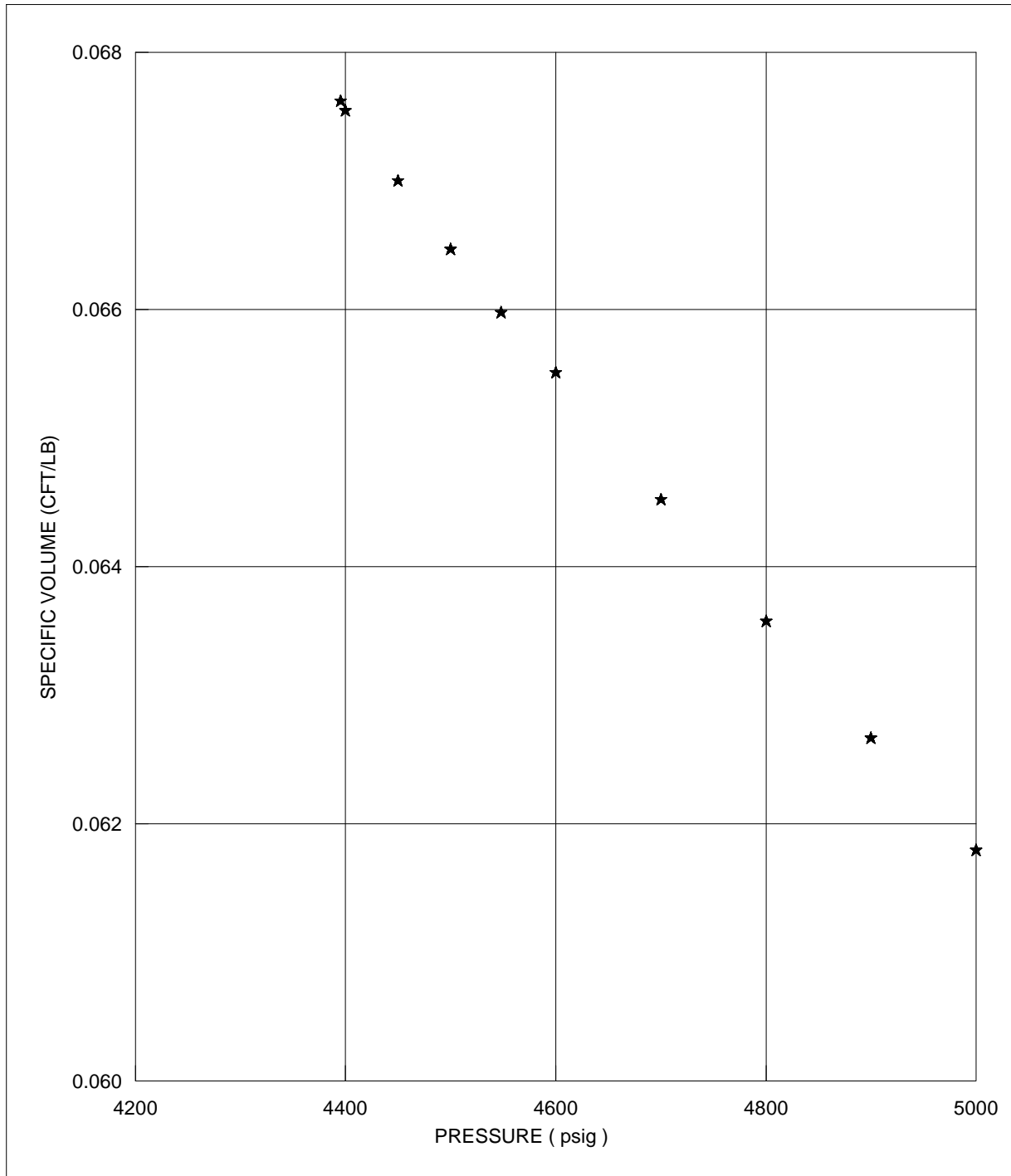
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RESERVOIR FLUID SPECIFIC VOLUME

Equation of best fit

SV

$$SV = +3.15E-01 - 1.33E-04 * P + 2.44E-08 * P^2 - 1.61E-12 * P^3 + 0.00E+00 * P^4$$

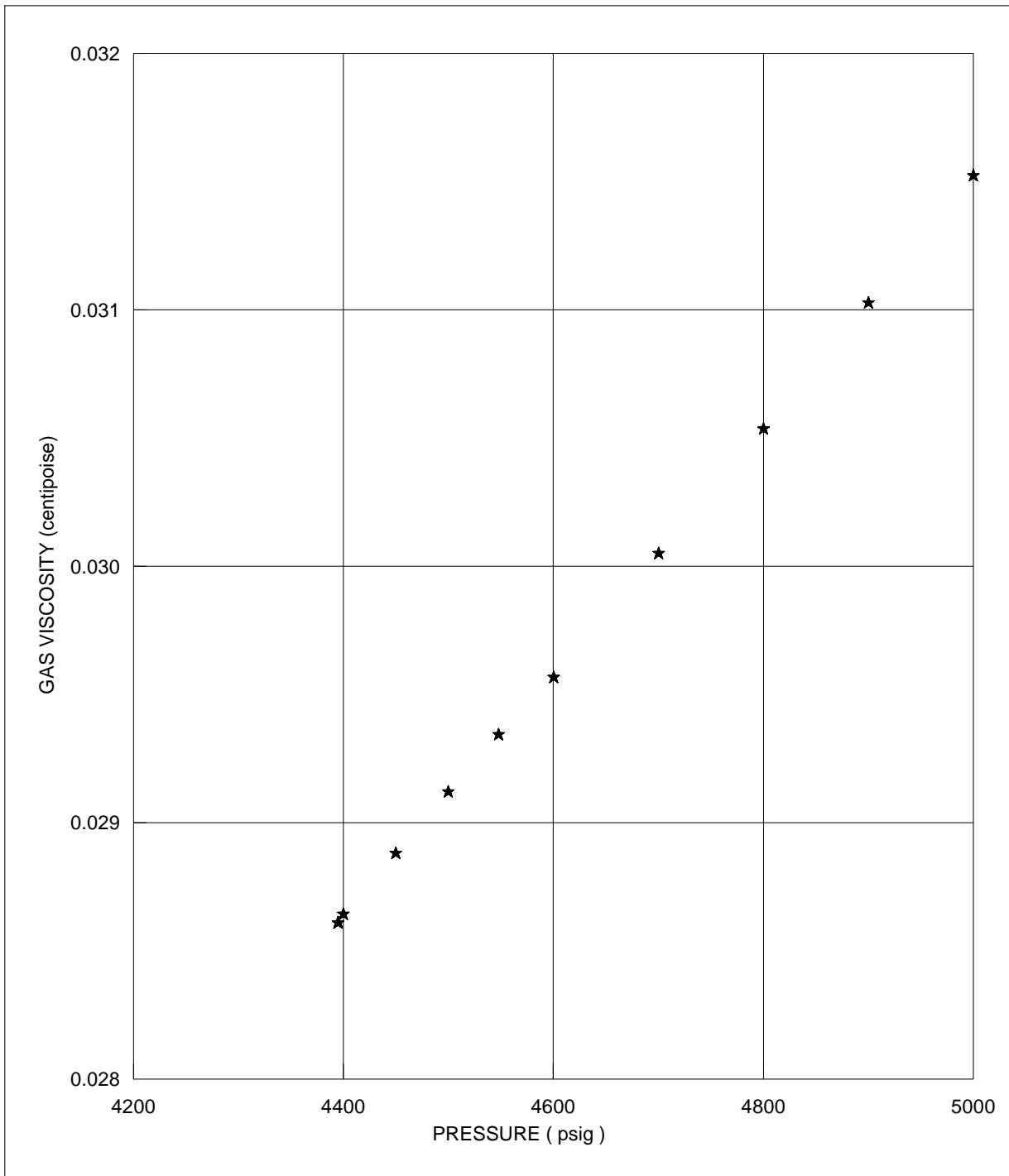




VISCOSITY OF RESERVOIR FLUID

Equation of best fit

$$\mu = -6.98E-02 + 5.56E-05 * P - 1.11E-08 * P^2 + 8.10E-13 * P^3 + 0.00E+00 * P^4$$





RETROGRADE CONDENSATION

Equation of best fit

RLD

$$RLD = -8.68E-01 + 3.95E-03 * P - 1.53E-06 * P^2 + 1.73E-10 * P^3 - 4.55E-15 * P^4$$

