

Appendix 8-E. Fred Barth No. 3 core report

ODNR
DIVISION OF GEOLOGICAL SURVEY

CORE RECORD

File No. 3003

County: Coshocton Quadrangle: Cochocton
Township: White Eyes State Coordinates X: 2,200,850 Zone North
Section or Lot: NE 1/4 of sec. 24 Y: 233,850
Measured: 100 Ft. from south Line, and 600 Ft. from west Line

Location Remark:

Property owner: Fred t. Barth, Permit 2838
Core Hole Designation (project): Barth #3
Purpose of Core: Rose Run stratigraphic test
Driller: Unknown

Drilling Co.: Unknown
Drilled For: Redman Oil Company
Surface Elev: 1065 ft. Datum for Elev: Sea Level
Date Started: 8-16-76
Date Completed: 9-6-76

Logged By: Schumacher Date Logged: 4-91
Core Diameter: 3 3/8" No. of Core Boxes: 10
Total Depth: 6600' Direction of Hole: Vertical

Core Disposition: Stored in the core repository of the ODNR, DOGS

Remarks: Core donated by Redman Oil Company. Stratigraphic interval described ranges from 5630 to 5749 ft. Core incomplete because of core sampling and loss. Conodont analysis has been performed between 5630 to 5749 ft. Reboxed by Schumacher 4/91.

TOP FT.	BOTTOM FT.	THICKNESS FT.	DESCRIPTION
------------	---------------	------------------	-------------

5630.00	5749.00	119.00	"Utica Shale of drillers"; shale with interbedded limestone.
---------	---------	--------	--

Core sampling and loss from each box:

- Box 1: 5630-5639, 6.25 ft. missing
- Box 2: 5640-5650, 6.45 ft. missing
- Box 3: 5650-5660, 4.70 ft. missing
- Box 4: 5660-5670, 5.20 ft. missing
- Box 5: 5670-5680, 6.30 ft. missing
- Box 6: 5680-5688, 4.30 ft. missing
- Box 7: Missing
- Box 8: 5702-5708, 1.15 ft. missing
- Box 9: 5708-5718, 5.80 ft. missing
- Box 10: Missing
- Box 11: Missing
- Box 12: 5732-5739, 1.80 ft. missing
- Box 13: 5746-5749, 0.80 ft. missing

LITHOLOGIC DESCRIPTIONS BASED ON AVAILABLE CORE.

Shale, brownish-black (5YR 2/1), calcareous, laminated, sparsely

The information portrayed/contained herein has not been technically reviewed for accuracy and conformity with present Ohio Geological Survey standards for published or open-file materials. The Ohio Geological Survey does not guarantee this document to be free from errors or inaccuracies and disclaims any responsibility or liability for interpretations or decisions based thereon.

TOP
FT.

BOTTOM
FT.

THICKNESS
FT.

DESCRIPTION

File 3003
Page 2

The information portrayed/contained herein has not been technically reviewed for accuracy and conformity with present Ohio Geological Survey standards for published or open-file materials. The Ohio Geological Survey does not guarantee this document to be free from errors or inaccuracies and disclaims any responsibility or liability for interpretations or decisions based thereon.

fossiliferous, minor bioturbation, thin to medium bedded, planar to irregular bedding, petroleum staining.

Limestone, medium-dark-gray (N4); medium to coarse grained, skeletal fragments, spar cements, argillaceous material; thin bedded; planar to irregular bedding; crude graded bedding; poorly-developed stylolites. Common fossils are trilobites, pelmatozoan ossicles, bryozoans, and brachiopods.

Trilobite Triarthrus sp. observed between 5660 to 5670 feet. Graptolites common between 5670 and 5688 feet. Immersion tests, acid solubility, qualitative x-ray diffraction analyses, and rock properties analysis conducted by Halliburton Services. Test results are on file with the Subsurface and Petroleum Geology Section of the Ohio Division of Geological Survey.

Condont Sample Data

1. 5634 feet, sample size: 405g
2. 5637 feet, sample size: 486g
3. 5639 feet, sample size: 543g
4. 5641 feet, sample size: 773g
5. 5652 feet, sample size: 445g
6. 5664 feet, sample size: 835g
7. 5665 feet, sample size: 431g
8. 5672 feet, sample size: 566g
9. 5685 feet, sample size: 583g
10. 5705 feet, sample size: 638g
11. 5709 feet, sample size: 678g
12. 5711 feet, sample size: 792g
13. 5713 feet, sample size: 709g
14. 5733 feet, sample size: 750g
15. 5734 feet, sample size: 517g
16. 5736 feet, sample size: 411g
17. 5745 feet, sample size: 411g

LOCATION 100' FSL, 600' FWL, N.E. 1/4 Sec. 24 T. White Eyes R.

ft. / line ft. / line

STATE Ohio COUNTY Coshocton

U.S.G.S. CORE LIBRARY NUMBER 3003 API WELL NUMBER 2838

(Ohio Survey) (Ohio Permit No.)

COMPANY NAME Redman Corporation

LEASE NAME No. 3 Barth

AREA / FIELD

ELEVATION KB 1071 ft m

GL 1065 ft m

TOTAL DEPTH 6600 ft m

FORMATION AT SURFACE PRODUCING FORMATION(S)

OLDEST FORMATION PENETRATED

FORMATION AT TOTAL DEPTH Rose Run ss. PRODUCING INTERVALS AND PRODUCTION DATA

COMMENCED

COMPLETED September 6, 1976 FORMATIONS CORED AND INTERVALS

CASING (size; depth) Utica shale; 5630 - 5750 ft

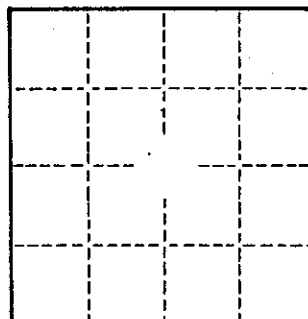
MECHANICAL/GEOPHYSICAL LOGS AVAILABLE; DEPTHS RUN

REMARKS

Core unslabbed, 3 1/2 in. diameter, well marked, good recovery; some gaps due to previous sampling by Halliburton services; stored in untreated cardboard boxes.

STUDIED BY Robert T. Ryder (uses in part description by Greg Schumacher) DATE June 20, 1991

LOCATION 100' FSL, 600' FWL, N.E. 1/4 Sec. 24 T. White Eyes R.
STATE Ohio COUNTY Coshocton
COMPANY AND LEASE NAME Redman Corporation No. 3 Barth
U.S.G.S. CORE LIBRARY NUMBER 3003 API WELL NUMBER 2838
(Ohio) (Ohio Permit No.)



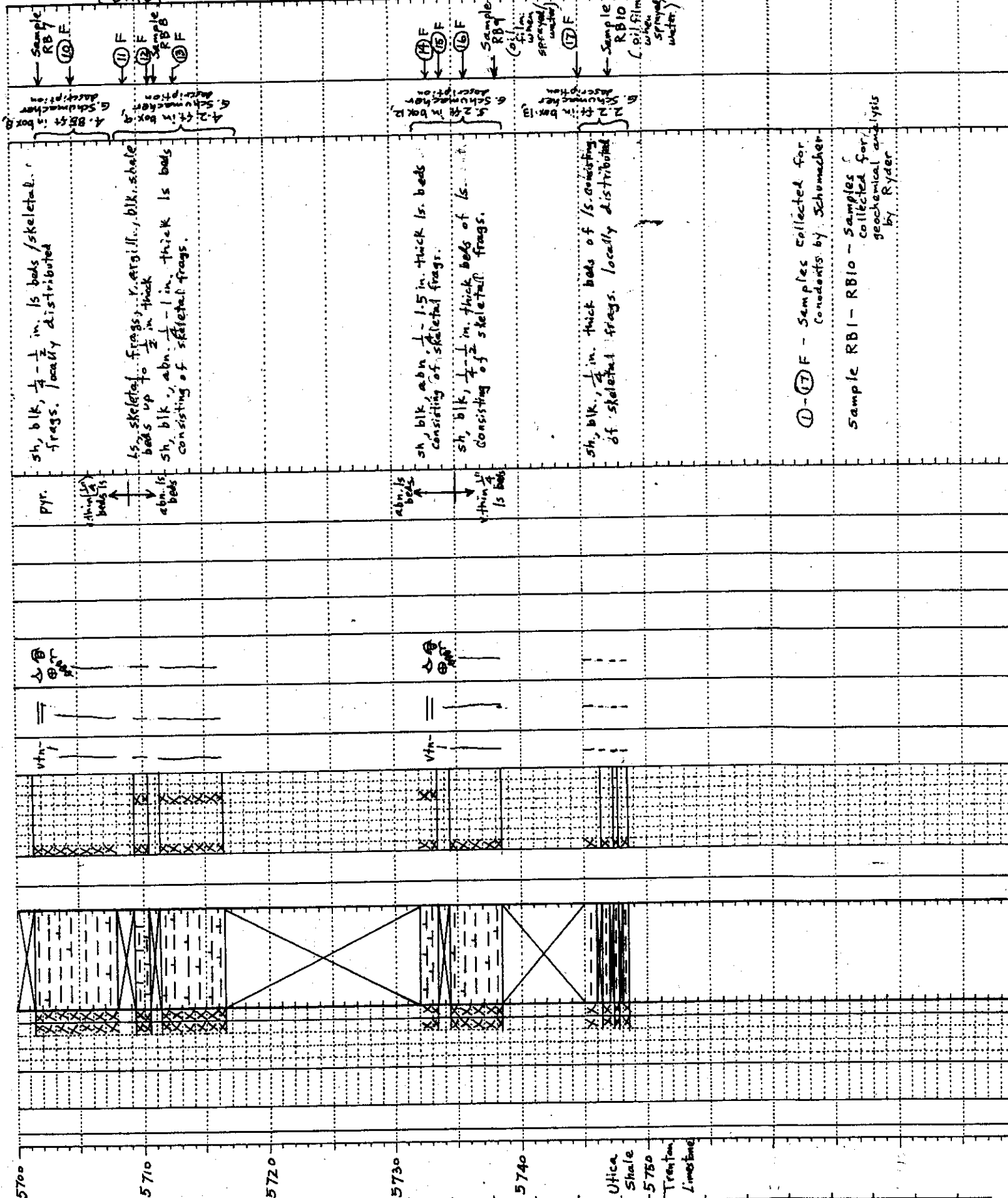
THE DIVISION OF GEOLOGICAL SURVEY MAKES NO AFFIRMATION CONCERNING THE COMPLETENESS AND ACCURACY OF THIS INFORMATION.

C# 3003

LOCATION 100 ft FSL, 600 ft FWL NE 1/4 Sec. 24 T. White Eyes R.
 STATE Ohio COUNTY Coshocton
 U.S.G.S. CORE LIBRARY NUMBER 3003 API WELL NUMBER 2838
 (Ohio Perm No.)

DEPTH AND FORMATION TOPS	SHOWS FRACTURES (Typ. anglo)	POROSITY TYPES	VISUAL POROSITY	CORE ESTIMATE	ROCK TYPE	FOOTNOTES	COLOR	CITY DOMINANT	CLAY GRAIN	FRASD GRAIN	MASS SIZE	PHI	BEDDING (as observed)	SEDIMENTARY STRUCTURES	BIOLOGIC CONSTITUENTS	SORTING	ROUNDNESS	PERCENT FRAMEWORK	ACCESSORY MINERALS OR FRAGMENTS	DESCRIPTION	INFERRED ENVIRONMENT OF DEPOSITION	ENGINEERING DATA: ROCK PROPERTIES	GEOMETRICAL DATA
5630			Excl	None			blk						Vh-1		⊕					sh, gy, black, very fossiliferous, numerous 1/2-3 in. beds of v. argill. limestone consisting of skeletal frags.	3.75 ft in box G. Schumacher description	① F RB 1	
5640			Excl	None			blk						Vh-1							sh, black, very fossiliferous	3.75 ft in box G. Schumacher description	② F RB 2	
5650			Excl	None			blk						Vh-1							sh, gy, black, v. fossiliferous, 1/4 in. ls. beds consisting of skeletal frags.	3.55 ft in box G. Schumacher description	③ F RB 3	
5660			Excl	None			blk						Vh-1		⊕					sh, black, 1/4-1/2 in. beds of v. argill. ls. consisting of skeletal frags. throughout interval.	3.2 ft in box G. Schumacher description	④ F RB 4	
5670			Excl	None			blk						Vh-1		⊕					sh, blk, 1/4 in. beds of ls. (consisting of skeletal frags.) locally distributed.	4.80 ft in box G. Schumacher description	⑤ F RB 5	
5680			Excl	None			blk						Vh-1							sh, blk, 1/4 in. beds of ls. (consisting of skeletal frags.) locally distributed.	3.70 ft in box G. Schumacher description	⑥ F RB 6	
5690			Excl	None			blk						Vh-1							sh, blk, 1/4 in. beds of ls. (consisting of skeletal frags.) locally distributed.	3.70 ft in box G. Schumacher description	⑦ F RB 7	
5700			Excl	None			blk						Vh-1							sh, blk, 1/4 in. beds of ls. (consisting of skeletal frags.) locally distributed.	3.70 ft in box G. Schumacher description	⑧ F RB 8	

THE DIVISION OF GEOLOGICAL SURVEY MAKES NO AFFIRMATION CONCERNING THE COMPLETENESS AND ACCURACY OF THIS INFORMATION.



①-⑩ F - Samples collected for
 Conodonts by Schumacher
 Sample RB1 - RB10 - Samples
 collected for
 geochemical analysis
 by Ryder

OILFIELD RESEARCH, INC.

1204 FIRST AVENUE • EVANSVILLE, INDIANA 47710 • TELEPHONE 424-2907 (DAY OR NIGHT)

WALDO, OHIO

September 8, 1976

Redman Oil Company (Redstone Division)
Suite 710
79 E. State Street
Columbus, Ohio 43215

IN RE: Fred T. Barth Lease
Well No. 3
Section 24
Coshocton County, Ohio

Gentlemen:

The Utica formation was diamond cored in the subject well in the interval 5630.0 - 5750.0 feet. The core was sampled and bagged (plastic bags) by our representative and brought to our Evansville laboratory for analysis. A total of 113 samples representing 113 feet were analyzed and the results are presented in this report in tabular form. The following briefly discuss these results.

The cored interval was a black shale with considerable calcareous material. The saturation of each sample was determined using conventional core analysis techniques. The oil and water saturations averaged 40.6 percent and 35.2 percent, respectively.

The horizontal and vertical permeability of each sample was determined. Permeability measurements were made on alternating samples since the core was rather uniform and to help minimize laboratory charges. The horizontal measurements were made using a small diameter plug. All of the horizontal permeabilities with the exception of three were less than 0.10 millidarcys. Whole core techniques were not used in determining horizontal permeabilities because of the tendency for the core to break along the horizontal planes as pressure was applied. The vertical permeabilities were measured using whole core techniques and in all cases the vertical permeabilities were less than 0.10 millidarcys.

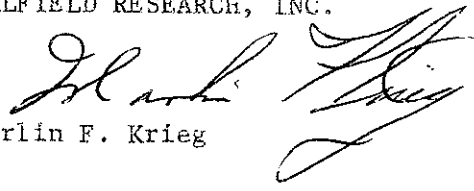
Porosity of the samples were determined by two methods. Whole core porosities on samples of 6 - 10" were measured using a double

cell gas expansion porosimeter. This technique measures effective porosity (connected porosity). The whole core effective porosity averaged 1.3 percent. The total porosity was measured using conventional techniques and these porosity measurements averaged 5.6 percent.

If there are any questions regarding the techniques used in this analytical work or if we can be of any further engineering or geological assistance, please call.

Very truly yours,

OILFIELD RESEARCH, INC.


Marlin F. Krieg

MFK:csr

6C: Worthington Oil Co., P. O. Box 358, Worthington, Ohio 43085

CORE ANALYSIS



OILFIELD RESEARCH, INC.

CORE ANALYSIS REPORT

Company Redman Oil Company (Redstone Division) Elevation 1065 File No. 76E9018
 Lease Fred T. Barth Well 3 Formation Utica Date Cored 8/76
 Field _____ Drlg. Fluid FWB Date Report 9/8/76
 County Coshocton State Ohio Type Of Core Diamond Permit No. _____
 Location 600'WL of NE/4 Section 24 Remarks Sampled by OR-CH & TJ

LITHOLOGICAL ABBREVIATIONS

SAND-SD DOLOMITE-DOL ANHYDRITE-ANHY SANDY-SDY FINE-FN CRYSTALLINE-XLN BROWN-BRN FRACTURED-FRAC SLIGHTLY-SL/
 SHALE-SH CHERT-CH CONGLOMERATE-CONG SHALEY-SHY MEDIUM-MED GRAIN-GRN GRAY-GY LAMINATION-LAM VERY-V/
 LIME-LM GYPSUM-GYP FOSSILIFEROUS-FOSS LIMEY-LMY COARSE-CSE GRANULAR-GRNL VUGGY-VGY STYLOLITIC-STY WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS		POROSITY PERCENT	LITHOLOGY AND REMARKS
		HORIZONTAL	VERTICAL		

		Conv.	Whole Core	Whole Core Effective	Conventional Total Porosity	Percent Oil	Percent Water
1	5630.5	<0.10	<0.10	2.6	2.4	36.7	62.2
2	5631.5			3.7	5.5	25.2	52.4
3	5632.5	<0.10	<0.10	2.5	6.0	34.7	39.1
4	5633.5			2.7	4.2	45.6	34.4
5	5634.5	<0.10	<0.10	2.0	5.2	40.0	50.0
6	5635.5			1.5	2.1	33.8	50.0
7	5636.5	<0.10	<0.10	2.0	7.0	54.4	44.4
8	5637.5			1.6	2.4	44.4	46.7
9	5638.5	0.20	<0.10	2.6	5.0	56.8	39.5
10	5639.5			1.7	5.8	44.5	49.0
11	5640.5	<0.10	<0.10	2.5	6.7	41.2	46.2
12	5641.5			2.2	6.0	52.2	43.5
13	5642.5	0.24	<0.10	2.9	5.2	46.5	50.0
14	5643.5			1.4	6.8	48.8	48.1
15	5644.5	<0.10	<0.10	2.1	3.5	51.5	47.7
16	5645.5			1.6	7.5	43.8	37.9
17	5646.5	<0.10	<0.10	2.5	7.0	41.9	50.0
18	5647.5			2.8	7.0	39.6	33.3
19	5648.5	<0.10	<0.10	2.4	4.2	45.6	40.6
20	5649.5			3.4	7.7	40.0	51.7
21	5650.5	<0.10	<0.10	3.5	6.0	46.5	46.5
22	5651.5			3.3	4.7	59.4	33.3
23	5652.5	<0.10	<0.10	1.5	6.8	51.2	46.2
24	5653.5			1.9	5.7	54.5	36.4
25	5654.5	<0.10	<0.10	1.3	6.2	44.6	37.5
26	5655.5			3.0	5.5	50.9	33.3

These analyses, opinions or interpretations are based on observations and material supplied by the client to whom, and for whose exclusive and confidential use this report is made. The interpretations or opinions expressed represent the best judgment of Oilfield Research, Inc. (all errors and omissions excepted) but Oilfield Research, Inc. and its officers and employees, assume no responsibility and make no warranty or representations as to the productivity, proper operation, or profitability of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

CORE ANALYSIS REPORT

Fred T. Barth

3

Lease _____

Well No. _____

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYs		POROSITY PERCENT	LITHOLOGY AND REMARKS		
		HORIZONTAL	VERTICAL				
		Conv.	Whole Core	Whole Core Effective	Conventional Total Porosity	Percent Oil	Percent Water
27	5656.5	<0.10	<0.10	1.5	6.5	48.0	40.0
28	5657.5			1.5	6.2	50.0	33.3
29	5658.5	<0.10	<0.10	1.5	6.2	47.1	35.4
30	5659.5			<1.0	7.0	29.6	40.7
31	5660.5	<0.10	<0.10	2.0	6.9	49.3	29.6
32	5661.5			1.4	7.0	44.4	29.6
33	5662.5	<0.10	<0.10	1.0	7.2	38.2	39.3
34	5663.5			1.5	5.9	65.0	34.8
35	5664.5	<0.10	<0.10	2.0	5.2	58.0	40.0
36	5665.5			<1.0	5.8	65.0	31.8
37	5666.5	<0.10	<0.10	1.1	5.7	62.7	22.7
38	5667.5			1.2	5.9	24.3	27.4
39	5668.5	<0.10	<0.10	2.0	7.4	32.1	23.8
40	5669.5			<1.0	6.7	35.8	27.3
41	5670.5	<0.10	<0.10	<1.0	5.2	20.0	22.5
42	5671.5			<1.0	6.6	22.7	21.5
43	5672.5	<0.10	<0.10	1.2	5.2	26.5	25.0
44	5673.5			1.9	8.3	28.2	23.6
45	5674.5	<0.10	<0.10	2.2	6.7	30.8	30.8
46	5675.5			3.1	8.6	29.4	25.0
47	5676.5	<0.10	<0.10	4.0	7.6	35.7	26.7
48	5677.5			2.3	7.7	33.3	28.3
49	5678.5	<0.10	<0.10	2.2	6.7	56.5	30.8
50	5679.5			2.2	6.9	41.9	31.5
51	5680.5	<0.10	<0.10	1.3	7.7	44.3	26.7
52	5681.5			1.2	7.0	44.4	29.6
53	5682.5	<0.10	<0.10	1.4	8.4	38.5	22.7
54	5683.5			1.4	6.7	30.8	28.8
55	5684.5	<0.10	<0.10	1.7	7.7	37.7	31.7
56	5685.5			1.2	1.9	57.1	40.0
57	5686.5	<0.10	<0.10	1.1	5.0	31.6	28.9
58	5687.5			<1.0	4.7	29.4	41.1

5688-90 - 2' of core not recovered

5690-94 - These 4 feet were left in barrel & not sampled

59	5694.5	<0.10	<0.10	<1.0	5.2	43.5	27.5
60	5695.5			<1.0	6.5	48.0	28.0
61	5696.5	<0.10	<0.10	1.2	6.7	41.2	23.1

CORE ANALYSIS REPORT

Fred T. Barth

3

Lease _____ Well No. _____

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS		POROSITY PERCENT	LITHOLOGY AND REMARKS		
		HORIZONTAL	VERTICAL				
		Conv.	Whole Core	Whole Core Effective	Conventional Total Porosity	Percent Oil	Percent Water
62	5697.5			1.2	5.7	30.5	18.2
63	5698.5	<0.10	<0.10	1.3	5.5	31.9	19.0
64	5699.5			<1.0	6.2	41.7	27.1
65	5700.5	<0.10	<0.10	1.1	5.5	47.6	31.0
66	5701.5			<1.0	6.5	50.8	30.0
67	5702.5	<0.10	<0.10	<1.0	6.0	34.8	21.7
68	5703.5			<1.0	5.0	56.3	31.6
69	5704.5	<0.10	<0.10	<1.0	4.5	42.9	26.5
70	5705.5			<1.0	4.0	40.0	23.3
71	5706.5	<0.10	<0.10	1.1	4.5	39.4	23.5
72	5707.5			1.1	6.0	34.8	21.7
73	5708.5	<0.10	<0.10	1.6	4.2	58.1	31.2
74	5709.5			1.0	2.7	40.0	20.0
75	5710.5	<0.10	<0.10	<1.0	4.2	54.4	34.4
76	5711.5			1.1	4.7	59.4	33.3
77	5712.5	<0.10	<0.10	1.4	4.2	41.9	25.0
78	5713.5			<1.0	3.2	55.8	33.3
79	5714.5	<0.10	<0.10	<1.0	5.2	60.0	35.0
80	5715.5			1.1	3.7	28.6	24.3
81	5716.5	<0.10	<0.10	<1.0	5.2	40.0	25.0
82	5717.5			<1.0	4.7	13.4	33.3
83	5718.5	0.48	<0.10	<1.0	4.7	15.0	33.3
84	5719.5			<1.0	6.4	16.0	28.0
85	5720.5	<0.10	<0.10	<1.0	6.0	40.4	55.9
86	5721.5			<1.0	5.0	38.4	44.7
87	5722.5	<0.10	<0.10	<1.0	6.2	33.3	50.0
88	5723.5			<1.0	6.7	35.8	50.0
89	5724.5	<0.10	<0.10	<1.0	6.5	40.0	46.0
90	5725.5			<1.0	5.3	46.5	51.5
91	5726.5	<0.10	<0.10	<1.0	6.3	55.4	40.5
92	5727.5			<1.0	5.2	0.0	25.0
93	5728.5	<0.10	<0.10	1.3	7.5	36.9	48.3
94	5729.5			<1.0	7.0	44.4	51.0
95	5730.5	<0.10	<0.10	<1.0	4.7	33.3	44.4
96	5731.5			1.2	6.2	38.8	45.8
97	5732.5	<0.10	<0.10	<1.0	5.2	43.5	22.5
98	5733.5			1.3	3.4	15.4	30.8
99	5734.5	<0.10	<0.10	<1.0	4.2	20.6	34.4
100	5735.5			<1.0	4.7	29.4	38.9
101	5736.5	<0.10	<0.10	<1.0	4.7	51.7	44.4

CORE ANALYSIS REPORT

Fred T. Barth

3

Lease _____ Well No. _____

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS		POROSITY PERCENT	LITHOLOGY AND REMARKS
		HORIZONTAL	VERTICAL		

		Conv.	Whole Core	Whole Core Effective	Conventional Total Porosity	Percent Oil	Percent Water
102	5737.5			<1.0	5.8	63.6	33.1
103	5738.5	<0.10	<0.10	<1.0	6.5	42.8	40.0
104	5739.5			<1.0	4.7	37.2	44.4
105	5740.5	<0.10	<0.10	<1.0	4.2	33.1	43.8
106	5741.5			<1.0	4.7	0.0	16.7
107	5742.5	<0.10	<0.10	<1.0	4.7	22.2	38.9
108	5743.5			<1.0	4.5	47.1	47.1
109	5744.5	<0.10	<0.10	<1.0	4.5	31.2	29.4
110	5745.5			<1.0	4.7	44.4	33.3
111	5746.5	<0.10	<0.10	1.3	4.2	29.4	34.4
112	5747.5			<1.0	5.5	47.6	31.0
113	5748.5	<0.10	<0.10	<1.0	5.3	60.0	35.0

5749 - 50 - Lost core

AVERAGE

5630.0 - 5749.0 (113')		<0.10	<0.10	1.3	5.6	40.6	35.2
---------------------------	--	-------	-------	-----	-----	------	------

CHEMICAL RESEARCH AND DEVELOPMENT DEPARTMENT

HALLIBURTON SERVICES
DUNCAN, OKLAHOMALABORATORY REPORTNo. F11-T182-76Mr. Larry PerkinsDate October 4, 1976Halliburton ServicesZanesville, Ohio

This report is the property of Halliburton Services, a Division of Halliburton Company, and neither this report nor any part hereof may be disclosed to any third party without the express written approval of Halliburton Services.

below results of our examination of formation core samples.d by Redman Oil CompanyWell: Barth No. 3Location: Coshocton County, Ohio P# 2838Formation: Utica ShaleDepth: 5641 to 5729 feet*white eyes**S-24*Purpose

Formation core samples were submitted for laboratory evaluation and treatment recommendations.

Discussion

These samples consist of silt size quartz and calcite grains in a clay matrix. Virtually no intergranular porosity is visible with the SEM. The only porosity noted was between the clay platelets of the matrix.

Immersion tests indicate no fines were released in fresh water, 2% KCl water and a CLA-STA compound treated 2% KCl fluid.

An acceptable treatment fluid for stimulation of this formation would be one which uses 0.5 gallon CLA-STA compound and 7.5 gallons HC-2 per 1000 gallons of two percent potassium chloride water as the liquid phase of a foam fracturing fluid.

THE DIVISION OF GEOLOGICAL SURVEY MAKES
NO AFFIRMATION CONCERNING THE COMPLETENESS
AND ACCURACY OF THIS INFORMATION.

NOTE:

This report is for information only and the content is limited to the sample described. Halliburton makes no warranties, express or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage, regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

DataImmersion Tests

Effects of immersion under vacuum at 100°F for one hour in the following:

No.	Depth (feet)	Fresh Water	2% KCl	Mix- ture*
12	5641	NFR	NFR	NFR
46	5675	NFR	NFR	NFR
94	5729	NFR	NFR	NFR

NFR = No fines released.

* 0.5 gal. CLA-STA compound and 7.5 gal.
HC-2 per 1000 gal. 2% KCl Water.

Acid Solubility and Qualitative X-Ray Diffraction Analyses

Core No. Depth (feet)	12 5641	46 5675	94 5729
Acid Solubility*	39.2%	52.5%	64.0%
Quartz	major	moderate-large	small-moderate
Feldspar	small	small	very small
Calcite	moderate-large	major	major
Dolomite	small-moderate	small	very small
Kaolinite	-	trace	-
Illite	very small	trace	-
Montmorillonite	-	-	-
Mixed Layer Clay	small	very small	very small
Chlorite	very small	trace	trace

<u>Reported Amount</u>	<u>Approximate Percentage Range</u>
Trace	0.1 to 1.0
Very small	1.0 to 3.0
Small	3.0 to 10.0
Moderate	10.0 to 20.0
Large	15.0 to 40.0
Major	40.0 to 100.0

* This is percent solubility in dilute hydrochloric acid as calcium carbonate only.

THE DIVISION OF GEOLOGICAL SURVEY MAKES
NO AFFIRMATION CONCERNING THE COMPLETENESS
AND ACCURACY OF THIS INFORMATION.

NOTICE:

This report is for information only and the content is limited to the sample described. Halliburton makes no warranties, express or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage, regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

Data (Cont'd)

Rock Properties

<u>Core No.</u>	<u>Young's Modulus (psi)</u>	<u>Poisson's Ratio</u>
46	2.78 x 10 ⁶	0.133

Remarks

SEM photo micrographs will be forwarded later in a supplement to this report.

The data in this report were given to Mr. Larry Perkins by Dr. D. E. Simon during a telephone conversation on September 23, 1976.

Data Book Reference

The data presented in this report are recorded in Fracturing Book No. 2764, page 69; Fracturing Book No. 2894, page 26; Fracturing Book No. 2910, page 39; and Analytical Book No. 2958, page 30.

The remaining cores from this project were stored in Core Library Tube No. 1785.

- cc: Mr. A. A. Baker
- Mr. L. L. Brigger
- Mr. W. G. Darden
- Mr. J. A. Manger
- Mr. W. E. Robins
- Mr. A. B. Waters
- Mr. W. T. Malone
- Mr. E. J. Stahl, Jr.

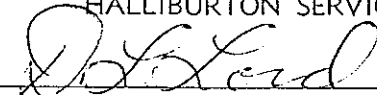
THE DIVISION OF GEOLOGICAL SURVEY MAKES NO AFFIRMATION CONCERNING THE COMPLETENESS AND ACCURACY OF THIS INFORMATION.

Respectfully submitted,

Core Analyst

Simon-Lovett-Phelps-Bishop
Madows-Crowell-cs

HALLIBURTON SERVICES

By 
for D. E. Simon

DISCLAIMER: This report is for information only and the content is limited to the sample described. Halliburton makes no warranties, express or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage, regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

WALDO, OHIO

September 8, 1976

Redman Oil Company (Redstone Division)
Suite 710
79 E. State Street
Columbus, Ohio 43215

IN RE: Fred T. Barth Lease
Well No. 3
Section 24
Coshocton County, Ohio

Gentlemen:

The Utica formation was diamond cored in the subject well in the interval 5630.0 - 5750.0 feet. The core was sampled and bagged (plastic bags) by our representative and brought to our Evansville laboratory for analysis. A total of 113 samples representing 113 feet were analyzed and the results are presented in this report in tabular form. The following briefly discuss these results.

The cored interval was a black shale with considerable calcareous material. The saturation of each sample was determined using conventional core analysis techniques. The oil and water saturations averaged 40.6 percent and 35.2 percent, respectively.

The horizontal and vertical permeability of each sample was determined. Permeability measurements were made on alternating samples since the core was rather uniform and to help minimize laboratory charges. The horizontal measurements were made using a small diameter plug. All of the horizontal permeabilities with the exception of three were less than 0.10 millidarcys. Whole core techniques were not used in determining horizontal permeabilities because of the tendency for the core to break along the horizontal planes as pressure was applied. The vertical permeabilities were measured using whole core techniques and in all cases the vertical permeabilities were less than 0.10 millidarcys.

Porosity of the samples were determined by two methods. Whole core porosities on samples of 6 - 10" were measured using a double



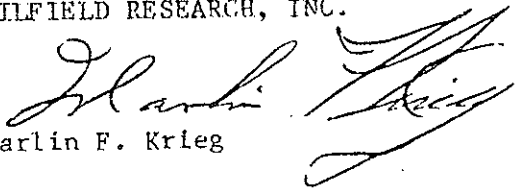
THE DIVISION OF GEOLOGICAL SURVEY MAKES
NO AFFIRMATION CONCERNING THE COMPLETENESS
AND ACCURACY OF THIS INFORMATION.

cell gas expansion porosimeter. This technique measures effective porosity (connected porosity). The whole core effective porosity averaged 1.3 percent. The total porosity was measured using conventional techniques and these porosity measurements averaged 5.6 percent.

If there are any questions regarding the techniques used in this analytical work or if we can be of any further engineering or geological assistance, please call.

Very truly yours,

OILFIELD RESEARCH, INC.


Marlin F. Krieg

MFK:csr

6C: Worthington Oil Co., P. O. Box 358, Worthington, Ohio 43085

THE DIVISION OF GEOLOGICAL SURVEY MAKES
NO AFFIRMATION CONCERNING THE COMPLETENESS
AND ACCURACY OF THIS INFORMATION.



OILFIELD RESEARCH, INC.

CORE ANALYSIS REPORT

Company Redman Oil Company (Redstone Division) Elevation 1065 File No. 76E9018
 Lease Fred T. Barth Well 3 Formation Utica Date Cored 8/76
 Field _____ Drig. Fluid FWB Date Report 9/8/76
 County Coshocton State Ohio Type Of Core Diamond Permit No. _____
 Location 600'WL of NE/4 Section 24 Remarks Sampled by OR-CH & TJ

LITHOLOGICAL ABBREVIATIONS

SAND-SD DOLOMITE-DOL ANHYDRITE-ANHY SANDY-SOY FINE-FN CRYSTALLINE-XLN BROWN-BRN FRACTURED-FRAC SLIGHTLY-SL/
 SHALE-SH CHERT-CH CONGLOMERATE-CONG SHALEY-SHY MEDIUM-MED GRAIN-GRN GRAY-GY LAMINATION-LAM VERY-W/
 LIME-LM GYPSUM-GYP FOSSILIFEROUS-FOSS LIMEY-LMY COARSE-CSE GRANULAR-GRNL VUGGY-VGY STYLOLITIC-STY WITH-W/

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS		POROSITY PERCENT	LITHOLOGY AND REMARKS
		HORIZONTAL	VERTICAL		

		Conv.	Whole Core	Whole Core Effective	Conventional Total Porosity	Percent Oil	Percent Water
1	5630.5	<0.10	<0.10	2.6	2.4	36.7	62.2
2	5631.5			3.7	5.5	25.2	52.4
3	5632.5	<0.10	<0.10	2.5	6.0	34.7	39.1
4	5633.5			2.7	4.2	45.6	34.4
5	5634.5	<0.10	<0.10	2.0	5.2	40.0	50.0
6	5635.5			1.5	2.1	33.8	50.0
7	5636.5	<0.10	<0.10	2.0	7.0	54.4	44.4
8	5637.5			1.6	2.4	44.4	46.7
9	5638.5	0.20	<0.10	2.6	5.0	56.8	39.5
10	5639.5			1.7	5.8	44.5	49.0
11	5640.5	<0.10	<0.10	2.5	6.7	41.2	46.2
12	5641.5			2.2	6.0	52.2	43.5
13	5642.5	0.24	<0.10	2.9	5.2	46.5	50.0
14	5643.5			1.4	6.8	48.8	48.1
15	5644.5	<0.10	<0.10	2.1	3.5	51.5	47.7
16	5645.5			1.6	7.5	43.8	37.9
17	5646.5	<0.10	<0.10	2.5	7.0	41.9	50.0
18	5647.5			2.8	7.0	39.6	33.3
19	5648.5	<0.10	<0.10	2.4	4.2	45.6	40.6
20	5649.5			3.4	7.7	40.0	51.7
21	5650.5	<0.10	<0.10	3.5	6.0	46.5	46.5
22	5651.5			3.3	4.7	59.4	33.3
23	5652.5	<0.10	<0.10	1.5	6.8	51.2	46.2
24	5653.5			1.9	5.7	54.5	36.4
25	5654.5	<0.10	<0.10	1.3	6.2	44.6	37.5
26	5655.5			3.0	5.5	50.9	33.3

These analyses, opinions or interpretations are based on observations and material supplied by the client to whom, and for whose exclusive and confidential use this report is made. The interpretations or opinions expressed represent the best judgment of Oilfield Research, Inc. (all errors and omissions excepted) but Oilfield Research, Inc. and its officers and employees, assume no responsibility and make no warranty or representations as to the productivity, proper operation, or profitability of any oil, gas or other mineral well or sand in connection with which such report is used or relied upon.

THE DIVISION OF GEOLOGICAL SURVEY MAKES
 NO AFFIRMATION CONCERNING THE COMPLETENESS
 AND ACCURACY OF THIS INFORMATION.

CORE ANALYSIS REPORT

Fred T. Barth

3

Lease _____

Well No. _____

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYs		POROSITY PERCENT	LITHOLOGY AND REMARKS		
		HORIZONTAL	VERTICAL				
		Conv.	Whole Core	Whole Core Effective	Conventional Total Porosity	Percent Oil	Percent Water
27	5656.5	<0.10	<0.10	1.5	6.5	48.0	40.0
28	5657.5			1.5	6.2	50.0	33.3
29	5658.5	<0.10	<0.10	1.5	6.2	47.1	35.4
30	5659.5			<1.0	7.0	29.6	40.7
31	5660.5	<0.10	<0.10	2.0	6.9	49.3	29.6
32	5661.5			1.4	7.0	44.4	29.6
33	5662.5	<0.10	<0.10	1.0	7.2	38.2	39.3
34	5663.5			1.5	5.9	65.0	34.8
35	5664.5	<0.10	<0.10	2.0	5.2	58.0	40.0
36	5665.5			<1.0	5.8	65.0	31.8
37	5666.5	<0.10	<0.10	1.1	5.7	62.7	22.7
38	5667.5			1.2	5.9	24.3	27.4
39	5668.5	<0.10	<0.10	2.0	7.4	32.1	23.8
40	5669.5			<1.0	6.7	35.8	27.3
41	5670.5	<0.10	<0.10	<1.0	5.2	20.0	22.5
42	5671.5			<1.0	6.6	22.7	21.5
43	5672.5	<0.10	<0.10	1.2	5.2	26.5	25.0
44	5673.5			1.9	8.3	28.2	23.6
45	5674.5	<0.10	<0.10	2.2	6.7	30.8	30.8
46	5675.5			3.1	8.6	29.4	25.0
47	5676.5	<0.10	<0.10	4.0	7.6	35.7	26.7
48	5677.5			2.3	7.7	33.3	28.3
49	5678.5	<0.10	<0.10	2.2	6.7	56.5	30.8
50	5679.5			2.2	6.9	41.9	31.5
51	5680.5	<0.10	<0.10	1.3	7.7	44.3	26.7
52	5681.5			1.2	7.0	44.4	29.6
53	5682.5	<0.10	<0.10	1.4	8.4	38.5	22.7
54	5683.5			1.4	6.7	30.8	28.8
55	5684.5	<0.10	<0.10	1.7	7.7	37.7	31.7
56	5685.5			1.2	1.9	57.1	40.0
57	5686.5	<0.10	<0.10	1.1	5.0	31.6	28.9
58	5687.5			<1.0	4.7	29.4	41.1

5688-90 - 2' of core not recovered

5690-94 - These 4 feet were left in barrel & not sampled

59	5694.5	<0.10	<0.10	<1.0	5.2	43.5	27.5
60	5695.5			<1.0	6.5	48.0	28.0
61	5696.5	<0.10	<0.10	1.2	6.7	41.2	23.1

THE DIVISION OF GEOLOGICAL SURVEY MAKES
NO AFFIRMATION CONCERNING THE COMPLETENESS
AND ACCURACY OF THIS INFORMATION.

CORE ANALYSIS REPORT

Fred L. Barth

Lease _____

Well No. _____

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYS		POROSITY PERCENT	LITHOLOGY AND REMARKS		
		HORIZONTAL	VERTICAL				
		Conv.	Whole Core	Whole Core Effective	Conventional Total Porosity	Percent Oil	Percent Water
62	5697.5			1.2	5.7	30.5	18.2
63	5698.5	<0.10	<0.10	1.3	5.5	31.9	19.0
64	5699.5			<1.0	6.2	41.7	27.1
65	5700.5	<0.10	<0.10	1.1	5.5	47.6	31.0
66	5701.5			<1.0	6.5	50.8	30.0
67	5702.5	<0.10	<0.10	<1.0	6.0	34.8	21.7
68	5703.5			<1.0	5.0	56.3	31.6
69	5704.5	<0.10	<0.10	<1.0	4.5	42.9	26.5
70	5705.5			<1.0	4.0	40.0	23.3
71	5706.5	<0.10	<0.10	1.1	4.5	39.4	23.5
72	5707.5			1.1	6.0	34.8	21.7
73	5708.5	<0.10	<0.10	1.6	4.2	58.1	31.2
74	5709.5			1.0	2.7	40.0	20.0
75	5710.5	<0.10	<0.10	<1.0	4.2	54.4	34.4
76	5711.5			1.1	4.7	59.4	33.3
77	5712.5	<0.10	<0.10	1.4	4.2	41.9	25.0
78	5713.5			<1.0	3.2	55.8	33.3
79	5714.5	<0.10	<0.10	<1.0	5.2	60.0	35.0
80	5715.5			1.1	3.7	28.6	24.3
81	5716.5	<0.10	<0.10	<1.0	5.2	40.0	25.0
82	5717.5			<1.0	4.7	13.4	33.3
83	5718.5	0.48	<0.10	<1.0	4.7	15.0	33.3
84	5719.5			<1.0	6.4	16.0	28.0
85	5720.5	<0.10	<0.10	<1.0	6.0	40.4	55.9
86	5721.5			<1.0	5.0	38.4	44.7
87	5722.5	<0.10	<0.10	<1.0	6.2	33.3	50.0
88	5723.5			<1.0	6.7	35.3	50.0
89	5724.5	<0.10	<0.10	<1.0	6.5	40.0	46.0
90	5725.5			<1.0	5.3	46.5	51.5
91	5726.5	<0.10	<0.10	<1.0	6.3	55.4	40.5
92	5727.5			<1.0	5.2	0.0	25.0
93	5728.5	<0.10	<0.10	1.3	7.5	36.9	48.3
94	5729.5			<1.0	7.0	44.4	51.0
95	5730.5	<0.10	<0.10	<1.0	4.7	33.3	44.4
96	5731.5			1.2	6.2	38.8	45.3
97	5732.5	<0.10	<0.10	<1.0	5.2	43.5	22.5
98	5733.5			1.3	3.4	15.4	30.3
99	5734.5	<0.10	<0.10	<1.0	4.2	20.6	34.4
100	5735.5			<1.0	4.7	29.4	38.9
101	5736.5	<0.10	<0.10	<1.0	4.7	51.7	44.4

THE DIVISION OF GEOLOGICAL SURVEY MAKES NO AFFIRMATION CONCERNING THE COMPLETENESS AND ACCURACY OF THIS INFORMATION.

CORE ANALYSIS REPORT

Fred I. Barth

3

Lease _____ Well No. _____

SAMPLE NUMBER	DEPTH FEET	PERMEABILITY MILLIDARCYs		POROSITY PERCENT	LITHOLOGY AND REMARKS		
		HORIZONTAL	VERTICAL				
		Conv.	Whole Core	Whole Core Effective	Conventional Total Porosity	Percent Oil	Percent Water
102	5737.5			<1.0	5.8	63.6	33.1
103	5738.5	<0.10	<0.10	<1.0	6.5	42.8	40.0
104	5739.5			<1.0	4.7	37.2	44.4
105	5740.5	<0.10	<0.10	<1.0	4.2	33.1	43.8
106	5741.5			<1.0	4.7	0.0	16.7
107	5742.5	<0.10	<0.10	<1.0	4.7	22.2	38.9
108	5743.5			<1.0	4.5	47.1	47.1
109	5744.5	<0.10	<0.10	<1.0	4.5	31.2	29.4
110	5745.5			<1.0	4.7	44.4	33.3
111	5746.5	<0.10	<0.10	1.3	4.2	29.4	34.4
112	5747.5			<1.0	5.5	47.6	31.0
113	5748.5	<0.10	<0.10	<1.0	5.3	60.0	35.0

5749 - 50 - Lost core

AVERAGE

5630.0 - 5749.0 (113')	<0.10	<0.10	1.3	5.6	40.6	35.2
---------------------------	-------	-------	-----	-----	------	------

THE DIVISION OF GEOLOGICAL SURVEY MAKES
NO AFFIRMATION CONCERNING THE COMPLETENESS
AND ACCURACY OF THIS INFORMATION.

CHEMICAL RESEARCH AND DEVELOPMENT DEPARTMENT

HALLIBURTON SERVICES
DUNCAN, OKLAHOMALABORATORY REPORTNo. F11-T182-76
Supplement I

Mr. L. F. Perkins

Date October 13, 1976

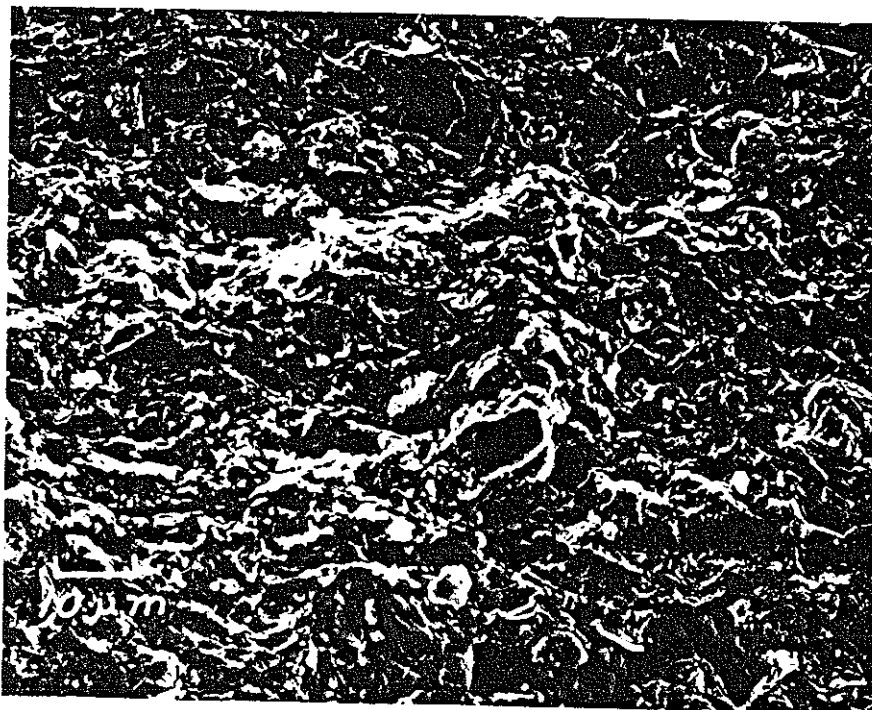
Halliburton Services

Zanesville, Ohio

This report is the property of Halliburton Services, a Division of Halliburton Company, and neither this report nor any part hereof may be disclosed to any third party without the express written approval of Halliburton Services.

Below results of our examination of submitted core samples.THE DIVISION OF GEOLOGICAL SURVEY MAKES
NO AFFIRMATION CONCERNING THE COMPLETENESS
AND ACCURACY OF THIS INFORMATION.by Redman Oil CompanyWell: Barth No. 3Location: Coshocton County, OhioFormation: Utica ShaleDepth: 5640-5730 feetPurpose

Scanning Electron Microscope work was requested in addition to tests earlier reported.



ICE:

This report is for information only and the content is limited to the sample described. Halliburton makes no warranties, express or implied, as to the accuracy of the contents or results. Any user of this report agrees Halliburton shall not be liable for any loss or damage, regardless of cause, including any act or omission of Halliburton, resulting from the use hereof.

Data

Halliburton Neg. File No.	Description
21805-275	Overall view of microcrystalline calcite and dolomite grains with cleavage
21805-276	Closer view of distorted thin
21805-277	Close-up of inter- distorted due to

Remarks

Five sets of SEM prints are
one set is being retained with File
this report.

cc: Mr. A. A. Baker
Mr. L. L. Brigger
Mr. W. G. Darden
Mr. J. A. Manger
Mr. W. E. Robins
Mr. A. B. Waters
Mr. W. T. Malone
Mr. E. J. Stahl, Jr.



THE DIVISION OF GEOLOGICAL SURVEY MAKES
NO AFFIRMATION CONCERNING THE COMPLETENESS
AND ACCURACY OF THIS INFORMATION.

Respectfully

Laboratory Analyst

Simon-Coon-Bishop

S

NOTICE: This report is for information only and the content is not
implied, as to the accuracy of the contents or results. No
damage, regardless of cause, including any act or omission



Source Rock Analyses

TOC, Rock-Eval and Maturity Testing

Redman Barth #3

Dolan Integration Group

December 15, 2009



SOURCE ROCK ANALYSES
 GEOMARK RESEARCH, LTD.

Dolan Integration Group - Michael Dolan Redman Barth #3,

Sample ID	Project / Sample ID	Rock ID	Well Name	Sampling Date	Sampling Time	Formation Name	Upper Depth (ft)	Lower Depth (ft)	Median Depth (ft)	Sample Type	Source Rock Analyses										Experimental Notations		
											Percent Carbonate (wt%)	Leco TOC (wt% HC)	Rock-Eval S1 (mg HC/g)	Rock-Eval S2 (mg HC/g)	Rock-Eval S3 (mg CO2/g)	Tmax (°C)	Measured %Ro (Vitrite Ref.)	Calculated %Ro (RE - Tmax)	Hydrogen Index (S2x100/TOC)	Oxygen Index (S3x100/TOC)		S2/S3 Conc. (mg HC/mg CO2)	S1/TOC Norm. Oil Content
091203-001			Redman Barth #3				5,634.50		5,634.50	Core	32.61	2.77	2.87	8.21	0.31	442	0.80	296	11	26	104	0.26	
091203-002			Redman Barth #3				5,640.90		5,640.90	Core	48.13	2.74	3.31	8.92	0.37	442	0.80	322	14	24	121	0.27	
091203-003			Redman Barth #3				5,653.90		5,653.90	Core	68.51	1.79	1.64	4.30	0.32	443	0.81	240	10	13	92	0.28	
091203-004			Redman Barth #3				5,661.50		5,661.50	Core	44.23	3.40	3.04	9.94	0.38	443	0.81	292	11	26	89	0.23	
091203-005			Redman Barth #3				5,665.60		5,665.60	Core	51.76	2.79	2.69	9.52	0.35	444	0.83	341	13	27	96	0.22	
091203-006			Redman Barth #3				5,677.50		5,677.50	Core	53.18	3.76	3.29	11.84	0.36	446	0.87	316	9	34	88	0.22	
091203-007			Redman Barth #3				5,680.50		5,680.50	Core	65.41	3.36	2.76	9.49	0.34	447	0.89	291	10	28	85	0.23	
091203-008			Redman Barth #3				5,683.50		5,683.50	Core	56.72	3.11	3.45	9.54	0.31	446	0.87	307	10	31	111	0.27	
091203-009			Redman Barth #3				5,686.60		5,686.60	Core	63.23	3.61	4.30	11.42	0.32	444	0.83	316	9	36	119	0.27	
091203-010			Redman Barth #3				5,702.70		5,702.70	Core	71.06	2.23	1.86	6.73	0.29	447	0.89	302	13	23	83	0.22	
091203-011			Redman Barth #3				5,705.10		5,705.10	Core	64.37	1.85	2.22	5.43	0.31	440	0.76	294	17	18	120	0.29	
091203-012			Redman Barth #3				5,706.90		5,706.90	Core	59.06	2.50	2.70	7.39	0.32	444	0.83	296	13	23	108	0.27	
091203-013			Redman Barth #3				5,715.50		5,715.50	Core	60.16	1.82	2.46	5.84	0.36	439	0.74	321	20	16	135	0.30	
091203-014			Redman Barth #3				5,740.00		5,740.00	Core	70.43	3.49	3.49	10.53	0.34	446	0.87	302	10	31	100	0.25	
091203-015			Redman Barth #3				5,747.00		5,747.00	Core	61.39	2.99	2.66	8.94	0.32	444	0.83	299	11	28	89	0.23	

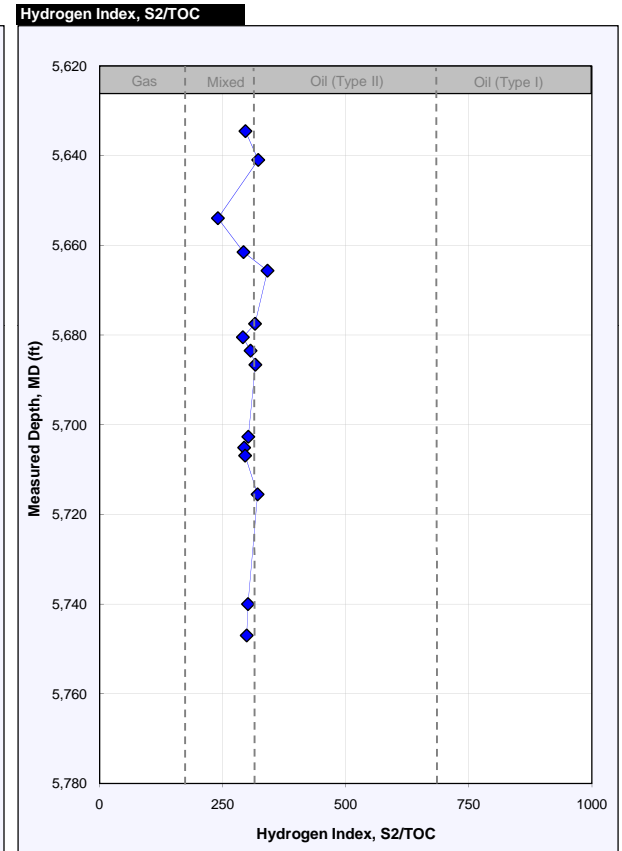
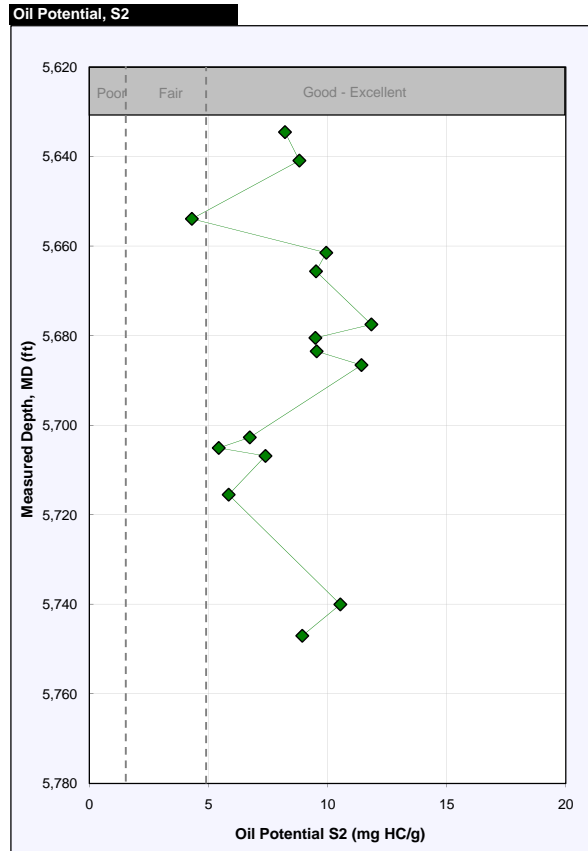
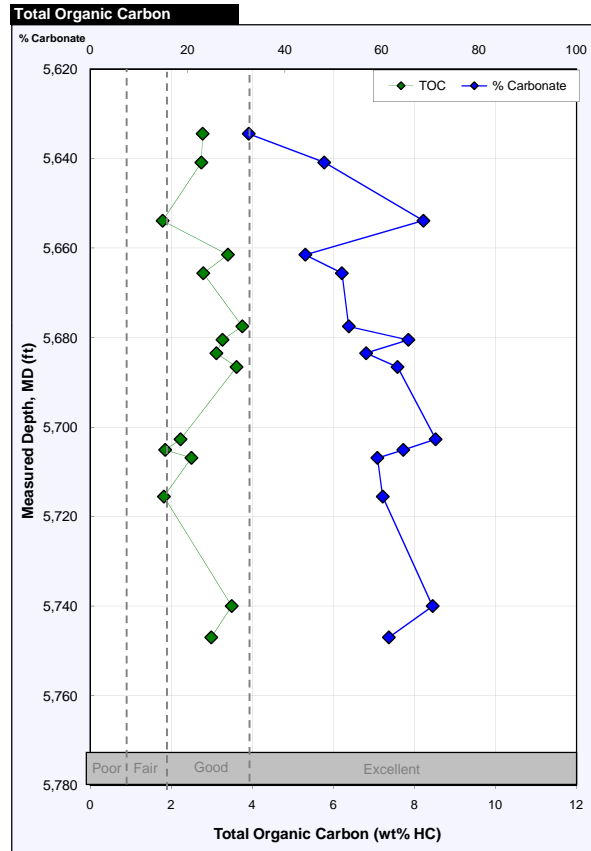


SOURCE ROCK ANALYSES

GEO MARK RESEARCH, LTD.

Dolan Integration Group - Michael Dolan

Redman Barth #3,



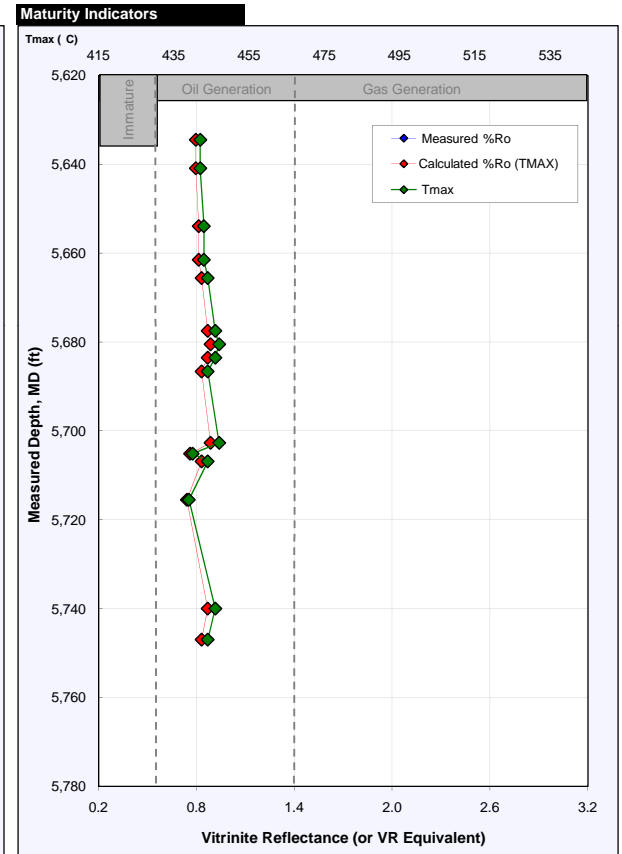
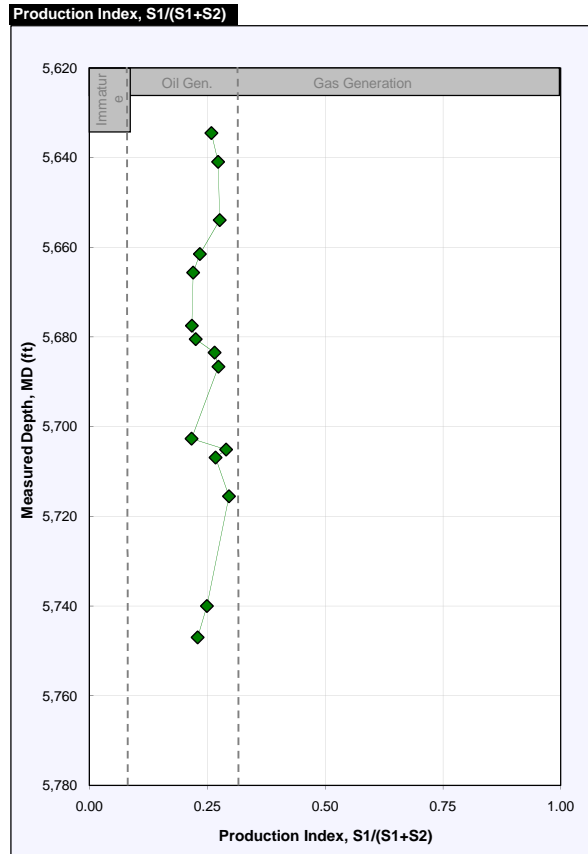
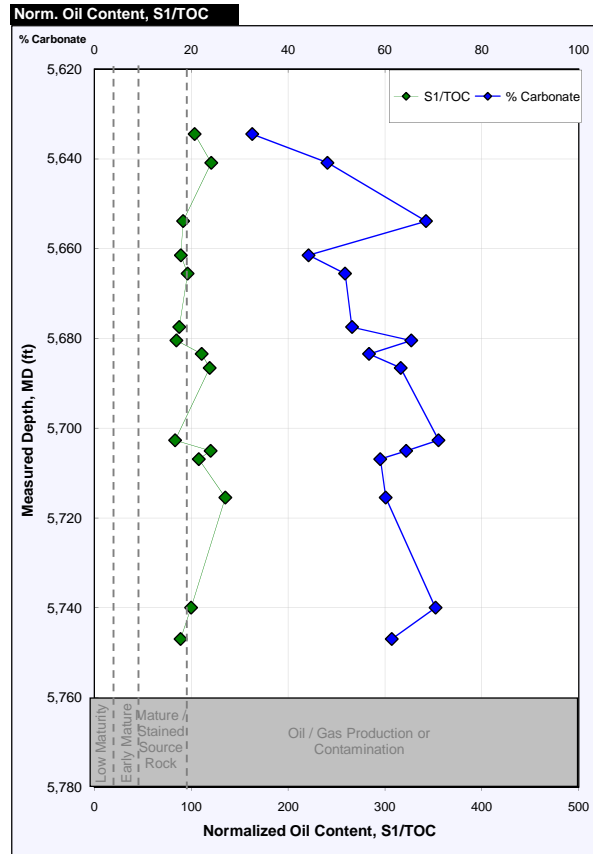


SOURCE ROCK ANALYSES

GEO MARK RESEARCH, LTD.

Dolan Integration Group - Michael Dolan

Redman Barth #3,





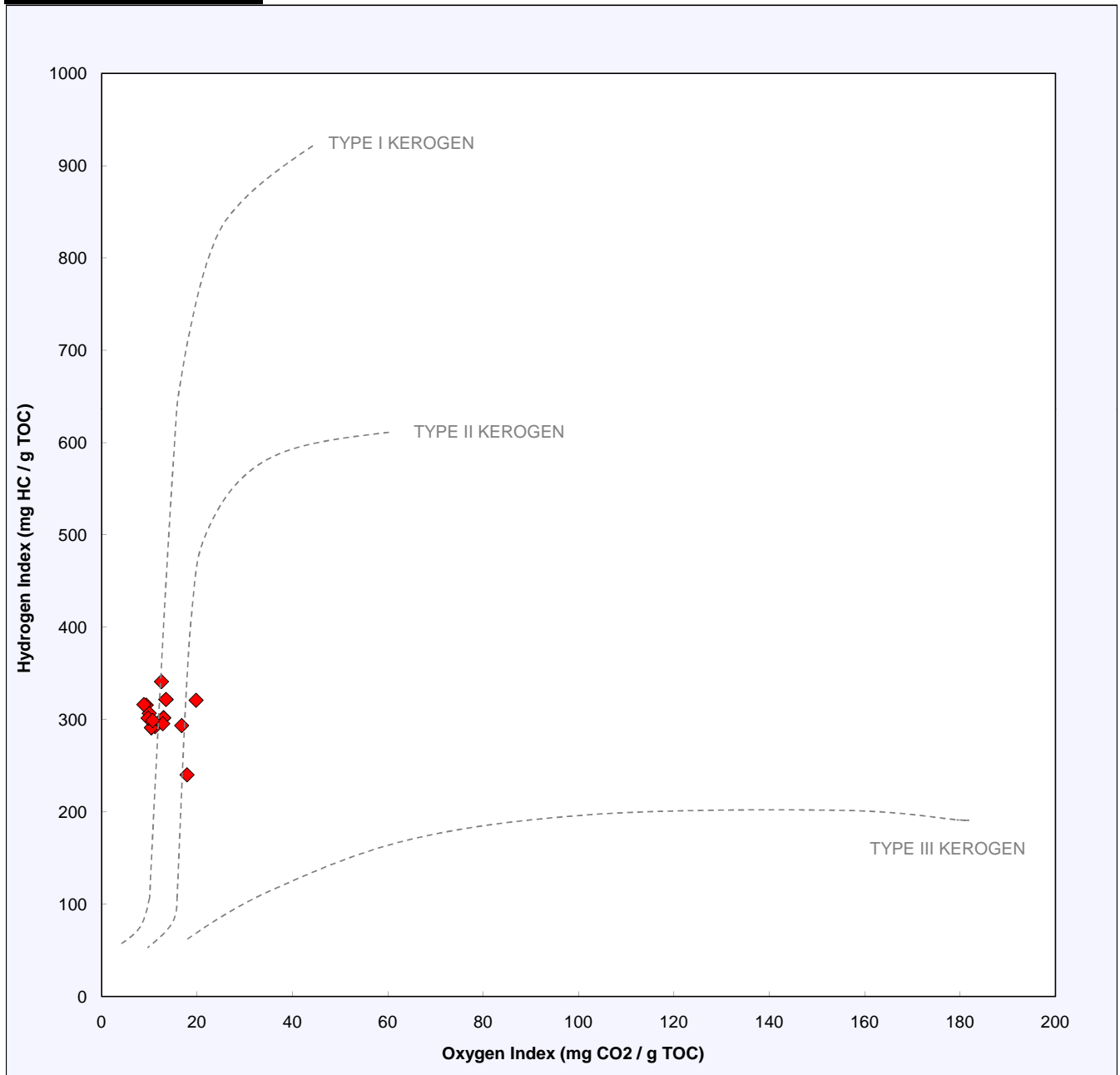
SOURCE ROCK ANALYSES

GEO MARK RESEARCH, LTD.

Dolan Integration Group - Michael Dolan

Redman Barth #3,

Pseudo Van Krevelen Plot





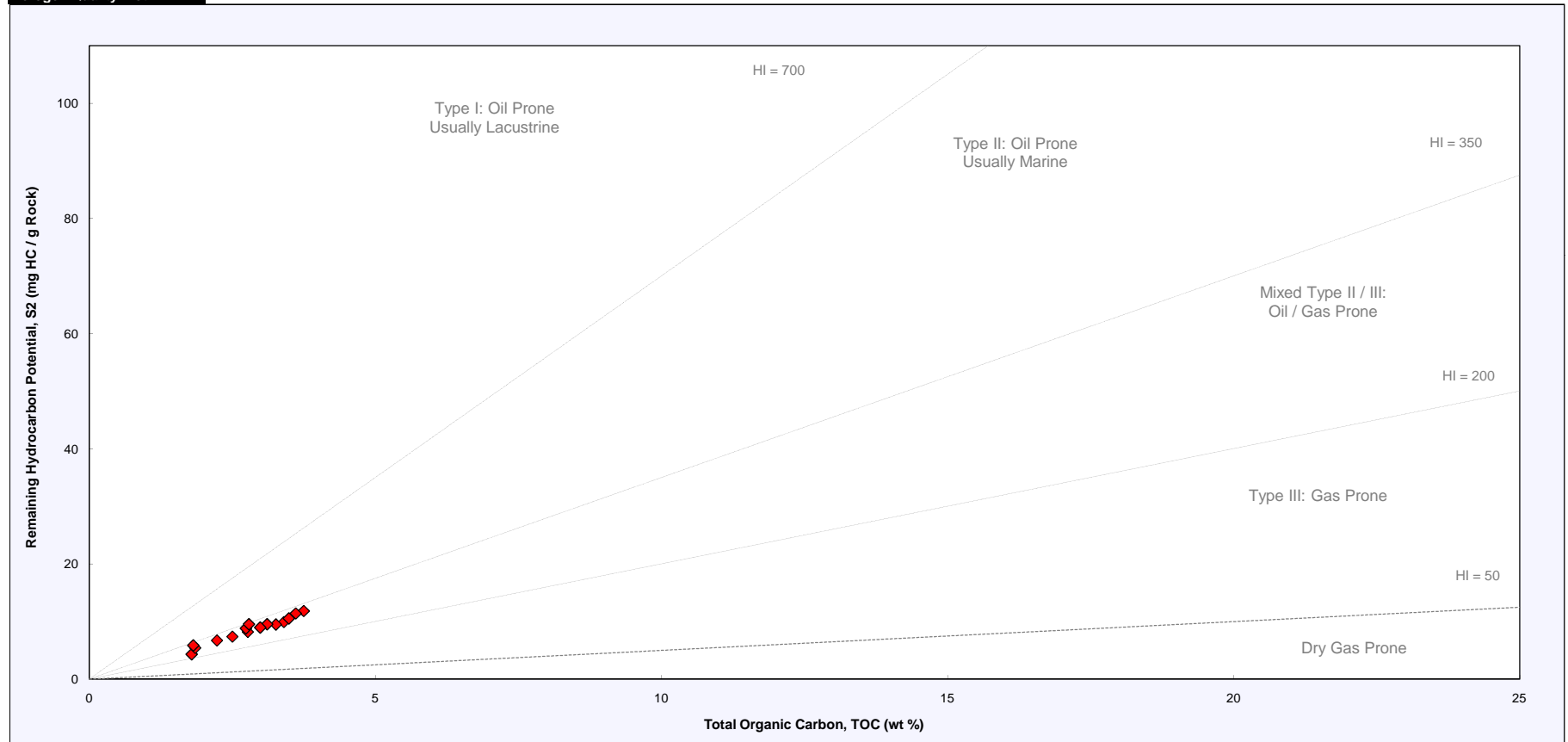
SOURCE ROCK ANALYSES

GEO MARK RESEARCH, LTD.

Dolan Integration Group - Michael Dolan

Redman Barth #3,

Kerogen Quality Plot





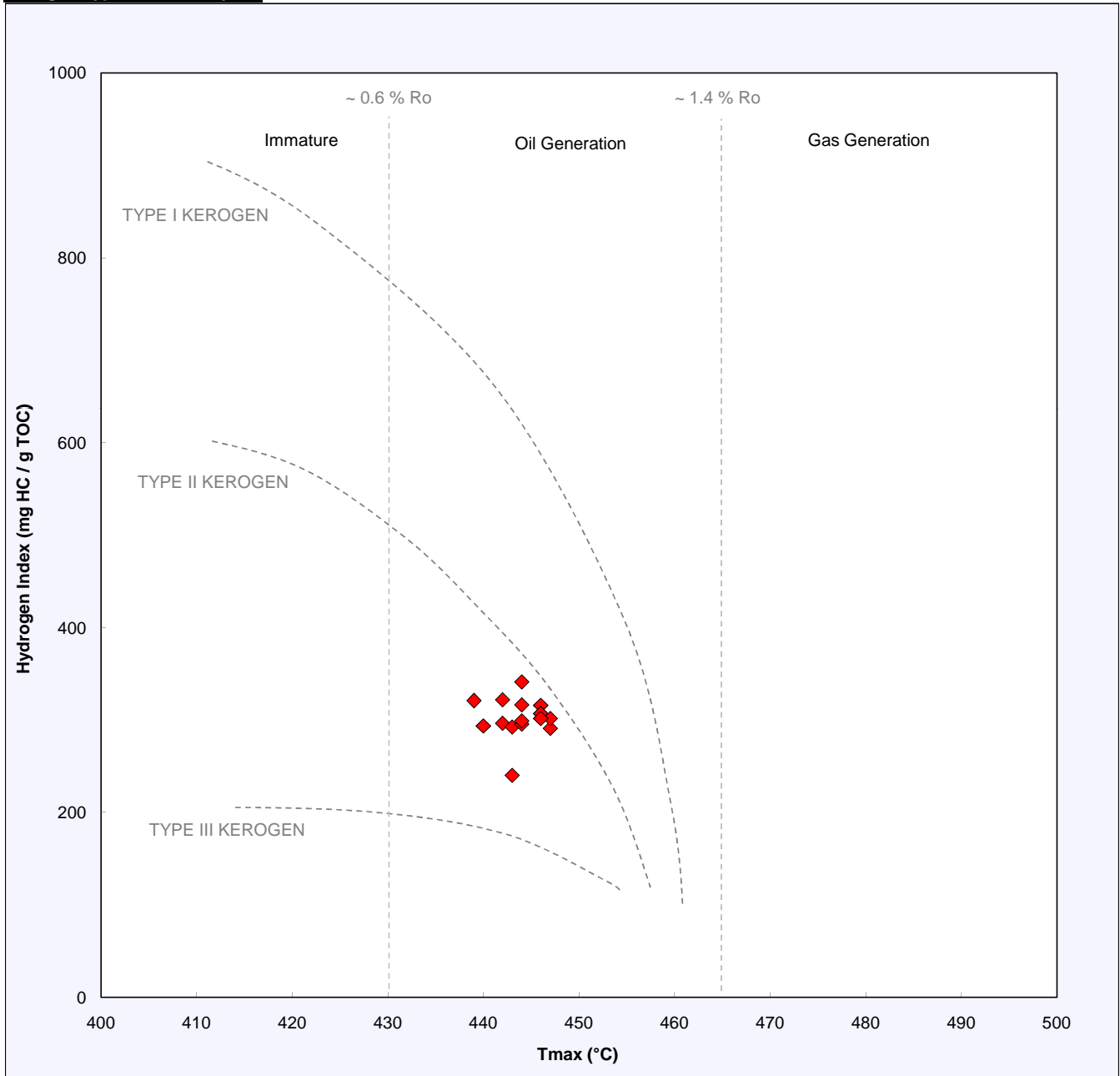
SOURCE ROCK ANALYSES

GEO MARK RESEARCH, LTD.

Dolan Integration Group - Michael Dolan

Redman Barth #3,

Kerogen Type and Maturity





SHALE ROCK PROPERTIES SUMMARY OF ROUTINE CRUSHED CORE ANALYSES RESULTS

As-Received and Vacuum Dried at 212°F

Dolan Integration Group
Redman Barth No.3
USA

HH-45711
1-05-10

Sample ID	Sample Depth, feet	A-R Bulk Density, gm/cc	A-R Grain Density, gms/cc	A-R Water Saturation, % of PV	A-R Oil Saturation, % of PV	A-R Gas Saturation, % of PV	A-R Gas Filled Porosity, % of BV	A-R Press Decay Permeability, md	Dry Bulk Density, gm/cc	Dry Grain Density, gm/cc	Dry Helium Porosity, % of BV	Dry Press Decay Permeability, md
1SRP	5661.50	2.54	2.58	11.7	52.3	36.0	1.8	3.68E-05	2.51	2.64	4.9	5.63E-04
2SRP	5680.50	2.52	2.57	10.4	54.5	35.1	1.8	2.68E-05	2.50	2.63	5.2	4.30E-04
3SRP	5683.50	2.57	2.61	6.0	67.0	27.0	1.5	2.25E-05	2.54	2.69	5.4	8.20E-04
4SRP	5740.00	2.59	2.61	14.5	66.6	19.0	0.8	9.00E-06	2.56	2.67	4.1	3.18E-04
Average values:		2.56	2.59	10.7	60.1	29.3	1.5	2.38E-05	2.53	2.66	4.9	5.33E-04

As-received bulk volumes and bulk densities were determined on intact bulk sample material. The bulk material was crushed and all other analysis reported herein were conducted on the crushed material.

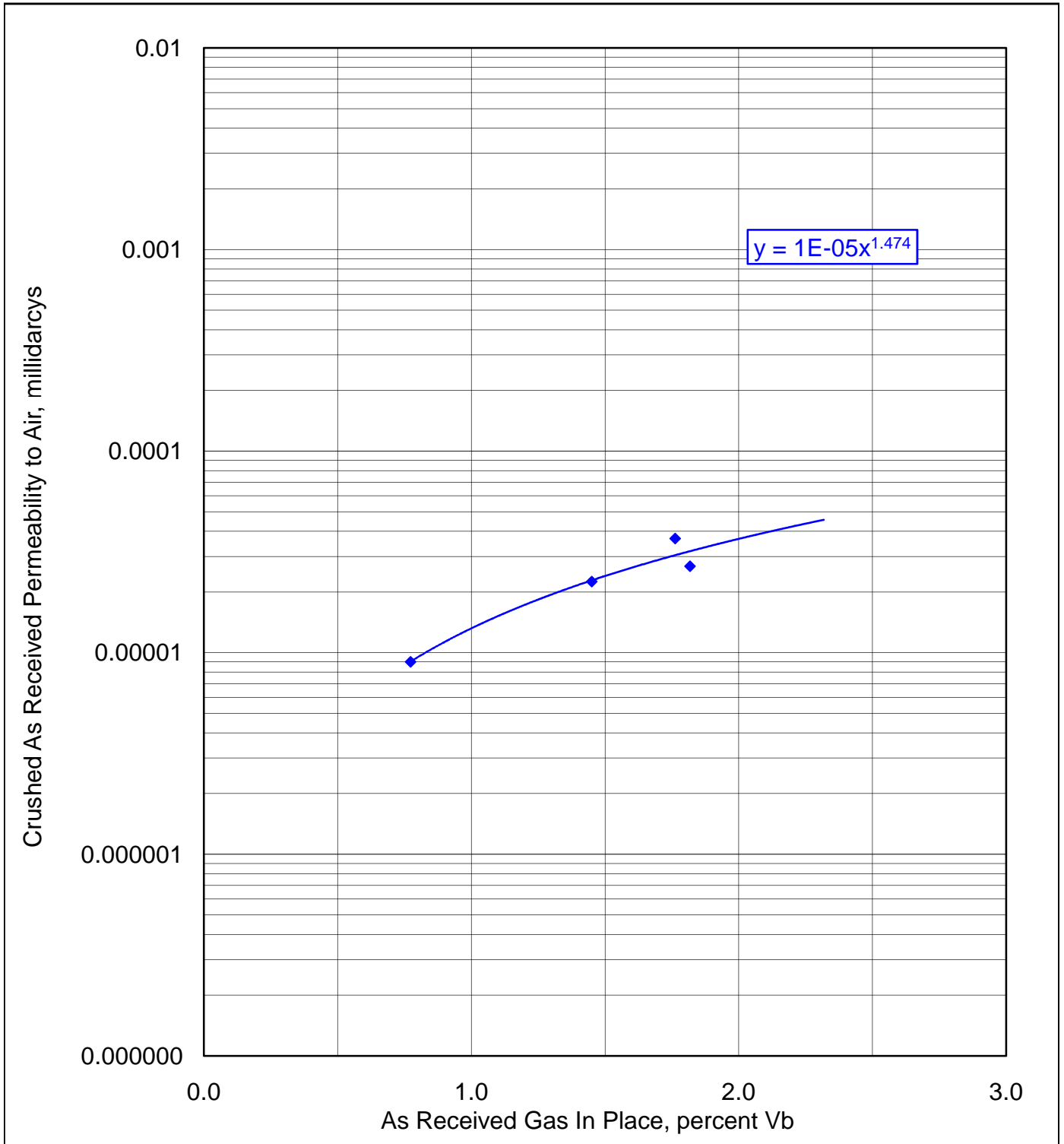


PERMEABILITY VERSUS PERCENT GAS IN PLACE

As Received Crushed Preparation

Dolan Integration Group
Redman Barth No.3
USA

HH-45711
1-05-10



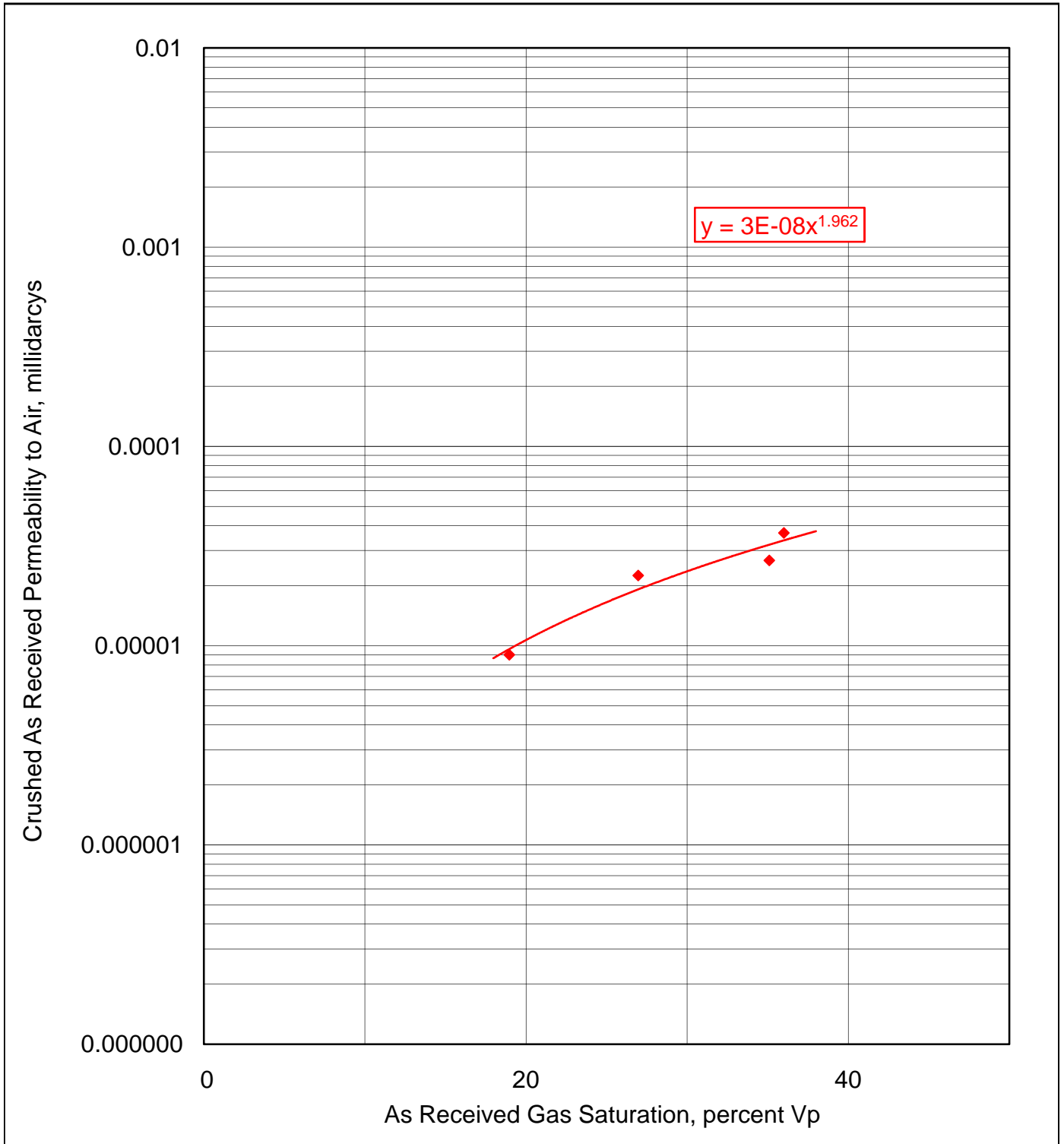


PERMEABILITY VERSUS PERCENT GAS SATURATION

As Received Crushed Preparation

Dolan Integration Group
Redman Barth No.3
USA

HH-45711
1-05-10



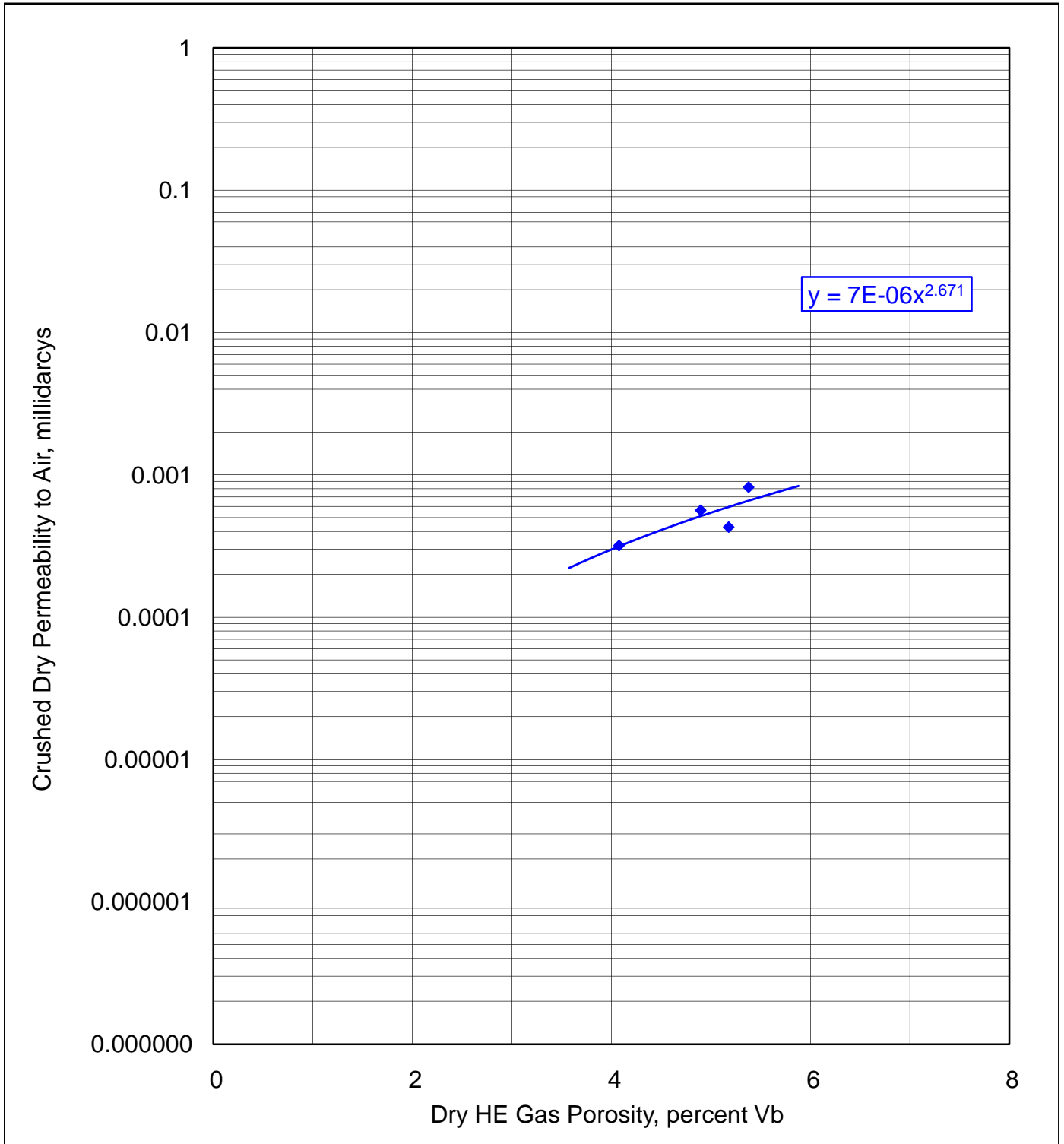


PERMEABILITY VERSUS PERCENT GAS IN PLACE

Dry Crushed Preparation

Dolan Integration Group
Redman Barth No.3
USA

HH-45711
1-05-10



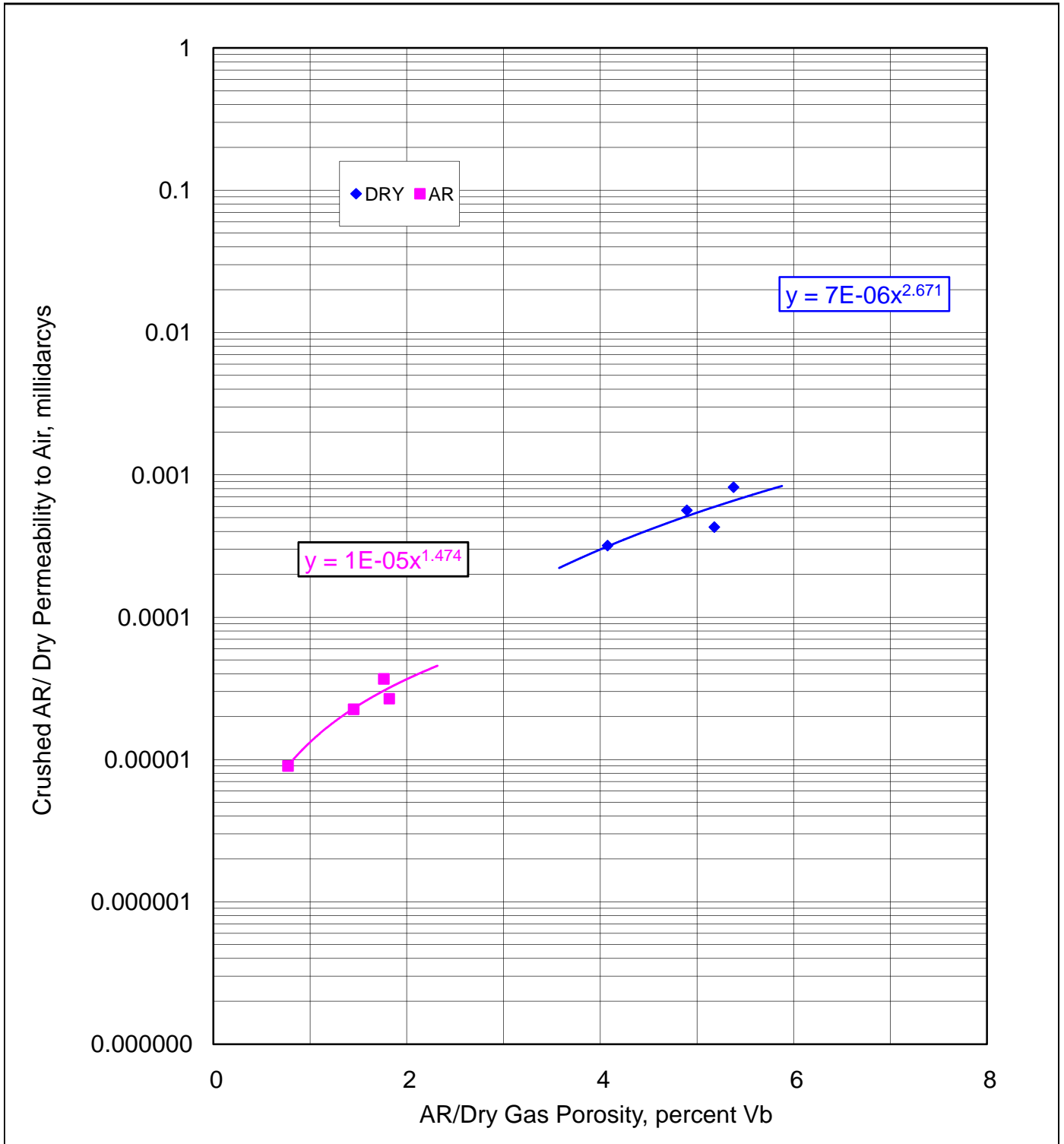


PERMEABILITY VERSUS PERCENT GAS IN PLACE

AR/ Dry Crushed Preparation

Dolan Integration Group
Redman Barth No.3
USA

HH-45711
1-05-10



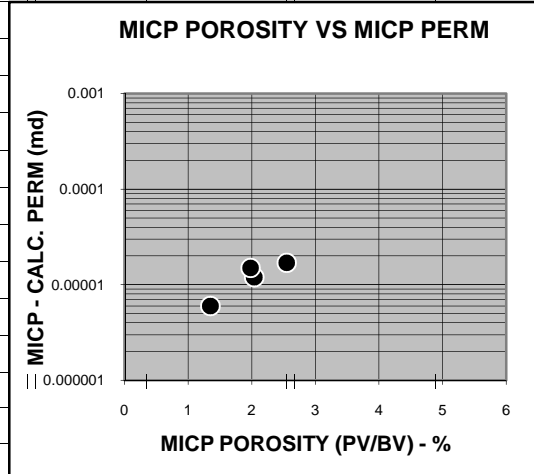
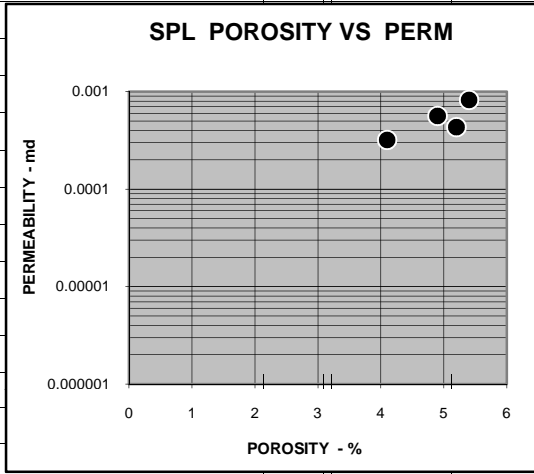
SPL INFO

BY POROTECHNOLOGY			
TEST 1 DATA FILE #		TEST 7 DATA FILE #	
SAMPLE_WEIGHT1	5.002	SAMPLE_WEIGHT7	10
BULK_VOLUME1	1.9576	BULK_VOLUME7	10
CLOSURE1	0.0071	CLOSURE7	10
TOTAL_INTRUDED_VOLUME1	0.0151	TOTAL_INTRUDED_VOLUME7	10
SAMPLE POROSITY1	0.0204	SAMPLE POROSITY7	10
SAMPLE PERMEABILITY1	0.000012	SAMPLE PERMEABILITY7	10
SAMPLE PERMEABILITY1 (CALC.	0.000012	SAMPLE PERMEABILITY7 (CALC.)	#REF!
TEST 2 DATA FILE #		TEST 8 DATA FILE #	
SAMPLE_WEIGHT2	5.163	SAMPLE_WEIGHT8	10
BULK_VOLUME2	2.0654	BULK_VOLUME8	10
CLOSURE2	0.0065	CLOSURE8	10
TOTAL_INTRUDED_VOLUME2	0.0167	TOTAL_INTRUDED_VOLUME8	10
SAMPLE POROSITY2	0.0255	SAMPLE POROSITY8	10
SAMPLE PERMEABILITY2	0.000017	SAMPLE PERMEABILITY8	10
SAMPLE PERMEABILITY2 (CALC.	0.000017	SAMPLE PERMEABILITY8 (CALC.)	#REF!
TEST 3 DATA FILE #		TEST 9 DATA FILE #	
SAMPLE_WEIGHT3	5.409	SAMPLE_WEIGHT9	10
BULK_VOLUME3	2.1012	BULK_VOLUME9	10
CLOSURE3	0.0079	CLOSURE9	10
TOTAL_INTRUDED_VOLUME3	0.0156	TOTAL_INTRUDED_VOLUME9	10
SAMPLE POROSITY3	0.0198	SAMPLE POROSITY9	10
SAMPLE PERMEABILITY3	0.000015	SAMPLE PERMEABILITY9	10
SAMPLE PERMEABILITY3 (CALC.	0.000015	SAMPLE PERMEABILITY9 (CALC.)	#REF!
TEST 4 DATA FILE #		TEST 10 DATA FILE #	
SAMPLE_WEIGHT4	4.941	SAMPLE_WEIGHT10	10
BULK_VOLUME4	1.9023	BULK_VOLUME10	10
CLOSURE4	0.0049	CLOSURE10	10
TOTAL_INTRUDED_VOLUME4	0.0101	TOTAL_INTRUDED_VOLUME10	10
SAMPLE POROSITY4	0.0135	SAMPLE POROSITY10	10
SAMPLE PERMEABILITY4	0.000006	SAMPLE PERMEABILITY10	10
SAMPLE PERMEABILITY4 (CALC.	0.000006	SAMPLE PERMEABILITY10 (CALC	#REF!
TEST 5 DATA FILE #		TEST 11 DATA FILE #	
SAMPLE_WEIGHT5	10	SAMPLE_WEIGHT11	10
BULK_VOLUME5	10	BULK_VOLUME11	10
CLOSURE5	10	CLOSURE11	10
TOTAL_INTRUDED_VOLUME5	10	TOTAL_INTRUDED_VOLUME11	10
SAMPLE POROSITY5	10	SAMPLE POROSITY11	10
SAMPLE PERMEABILITY5	10	SAMPLE PERMEABILITY11	10
SAMPLE PERMEABILITY5 (CALC.	#REF!	SAMPLE PERMEABILITY11 (CALC	#REF!

SPL INFO

TEST 6 DATA FILE #		TEST 12 DATA FILE #	
SAMPLE_WEIGHT6	10	SAMPLE_WEIGHT12	10
BULK_VOLUME6	10	BULK_VOLUME12	10
CLOSURE6	10	CLOSURE12	10
TOTAL_INTRUDED_VOLUME6	10	TOTAL_INTRUDED_VOLUME12	10
SAMPLE POROSITY6	10	SAMPLE POROSITY12	10
SAMPLE PERMEABILITY6	10	SAMPLE PERMEABILITY12	10
SAMPLE PERMEABILITY6 (CALC.)	#REF!	SAMPLE PERMEABILITY12 (CALC.)	#REF!
TEST 13 DATA FILE #		TEST 14 DATA FILE #	
SAMPLE WEIGHT 13	10.000	SAMPLE WEIGHT 14	10.000
BULK VOLUME 13	10.000	BULK VOLUME 14	10.000
CLOSURE 13	10.000	CLOSURE 14	10.000
TOTAL INT. VOLUME 13	10.000	TOTAL INT. VOLUME 14	10.000
SAMPLE POROSITY 13	10.000	SAMPLE POROSITY 14	10.000
SAMPLE PERMEABILITY 13	10.000	SAMPLE PERMEABILITY 14	10.000
SAMPLE PERM (CALC) 13	#REF!	SAMPLE PERM (CALC) 14	#REF!
OTHER Pc SYSTEMS			
Pc gas/brine =	0.136	[(50\480)X(1\.766)XPc air\Hg]	
Pc gas/oil =	0.065	[(24\480)X(1\.766)XPc air\Hg]	
Pc oil/brine =	0.082	[(30\480)X(1\.766)XPc air\Hg]	
HEIGHT ABOVE FREE WATER (Ft.)		Brine Den=1.11g/cc	
Height(gas/brine) =	0.345	(X Pc air/Hg)	Gas Den=0.20g/cc
Height(oil/brine) =	0.728	(X Pc air/Hg)	Oil Den=0.85g/cc
Note: SPL PERM(CALC) = Air Perm(md) = Max value of [Sb/Pc]; To 1.691 power;			
Multiply by 399. (After SWANSON, SPE 8234, 1978)			
Note: Leverett "J" Function = [((k/por) X 0.5 exp.) X Pc(psia) X 0.2166] / 480			
The "k" value used for J Funct. values on the "RPTx" pressure table is that provided by client. If not provided, then MICP-calculated perm from above formula is used.			
			12\2002

POROTECHNOLOGY: 01/2010							
WELL: Redman Barth #3; USA							
	Tab	Sample	Spl MICP	Sample Air	Calc MICP	MICP Bulk	MICP Gr.
<u>Sample\Depth</u>	<u>No.</u>	<u>Porosity(%)</u>	<u>Porosity(%)</u>	<u>Perm(md)</u>	<u>Perm(md)</u>	<u>Den(g/cc)</u>	<u>Den (g/cc)</u>
SRP 1 @ 5661.5ft	1	4.9	2.04	0.0006	0.000012	2.555	2.601
SRP 2 @ 5680.5ft	2	5.2	2.55	0.0004	0.000017	2.500	2.566
SRP 3 @ 5683.5ft	3	5.4	1.98	0.0008	0.000015	2.574	2.627
SRP 4 @ 5740.0ft	4	4.1	1.35	0.0003	0.000006	2.597	2.633



"Spl Porosity" values are Weatherford'd "Dry Helium Porosity". "Spl Air Perm" values are Weatherford's "Dry Press Decay Permeability".

NOTE 1: All samples were dried at ~100C prior to MICP testing. Additionally, selected samples may have been subsampled and/or examined under a binocular microscope for proper MICP analysis.

OTHER Pc SYSTEMS

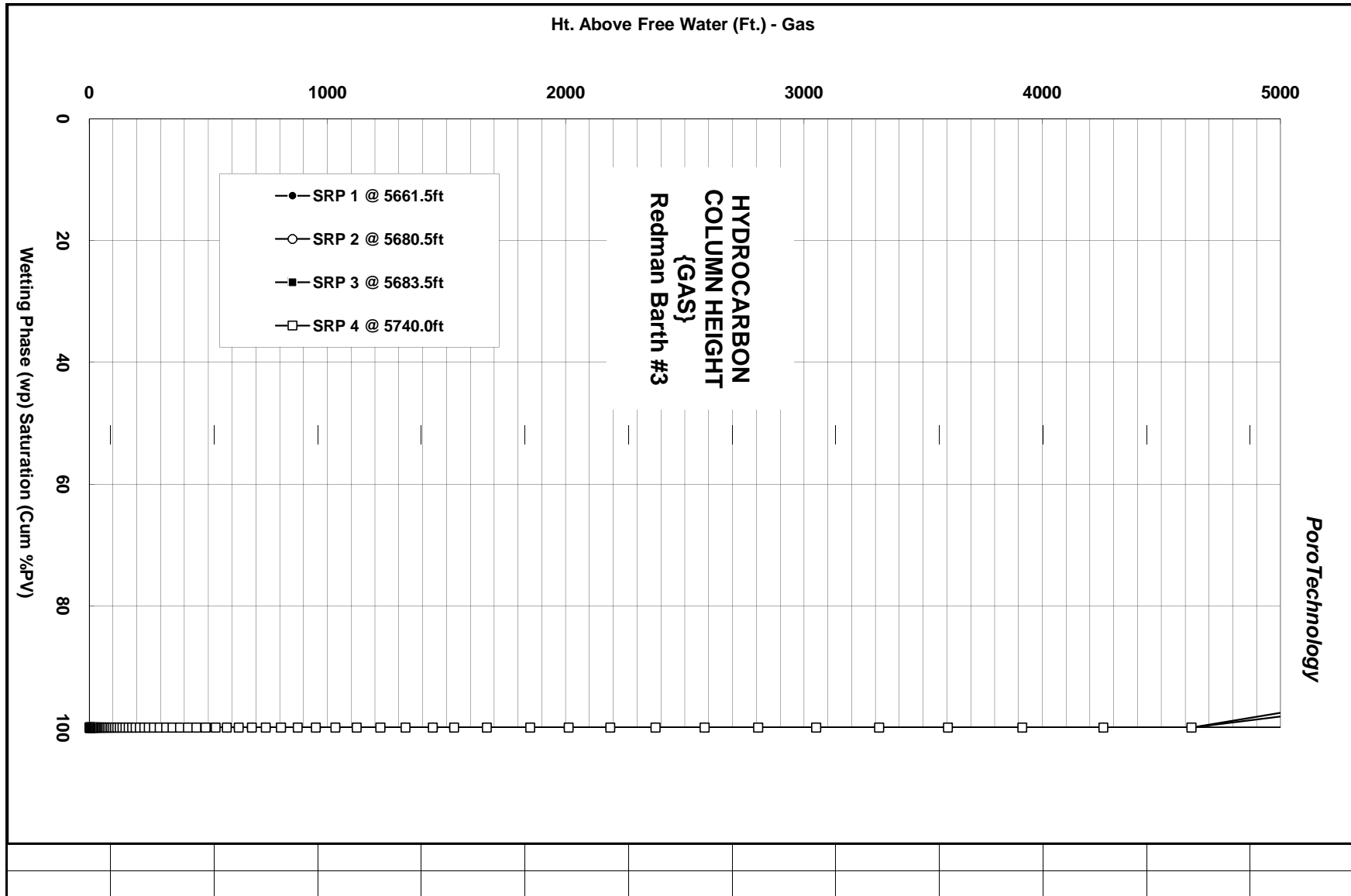
Pc gas/brine =	0.1	[(50\480)X(1.766) X Pc air\Hg]
Pc gas/oil =	0.1	[(24\480)X(1.766) X Pc air\Hg]
Pc oil/brine =	0.1	[(30\480)X(1.766) X Pc air\Hg]

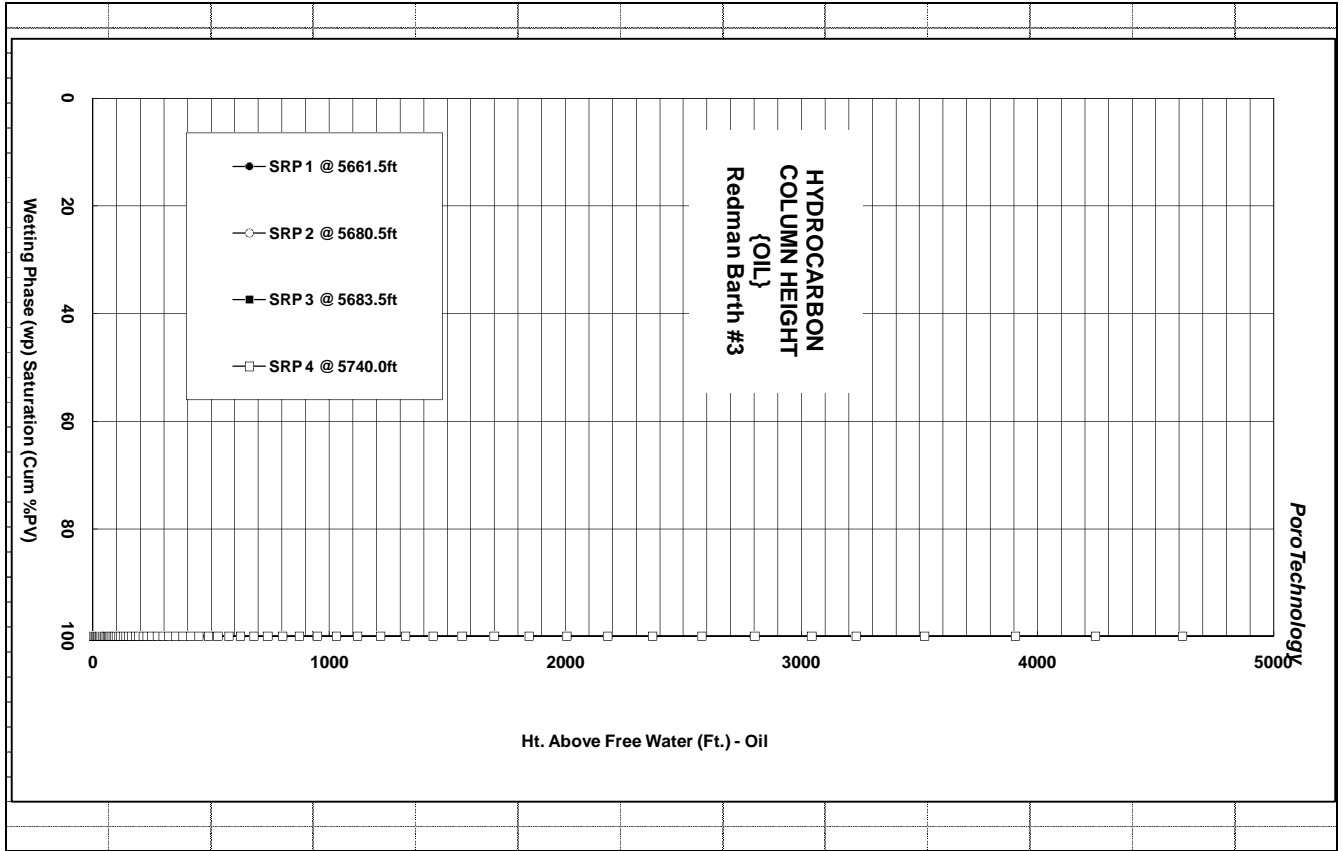
HEIGHT ABOVE FREE WATER(FT)

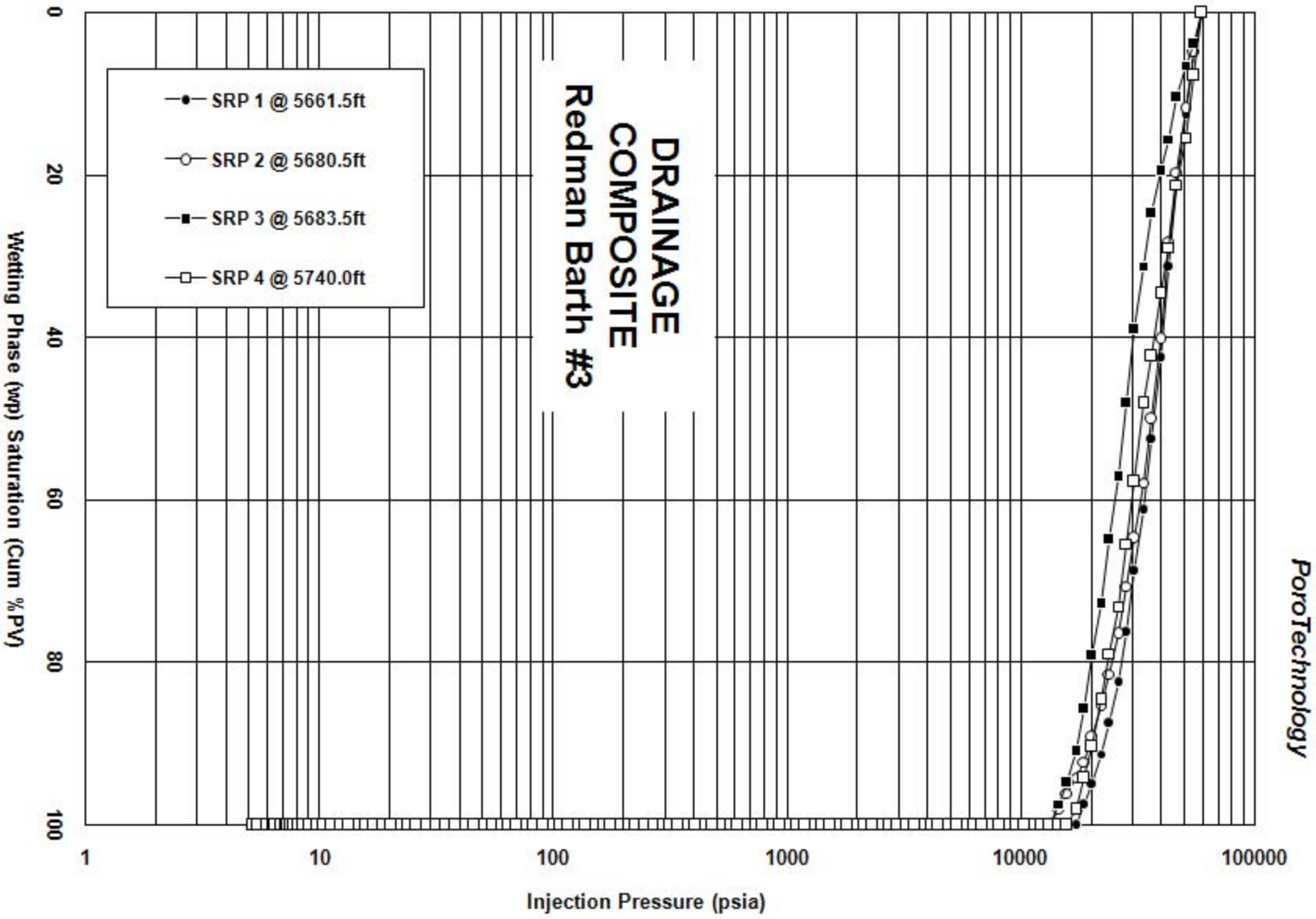
Height(gas/brine)=	0.3	(X Pc air/Hg)	Brine Density = 1.11g/cc
Height(oil/brine) =	0.7	(X Pc air/Hg)	Gas Density = 0.20g/cc
			Oil Density = 0.85g/cc

SPL PPGD

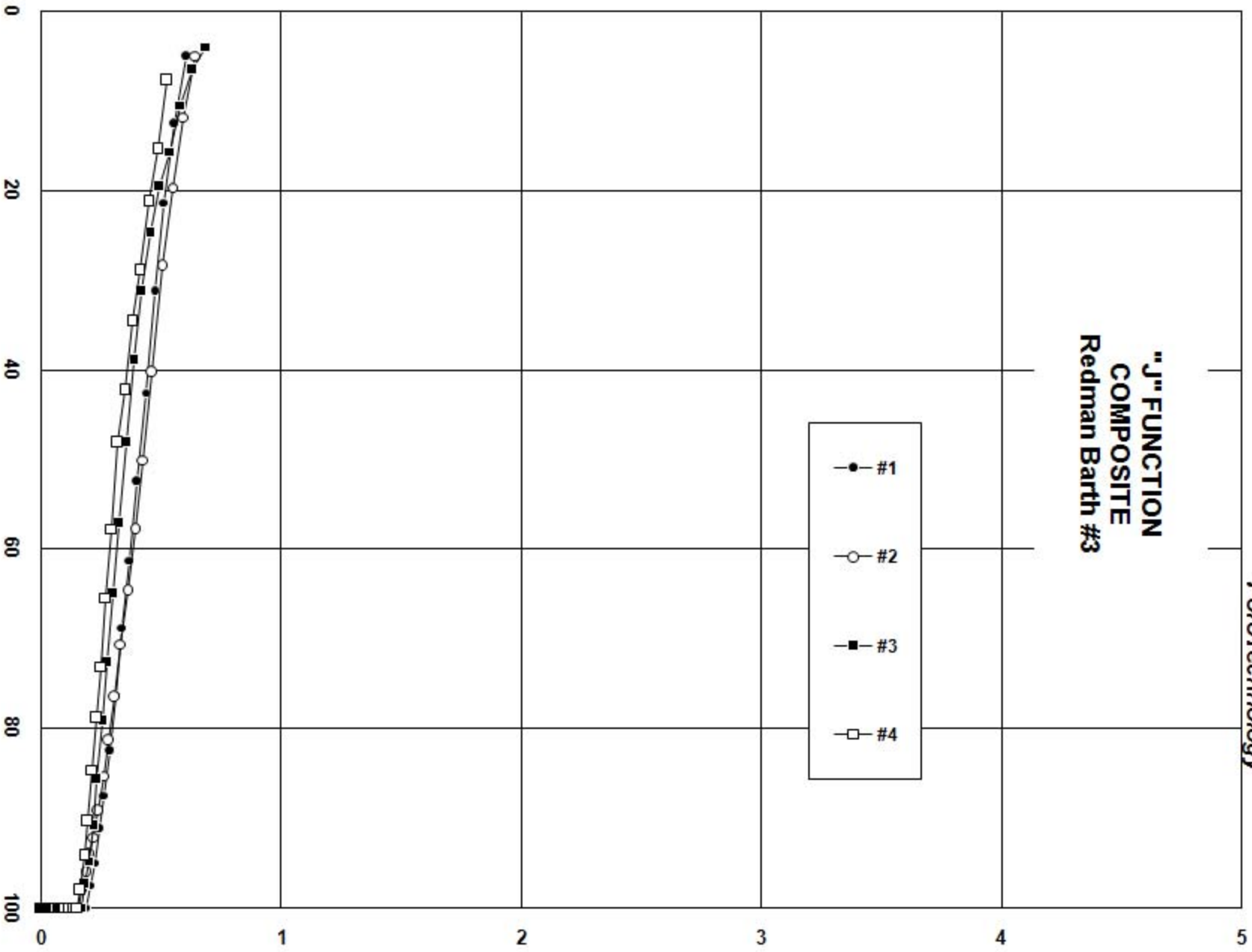
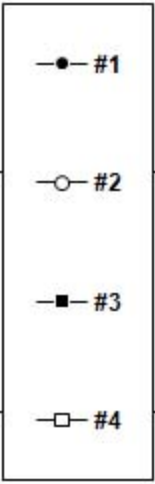
NOTE: SPL PERM(CALC) = Air Perm(md) = Max value of (Sb/Pc); To 1.691 power; Multiply by 39 (After SWANSON, SPE 8234, 1978)							
NOTE: Leverett "J" Function = $[(k/\text{por.}) \times 0.5 \text{ exp.}] \times P_c(\text{psia}) \times 0.2166] / 480$							
{The "k" value used for J-Funct. calculations on the "RPTx" tables is that provided by client (ie, client's PPGD data). If such data not provided, then "MICP-Calculated" k value used. Th							
"por."(porosity) value used is the "MICP" porosity measured @ 60000psia.							







**"J" FUNCTION
COMPOSITE
Redman Barth #3**



Leverett "J" Function

Wetting Phase Saturation(Cum% PV)

TEST1

Porotechnology	60000psia Air	/Hg Capilla	Pressure				
AutoPore IV 9	500 V1.05.05E	Serial: 2	78	Port: 1/1			Page 1
Sample ID:	SRP # 1; Red	man Barth #3					
Operator:	Porotechnology						
Submitter:	Dolan Integr	ation Gp					
File:	C:\9500\DATA	010-154.SMP					
LP Analysis Time:	1/7/2010	8:38:24AM	Sample Weight:	5.000 g			
HP Analysis Time:	1/7/2010	10:11:22AM	Correction Type:	Blank			
Report Time:	1/7/2010	2:18:31PM	Low Neg. In:	No			
Summary Report							
Penetrometer:	07-0544 P	en					
Pen. Constant :	11.007	$\mu\text{L}/\rho\text{F}$	Pen. Weight:	57.0210 g			
Stem Volume:	0.366	mL M	Max. Head Cure:	4.4500 psia			
Pen. Volume:	6.003	mL A	Assembly W:	116.2910 g			
Adv. Contact Angle:	140	00 degrees	Rec. Contact Angle:	130.000	degrees		
Hg Surface Tension:	480	00 dynes/cm	Hg Density:	13.5335	g/mL		
Evacuation Pressure:			50	μmHg			
Evacuation Time:	10	mins					
Mercury Filling Pressure:			4.93	psia			
Equilibration Rate:	0.003	$\mu\text{L}/\text{g/s}$					
Equilibration Rate:	0.002	$\mu\text{L}/\text{g/s}$					
Blank Correction Sample:	C:\9220DATA\A1\SD0064MP						
Blank Correction ID:	Pen 07-0822	nk File(Qtz)					

TEST1

Total Intrusion Volume =			0.0151	m	L/g		
Total Pore Area =	5.9		3	m ² /g			
Median Pore Diameter (Volume) =			0.0103	µm			
Median Pore Diameter (Area) =			0	0.0053	µm		
Average Pore Diameter (4V/A) =			0.0103	µm			
Bulk Density at 4.93 psia =			2.5097	g/mL			
Apparent (skeletal) Density =			2	0.6088	g/mL		
Porosity =	3.8		8	%			
Stem Volume Used =			21	% ****			
Porotechnology	60000psia Air	/Hg Capilla	Pressure				
AutoPore IV 9	500 V1.05.05E	Serial: 2	78		Port: 1/1		Page 1
Sample ID:	SRP # 1; Red	man Barth #3					
Operator:	Porotechnology						
Submitter:	Dolan Integr	ation Gp					
File:	C:\9500\DATA	010-154.SMP					
LP Analysis Time:	1/7/2010	8:38:24AM	Sample Weight:	5.000	g		
HP Analysis Time:	1/7/2010	10:11:22AM	Correction Type:	Blank			
Report Time:	1/7/2010	2:18:31PM	Flow Neg. In:	No			
		Tab	ular Report				
		Incremental	Cumulative				
		Pore Volume	Pore Volume	% of Total	Incremental		
Pressure (psia)	Pore Diameter (µm)	(mL/g)	Vo (m	lume L/g)	Irusion Volume	Pore Area (m ² /g)	

4.93	43.2822	0	0	0	0		
5.19	41.1276	0	0	0.2803	0		
5.48	38.9035	0	0.0001	0.5352	0		
5.83	36.5642	0.0001	0.0001	0.8665	0		
6.23	34.2238	0.0001	0.0002	1.2743	0		
6.48	32.8975	0	0.0002	1.5291	0		
6.74	31.6736	0	0.0003	1.784	0		
7.04	30.3222	0	0.0003	2.0388	0		
7.33	29.093	0	0.0003	2.2937	0		
7.58	28.1281	0	0.0004	2.523	0		
7.83	27.2376	0	0.0004	2.7269	0		
8.18	26.0701	0	0.0005	3.0072	0		
8.53	24.997	0	0.0005	3.2876	0		
9.07	23.511	0.0001	0.0006	3.6699	0		
9.6	22.2171	0.0001	0.0006	4.0012	0		
10.44	20.4418	0.0001	0.0007	4.5618	0		

TEST1

11.34	18.8043	0.0001	0.0008	5.097	0	
12.33	17.303	0.0001	0.0008	5.6067	0	
13.4	15.9201	0.0001	0.0009	6.04	0	
14.56	14.6473	0.0001	0.001	6.5751	0	
15.83	13.476	0.0001	0.0011	7.0339	0	
17.2	12.4007	0.0001	0.0011	7.5181	0	
18.7	11.4092	0.0001	0.0012	8.0023	0	
20.32	10.498	0.0001	0.0013	8.461	0	
22.09	9.659	0.0001	0.0014	8.9453	0	
24	8.8874	0.0001	0.0014	9.3785	0	
26.09	8.1765	0.0001	0.0015	9.8372	0	
28.96	7.3662	0.0001	0.0016	10.4234	0	
31.74	6.7217	0.0001	0.0017	10.9331	0	
34.76	6.1376	0.0001	0.0017	11.4428	0	
38.06	5.6053	0.0001	0.0018	11.9525	0	
41.56	5.1333	0.0001	0.0019	12.4367	0	
44.78	4.7641	0.0001	0.0019	12.7845	0	
50	4.2662	0.0001	0.0021	13.5765	0	
54.75	3.8964	0.0001	0.0021	13.9489	0	
60.11	3.5487	0.0001	0.0022	14.4993	0	
63.98	3.3341	0	0.0022	14.7809	0	
70.46	3.0274	0.0001	0.0023	15.3641	0	
76.75	2.7796	0	0.0024	15.6764	0	
83.28	2.5616	0.0001	0.0025	16.2171	0	
90.09	2.3679	0.0001	0.0025	16.6262	0	
99.25	2.1493	0.0001	0.0026	17.2166	0	
106.41	2.0047	0.0001	0.0027	17.6202	0	
117.46	1.8161	0.0001	0.0028	18.1596	0	
126.82	1.682	0	0.0028	18.2197	0	
137.65	1.5497	0.0001	0.0028	18.7711	0	
149.5	1.4269	0.0001	0.0029	19.1656	0	
163	1.3087	0.0001	0.003	19.8519	0	
177.5	1.2018	0.0001	0.0031	20.3423	0	
192.08	1.1106	0.0001	0.0032	20.9858	0	
208.79	1.0217	0	0.0032	21.2595	0	
227.43	0.938	0.0001	0.0033	21.8469	0	
246.41	0.8657	0.0001	0.0034	22.5015	0	
268.81	0.7936	0.0001	0.0035	23.0488	0	
290.85	0.7334	0.0001	0.0036	23.6387	0	
318.33	0.6701	0.0001	0.0037	24.3325	0.001	
346.28	0.616	0.0001	0.0038	24.8427	0	
374.5	0.5696	0.0001	0.0039	25.4636	0.001	
407.1	0.524	0.0001	0.004	26.2107	0.001	
442.1	0.4825	0.0001	0.0041	26.7581	0.001	
480.41	0.444	0.0001	0.0041	27.3827	0.001	
519.92	0.4103	0.0001	0.0043	28.1697	0.001	
566.75	0.3764	0.0001	0.0044	28.8634	0.001	
615.37	0.3467	0.0001	0.0045	29.5427	0.001	
669.63	0.3186	0.0001	0.0046	30.2545	0.001	
726.75	0.2935	0.0001	0.0047	30.9638	0.001	

TEST1

789.34	0.2703	0.0001	0.0048	31.761	0.002		
860.9	0.2478	0.0001	0.0049	32.4108	0.002		
935.54	0.228	0.0001	0.005	33.0505	0.002		
1015.72	0.21	0.0001	0.0051	33.592	0.001		
1106.88	0.1927	0.0001	0.0052	34.1313	0.002		
1201.96	0.1775	0.0001	0.0053	35.0601	0.003		
1304.88	0.1635	0.0001	0.0054	35.5298	0.002		
1418.34	0.1504	0.0001	0.0055	36.0145	0.002		
1539.17	0.1386	0.0001	0.0055	36.4086	0.002		
1674.99	0.1274	0.0001	0.0056	36.8218	0.002		
1818.65	0.1173	0.0001	0.0056	37.226	0.002		
1975.97	0.108	0.0001	0.0057	37.5643	0.002		
2151.29	0.0992	0.0001	0.0057	37.9111	0.002		
2333.87	0.0914	0	0.0058	38.2094	0.002		
2536.92	0.0841	0	0.0058	38.5378	0.002		
2759.19	0.0773	0	0.0059	38.8565	0.002		
2999.62	0.0711	0	0.0059	39.1209	0.002		
3257.95	0.0655	0	0.006	39.407	0.003		
3543.57	0.0602	0	0.006	39.7216	0.003		
3845.71	0.0555	0.0001	0.0061	40.25	0.006		
4182.9	0.051	0	0.0061	40.4582	0.002		
4435.8	0.0481	0	0.0062	40.6382	0.002		
4839.01	0.0441	0	0.0062	40.7927	0.002		
5367.02	0.0397	0.0001	0.0062	41.1292	0.005		
5832.38	0.0366	0	0.0063	41.4134	0.005		
6339.27	0.0337	0	0.0063	41.6831	0.005		
6890.06	0.031	0	0.0064	41.9449	0.005		
7487	0.0285	0	0.0064	42.2697	0.007		
8137.46	0.0262	0.0001	0.0065	42.6063	0.007		
8847.06	0.0241	0	0.0065	42.9102	0.007		
9612.79	0.0222	0.0001	0.0066	43.3065	0.01		
10445.6	0.0204	0.0001	0.0066	43.6984	0.011		
11352.85	0.0188	0.0001	0.0067	44.1872	0.015		
12337.98	0.0173	0.0001	0.0068	44.6938	0.017		
13408.73	0.0159	0.0001	0.0069	45.2812	0.021		
14574.61	0.0146	0	0.0069	45.69536	0.008		
15838.55	0.0135	0.0001	0.007	46.35762	0.041		
17213.94	0.0124	0.0001	0.0071	47.01987	0.041		
18707.06	0.0114	0.0002	0.0073	48.34437	0.052		
20331.39	0.0105	0.0002	0.0075	49.66887	0.069		
22098.99	0.0097	0.0003	0.0078	51.65563	0.106		
24017.99	0.0089	0.0003	0.0081	53.64238	0.135		
26101.46	0.0082	0.0004	0.0085	56.29139	0.127		
28368.11	0.0075	0.0005	0.009	59.60265	0.36		
30829.14	0.0069	0.0006	0.0096	63.57616	0.324		
33505.84	0.0064	0.0006	0.0102	67.54967	0.406		
36413.88	0.0059	0.0007	0.0109	72.18543	0.317		
39578.14	0.0054	0.0008	0.0117	77.48344	0.652		
43009.68	0.005	0.0009	0.0126	83.44371	0.829		
46740.92	0.0046	0.0008	0.0134	88.74172	0.406		

TEST1

50798.79	0.0042	0.0007	0.0141	93.37748	0.319		
55206.36	0.0039	0.0006	0.0147	97.35099	1.188		
59991.5	0.0036	0.0004	0.0151	100	0.342		

RESULT1

Int Pres psia	Pore Dia microns	Inc Int mL/gm	Cum Int mL/gm	Cum Int %PV(bc)	Cum Int %BV	Inc Int %PV(ac)	Cum Int %PV(ac)	Pore Rad microns	W.P. Sat %PV(ac)	Lev "J" Funct.	G/B Pc psia	G/O Pc psia	O/B Pc psia	Ht FWL,ft G/B	Ht FWL,ft O/B	Swanson's Sb/Pc(ac)
5.19	41.1276	0	0	0.2803	0	0	0	20.5638	100	0.000	0.70584	0.33735	0.42558	1.79055	3.77832	-0.3495511
5.48	38.9035	0	0.0001	0.5352	0.025552	0	0	19.45175	100	0.000	0.74528	0.3562	0.44936	1.8906	3.98944	-0.3263903
5.83	36.5642	0.0001	0.0001	0.8665	0.025552	0	0	18.2821	100	0.000	0.79288	0.37895	0.47806	2.01135	4.24424	-0.3067957
6.23	34.2238	0.0001	0.0002	1.2743	0.051103	0	0	17.1119	100	0.000	0.84728	0.40495	0.51086	2.14935	4.53544	-0.2829963
6.48	32.8975	0	0.0002	1.5291	0.051103	0	0	16.44875	100	0.000	0.88128	0.4212	0.53136	2.2356	4.71744	-0.2720782
6.74	31.6736	0	0.0003	1.784	0.076655	0	0	15.8368	100	0.000	0.91664	0.4381	0.55268	2.3253	4.90672	-0.2577916
7.04	30.3222	0	0.0003	2.0388	0.076655	0	0	15.1611	100	0.000	0.95744	0.4576	0.57728	2.4288	5.12512	-0.2468062
7.33	29.093	0	0.0003	2.2937	0.076655	0	0	14.5465	100	0.000	0.99688	0.47645	0.60106	2.52885	5.33624	-0.2370417
7.58	28.1281	0	0.0004	2.523	0.102207	0	0	14.06405	100	0.000	1.03088	0.4927	0.62156	2.6151	5.51824	-0.2258527
7.83	27.2376	0	0.0004	2.7269	0.102207	0	0	13.6188	100	0.000	1.06488	0.50895	0.64206	2.70135	5.70024	-0.2186416
8.18	26.0701	0	0.0005	3.0072	0.127758	0	0	13.03505	100	0.000	1.11248	0.5317	0.67076	2.8221	5.95504	-0.2061628
8.53	24.997	0	0.0005	3.2876	0.127758	0	0	12.4985	100	0.000	1.16008	0.55445	0.69946	2.94285	6.20984	-0.1977036
9.07	23.511	0.0001	0.0006	3.6699	0.15331	0	0	11.7555	100	0.000	1.23352	0.58955	0.74374	3.12915	6.60296	-0.1831158
9.6	22.2171	0.0001	0.0006	4.0012	0.15331	0	0	11.10855	100	0.000	1.3056	0.624	0.7872	3.312	6.9888	-0.1730063
10.44	20.4418	0.0001	0.0007	4.5618	0.178862	0	0	10.2209	100	0.000	1.41984	0.6786	0.85608	3.6018	7.60032	-0.1566387
11.34	18.8043	0.0001	0.0008	5.097	0.204414	0	0	9.40215	100	0.000	1.54224	0.7371	0.92988	3.9123	8.25552	-0.1419539
12.33	17.303	0.0001	0.0008	5.6067	0.204414	0	0	8.6515	100	0.000	1.67688	0.80145	1.01106	4.25385	8.97624	-0.1305561
13.4	15.9201	0.0001	0.0009	6.04	0.229965	0	0	7.96005	100	0.000	1.8224	0.871	1.0988	4.623	9.7552	-0.1182243
14.56	14.6473	0.0001	0.001	6.5751	0.255517	0	0	7.32365	100	0.000	1.98016	0.9464	1.19392	5.0232	10.59968	-0.1070504
15.83	13.476	0.0001	0.0011	7.0339	0.281069	0	0	6.738	100	0.000	2.15288	1.02895	1.29806	5.46135	11.52424	-0.0968479
17.2	12.4007	0.0001	0.0011	7.5181	0.281069	0	0	6.20035	100	0.000	2.3392	1.118	1.4104	5.934	12.5216	-0.0891338
18.7	11.4092	0.0001	0.0012	8.0023	0.30662	0	0	5.7046	100	0.000	2.5432	1.2155	1.5334	6.4515	13.6136	-0.0806177
20.32	10.498	0.0001	0.0013	8.461	0.332172	0	0	5.249	100	0.000	2.76352	1.3208	1.66624	7.0104	14.79296	-0.072933
22.09	9.659	0.0001	0.0014	8.9453	0.357724	0	0	4.8295	100	0.000	3.00424	1.43585	1.81138	7.62105	16.08152	-0.0659324
24	8.8874	0.0001	0.0014	9.3785	0.357724	0	0	4.4437	100	0.000	3.264	1.56	1.968	8.28	17.472	-0.0606853
26.09	8.1765	0.0001	0.0015	9.8372	0.383275	0	0	4.08825	100	0.000	3.54824	1.69585	2.13938	9.00105	18.99352	-0.0548446
28.96	7.3662	0.0001	0.0016	10.4234	0.408827	0	0	3.6831	100	0.000	3.93856	1.8824	2.37472	9.9912	21.08288	-0.048527
31.74	6.7217	0.0001	0.0017	10.9331	0.434379	0	0	3.36085	100	0.000	4.31664	2.0631	2.60268	10.9503	23.10672	-0.0434717
34.76	6.1376	0.0001	0.0017	11.4428	0.434379	0	0	3.0688	100	0.000	4.72736	2.2594	2.85032	11.9922	25.30528	-0.0396948
38.06	5.6053	0.0001	0.0018	11.9525	0.459931	0	0	2.80265	100	0.000	5.17616	2.4739	3.12092	13.1307	27.70768	-0.0355817
41.56	5.1333	0.0001	0.0019	12.4367	0.485482	0	0	2.56665	100	0.000	5.65216	2.7014	3.40792	14.3382	30.25568	-0.0319704
44.78	4.7641	0.0001	0.0019	12.7845	0.485482	0	0	2.38205	100	0.000	6.09008	2.9107	3.67196	15.4491	32.59984	-0.0296715
50	4.2662	0.0001	0.0021	13.5765	0.536586	0	0	2.1331	100	0.001	6.8	3.25	4.1	17.25	36.4	-0.0255517
54.75	3.8964	0.0001	0.0021	13.9489	0.536586	0	0	1.9482	100	0.001	7.446	3.55875	4.4895	18.88875	39.858	-0.0233349
60.11	3.5487	0.0001	0.0022	14.4993	0.562137	0	0	1.77435	100	0.001	8.17496	3.90715	4.92902	20.73795	43.76008	-0.020829
63.98	3.3341	0	0.0022	14.7809	0.562137	0	0	1.66705	100	0.001	8.70128	4.1587	5.24636	22.0731	46.57744	-0.0195691
70.46	3.0274	0.0001	0.0023	15.3641	0.587689	0	0	1.5137	100	0.001	9.58256	4.5799	5.77772	24.3087	51.29488	-0.0174068
76.75	2.7796	0	0.0024	15.6764	0.613241	0	0	1.3898	100	0.001	10.438	4.98875	6.2935	26.47875	55.874	-0.0156473
83.28	2.5616	0.0001	0.0025	16.2171	0.638792	0	0	1.2808	100	0.001	11.32608	5.4132	6.82896	28.7316	60.62784	-0.0141136
90.09	2.3679	0.0001	0.0025	16.6262	0.638792	0	0	1.18395	100	0.001	12.25224	5.85585	7.38738	31.08105	65.58552	-0.0130467
99.25	2.1493	0.0001	0.0026	17.2166	0.664344	0	0	1.07465	100	0.001	13.498	6.45125	8.1385	34.24125	72.254	-0.0115852
106.41	2.0047	0.0001	0.0027	17.6202	0.689896	0	0	1.00235	100	0.001	14.47176	6.91665	8.72562	36.71145	77.46648	-0.0105655
117.46	1.8161	0.0001	0.0028	18.1596	0.715447	0	0	0.90805	100	0.001	15.97456	7.6349	9.63172	40.5237	85.51088	-0.009354
126.82	1.682	0	0.0028	18.2197	0.715447	0	0	0.841	100	0.001	17.24752	8.2433	10.39924	43.7529	92.32496	-0.0086636
137.65	1.5497	0.0001	0.0028	18.7711	0.715447	0	0	0.77485	100	0.002	18.7204	8.94725	11.2873	47.48925	100.2092	-0.007982
149.5	1.4269	0.0001	0.0029	19.1656	0.740999	0	0	0.71345	100	0.002	20.332	9.7175	12.259	51.5775	108.836	-0.0071784

RESULT1

163	1.3087	0.0001	0.003	19.8519	0.766551	0	0	0.65435	100	0.002	22.168	10.595	13.366	56.235	118.664	-0.0064271
177.5	1.2018	0.0001	0.0031	20.3423	0.792103	0	0	0.6009	100	0.002	24.14	11.5375	14.555	61.2375	129.22	-0.0057581
192.08	1.1106	0.0001	0.0032	20.9858	0.817654	0	0	0.5553	100	0.002	26.12288	12.4852	15.75056	66.2676	139.8342	-0.005188
208.79	1.0217	0	0.0032	21.2595	0.817654	0	0	0.51085	100	0.002	28.39544	13.57135	17.12078	72.03255	151.9991	-0.0047728
227.43	0.938	0.0001	0.0033	21.8469	0.843206	0	0	0.469	100	0.002	30.93048	14.78295	18.64926	78.46335	165.569	-0.0042693
246.41	0.8657	0.0001	0.0034	22.5015	0.868758	0	0	0.43285	100	0.003	33.51176	16.01665	20.20562	85.01145	179.3865	-0.0038367
268.81	0.7936	0.0001	0.0035	23.0488	0.894309	0	0	0.3968	100	0.003	36.55816	17.47265	22.04242	92.73945	195.6937	-0.003422
290.85	0.7334	0.0001	0.0036	23.6387	0.919861	0	0	0.3667	100	0.003	39.5556	18.90525	23.8497	100.3433	211.7388	-0.0030748
318.33	0.6701	0.0001	0.0037	24.3325	0.945413	0	0	0.33505	100	0.003	43.29288	20.69145	26.10306	109.8239	231.7442	-0.0027291
346.28	0.616	0.0001	0.0038	24.8427	0.970964	0	0	0.308	100	0.004	47.09408	22.5082	28.39496	119.4666	252.0918	-0.002435
374.5	0.5696	0.0001	0.0039	25.4636	0.996516	0	0	0.2848	100	0.004	50.932	24.3425	30.709	129.2025	272.636	-0.0021833
407.1	0.524	0.0001	0.004	26.2107	1.022068	0	0	0.262	100	0.004	55.3656	26.4615	33.3822	140.4495	296.3688	-0.0019457
442.1	0.4825	0.0001	0.0041	26.7581	1.04762	0	0	0.24125	100	0.005	60.1256	28.7365	36.2522	152.5245	321.8488	-0.0017339
480.41	0.444	0.0001	0.0041	27.3827	1.04762	0	0	0.222	100	0.005	65.33576	31.22665	39.39362	165.7415	349.7385	-0.0015956
519.92	0.4103	0.0001	0.0043	28.1697	1.098723	0	0	0.20515	100	0.006	70.70912	33.7948	42.63344	179.3724	378.5018	-0.0013761
566.75	0.3764	0.0001	0.0044	28.8634	1.124275	0	0	0.1882	100	0.006	77.078	36.83875	46.4735	195.5288	412.594	-0.0012173
615.37	0.3467	0.0001	0.0045	29.5427	1.149826	0	0	0.17335	100	0.007	83.69032	39.99905	50.46034	212.3027	447.9894	-0.0010796
669.63	0.3186	0.0001	0.0046	30.2545	1.175378	0	0	0.1593	100	0.007	91.06968	43.52595	54.90966	231.0224	487.4906	-0.0009539
726.75	0.2935	0.0001	0.0047	30.9638	1.20093	0	0	0.14675	100	0.008	98.838	47.23875	59.5935	250.7288	529.074	-0.0008438
789.34	0.2703	0.0001	0.0048	31.761	1.226481	0	0	0.13515	100	0.009	107.3502	51.3071	64.72588	272.3223	574.6395	-0.0007445
860.9	0.2478	0.0001	0.0049	32.4108	1.252033	0	0	0.1239	100	0.009	117.0824	55.9585	70.5938	297.0105	626.7352	-0.000653
935.54	0.228	0.0001	0.005	33.0505	1.277585	0	0	0.114	100	0.010	127.2334	60.8101	76.71428	322.7613	681.0731	-0.0005736
1015.72	0.21	0.0001	0.0051	33.592	1.303136	0	0	0.105	100	0.011	138.1379	66.0218	83.28904	350.4234	739.4442	-0.0005031
1106.88	0.1927	0.0001	0.0052	34.1313	1.328688	0	0	0.09635	100	0.012	150.5357	71.9472	90.76416	381.8736	805.8086	-0.0004386
1201.96	0.1775	0.0001	0.0053	35.0601	1.35424	0	0	0.08875	100	0.013	163.4666	78.1274	98.56072	414.6762	875.0269	-0.0003827
1304.88	0.1635	0.0001	0.0054	35.5298	1.379792	0	0	0.08175	100	0.014	177.4637	84.8172	107.0002	450.1836	949.9526	-0.0003329
1418.34	0.1504	0.0001	0.0055	36.0145	1.405343	0	0	0.0752	100	0.016	192.8942	92.1921	116.3039	489.3273	1032.552	-0.0002882
1539.17	0.1386	0.0001	0.0055	36.4086	1.405343	0	0	0.0693	100	0.017	209.3271	100.0461	126.2119	531.0137	1120.516	-0.0002656
1674.99	0.1274	0.0001	0.0056	36.8218	1.430895	0	0	0.0637	100	0.018	227.7986	108.8744	137.3492	577.8716	1219.393	-0.0002288
1818.65	0.1173	0.0001	0.0056	37.226	1.430895	0	0	0.05865	100	0.020	247.3364	118.2123	149.1293	627.4343	1323.977	-0.0002107
1975.97	0.108	0.0001	0.0057	37.5643	1.456447	0	0	0.054	100	0.022	268.7319	128.4381	162.0295	681.7097	1438.506	-0.000181
2151.29	0.0992	0.0001	0.0057	37.9111	1.456447	0	0	0.0496	100	0.024	292.5754	139.8339	176.4058	742.1951	1566.139	-0.0001663
2333.87	0.0914	0	0.0058	38.2094	1.481998	0	0	0.0457	100	0.026	317.4063	151.7016	191.3773	805.1852	1699.057	-0.0001423
2536.92	0.0841	0	0.0058	38.5378	1.481998	0	0	0.04205	100	0.028	345.0211	164.8998	208.0274	875.2374	1846.878	-0.0001309
2759.19	0.0773	0	0.0059	38.8565	1.50755	0	0	0.03865	100	0.030	375.2498	179.3474	226.2536	951.9206	2008.69	-0.0001111
2999.62	0.0711	0	0.0059	39.1209	1.50755	0	0	0.03555	100	0.033	407.9483	194.9753	245.9688	1034.869	2183.723	-0.0001022
3257.95	0.0655	0	0.006	39.407	1.533102	0	0	0.03275	100	0.036	443.0812	211.7668	267.1519	1123.993	2371.788	-8.627E-05
3543.57	0.0602	0	0.006	39.7216	1.533102	0	0	0.0301	100	0.039	481.9255	230.3321	290.5727	1222.532	2579.719	-7.932E-05
3845.71	0.0555	0.0001	0.0061	40.25	1.558653	0	0	0.02775	100	0.042	523.0166	249.9712	315.3482	1326.77	2799.677	-6.644E-05
4182.9	0.051	0	0.0061	40.4582	1.558653	0	0	0.0255	100	0.046	568.8744	271.8885	342.9978	1443.101	3045.151	-6.109E-05
4435.8	0.0481	0	0.0062	40.6382	1.584205	0	0	0.02405	100	0.049	603.2688	288.327	363.7356	1530.351	3229.262	-5.184E-05
4839.01	0.0441	0	0.0062	40.7927	1.584205	0	0	0.02205	100	0.053	658.1054	314.5357	396.7988	1669.458	3522.799	-4.752E-05
5367.02	0.0397	0.0001	0.0062	41.1292	1.584205	0	0	0.01985	100	0.059	729.9147	348.8563	440.0956	1851.622	3907.191	-4.285E-05
5832.38	0.0366	0	0.0063	41.4134	1.609757	0	0	0.0183	100	0.064	793.2037	379.1047	478.2552	2012.171	4245.973	-3.505E-05
6339.27	0.0337	0	0.0063	41.6831	1.609757	0	0	0.01685	100	0.069	862.1407	412.0526	519.8201	2187.048	4614.989	-3.225E-05
6890.06	0.031	0	0.0064	41.9449	1.635309	0	0	0.0155	100	0.075	937.0482	447.8539	564.9849	2377.071	5015.964	-2.596E-05
7487	0.0285	0	0.0064	42.2697	1.635309	0	0	0.01425	100	0.082	1018.232	486.655	613.934	2583.015	5450.536	-2.389E-05
8137.46	0.0262	0.0001	0.0065	42.6063	1.66086	0	0	0.0131	100	0.089	1106.695	528.9349	667.2717	2807.424	5924.071	-1.884E-05
8847.06	0.0241	0	0.0065	42.9102	1.66086	0	0	0.01205	100	0.097	1203.2	575.0589	725.4589	3052.236	6440.66	-1.733E-05

RESULT1

9612.79	0.0222	0.0001	0.0066	43.3065	1.686412	0	0	0.0111	100	0.105	1307.339	624.8314	788.2488	3316.413	6998.111	-1.329E-05
10445.6	0.0204	0.0001	0.0066	43.6984	1.686412	0	0	0.0102	100	0.114	1420.602	678.964	856.5392	3603.732	7604.397	-1.223E-05
11352.85	0.0188	0.0001	0.0067	44.1872	1.711964	0	0	0.0094	100	0.124	1543.988	737.9353	930.9337	3916.733	8264.875	-9.003E-06
12337.98	0.0173	0.0001	0.0068	44.6938	1.737515	0	0	0.00865	100	0.135	1677.965	801.9687	1011.714	4256.603	8982.049	-6.213E-06
13408.73	0.0159	0.0001	0.0069	45.2812	1.763067	0	0	0.00795	100	0.147	1823.587	871.5675	1099.516	4626.012	9761.555	-3.811E-06
14574.61	0.0146	0	0.0069	45.69536	1.763067	0	0	0.0073	100	0.160	1982.147	947.3497	1195.118	5028.24	10610.32	-3.506E-06
15838.55	0.0135	0.0001	0.007	46.35762	1.788619	0	0	0.00675	100	0.173	2154.043	1029.506	1298.761	5464.3	11530.46	-1.613E-06
17213.94	0.0124	0.0001	0.0071	47.01987	1.81417	0	0	0.0062	100	0.188	2341.096	1118.906	1411.543	5938.809	12531.75	-1.29E-20
18707.06	0.0114	0.0002	0.0073	48.34437	1.865274	2.5	2.5	0.0057	97.5	0.205	2544.16	1215.959	1533.979	6453.936	13618.74	2.7318E-06
20331.39	0.0105	0.0002	0.0075	49.66887	1.916377	2.5	5	0.00525	95	0.223	2765.069	1321.54	1667.174	7014.33	14801.25	5.027E-06
22098.99	0.0097	0.0003	0.0078	51.65563	1.993032	3.75	8.75	0.00485	91.25	0.242	3005.463	1436.434	1812.117	7624.152	16088.06	8.0937E-06
24017.99	0.0089	0.0003	0.0081	53.64238	2.069687	3.75	12.5	0.00445	87.5	0.263	3266.447	1561.169	1969.475	8286.207	17485.1	1.0639E-05
26101.46	0.0082	0.0004	0.0085	56.29139	2.171894	5	17.5	0.0041	82.5	0.286	3549.799	1696.595	2140.32	9005.004	19001.86	1.3705E-05
28368.11	0.0075	0.0005	0.009	59.60265	2.299653	6.25	23.75	0.00375	76.25	0.310	3858.063	1843.927	2326.185	9786.998	20651.98	1.7114E-05
30829.14	0.0069	0.0006	0.0096	63.57616	2.452963	7.5	31.25	0.00345	68.75	0.337	4192.763	2003.894	2527.989	10636.05	22443.61	2.072E-05
33505.84	0.0064	0.0006	0.0102	67.54967	2.606273	7.5	38.75	0.0032	61.25	0.367	4556.794	2177.88	2747.479	11559.51	24392.25	2.3641E-05
36413.88	0.0059	0.0007	0.0109	72.18543	2.785135	8.75	47.5	0.00295	52.5	0.399	4952.288	2366.902	2985.938	12562.79	26509.3	2.6665E-05
39578.14	0.0054	0.0008	0.0117	77.48344	2.989548	10	57.5	0.0027	42.5	0.433	5382.627	2572.579	3245.407	13654.46	28812.89	2.9698E-05
43009.68	0.005	0.0009	0.0126	83.44371	3.219514	11.25	68.75	0.0025	31.25	0.471	5849.316	2795.629	3526.794	14838.34	31311.05	3.2675E-05
46740.92	0.0046	0.0008	0.0134	88.74172	3.423927	10	78.75	0.0023	21.25	0.512	6356.765	3038.16	3832.755	16125.62	34027.39	3.444E-05
50798.79	0.0042	0.0007	0.0141	93.37748	3.602789	8.75	87.5	0.0021	12.5	0.556	6908.635	3301.921	4165.501	17525.58	36981.52	3.521E-05
55206.36	0.0039	0.0006	0.0147	97.35099	3.756099	7.5	95	0.00195	5	0.604	7508.065	3588.413	4526.922	19046.19	40190.23	3.5176E-05
59991.5	0.0036	0.0004	0.0151	100	3.858306	5	100	0.0018	0	0.657	8158.844	3899.448	4919.303	20697.07	43673.81	3.4074E-05
																3.521E-05

AIR/MERCURY CAPILLARY PRESSURE DATA : BY PoroTechnology

SRP 1 @ 5661.5ft; Redman Barth #3

MICP Closure(psia) = 17214.

MICP Porosity = 2.02%

MICP Gr. Den.(gm/cc) = 2.609

MICP Bulk Density(gm/cc) = 2.555

MICP-Calc. Air Perm = 0.000012 md

Median Pore Aperture Dia.(microns) = 0.0058

Injection Pressure (psia)	Pore Diameter (microns)	Hg (nwp) Saturation cum%PV	100-Hg(wp) Saturation cum%PV	Leverett "J" Function	Gas/Brine e Pc (psia)	Gas/Oil Pc (psia)	Oil/Brine Pc (psia)	Ht. Above Free Water (ft.) Gas/Brine	Ht. Above Free Water (ft.) Oil/Brine
5.19	41.13	0.0	100.0	0.00	0.71	0.34	0.43	1.8	3.8
5.48	38.90	0.0	100.0	0.00	0.75	0.36	0.45	1.9	4.0
5.83	36.56	0.0	100.0	0.00	0.79	0.38	0.48	2.0	4.2
6.23	34.22	0.0	100.0	0.00	0.85	0.40	0.51	2.1	4.5
6.48	32.90	0.0	100.0	0.00	0.88	0.42	0.53	2.2	4.7
6.74	31.67	0.0	100.0	0.00	0.92	0.44	0.55	2.3	4.9
7.04	30.32	0.0	100.0	0.00	0.96	0.46	0.58	2.4	5.1
7.33	29.09	0.0	100.0	0.00	1.00	0.48	0.60	2.5	5.3
7.58	28.13	0.0	100.0	0.00	1.03	0.49	0.62	2.6	5.5
7.83	27.24	0.0	100.0	0.00	1.06	0.51	0.64	2.7	5.7
8.18	26.07	0.0	100.0	0.00	1.11	0.53	0.67	2.8	6.0
8.53	25.00	0.0	100.0	0.00	1.16	0.55	0.70	2.9	6.2
9.07	23.51	0.0	100.0	0.00	1.23	0.59	0.74	3.1	6.6
9.60	22.22	0.0	100.0	0.00	1.31	0.62	0.79	3.3	7.0
10.44	20.44	0.0	100.0	0.00	1.42	0.68	0.86	3.6	7.6
11.34	18.80	0.0	100.0	0.00	1.54	0.74	0.93	3.9	8.3
12.33	17.30	0.0	100.0	0.00	1.68	0.80	1.01	4.3	9.0
13.40	15.92	0.0	100.0	0.00	1.82	0.87	1.10	4.6	9.8
14.56	14.65	0.0	100.0	0.00	1.98	0.95	1.19	5.0	10.6
15.83	13.48	0.0	100.0	0.00	2.15	1.03	1.30	5.5	11.5
17.20	12.40	0.0	100.0	0.00	2.34	1.12	1.41	5.9	12.5
18.70	11.41	0.0	100.0	0.00	2.54	1.22	1.53	6.5	13.6
20.32	10.50	0.0	100.0	0.00	2.76	1.32	1.67	7.0	14.8
22.09	9.66	0.0	100.0	0.00	3.00	1.44	1.81	7.6	16.1
24.00	8.89	0.0	100.0	0.00	3.26	1.56	1.97	8.3	17.5
26.09	8.18	0.0	100.0	0.00	3.55	1.70	2.14	9.0	19.0
28.96	7.37	0.0	100.0	0.00	3.94	1.88	2.37	10.0	21.1
31.74	6.72	0.0	100.0	0.00	4.32	2.06	2.60	11.0	23.1
34.76	6.138	0.0	100.0	0.00	4.73	2.26	2.85	12.0	25.3
38.06	5.605	0.0	100.0	0.00	5.18	2.47	3.12	13.1	27.7
41.56	5.133	0.0	100.0	0.00	5.65	2.70	3.41	14.3	30.3
44.78	4.764	0.0	100.0	0.00	6.09	2.91	3.67	15.4	32.6
50.00	4.266	0.0	100.0	0.00	6.80	3.25	4.10	17.3	36.4
54.75	3.896	0.0	100.0	0.00	7.45	3.56	4.49	18.9	39.9
60.11	3.549	0.0	100.0	0.00	8.17	3.91	4.93	20.7	43.8
63.98	3.334	0.0	100.0	0.00	8.70	4.16	5.25	22.1	46.6

AIR/MERCURY CAPILLARY PRESSURE DATA : BY PoroTechnology

SRP 1 @ 5661.5ft; Redman Barth #3

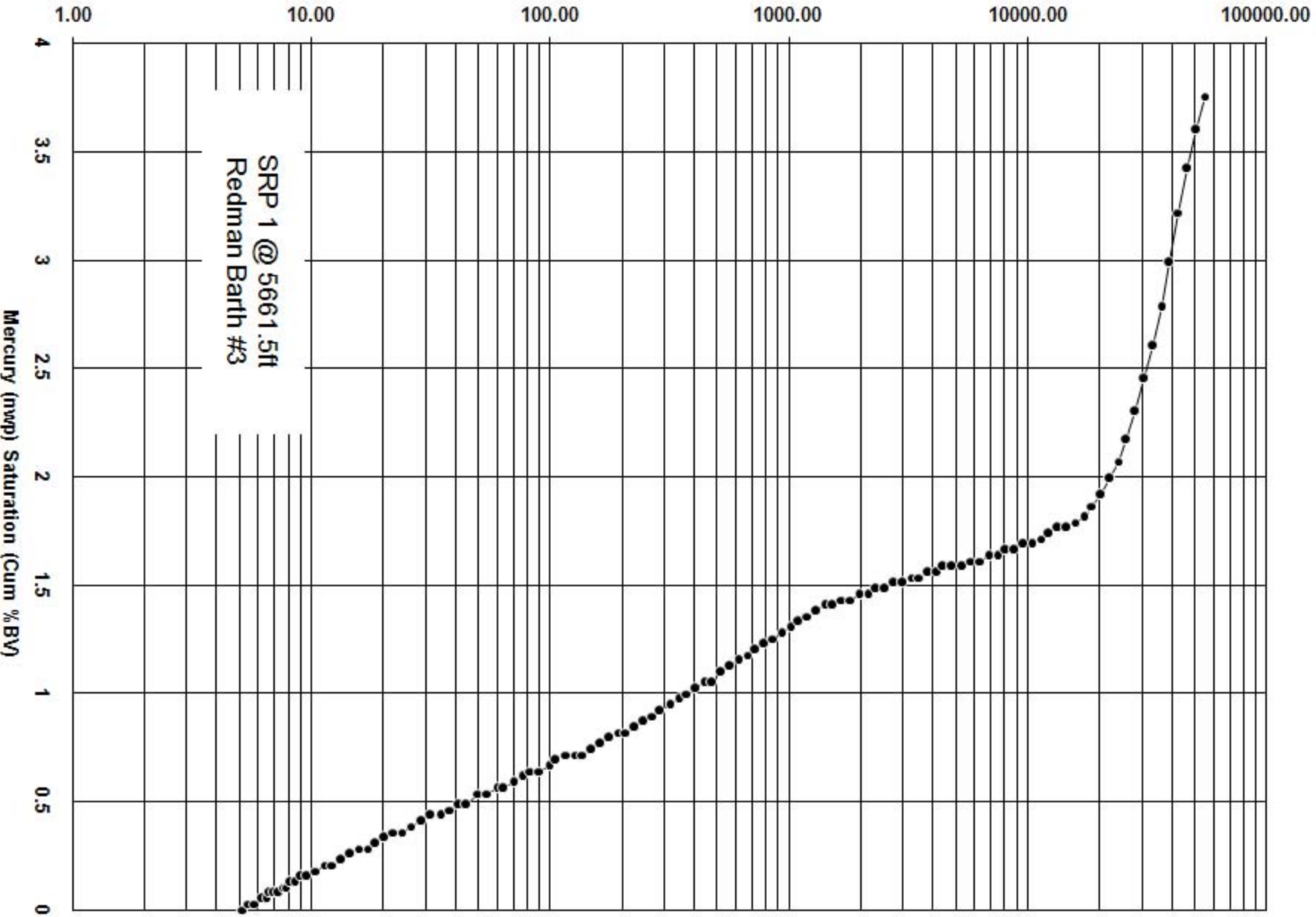
Injection Pressure (psia)	Pore Diameter (microns)	Hg (nwp) Saturation cum%PV	100-Hg(wp) Saturation cum%PV	Leverett "J" Function	Gas/Brine Pc (psia)	Gas/Oil Pc (psia)	Oil/Brine Pc (psia)	Ht. Above Free Water (ft.) Gas/Brine	Ht. Above Free Water (ft.) Oil/Brine
70.46	3.027	0.0	100.0	0.00	9.58	4.58	5.78	24.3	51.3
76.75	2.780	0.0	100.0	0.00	10.44	4.99	6.29	26.5	55.9
83.28	2.562	0.0	100.0	0.00	11.33	5.41	6.83	28.7	60.6
90.09	2.368	0.0	100.0	0.00	12.25	5.86	7.39	31.1	65.6
99.25	2.149	0.0	100.0	0.00	13.50	6.45	8.14	34.2	72.3
106.41	2.005	0.0	100.0	0.00	14.5	6.92	8.73	36.7	77.5
117.46	1.816	0.0	100.0	0.00	16.0	7.63	9.63	40.5	85.5
126.82	1.682	0.0	100.0	0.00	17.2	8.24	10.40	43.8	92.3
137.65	1.550	0.0	100.0	0.00	18.7	8.95	11.29	47.5	100.2
149.50	1.427	0.0	100.0	0.00	20.3	9.72	12.26	51.6	108.8
163.00	1.309	0.0	100.0	0.00	22.2	10.60	13.37	56.2	118.7
177.50	1.202	0.0	100.0	0.00	24.1	11.54	14.56	61.2	129.2
192.08	1.111	0.0	100.0	0.00	26.1	12.49	15.75	66.3	139.8
208.79	1.022	0.0	100.0	0.00	28.4	13.57	17.12	72.0	152.0
227.43	0.938	0.0	100.0	0.00	30.9	14.78	18.6	78.5	165.6
246.41	0.866	0.0	100.0	0.00	33.5	16.02	20.2	85.0	179
268.81	0.794	0.0	100.0	0.00	36.6	17.47	22.0	92.7	196
290.85	0.733	0.0	100.0	0.00	39.6	18.9	23.8	100.3	212
318.33	0.670	0.0	100.0	0.00	43.3	20.7	26.1	109.8	232
346.28	0.616	0.0	100.0	0.00	47.1	22.5	28.4	119.5	252
374.50	0.570	0.0	100.0	0.00	50.9	24.3	30.7	129	273
407.10	0.524	0.0	100.0	0.00	55.4	26.5	33.4	140	296
442.10	0.483	0.0	100.0	0.00	60.1	28.7	36.3	153	322
480.41	0.444	0.0	100.0	0.01	65.3	31.2	39.4	166	350
519.92	0.410	0.0	100.0	0.01	70.7	33.8	42.6	179	379
566.75	0.376	0.0	100.0	0.01	77.1	36.8	46.5	196	413
615.37	0.347	0.0	100.0	0.01	83.7	40.0	50.5	212	448
669.63	0.319	0.0	100.0	0.01	91.1	43.5	54.9	231	487
726.75	0.294	0.0	100.0	0.01	98.8	47.2	59.6	251	529
789.34	0.270	0.0	100.0	0.01	107.4	51.3	64.7	272	575
860.90	0.248	0.0	100.0	0.01	117.1	56.0	70.6	297	627
935.54	0.228	0.0	100.0	0.01	127.2	60.8	76.7	323	681
1015.72	0.210	0.0	100.0	0.01	138.1	66.0	83.3	350	739
1106.88	0.193	0.0	100.0	0.01	150.5	71.9	90.8	382	806
1201.96	0.178	0.0	100.0	0.01	163.5	78.1	98.6	415	875
1304.88	0.164	0.0	100.0	0.01	177.5	84.8	107.0	450	950
1418.34	0.150	0.0	100.0	0.02	192.9	92.2	116.3	489	1033
1539.17	0.139	0.0	100.0	0.02	209.3	100.0	126.2	531	1121
1674.99	0.127	0.0	100.0	0.02	227.8	108.9	137.3	578	1219
1818.65	0.117	0.0	100.0	0.02	247.3	118.2	149.1	627	1324
1975.97	0.108	0.0	100.0	0.02	268.7	128.4	162.0	682	1439
2151.29	0.099	0.0	100.0	0.02	292.6	139.8	176.4	742	1566
2333.87	0.091	0.0	100.0	0.03	317.4	151.7	191.4	805	1699
2536.92	0.0841	0.0	100.0	0.03	345.0	164.9	208.0	875	1847

AIR/MERCURY CAPILLARY PRESSURE DATA : BY PoroTechnology

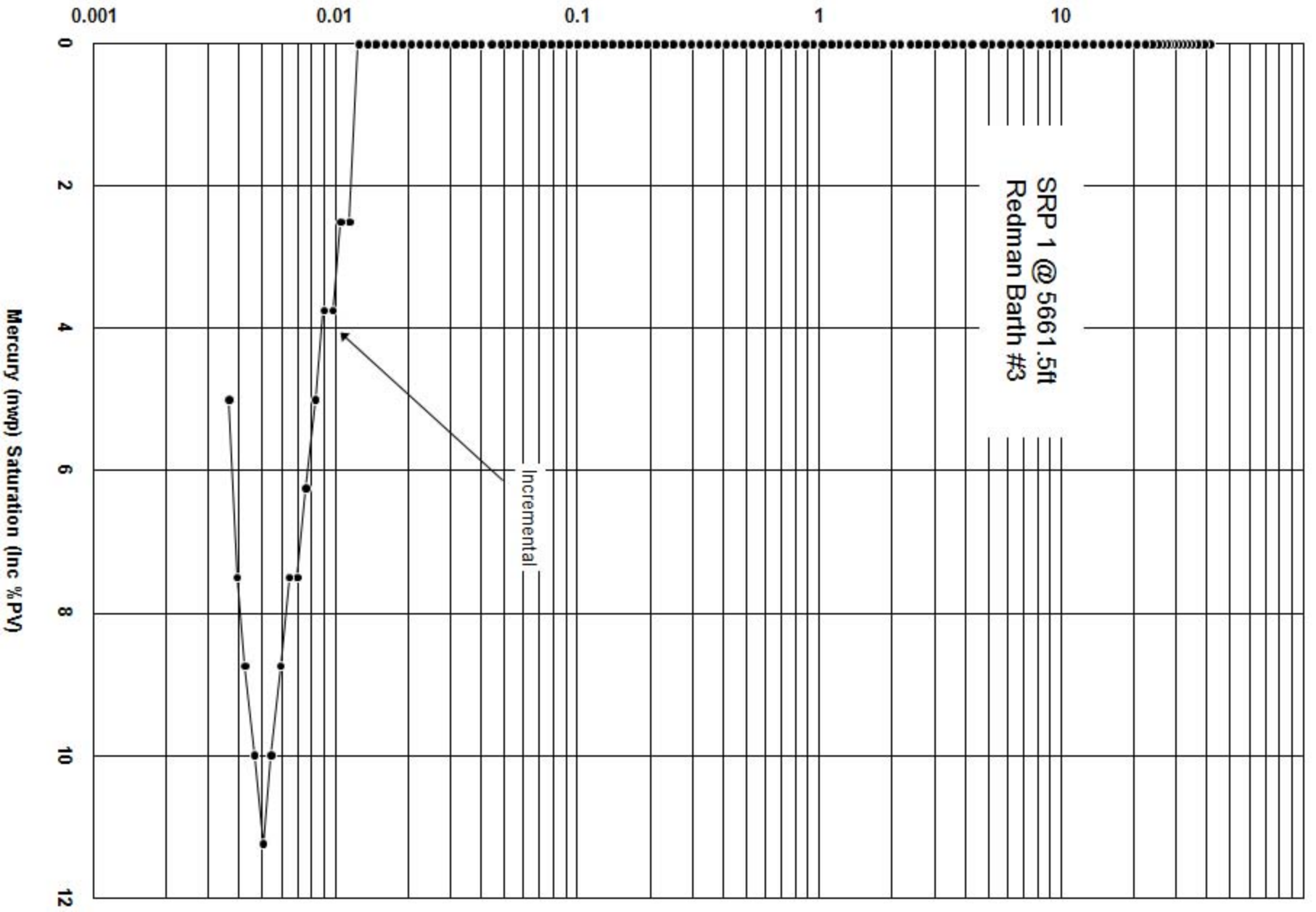
SRP 1 @ 5661.5ft; Redman Barth #3

Injection Pressure (psia)	Pore Diameter (microns)	Hg (nwp) Saturation cum%PV	100-Hg(wp) Saturation cum%PV	Leverett "J" Function	Gas/Brine Pc (psia)	Gas/Oil Pc (psia)	Oil/Brine Pc (psia)	Ht. Above Free Water (ft.) Gas/Brine	Ht. Above Free Water (ft.) Oil/Brine
2759.19	0.0773	0.0	100.0	0.03	375.2	179.3	226.3	952	2009
2999.62	0.0711	0.0	100.0	0.03	407.9	195.0	246.0	1035	2184
3257.95	0.0655	0.0	100.0	0.04	443.1	211.8	267.2	1124	2372
3543.57	0.0602	0.0	100.0	0.04	481.9	230.3	290.6	1223	2580
3845.71	0.0555	0.0	100.0	0.04	523.0	250.0	315.3	1327	2800
4182.90	0.0510	0.0	100.0	0.05	568.9	271.9	343.0	1443	3045
4435.80	0.0481	0.0	100.0	0.05	603.3	288.3	363.7	1530	3229
4839.01	0.0441	0.0	100.0	0.05	658.1	314.5	396.8	1669	3523
5367.02	0.0397	0.0	100.0	0.06	729.9	348.9	440.1	1852	3907
5832.38	0.0366	0.0	100.0	0.06	793.2	379.1	478.3	2012	4246
6339.27	0.0337	0.0	100.0	0.07	862.1	412.1	519.8	2187	4615
6890.06	0.0310	0.0	100.0	0.08	937.0	447.9	565.0	2377	5016
7487.00	0.0285	0.0	100.0	0.08	1018	486.7	613.9	2583	5451
8137.46	0.0262	0.0	100.0	0.09	1107	528.9	667.3	2807	5924
8847.06	0.0241	0.0	100.0	0.10	1203	575.1	725.5	3052	6441
9612.79	0.0222	0.0	100.0	0.11	1307	624.8	788.2	3316	6998
10445.60	0.0204	0.0	100.0	0.11	1421	679.0	856.5	3604	7604
11352.85	0.0188	0.0	100.0	0.12	1544	737.9	930.9	3917	8265
12337.98	0.0173	0.0	100.0	0.14	1678	802.0	1011.7	4257	8982
13408.73	0.0159	0.0	100.0	0.15	1824	871.6	1099.5	4626	9762
14574.61	0.0146	0.0	100.0	0.16	1982	947.3	1195.1	5028	10610
15838.55	0.0135	0.0	100.0	0.17	2154	1029.5	1299	5464	11530
17213.94	0.0124	0.0	100.0	0.19	2341	1118.9	1412	5939	12532
18707.06	0.0114	2.5	97.5	0.20	2544	1216.0	1534	6454	13619
20331.39	0.0105	5.0	95.0	0.22	2765	1322	1667	7014	14801
22098.99	0.0097	8.7	91.3	0.24	3005	1436	1812	7624	16088
24017.99	0.0089	12.5	87.5	0.26	3266	1561	1969	8286	17485
26101.46	0.0082	17.5	82.5	0.29	3550	1697	2140	9005	19002
28368.11	0.0075	23.8	76.3	0.31	3858	1844	2326	9787	20652
30829.14	0.0069	31.3	68.8	0.34	4193	2004	2528	10636	22444
33505.84	0.0064	38.8	61.3	0.37	4557	2178	2747	11560	24392
36413.88	0.0059	47.5	52.5	0.40	4952	2367	2986	12563	26509
39578.14	0.0054	57.5	42.5	0.43	5383	2573	3245	13654	28813
43009.68	0.0050	68.8	31.3	0.47	5849	2796	3527	14838	31311
46740.92	0.0046	78.8	21.3	0.51	6357	3038	3833	16126	34027
50798.79	0.0042	87.5	12.5	0.56	6909	3302	4166	17526	36982
55206.36	0.0039	95.0	5.0	0.60	7508	3588	4527	19046	40190
59991.50	0.0036	100.0	0.0	0.66	8159	3899	4919	20697	43674

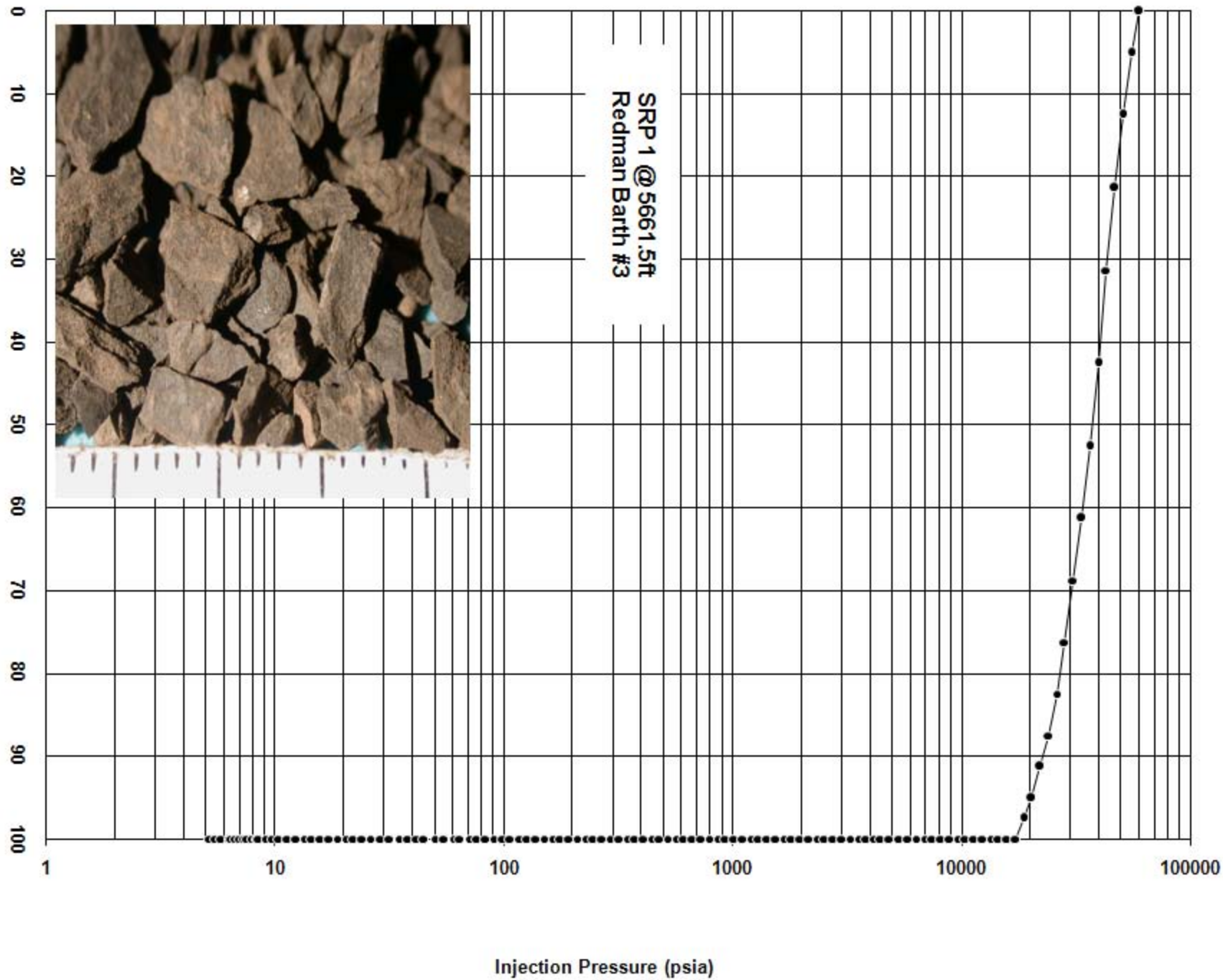
Injection Pressure (psia)

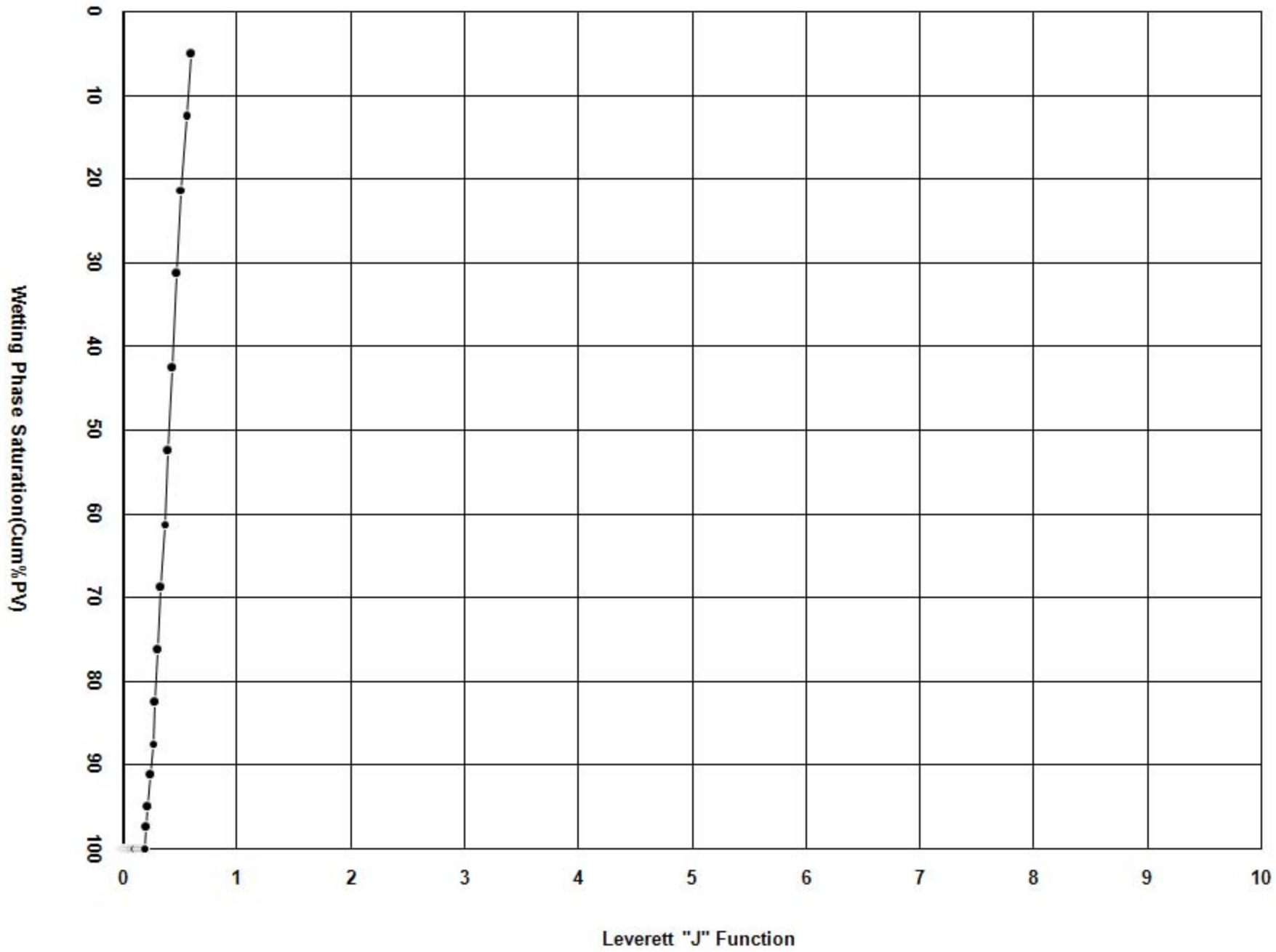


Pore Aperture Diameter (microns)



Wetting Phase (wp) Saturation (Cum % PV)





TEST2

Porotech	60000psia	/Hg Capilla	Pressure				
AutoPore	1500 V1.05	Serial: 2	78	Port: 2/2			Page 1
Sample ID	SRP # 2 ; Idman Barth #3						
Operator:	Porotechry						
Submitter:	Dolan Intecation Gp						
File:	C:\9500\D\010-155.SMP						
LP Analysis	ime: 1/7/2	8:38:24AM	Sample W	ht: 5.16	0 g		
HP Analysis	ime: 1/7/2	10:11:22AM	Correctio	n Type: Blank			
Report Tim	1/7/2010 2	:18:31PM	ow Neg. In:	No			
Summary Report							
Penetrome	07-0732 P EN						
Pen. Cons:	10.790	μL/pF		Pen. Weig	56.7940	g	
Stem Volu	0.392	mL	M	ax. Head Fure:	4.4500	psia	
Pen. Volur	6.017	mL	A	ssembly W:	114.9900	g	
Adv. Conta	Angle:	140	00	degrees	Rec. (tact Angle:	130.000	d
Hg Surface	ension:	480	00	dynes/cm	Hg lsity:	13.5335	g/mL
Evacuatio	essure:		50	μmHg			
Evacuatio	me:	10	mins				
Mercury F	ing Pressure:		4.93	ps a			
Equilibrat	Rate:	0	.003	μ L/g/s			
Equilibrat	Rate:	0.002	μL/	g/s			
Blank Corr	on Sample	\9500\PAR000-388.SMP					
Blank Corr	on ID:	C0732QTZBLANK					

TEST2

Total Intrusion Volume =		0.0167	m	L/g		
Total Pore Area =	7.1	46	m ² /g			
Median Pore Diameter (V _e) =			0.0088	μm		
Median Pore Diameter (A _v) =		0	0.0053	μm		
Average Pore Diameter (d _v) =			0.0094	μm		
Bulk Density at 4.93 psia =			2.4598	g/mL		
Apparent (Metal) Density =		2	0.566	g/mL		
Porosity =	4.113	1	%			
Stem Volume =		20	% ****			
Porotech	60000psia	/Hg	Capillary Pressure			
AutoPore IV 500 V1.05	Serial: 2	78		Port: 2/2		Page 1
Sample ID	SRP # 2 ; Idman Barth #3					
Operator:	Porotech					
Submitter:	Dolan Integration Gp					
File:	C:\9500\DI\010-155.SMP					
LP Analysis Time:	1/7/2010 8:38:24AM	Sample Weight:	5.160 g			
HP Analysis Time:	1/7/2010 10:11:22AM	Correction Type:	Blank			
Report Time:	1/7/2010 2:18:31PM	Low Neg. In:	No			
		Tab	ular Report			
		Incremental	Cumulative			
Pressure (psia)	Pore Diameter (μm)	Pore Volume (mL/g)	Pore Volume (mL/g)	% of Total Intrusion Volume	Incremental Pore Area (m ² /g)	

4.93	43.2822	0	-0.0001	-0.6823	0	
5.19	41.1276	0	-0.0001	-0.3983	0	
5.48	38.9035	0	0	-0.1473	0	
5.83	36.5642	0.0001	0	0.2359	0	
6.23	34.2238	0.0001	0.0001	0.6504	0	
6.48	32.8975	0.0001	0.0002	0.993	0	
6.74	31.6736	0	0.0002	1.2237	0	
7.04	30.3222	0.0001	0.0003	1.5404	0	
7.33	29.093	0	0.0003	1.7925	0	
7.58	28.1281	0	0.0003	2.0495	0	

TEST2

7.83	27.2376	0	0.0004	2.3107	0		
8.18	26.0701	0.0001	0.0005	2.768	0		
8.53	24.997	0	0.0005	2.9966	0		
9.07	23.511	0	0.0006	3.2936	0		
9.6	22.2171	0.0001	0.0006	3.665	0		
10.44	20.4418	0.0001	0.0007	4.2767	0		
11.34	18.8043	0.0001	0.0008	4.8785	0		
12.33	17.303	0.0001	0.0009	5.38	0		
13.4	15.9201	0.0001	0.001	5.9241	0		
14.56	14.6473	0.0001	0.0011	6.5054	0		
15.83	13.476	0.0001	0.0012	6.9736	0		
17.2	12.4007	0.0001	0.0012	7.3636	0		
18.7	11.4092	0.0001	0.0013	7.9552	0		
20.32	10.498	0.0001	0.0014	8.4493	0		
22.09	9.659	0.0001	0.0015	8.7753	0		
24	8.8874	0.0001	0.0015	9.1938	0		
26.09	8.1765	0.0001	0.0016	9.6326	0		
28.96	7.3662	0.0001	0.0017	10.2617	0		
31.74	6.7217	0.0001	0.0018	10.6551	0		
34.76	6.1376	0.0001	0.0019	11.1349	0		
38.06	5.6053	0.0001	0.0019	11.6148	0		
41.56	5.1333	0.0001	0.002	12.0522	0		
44.76	4.7654	0	0.0021	12.3455	0		
49.99	4.2672	0.0001	0.0022	12.956	0		
54.74	3.8973	0.0001	0.0022	13.423	0		
60.2	3.5434	0.0001	0.0023	13.7778	0		
63.97	3.3347	0.0001	0.0024	14.1444	0		
70.45	3.0278	0.0001	0.0024	14.4957	0		
76.74	2.7799	0.0001	0.0025	14.8946	0		
83.27	2.5618	0.0001	0.0025	15.1973	0		
90.08	2.3681	0.0001	0.0026	15.6147	0		
99.25	2.1494	0	0.0027	15.9072	0		
106.41	2.0048	0.0001	0.0027	16.2731	0		
117.57	1.8144	0.0001	0.0028	16.6724	0		
126.82	1.6821	0	0.0028	16.7659	0		
137.65	1.5497	0	0.0028	17.0475	0		
149.5	1.4269	0.0001	0.0029	17.408	0		
163.16	1.3074	0.0001	0.003	17.7355	0		
177.5	1.2018	0.0001	0.003	18.1918	0		
192.08	1.1106	0.0001	0.0031	18.6631	0		
208.8	1.0217	0	0.0031	18.7025	0		
227.44	0.9379	0.0001	0.0032	19.182	0		
246.42	0.8657	0	0.0033	19.4719	0		
268.82	0.7935	0.0001	0.0033	19.9317	0		
290.87	0.7334	0.0001	0.0034	20.3227	0		
318.34	0.6701	0.0001	0.0035	20.8014	0		
346.3	0.616	0.0001	0.0035	21.1188	0		

TEST2

374.52	0.5696	0.0001	0.0036	21.5326	0		
407.12	0.524	0.0001	0.0037	21.9339	0		
442.12	0.4825	0.0001	0.0037	22.357	0.001		
480.43	0.444	0.0001	0.0038	22.7158	0.001		
519.95	0.4103	0.0001	0.0039	23.1524	0.001		
566.78	0.3764	0.0001	0.0039	23.5193	0.001		
615.41	0.3466	0.0001	0.004	23.9678	0.001		
669.67	0.3186	0.0001	0.0041	24.3201	0.001		
726.79	0.2935	0.0001	0.0041	24.7514	0.001		
789.38	0.2702	0.0001	0.0042	25.1274	0.001		
860.95	0.2478	0.0001	0.0043	25.5152	0.001		
935.59	0.228	0.0001	0.0043	25.9303	0.001		
1015.77	0.21	0	0.0044	26.1306	0.001		
1106.93	0.1927	0.0001	0.0044	26.5418	0.001		
1202.01	0.1775	0.0001	0.0046	27.2332	0.002		
1304.94	0.1635	0.0001	0.0046	27.6283	0.002		
1418.4	0.1504	0.0001	0.0047	27.9371	0.001		
1539.23	0.1386	0.0001	0.0047	28.3108	0.002		
1675.05	0.1274	0.0001	0.0048	28.6115	0.002		
1818.7	0.1173	0.0001	0.0048	28.9791	0.002		
1976.03	0.108	0.0001	0.0049	29.3346	0.002		
2151.35	0.0992	0	0.0049	29.5665	0.001		
2333.93	0.0914	0.0001	0.005	29.906	0.002		
2536.98	0.0841	0.0001	0.0051	30.2423	0.003		
2759.25	0.0773	0	0.0051	30.5347	0.002		
2999.68	0.0711	0.0001	0.0052	30.9016	0.003		
3258.01	0.0655	0.0001	0.0052	31.2491	0.003		
3543.63	0.0602	0.0001	0.0053	31.5739	0.003		
3845.77	0.0555	0.0001	0.0054	32.161	0.007		
4182.97	0.051	0	0.0054	32.4467	0.004		
4435.86	0.0481	0	0.0055	32.6608	0.003		
4839.06	0.0441	0.0001	0.0055	33.0666	0.006		
5367.08	0.0397	0.0001	0.0056	33.4793	0.007		
5832.43	0.0366	0.0001	0.0057	33.894	0.007		
6339.33	0.0337	0.0001	0.0057	34.3071	0.008		
6890.12	0.031	0	0.0058	34.5873	0.006		
7487.06	0.0285	0.0001	0.0059	35.1557	0.013		
8137.51	0.0262	0.0001	0.006	35.6449	0.012		
8847.11	0.0241	0.0001	0.0061	36.2141	0.015		
9612.85	0.0222	0.0001	0.0061	36.6451	0.012		
10445.65	0.0204	0.0001	0.0062	37.2104	0.018		
11352.91	0.0188	0.0001	0.0063	37.8592	0.022		
12338.04	0.0173	0.0001	0.0064	38.32335	0.026		
13408.78	0.0159	0.0001	0.0065	38.92216	0.036		
14574.66	0.0146	0.0002	0.0067	40.11976	0.042		
15838.6	0.0135	0.0002	0.0069	41.31737	0.045		
17213.99	0.0124	0.0002	0.0071	42.51497	0.058		

TEST2

18707.11	0.0114	0.0002	0.0073	43.71257	0.078		
20331.44	0.0105	0.0003	0.0076	45.50898	0.094		
22099.03	0.0097	0.0004	0.008	47.90419	0.143		
24018.03	0.0089	0.0004	0.0084	50.2994	0.166		
26101.5	0.0082	0.0005	0.0089	53.29341	0.167		
28368.14	0.0075	0.0006	0.0095	56.88623	0.433		
30829.17	0.0069	0.0006	0.0101	60.47904	0.382		
33505.88	0.0064	0.0007	0.0108	64.67066	0.467		
36413.91	0.0059	0.0008	0.0116	69.46108	0.351		
39578.16	0.0054	0.001	0.0126	75.4491	0.799		
43009.7	0.005	0.0012	0.0138	82.63473	0.906		
46740.94	0.0046	0.0009	0.0147	88.02395	0.487		
50798.81	0.0042	0.0008	0.0155	92.81437	0.474		
55206.38	0.0039	0.0007	0.0162	97.00599	1.314		
59991.51	0.0036	0.0005	0.0167	100	0.493		

RESULT2

Int Pres psia	Pore Dia microns	Inc Int mL/gm	Cum Int mL/gm	Cum Int %PV(bc)	Cum Int %BV	Inc Int %PV(ac)	Cum Int %PV(ac)	Pore Rad microns	W.P. Sat %PV(ac)	Lev "J" Funct.	G/B Pc psia	G/O Pc psia	O/B Pc psia	Ht FWL,ft G/B	Ht FWL,ft O/B	Swanson's Sb/Pc(ac)
5.19	41.1276	0	0	0	0	0	0	20.5638	100	6.04699E-05	0.70584	0.33735	0.42558	1.79055	3.77832	-0.3130718
5.48	38.9035	0	0	0	0	0	0	19.45175	100	6.38487E-05	0.74528	0.3562	0.44936	1.8906	3.98944	-0.29650413
5.83	36.5642	0.0001	0	0.2359	0	0	0	18.2821	100	6.79266E-05	0.79288	0.37895	0.47806	2.01135	4.24424	-0.27870371
6.23	34.2238	0.0001	0.0001	0.6504	0.024997579	0	0	17.1119	100	7.25871E-05	0.84728	0.40495	0.51086	2.14935	4.53544	-0.25679696
6.48	32.8975	0.0001	0.0002	0.993	0.049995158	0	0	16.44875	100	7.54999E-05	0.88128	0.4212	0.53136	2.2356	4.71744	-0.24303202
6.74	31.6736	0	0.0002	1.2237	0.049995158	0	0	15.8368	100	7.85293E-05	0.91664	0.4381	0.55268	2.3253	4.90672	-0.2336569
7.04	30.3222	0.0001	0.0003	1.5404	0.074992737	0	0	15.1611	100	8.20246E-05	0.95744	0.4576	0.57728	2.4288	5.12512	-0.22014913
7.33	29.093	0	0.0003	1.7925	0.074992737	0	0	14.5465	100	8.54035E-05	0.99688	0.47645	0.60106	2.52885	5.33624	-0.21143928
7.58	28.1281	0	0.0003	2.0495	0.074992737	0	0	14.06405	100	8.83163E-05	1.03088	0.4927	0.62156	2.6151	5.51824	-0.20446569
7.83	27.2376	0	0.0004	2.3107	0.099990317	0	0	13.6188	100	9.12291E-05	1.06488	0.50895	0.64206	2.70135	5.70024	-0.19474487
8.18	26.0701	0.0001	0.0005	2.768	0.124987896	0	0	13.03505	100	9.5307E-05	1.11248	0.5317	0.67076	2.8221	5.95504	-0.18335633
8.53	24.997	0	0.0005	2.9966	0.124987896	0	0	12.4985	100	9.93849E-05	1.16008	0.55445	0.69946	2.94285	6.20984	-0.17583291
9.07	23.511	0	0.0006	3.2936	0.149985475	0	0	11.7555	100	0.000105677	1.23352	0.58955	0.74374	3.12915	6.60296	-0.16260829
9.6	22.2171	0.0001	0.0006	3.665	0.149985475	0	0	11.10855	100	0.000111852	1.3056	0.624	0.7872	3.312	6.9888	-0.15363096
10.44	20.4418	0.0001	0.0007	4.2767	0.174983054	0	0	10.2209	100	0.000121639	1.41984	0.6786	0.85608	3.6018	7.60032	-0.13887544
11.34	18.8043	0.0001	0.0008	4.8785	0.199980633	0	0	9.40215	100	0.000132125	1.54224	0.7371	0.92988	3.9123	8.25552	-0.12564921
12.33	17.303	0.0001	0.0009	5.38	0.224978212	0	0	8.6515	100	0.00014366	1.67688	0.80145	1.01106	4.25385	8.97624	-0.11353321
13.4	15.9201	0.0001	0.001	5.9241	0.249975792	0	0	7.96005	100	0.000156126	1.8224	0.871	1.0988	4.623	9.7552	-0.102602
14.56	14.6473	0.0001	0.0011	6.5054	0.274973371	0	0	7.32365	100	0.000169642	1.98016	0.9464	1.19392	5.0232	10.59968	-0.0927108
15.83	13.476	0.0001	0.0012	6.9736	0.29997095	0	0	6.738	100	0.000184439	2.15288	1.02895	1.29806	5.46135	11.52424	-0.08369373
17.2	12.4007	0.0001	0.0012	7.3636	0.29997095	0	0	6.20035	100	0.000200401	2.3392	1.118	1.4104	5.934	12.5216	-0.07702742
18.7	11.4092	0.0001	0.0013	7.9552	0.324968529	0	0	5.7046	100	0.000217878	2.5432	1.2155	1.5334	6.4515	13.6136	-0.06951198
20.32	10.498	0.0001	0.0014	8.4493	0.349966108	0	0	5.249	100	0.000236753	2.76352	1.3208	1.66624	7.0104	14.79296	-0.06273999
22.09	9.659	0.0001	0.0015	8.7753	0.374963687	0	0	4.8295	100	0.000257376	3.00424	1.43585	1.81138	7.62105	16.08152	-0.05658121
24	8.8874	0.0001	0.0015	9.1938	0.374963687	0	0	4.4437	100	0.000279629	3.264	1.56	1.968	8.28	17.472	-0.05207829
26.09	8.1765	0.0001	0.0016	9.6326	0.399961267	0	0	4.08825	100	0.00030398	3.54824	1.69585	2.13938	9.00105	18.99352	-0.04694831
28.96	7.3662	0.0001	0.0017	10.2617	0.424958846	0	0	3.6831	100	0.000337419	3.93856	1.8824	2.37472	9.9912	21.08288	-0.04143245
31.74	6.7217	0.0001	0.0018	10.6551	0.449956425	0	0	3.36085	100	0.00036981	4.31664	2.0631	2.60268	10.9503	23.10672	-0.03701595
34.76	6.1376	0.0001	0.0019	11.1349	0.474954004	0	0	3.0688	100	0.000404997	4.72736	2.2594	2.85032	11.9922	25.30528	-0.0330808
38.06	5.6053	0.0001	0.0019	11.6148	0.474954004	0	0	2.80265	100	0.000443446	5.17616	2.4739	3.12092	13.1307	27.70768	-0.03021252
41.56	5.1333	0.0001	0.002	12.0522	0.499951583	0	0	2.56665	100	0.000484225	5.65216	2.7014	3.40792	14.3322	30.25568	-0.02706668
44.76	4.7654	0	0.0021	12.3455	0.524949162	0	0	2.3827	100	0.000521509	6.08736	2.9094	3.67032	15.4422	32.58528	-0.02457313
49.99	4.2672	0.0001	0.0022	12.956	0.549946742	0	0	2.1336	100	0.000582445	6.79864	3.24935	4.09918	17.24655	36.39272	-0.02150222
54.74	3.8973	0.0001	0.0022	13.423	0.549946742	0	0	1.94865	100	0.000637788	7.44464	3.5581	4.48868	18.8853	39.85072	-0.01963639
60.2	3.5434	0.0001	0.0023	13.7778	0.574944321	0	0	1.7717	100	0.000701404	8.1872	3.913	4.9364	20.769	43.8256	-0.01744017
63.97	3.3347	0.0001	0.0024	14.1444	0.5999419	0	0	1.66735	100	0.000745329	8.69992	4.15805	5.24554	22.06965	46.57016	-0.01602158
70.45	3.0278	0.0001	0.0024	14.4957	0.5999419	0	0	1.5139	100	0.000820829	9.5812	4.57925	5.7769	24.30525	51.2876	-0.01454792
76.74	2.7799	0.0001	0.0025	14.8946	0.624939479	0	0	1.38995	100	0.000894115	10.43664	4.9881	6.29268	26.4753	55.86672	-0.01302975
83.27	2.5618	0.0001	0.0025	15.1973	0.624939479	0	0	1.2809	100	0.000970197	11.32472	5.41255	6.82814	28.72815	60.62056	-0.01200796
90.08	2.3681	0.0001	0.0026	15.6147	0.649937058	0	0	1.18405	100	0.001049542	12.25088	5.8552	7.38656	31.0776	65.57824	-0.01082266
99.25	2.1494	0	0.0027	15.9072	0.674934637	0	0	1.0747	100	0.001156384	13.498	6.45125	8.1385	34.24125	72.254	-0.00957086
106.41	2.0048	0.0001	0.0027	16.2731	0.674934637	0	0	1.0024	100	0.001239807	14.47176	6.91665	8.72562	36.71145	77.46648	-0.00892687
117.57	1.8144	0.0001	0.0028	16.6724	0.699932217	0	0	0.9072	100	0.001369835	15.98952	7.64205	9.64074	40.56165	85.59096	-0.00786689
126.82	1.6821	0	0.0028	16.7659	0.699932217	0	0	0.84105	100	0.001477608	17.24752	8.2433	10.39924	43.7529	92.32496	-0.0072931
137.65	1.5497	0	0.0028	17.0475	0.699932217	0	0	0.77485	100	0.001603791	18.7204	8.94725	11.2873	47.48925	100.2092	-0.00671929
149.5	1.4269	0.0001	0.0029	17.408	0.724929796	0	0	0.71345	100	0.001741858	20.332	9.7175	12.259	51.5775	108.836	-0.00601948
163.16	1.3074	0.0001	0.003	17.7355	0.749927375	0	0	0.6537	100	0.001901014	22.18976	10.6054	13.37912	56.2902	118.7805	-0.00536231
177.5	1.2018	0.0001	0.003	18.1918	0.749927375	0	0	0.6009	100	0.002068092	24.14	11.5375	14.555	61.2375	129.22	-0.0049291
192.08	1.1106	0.0001	0.0031	18.6631	0.774924954	0	0	0.5553	100	0.002237967	26.12288	12.4852	15.75056	66.2676	139.8342	-0.00442481
208.8	1.0217	0	0.0031	18.7025	0.774924954	0	0	0.51085	100	0.002432776	28.3968	13.572	17.1216	72.036	152.0064	-0.00407049
227.44	0.9379	0.0001	0.0032	19.182	0.799922533	0	0	0.46895	100	0.002649955	30.93184	14.7836	18.65008	78.4668	165.5763	-0.00362698
246.42	0.8657	0	0.0033	19.4719	0.824920112	0	0	0.43285	100	0.002871095	33.51312	16.0173	20.20644	85.0149	179.3938	-0.00324618
268.82	0.7935	0.0001	0.0033	19.9317	0.824920112	0	0	0.39675	100	0.003132082	36.55952	17.4733	22.04324	92.7429	195.701	-0.00297568
290.87	0.7334	0.0001	0.0034	20.3227	0.849917691	0	0	0.3667	100	0.003388992	39.55832	18.90655	23.85134	100.3502	211.7534	-0.00266416

RESULT2

318.34	0.6701	0.0001	0.0035	20.8014	0.874915271	0	0	0.33505	100	0.003709051	43.29424	20.6921	26.10388	109.8273	231.7515	-0.00235574
346.3	0.616	0.0001	0.0035	21.1188	0.874915271	0	0	0.308	100	0.004034819	47.0968	22.5095	28.3966	119.4735	252.1064	-0.00216554
374.52	0.5696	0.0001	0.0036	21.5326	0.89991285	0	0	0.2848	100	0.004363617	50.93472	24.3438	30.71064	129.2094	272.6506	-0.00193562
407.12	0.524	0.0001	0.0037	21.9339	0.924910429	0	0	0.262	100	0.004743447	55.36832	26.4628	33.38384	140.4564	296.3834	-0.00171923
442.12	0.4825	0.0001	0.0037	22.357	0.924910429	0	0	0.24125	100	0.00515124	60.12832	28.7378	36.25384	152.5314	321.8634	-0.00158313
480.43	0.444	0.0001	0.0038	22.7158	0.949908008	0	0	0.222	100	0.005597598	65.33848	31.22795	39.39526	165.7484	349.753	-0.00140486
519.95	0.4103	0.0001	0.0039	23.1524	0.974905587	0	0	0.20515	100	0.006058054	70.7132	33.79675	42.6359	179.3828	378.5236	-0.00125
566.78	0.3764	0.0001	0.0039	23.5193	0.974905587	0	0	0.1882	100	0.006603681	77.08208	36.8407	46.47596	195.5391	412.6158	-0.00114672
615.41	0.3466	0.0001	0.004	23.9678	0.999903166	0	0	0.1733	100	0.00717028	83.69576	40.00165	50.46362	212.3165	448.0185	-0.00101548
669.67	0.3186	0.0001	0.0041	24.3201	1.024900746	0	0	0.1593	100	0.007802476	91.07512	43.52855	54.91294	231.0362	487.5198	-0.00089588
726.79	0.2935	0.0001	0.0041	24.7514	1.024900746	0	0	0.14675	100	0.008467994	98.84344	47.24135	59.59678	250.7426	529.1031	-0.00082547
789.38	0.2702	0.0001	0.0042	25.1274	1.049898325	0	0	0.1351	100	0.009197244	107.3557	51.3097	64.72916	272.3361	574.6686	-0.00072835
860.95	0.2478	0.0001	0.0043	25.5152	1.074895904	0	0	0.1239	100	0.010031122	117.0892	55.96175	70.5979	297.0278	626.7716	-0.00063877
935.59	0.228	0.0001	0.0043	25.9303	1.074895904	0	0	0.114	100	0.010900777	127.2402	60.81335	76.71838	322.7786	681.1096	-0.00058781
1015.77	0.21	0	0.0044	26.1306	1.099893483	0	0	0.105	100	0.011834965	138.1447	66.02505	83.29314	350.4407	739.4806	-0.0005168
1106.93	0.1927	0.0001	0.0044	26.5418	1.099893483	0	0	0.09635	100	0.01289709	150.5425	71.95045	90.76826	381.8909	805.845	-0.00047424
1202.01	0.1775	0.0001	0.0046	27.2332	1.149888641	0	0	0.08875	100	0.014004889	163.4734	78.13065	98.56482	414.6935	875.0633	-0.00039513
1304.94	0.1635	0.0001	0.0046	27.6283	1.149888641	0	0	0.08175	100	0.015204149	177.4718	84.8211	107.0051	450.2043	949.9963	-0.00036397
1418.4	0.1504	0.0001	0.0047	27.9371	1.174886221	0	0	0.0752	100	0.016526097	192.9024	92.196	116.3088	489.348	1032.595	-0.00031723
1539.23	0.1386	0.0001	0.0047	28.3108	1.174886221	0	0	0.0693	100	0.017933915	209.3353	100.05	126.2169	531.0344	1120.559	-0.00029233
1675.05	0.1274	0.0001	0.0048	28.6115	1.1998838	0	0	0.0637	100	0.019516384	227.8068	108.8783	137.3541	577.8923	1219.436	-0.0002537
1818.7	0.1173	0.0001	0.0048	28.9791	1.1998838	0	0	0.05865	100	0.021190083	247.3432	118.2155	149.1334	627.4515	1324.014	-0.00023366
1976.03	0.108	0.0001	0.0049	29.3346	1.224881379	0	0	0.054	100	0.02302317	268.7401	128.442	162.0345	681.7304	1438.55	-0.00020241
2151.35	0.0992	0	0.0049	29.5665	1.224881379	0	0	0.0496	100	0.025065863	292.5836	139.8378	176.4107	742.2158	1566.183	-0.00018591
2333.93	0.0914	0.0001	0.005	29.906	1.249878958	0	0	0.0457	100	0.027193143	317.4145	151.7055	191.3823	805.2059	1699.101	-0.00016066
2536.98	0.0841	0.0001	0.0051	30.2423	1.274876537	0	0	0.04205	100	0.029558925	345.0293	164.9037	208.0324	875.2581	1846.921	-0.00013795
2759.25	0.0773	0	0.0051	30.5347	1.274876537	0	0	0.03865	100	0.032148642	375.258	179.3513	226.2585	951.9413	2008.734	-0.00012683
2999.68	0.0711	0.0001	0.0052	30.9016	1.299874116	0	0	0.03555	100	0.034949946	407.9565	194.9792	245.9738	1034.89	2183.767	-0.00010833
3258.01	0.0655	0.0001	0.0052	31.2491	1.299874116	0	0	0.03275	100	0.037959807	443.0894	211.7707	267.1568	1124.013	2371.831	-9.9744E-05
3543.63	0.0602	0.0001	0.0053	31.5739	1.324871696	0	0	0.0301	100	0.04128763	481.9337	230.336	290.5777	1222.552	2579.763	-8.4651E-05
3845.77	0.0555	0.0001	0.0054	32.161	1.349869275	0	0	0.02775	100	0.044807931	523.0247	249.9751	315.3531	1326.791	2799.721	-7.15E-05
4182.97	0.051	0	0.0054	32.4467	1.349869275	0	0	0.0255	100	0.048736724	568.8839	271.8931	343.0035	1443.125	3045.202	-6.5736E-05
4435.86	0.0481	0	0.0055	32.6608	1.374866854	0	0	0.02405	100	0.051683202	603.277	288.3309	363.7405	1530.372	3229.306	-5.6353E-05
4839.06	0.0441	0.0001	0.0055	33.0666	1.374866854	0	0	0.02205	100	0.056380976	658.1122	314.5389	396.8029	1669.476	3522.836	-5.1658E-05
5367.08	0.0397	0.0001	0.0056	33.4793	1.399864433	0	0	0.01985	100	0.062533056	729.9229	348.8602	440.1006	1851.643	3907.234	-4.1918E-05
5832.43	0.0366	0.0001	0.0057	33.894	1.424862012	0	0	0.0183	100	0.067954954	793.2105	379.108	478.2593	2012.188	4246.009	-3.4288E-05
6339.33	0.0337	0.0001	0.0057	34.3071	1.424862012	0	0	0.01685	100	0.07386096	862.1489	412.0565	519.8251	2187.069	4615.032	-3.1546E-05
6890.12	0.031	0	0.0058	34.5873	1.449859591	0	0	0.0155	100	0.080278338	937.0563	447.8578	564.9898	2377.091	5016.007	-2.5396E-05
7487.06	0.0285	0.0001	0.0059	35.1557	1.474857171	0	0	0.01425	100	0.08723342	1018.24	486.6589	613.9389	2583.036	5450.58	-2.0033E-05
8137.51	0.0262	0.0001	0.006	35.6449	1.49985475	0	0	0.0131	100	0.094811959	1106.701	528.9382	667.2758	2807.441	5924.107	-1.5359E-05
8847.11	0.0241	0.0001	0.0061	36.2141	1.524852329	0	0	0.01205	100	0.103079668	1203.207	575.0622	725.463	3052.253	6440.696	-1.1302E-05
9612.85	0.0222	0.0001	0.0061	36.6451	1.524852329	0	0	0.0111	100	0.112001477	1307.348	624.8353	788.2537	3316.433	6998.155	-1.0402E-05
10445.65	0.0204	0.0001	0.0062	37.2104	1.549849908	0	0	0.0102	100	0.121704617	1420.608	678.9673	856.5433	3603.749	7604.433	-7.1793E-06
11352.91	0.0188	0.0001	0.0063	37.8592	1.574847487	0	0	0.0094	100	0.132275308	1543.996	737.9392	930.9386	3916.754	8264.918	-4.4037E-06
12338.04	0.0173	0.0001	0.0064	38.32335329	1.599845066	0	0	0.00865	100	0.143753279	1677.973	801.9726	1011.719	4256.624	8982.093	-2.0261E-06
13408.78	0.0159	0.0001	0.0065	38.92215569	1.624842645	0	0	0.00795	100	0.156228711	1823.594	871.5707	1099.52	4626.029	9761.592	1.656E-06
14574.66	0.0146	0.0002	0.0067	40.11976048	1.674837804	1.960784314	1.960784314	0.0073	98.03921569	0.169812641	1982.154	947.3529	1195.122	5028.258	10610.35	3.4303E-06
15838.6	0.0135	0.0002	0.0069	41.31736527	1.724832962	1.960784314	3.921568627	0.00675	96.07843137	0.184539091	2154.05	1029.509	1298.765	5464.317	11510.55	6.3131E-06
17213.99	0.0124	0.0002	0.0071	42.51497006	1.77482812	1.960784314	5.882352941	0.0062	94.11764706	0.200564069	2341.103	1118.909	1411.547	5938.827	12531.78	8.713E-06
18707.11	0.0114	0.0002	0.0073	43.71257485	1.824823279	1.960784314	7.843137255	0.0057	92.15686275	0.217960746	2544.167	1215.962	1533.983	6453.953	13618.78	1.069E-05
20331.44	0.0105	0.0003	0.0076	45.50898204	1.899816016	2.941176471	10.78431373	0.00525	89.21568627	0.23688618	2765.076	1321.544	1667.178	7014.347	14801.29	1.3525E-05
22099.03	0.0097	0.0004	0.008	47.90419162	1.999806333	3.921568627	14.70588235	0.00485	85.29411765	0.257480769	3005.468	1436.437	1812.12	7624.165	16088.09	1.6967E-05
24018.03	0.0089	0.0004	0.0084	50.2994012	2.09979665	3.921568627	18.62745098	0.00445	81.37254902	0.279839469	3266.452	1561.172	1969.478	8286.22	17485.13	1.9775E-05
26101.5	0.0082	0.0005	0.0089	53.29341317	2.224784545	4.901960784	23.52941176	0.0041	76.47058824	0.304114447	3549.804	1696.598	2140.323	9005.018	19001.89	2.2985E-05
28368.14	0.0075	0.0006	0.0095	56.88622754	2.37477002	5.882352941	29.41176471	0.00375	70.58823529	0.330523579	3858.067	1843.929	2326.187	9787.008	20652.01	2.6436E-05
30829.17	0.0069	0.0006	0.0101	60.47904192	2.524755495	5.882352941	35.29411765	0.00345	64.70588235	0.359197593	4192.767	2003.896	2527.992	10636.06	22443.64	2.919E-05
33505.88	0.0064	0.0007	0.0108	64.67065868	2.699738549	6.862745098	42.15686275	0.0032	57.84313725	0.390384543	4556.8	2177.882	2747.482	11559.53	24392.28	3.2081E-05
36413.91	0.0059	0.0008	0.0116	69.46107784	2.899719183	7.843137255	50	0.00295	50	0.424266655	4952.292	2366.904	2985.941	12562.8	26509.33	3.5011E-05

RESULT2

39578.16	0.0054	0.001	0.0126	75.4491018	3.149694974	9.803921569	59.80392157	0.0027	40.19607843	0.461134043	5382.63	2572.58	3245.409	13654.47	28812.9	3.8528E-05
43009.7	0.005	0.0012	0.0138	82.63473054	3.449665924	11.76470588	71.56862745	0.0025	28.43137255	0.501115688	5849.319	2795.631	3526.795	14838.35	31311.06	4.2428E-05
46740.94	0.0046	0.0009	0.0147	88.0239521	3.674644137	8.823529412	80.39215686	0.0023	19.60784314	0.544589204	6356.768	3038.161	3832.757	16125.62	34027.4	4.3855E-05
50798.81	0.0042	0.0008	0.0155	92.81437126	3.87462477	7.843137255	88.23529412	0.0021	11.76470588	0.59186836	6908.638	3301.923	4165.502	17525.59	36981.53	4.4288E-05
55206.38	0.0039	0.0007	0.0162	97.00598802	4.049607824	6.862745098	95.09803922	0.00195	4.901960784	0.643221949	7508.068	3588.415	4526.923	19046.2	40190.24	4.3922E-05
59991.51	0.0036	0.0005	0.0167	100	4.17459572	4.901960784	100	0.0018	0	0.698974575	8158.845	3899.448	4919.304	20697.07	43673.82	4.2502E-05
																4.4288E-05

AIRMERCURY CAPILLARY PRESSURE DATA : BY PoroTechnology

SRP 2 @ 5680.5ft; Redman Barth #3

MICP Closure(psia) = 13409.

MICP Porosity = 2.55%

MICP Gr. Den.(gm/cc) = 2.566

MICP Bulk Density(gm/cc) = 2.500

MICP-Calc.Air Perm = 0.000017 md

Median Pore Aperture Dia.(microns) = 0.0059

Injection Pressure (psia)	Pore Diameter (microns)	Hg (nwp) Saturation cum%PV	100-Hg(wp) Saturation cum%PV	Leverett "J" Function	Gas/Brine e Pc (psia)	Gas/Oil Pc (psia)	Oil/Brine Pc (psia)	Ht. Above Free Water (ft.) Gas/Brine	Ht. Above Free Water (ft.) Oil/Brine
5.19	41.13	0.0	100.0	0.00	0.71	0.34	0.43	1.8	3.8
5.48	38.90	0.0	100.0	0.00	0.75	0.36	0.45	1.9	4.0
5.83	36.56	0.0	100.0	0.00	0.79	0.38	0.48	2.0	4.2
6.23	34.22	0.0	100.0	0.00	0.85	0.40	0.51	2.1	4.5
6.48	32.90	0.0	100.0	0.00	0.88	0.42	0.53	2.2	4.7
6.74	31.67	0.0	100.0	0.00	0.92	0.44	0.55	2.3	4.9
7.04	30.32	0.0	100.0	0.00	0.96	0.46	0.58	2.4	5.1
7.33	29.09	0.0	100.0	0.00	1.00	0.48	0.60	2.5	5.3
7.58	28.13	0.0	100.0	0.00	1.03	0.49	0.62	2.6	5.5
7.83	27.24	0.0	100.0	0.00	1.06	0.51	0.64	2.7	5.7
8.18	26.07	0.0	100.0	0.00	1.11	0.53	0.67	2.8	6.0
8.53	25.00	0.0	100.0	0.00	1.16	0.55	0.70	2.9	6.2
9.07	23.51	0.0	100.0	0.00	1.23	0.59	0.74	3.1	6.6
9.60	22.22	0.0	100.0	0.00	1.31	0.62	0.79	3.3	7.0
10.44	20.44	0.0	100.0	0.00	1.42	0.68	0.86	3.6	7.6
11.34	18.80	0.0	100.0	0.00	1.54	0.74	0.93	3.9	8.3
12.33	17.30	0.0	100.0	0.00	1.68	0.80	1.01	4.3	9.0
13.40	15.92	0.0	100.0	0.00	1.82	0.87	1.10	4.6	9.8
14.56	14.65	0.0	100.0	0.00	1.98	0.95	1.19	5.0	10.6
15.83	13.48	0.0	100.0	0.00	2.15	1.03	1.30	5.5	11.5
17.20	12.40	0.0	100.0	0.00	2.34	1.12	1.41	5.9	12.5
18.70	11.41	0.0	100.0	0.00	2.54	1.22	1.53	6.5	13.6
20.32	10.50	0.0	100.0	0.00	2.76	1.32	1.67	7.0	14.8
22.09	9.66	0.0	100.0	0.00	3.00	1.44	1.81	7.6	16.1
24.00	8.89	0.0	100.0	0.00	3.26	1.56	1.97	8.3	17.5
26.09	8.18	0.0	100.0	0.00	3.55	1.70	2.14	9.0	19.0
28.96	7.37	0.0	100.0	0.00	3.94	1.88	2.37	10.0	21.1
31.74	6.72	0.0	100.0	0.00	4.32	2.06	2.60	11.0	23.1
34.76	6.138	0.0	100.0	0.00	4.73	2.26	2.85	12.0	25.3
38.06	5.605	0.0	100.0	0.00	5.18	2.47	3.12	13.1	27.7
41.56	5.133	0.0	100.0	0.00	5.65	2.70	3.41	14.3	30.3
44.76	4.765	0.0	100.0	0.00	6.09	2.91	3.67	15.4	32.6
49.99	4.267	0.0	100.0	0.00	6.80	3.25	4.10	17.2	36.4
54.74	3.897	0.0	100.0	0.00	7.44	3.56	4.49	18.9	39.9
60.20	3.543	0.0	100.0	0.00	8.19	3.91	4.94	20.8	43.8
63.97	3.335	0.0	100.0	0.00	8.70	4.16	5.25	22.1	46.6

AIRMERCURY CAPILLARY PRESSURE DATA : BY PoroTechnology

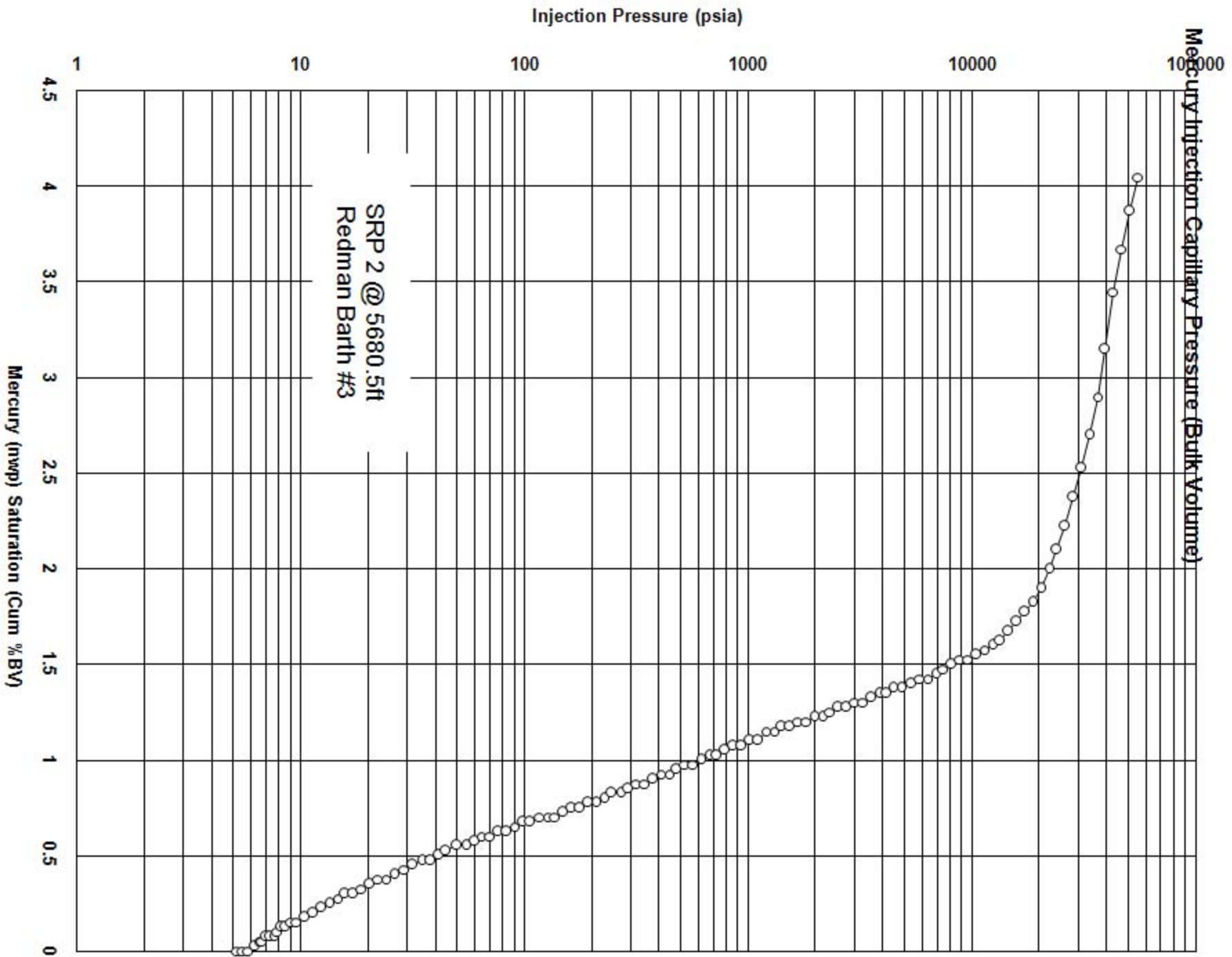
SRP 2 @ 5680.5ft; Redman Barth #3

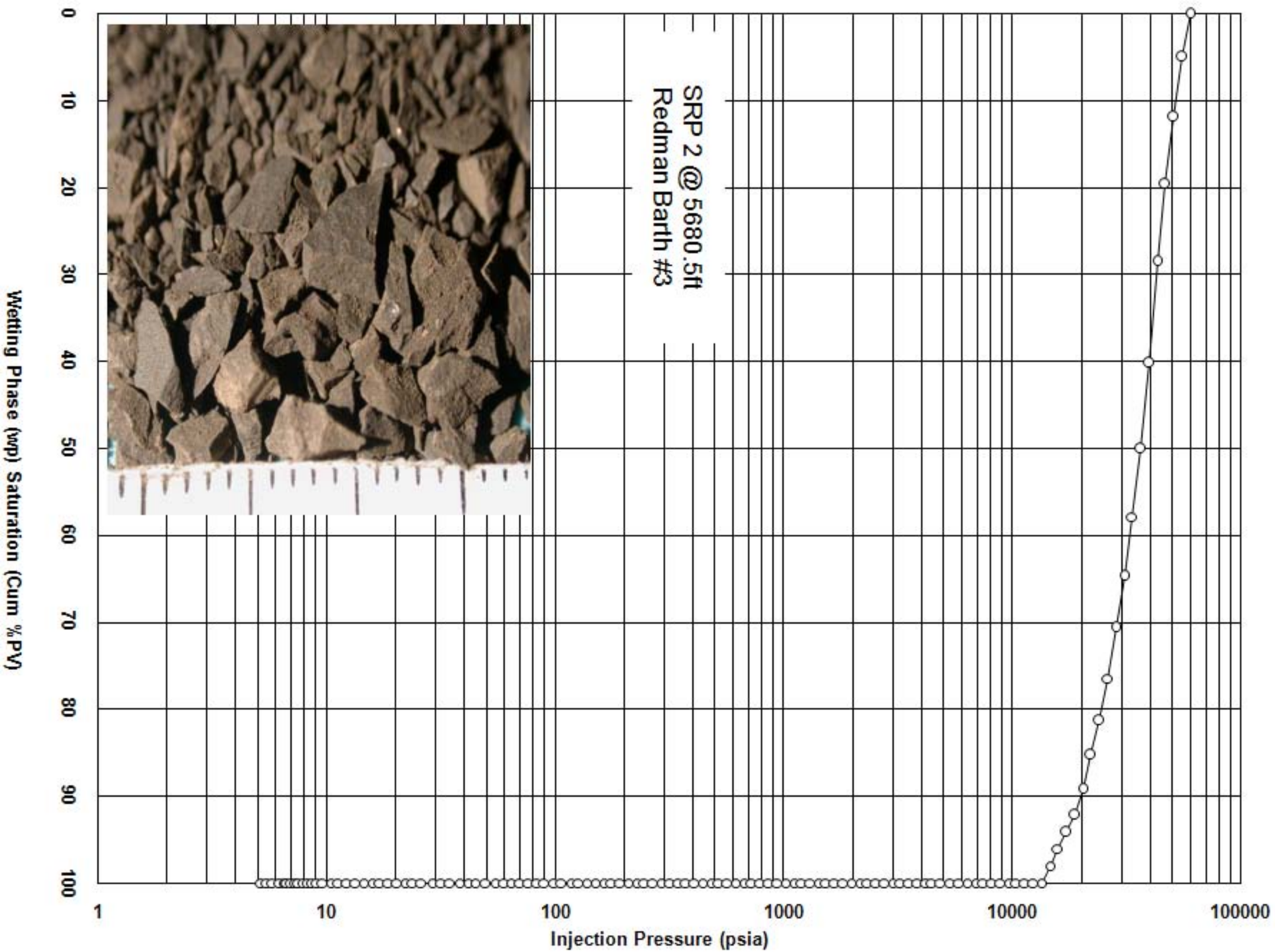
Injection Pressure (psia)	Pore Diameter (microns)	Hg (nwp) Saturation cum%PV	100-Hg(wp) Saturation cum%PV	Leverett "J" Function	Gas/Brine e Pc (psia)	Gas/Oil Pc (psia)	Oil/Brine Pc (psia)	Ht. Above Free Water (ft.) Gas/Brine	Ht. Above Free Water (ft.) Oil/Brine
70.45	3.028	0.0	100.0	0.00	9.58	4.58	5.78	24.3	51.3
76.74	2.780	0.0	100.0	0.00	10.44	4.99	6.29	26.5	55.9
83.27	2.562	0.0	100.0	0.00	11.32	5.41	6.83	28.7	60.6
90.08	2.368	0.0	100.0	0.00	12.25	5.86	7.39	31.1	65.6
99.25	2.149	0.0	100.0	0.00	13.50	6.45	8.14	34.2	72.3
106.41	2.005	0.0	100.0	0.00	14.47	6.92	8.73	36.7	77.5
117.57	1.814	0.0	100.0	0.00	15.99	7.64	9.64	40.6	85.6
126.82	1.682	0.0	100.0	0.00	17.25	8.24	10.40	43.8	92.3
137.65	1.550	0.0	100.0	0.00	18.72	8.95	11.29	47.5	100.2
149.50	1.427	0.0	100.0	0.00	20.33	9.72	12.26	51.6	108.8
163.16	1.307	0.0	100.0	0.00	22.19	10.61	13.38	56.3	118.8
177.50	1.202	0.0	100.0	0.00	24.14	11.54	14.56	61.2	129.2
192.08	1.111	0.0	100.0	0.00	26.12	12.49	15.75	66.3	139.8
208.80	1.022	0.0	100.0	0.00	28.40	13.57	17.12	72.0	152.0
227.44	0.938	0.0	100.0	0.00	30.93	14.78	18.65	78.5	165.6
246.42	0.866	0.0	100.0	0.00	33.51	16.02	20.21	85.0	179
268.82	0.794	0.0	100.0	0.00	36.56	17.47	22.04	92.7	196
290.87	0.733	0.0	100.0	0.00	39.56	18.91	23.85	100.4	212
318.34	0.670	0.0	100.0	0.00	43.29	20.69	26.10	109.8	232
346.30	0.616	0.0	100.0	0.00	47.10	22.51	28.40	119.5	252
374.52	0.570	0.0	100.0	0.00	50.93	24.34	30.71	129	273
407.12	0.524	0.0	100.0	0.00	55.37	26.46	33.38	140	296
442.12	0.483	0.0	100.0	0.01	60.13	28.74	36.25	153	322
480.43	0.444	0.0	100.0	0.01	65.34	31.23	39.40	166	350
519.95	0.410	0.0	100.0	0.01	70.71	33.80	42.64	179	379
566.78	0.376	0.0	100.0	0.01	77.08	36.84	46.48	196	413
615.41	0.347	0.0	100.0	0.01	83.70	40.00	50.46	212	448
669.67	0.319	0.0	100.0	0.01	91.08	43.53	54.91	231	488
726.79	0.294	0.0	100.0	0.01	98.84	47.24	59.60	251	529
789.38	0.270	0.0	100.0	0.01	107.36	51.31	64.73	272	575
860.95	0.248	0.0	100.0	0.01	117.09	55.96	70.60	297	627
935.59	0.228	0.0	100.0	0.01	127.24	60.81	76.72	323	681
1015.77	0.210	0.0	100.0	0.01	138.14	66.03	83.29	350	739
1106.93	0.193	0.0	100.0	0.01	150.54	71.95	90.77	382	806
1202.01	0.178	0.0	100.0	0.01	163.47	78.13	98.56	415	875
1304.94	0.164	0.0	100.0	0.02	177.47	84.82	107.01	450	950
1418.40	0.150	0.0	100.0	0.02	192.90	92.20	116.31	489	1033
1539.23	0.139	0.0	100.0	0.02	209.34	100.05	126.22	531	1121
1675.05	0.127	0.0	100.0	0.02	227.81	108.88	137.35	578	1219
1818.70	0.117	0.0	100.0	0.02	247.34	118.22	149.13	627	1324
1976.03	0.108	0.0	100.0	0.02	268.74	128.44	162.03	682	1439
2151.35	0.099	0.0	100.0	0.03	292.58	139.84	176.41	742	1566
2333.93	0.091	0.0	100.0	0.03	317.41	151.71	191.38	805	1699
2536.98	0.0841	0.0	100.0	0.03	345.03	164.90	208.03	875	1847

AIRMERCURY CAPILLARY PRESSURE DATA : BY PoroTechnology

SRP 2 @ 5680.5ft; Redman Barth #3

Injection Pressure (psia)	Pore Diameter (microns)	Hg (nwp) Saturation cum%PV	100-Hg(wp) Saturation cum%PV	Leverett "J" Function	Gas/Brine e Pc (psia)	Gas/Oil Pc (psia)	Oil/Brine Pc (psia)	Ht. Above Free Water (ft.) Gas/Brine	Ht. Above Free Water (ft.) Oil/Brine
2759.25	0.0773	0.0	100.0	0.03	375.26	179.35	226.26	952	2009
2999.68	0.0711	0.0	100.0	0.03	407.96	194.98	245.97	1035	2184
3258.01	0.0655	0.0	100.0	0.04	443.09	211.77	267.16	1124	2372
3543.63	0.0602	0.0	100.0	0.04	481.93	230.34	290.58	1223	2580
3845.77	0.0555	0.0	100.0	0.04	523.02	249.98	315.35	1327	2800
4182.97	0.0510	0.0	100.0	0.05	568.88	271.89	343.00	1443	3045
4435.86	0.0481	0.0	100.0	0.05	603.28	288.33	363.74	1530	3229
4839.06	0.0441	0.0	100.0	0.06	658.11	314.54	396.80	1669	3523
5367.08	0.0397	0.0	100.0	0.06	729.92	348.86	440.10	1852	3907
5832.43	0.0366	0.0	100.0	0.07	793.21	379.11	478.26	2012	4246
6339.33	0.0337	0.0	100.0	0.07	862.15	412.06	519.83	2187	4615
6890.12	0.0310	0.0	100.0	0.08	937.06	447.86	564.99	2377	5016
7487.06	0.0285	0.0	100.0	0.09	1018.24	486.66	613.94	2583	5451
8137.51	0.0262	0.0	100.0	0.09	1106.70	528.94	667.28	2807	5924
8847.11	0.0241	0.0	100.0	0.10	1203.21	575.06	725.46	3052	6441
9612.85	0.0222	0.0	100.0	0.11	1307.35	624.84	788.25	3316	6998
10445.65	0.0204	0.0	100.0	0.12	1420.61	678.97	856.54	3604	7604
11352.91	0.0188	0.0	100.0	0.13	1544.00	737.94	930.94	3917	8265
12338.04	0.0173	0.0	100.0	0.14	1677.97	801.97	1011.72	4257	8982
13408.78	0.0159	0.0	100.0	0.16	1823.59	871.57	1099.52	4626	9762
14574.66	0.0146	2.0	98.0	0.17	1982.15	947.35	1195.12	5028	10610
15838.60	0.0135	3.9	96.1	0.18	2154.05	1029.51	1298.77	5464	11531
17213.99	0.0124	5.9	94.1	0.20	2341.10	1118.91	1411.55	5939	12532
18707.11	0.0114	7.8	92.2	0.22	2544.17	1215.96	1533.98	6454	13619
20331.44	0.0105	10.8	89.2	0.24	2765.08	1321.54	1667.18	7014	14801
22099.03	0.0097	14.7	85.3	0.26	3005.47	1436.44	1812.12	7624	16088
24018.03	0.0089	18.6	81.4	0.28	3266.45	1561.17	1969.48	8286	17485
26101.50	0.0082	23.5	76.5	0.30	3549.80	1696.60	2140.32	9005	19002
28368.14	0.0075	29.4	70.6	0.33	3858.07	1843.93	2326.19	9787	20652
30829.17	0.0069	35.3	64.7	0.36	4192.77	2003.90	2527.99	10636	22444
33505.88	0.0064	42.2	57.8	0.39	4556.80	2177.88	2747.48	11560	24392
36413.91	0.0059	50.0	50.0	0.42	4952.29	2366.90	2985.94	12563	26509
39578.16	0.0054	59.8	40.2	0.46	5382.63	2572.58	3245.41	13654	28813
43009.70	0.0050	71.6	28.4	0.50	5849.32	2795.63	3526.80	14838	31311
46740.94	0.0046	80.4	19.6	0.54	6356.77	3038.16	3832.76	16126	34027
50798.81	0.0042	88.2	11.8	0.59	6908.64	3301.92	4165.50	17526	36982
55206.38	0.0039	95.1	4.9	0.64	7508.07	3588.41	4526.92	19046	40190
59991.51	0.0036	100.0	0.0	0.70	8158.85	3899.45	4919.30	20697	43674







TEST3

Porotech	60000psia	/Hg Capilla	Pressure				
AutoPore I	500 V1.05.	Serial: 2	78	Port: 1/1		Page 1	
Sample ID	SRP # 3 ; Edman Barth #3						
Operator:	Porotechngy						
Submitter:	Dolan Intecation Gp						
File:	C:\9500\DA\010-156.SMP						
LP Analysis	ime: 1/7/2010	9:33:08AM	Sample We	ht: 5.400 g			
HP Analysis	ime: 1/7/2010	11:56:45AM	Correctio	n Type: Blank			
Report Tim	1/7/2010 2:	18:32PM	ow Neg. In	: No			
Summary Report							
Penetrome	07-0803 P	EN					
Pen. Cons:	11.007	μL/pF		Pen. Weigl	56.7580	g	
Stem Volum	0.392	mL	M	ax. Head Fure:	4.4500	psia	
Pen. Volum	5.901	mL	A	ssembly W:	113.0140	g	
Adv. Conta	Angle:	140 00	degrees	Rec. (tact Angle:	130.000	degrees	
Hg Surface	ension:	480 00	dynes/cm	Hg lsity:	13.5335	g/mL	
Evacuatio	essure:	50	μmHg				
Evacuatio	me:	10	mins				
Mercury Fi	ng Pressure:	4.92	ps a				
Equilibratic	Rate:	0.003	μ L/g/s				
Equilibratic	Rate:	0.002	μL/ g/s				
Blank Corr	on Sample	\9220DATA\A1\SD006		MP			
Blank Corr	on ID:	Fn 07-0822	nk File(Qtz)				

TEST3

Total Intrusion Volume =		0.0156	m	L/g		
Total Pore Area =	4.4	55	m ² /g			
Median Pore Diameter (V _e) =			0.0178	μm		
Median Pore Diameter (A _r) =		0	0.0066	μm		
Average Pore Diameter (d _v) =			0.014	μm		
Bulk Density at 4.92 psia =			2.523	g/mL		
Apparent (Metal) Density =		2	0.6265	g/mL		
Porosity =	3.939	1	%			
Stem Volume =		22	% ****			
Porotech	60000psia /Hg Capilla	Pressure				
AutoPore IV 500 V1.05.	Serial: 2	78		Port: 1/1	Page 1	
Sample ID	SRP # 3 ; Idman Barth #3					
Operator:	Porotech					
Submitter:	Dolan Integration Gp					
File:	C:\9500\DATA\010-156.SMP					
LP Analysis Time:	1/7/2010 9:33:08AM	Sample Weight:	5.400 g			
HP Analysis Time:	1/7/2010 11:56:45AM	Correction Type:	Blank			
Report Time:	1/7/2010 2:18:32PM	Flow Neg. In:	No			
	Tab	ular Report				
	Incremental	Cumulative				
Pressure (psia)	Pore Diameter (μm)	Pore Volume (mL/g)	Pore Volume (mL/g)	% of Total Pore Volume	Incremental Pore Area (m ² /g)	

4.92	43.3182	0	0	0	0	
5.19	41.1364	0.0001	0.0001	0.5487	0	
5.48	38.8988	0.0001	0.0002	1.0059	0	
5.84	36.5551	0.0001	0.0002	1.5545	0	
6.24	34.2123	0.0001	0.0003	2.1489	0	
6.48	32.8979	0.0001	0.0004	2.6061	0	
6.73	31.6827	0	0.0005	2.9262	0	
7.03	30.3283	0.0001	0.0005	3.3377	0	
7.33	29.0919	0.0001	0.0006	3.7492	0	
7.58	28.1316	0	0.0006	4.0464	0	

TEST3

7.83	27.2355	0.0001	0.0007	4.435	0		
8.18	26.0687	0.0001	0.0007	4.8008	0		
8.53	24.9949	0.0001	0.0008	5.1894	0		
9.07	23.5075	0.0001	0.0009	5.8295	0		
9.6	22.2158	0.0001	0.001	6.2639	0		
10.44	20.4406	0.0001	0.0011	7.0183	0		
11.34	18.8091	0.0001	0.0012	7.727	0		
12.33	17.3045	0.0001	0.0013	8.4128	0		
13.4	15.9206	0.0001	0.0014	9.0529	0		
14.56	14.6489	0.0001	0.0015	9.693	0		
15.83	13.4767	0.0001	0.0016	10.3102	0		
17.2	12.4008	0.0001	0.0017	10.9503	0		
18.7	11.4088	0.0001	0.0018	11.5219	0		
20.32	10.4975	0.0001	0.0019	12.0934	0		
22.09	9.658	0.0001	0.002	12.6878	0		
24	8.8873	0.0001	0.0021	13.2593	0		
26.09	8.1756	0.0001	0.0022	13.7851	0		
28.96	7.3664	0.0001	0.0023	14.4252	0		
31.74	6.7213	0.0001	0.0023	15.0424	0		
34.76	6.1374	0.0001	0.0024	15.614	0		
38.06	5.6053	0.0001	0.0025	16.2541	0		
41.56	5.1333	0.0001	0.0026	16.8713	0		
45.95	4.6425	0.0001	0.0027	17.2806	0		
50.12	4.2564	0.0001	0.0028	17.7727	0		
54.07	3.945	0.0001	0.0028	18.1519	0		
59.34	3.5952	0.0001	0.0029	18.7132	0		
64.7	3.2973	0.0001	0.003	19.2451	0		
69.92	3.0508	0.0001	0.0031	19.6247	0		
75.91	2.8101	0.0001	0.0032	20.2113	0		
82.82	2.5759	0.0001	0.0032	20.5416	0		
90.77	2.3501	0.0001	0.0033	21.3137	0		
98.85	2.1581	0	0.0034	21.6147	0		
107.62	1.9822	0.0001	0.0035	22.1526	0		
116.65	1.8287	0.0001	0.0035	22.5946	0		
126.56	1.6856	0.0001	0.0036	23.1128	0		
137.33	1.5533	0.0001	0.0037	23.6461	0		
149.66	1.4254	0.0001	0.0038	24.1285	0		
161.82	1.3182	0.0001	0.0038	24.562	0		
177.03	1.205	0.0001	0.0039	25.2868	0		
192.29	1.1094	0.0001	0.004	25.7287	0		
207.34	1.0289	0.0001	0.0041	26.2094	0		
226.39	0.9423	0.0001	0.0042	26.7747	0		
247.18	0.863	0.0001	0.0043	27.4542	0		
266.29	0.8011	0.0001	0.0043	27.8472	0		
290.84	0.7335	0.0001	0.0044	28.459	0		
315.99	0.6751	0.0001	0.0045	28.9767	0		
342.26	0.6233	0.0001	0.0046	29.5478	0.001		

TEST3

373.81	0.5707	0.0001	0.0047	30.2088	0.001			
407.18	0.5239	0.0001	0.0048	30.9126	0.001			
441.59	0.4831	0.0001	0.0049	31.4219	0.001			
482.61	0.442	0.0001	0.005	32.0651	0.001			
524.26	0.4069	0.0001	0.0051	32.7226	0.001			
567.29	0.376	0.0001	0.0052	33.2857	0.001			
615.93	0.3463	0.0001	0.0053	33.9358	0.001			
671.25	0.3178	0.0001	0.0054	34.4938	0.001			
726.47	0.2936	0.0001	0.0055	35.1524	0.001			
789.92	0.2701	0.0001	0.0056	35.8179	0.001			
858.98	0.2483	0.0001	0.0057	36.3748	0.001			
935.95	0.2279	0.0001	0.0058	36.9775	0.002			
1016.78	0.2098	0.0001	0.0059	37.5834	0.002			
1105.11	0.193	0.0001	0.006	38.1501	0.002			
1201.18	0.1776	0.0001	0.006	38.6333	0.002			
1303.91	0.1636	0.0001	0.0061	39.1824	0.002			
1416.84	0.1506	0.0001	0.0062	39.6634	0.002			
1539	0.1386	0.0001	0.0063	40.1184	0.002			
1674.57	0.1274	0.0001	0.0063	40.6304	0.002			
1820.01	0.1172	0.0001	0.0064	41.0299	0.002			
1979.9	0.1077	0.0001	0.0065	41.5494	0.003			
2147.94	0.0993	0.0001	0.0065	41.8786	0.002			
2334.15	0.0914	0.0001	0.0066	42.3423	0.003			
2536.75	0.0841	0.0001	0.0067	42.7121	0.003			
2757.49	0.0774	0.0001	0.0067	43.1828	0.004			
2995.16	0.0712	0	0.0068	43.4361	0.002			
3255.63	0.0655	0.0001	0.0068	43.8495	0.004			
3543.13	0.0602	0.0001	0.0069	44.1849	0.003			
3850.3	0.0554	0.0001	0.007	44.5601	0.004			
4181.35	0.051	0.0001	0.007	44.9255	0.004			
4439.69	0.048	0	0.0071	45.1763	0.003			
4838.87	0.0441	0.0001	0.0071	45.5199	0.005			
5367.15	0.0397	0.0001	0.0072	45.9143	0.006			
5833	0.0366	0.0001	0.0072	46.401	0.008			
6340.86	0.0336	0.0001	0.0073	46.8	0.007			
6890.45	0.031	0	0.0073	47.0452	0.005			
7488.24	0.0285	0	0.0074	47.1356	0.002			
8139.15	0.0262	0.0001	0.0074	47.5734	0.01			
8845.07	0.0241	0.0001	0.0075	48.1291	0.014			
9610.44	0.0222	0.0001	0.0076	48.4977	0.01			
10447.01	0.0204	0.0001	0.0077	49.35897	0.015			
11352.98	0.0188	0.0001	0.0077	49.35897	0.019			
12338.03	0.0173	0.0001	0.0078	50	0.02			
13410.58	0.0159	0.0001	0.0079	50.64103	0.032			
14573.05	0.0146	0.0002	0.0081	51.92308	0.043			
15839.36	0.0135	0.0002	0.0083	53.20513	0.046			
17214.43	0.0124	0.0003	0.0086	55.12821	0.111			

TEST3

18707.61	0.0114	0.0004	0.009	57.69231	0.07			
20333.7	0.0105	0.0005	0.0095	60.89744	0.251			
22098.99	0.0097	0.0005	0.01	64.10256	0.223			
24017.94	0.0089	0.0006	0.0106	67.94872	0.259			
26104.72	0.0082	0.0006	0.0112	71.79487	0.415			
28368.24	0.0075	0.0007	0.0119	76.28205	0.168			
30830.11	0.0069	0.0007	0.0126	80.76923	0.202			
33505.71	0.0064	0.0006	0.0132	84.61538	0.685			
36413.8	0.0059	0.0005	0.0137	87.82051	0.262			
39573.93	0.0054	0.0004	0.0141	90.38462	0.323			
43008.79	0.005	0.0003	0.0144	92.30769	0.195			
46740.82	0.0046	0.0004	0.0148	94.87179	0.452			
50797.43	0.0042	0.0003	0.0151	96.79487	0.065			
55205.96	0.0039	0.0002	0.0153	98.07692	0.433			
59990.79	0.0036	0.0003	0.0156	100	0.029			

RESULT3

Int Pres psia	Pore Dia microns	Inc Int mL/gm	Cum Int mL/gm	Cum Int %PV(bc)	Cum Int %BV	Inc Int %PV(ac)	Cum Int %PV(ac)	Pore Rad microns	W.P. Sat %PV(ac)	Lev "J" Funct.	G/B Pc psia	G/O Pc psia	O/B Pc psia	Ht FWL,ft G/B	Ht FWL,ft O/B	Swanson's Sb/Pc(ac)
5.19	41.1364	0.0001	0.0001	0.5487	0.025742433	0	0	20.5682	100	6.44611E-05	0.70584	0.33735	0.42558	1.79055	3.77832	-0.38688049
5.48	38.8988	0.0001	0.0002	1.0059	0.051484866	0	0	19.4494	100	6.8063E-05	0.74528	0.3562	0.44936	1.8906	3.98944	-0.36170937
5.84	36.5551	0.0001	0.0002	1.5545	0.051484866	0	0	18.27755	100	7.25342E-05	0.79424	0.3796	0.47888	2.0148	4.25152	-0.33941221
6.24	34.2123	0.0001	0.0003	2.1489	0.077227299	0	0	17.10615	100	7.75023E-05	0.84864	0.4056	0.51168	2.1528	4.54272	-0.31352963
6.48	32.8979	0.0001	0.0004	2.6061	0.102969732	0	0	16.44895	100	8.04832E-05	0.88128	0.4212	0.53136	2.2356	4.71744	-0.29794483
6.73	31.6827	0	0.0005	2.9262	0.128712164	0	0	15.84135	100	8.35883E-05	0.91528	0.43745	0.55186	2.32185	4.89944	-0.28305201
7.03	30.3283	0.0001	0.0005	3.3377	0.128712164	0	0	15.16415	100	8.73143E-05	0.95608	0.45695	0.57646	2.42535	5.11784	-0.27097298
7.33	29.0919	0.0001	0.0006	3.7492	0.154454597	0	0	14.54595	100	9.10404E-05	0.99688	0.47645	0.60106	2.52885	5.33624	-0.25637075
7.58	28.1316	0	0.0006	4.0464	0.154454597	0	0	14.0658	100	9.41455E-05	1.03088	0.4927	0.62156	2.6151	5.51824	-0.24791525
7.83	27.2355	0.0001	0.0007	4.4335	0.18019703	0	0	13.61775	100	9.72505E-05	1.06488	0.50895	0.64206	2.70135	5.70024	-0.23671203
8.18	26.0687	0.0001	0.0007	4.8008	0.18019703	0	0	13.03435	100	0.000101598	1.11248	0.5317	0.67076	2.8221	5.95504	-0.22658376
8.53	24.9949	0.0001	0.0008	5.1894	0.205939463	0	0	12.49745	100	0.000105945	1.16008	0.55445	0.69946	2.94285	6.20984	-0.21426878
9.07	23.5075	0.0001	0.0009	5.8295	0.231681896	0	0	11.75375	100	0.000112652	1.23352	0.58955	0.74374	3.12915	6.60296	-0.19867368
9.6	22.2158	0.0001	0.001	6.2639	0.257424329	0	0	11.1079	100	0.000119234	1.3056	0.624	0.7872	3.312	6.9888	-0.18502374
10.44	20.4406	0.0001	0.0011	7.0183	0.283166762	0	0	10.2203	100	0.000129667	1.41984	0.6786	0.85608	3.6018	7.60032	-0.16767102
11.34	18.8091	0.0001	0.0012	7.727	0.308909195	0	0	9.40455	100	0.000140846	1.54224	0.7371	0.92988	3.9123	8.25552	-0.15209374
12.33	17.3045	0.0001	0.0013	8.4128	0.334651628	0	0	8.65225	100	0.000153142	1.67688	0.80145	1.01106	4.25385	8.97624	-0.13779404
13.4	15.9206	0.0001	0.0014	9.0529	0.360394061	0	0	7.9603	100	0.000166431	1.8224	0.871	1.0988	4.623	9.7552	-0.12487001
14.56	14.6489	0.0001	0.0015	9.693	0.386136493	0	0	7.32445	100	0.000180839	1.98016	0.9464	1.19392	5.0232	10.59968	-0.11315355
15.83	13.4767	0.0001	0.0016	10.3102	0.411878926	0	0	6.73835	100	0.000196613	2.15288	1.02895	1.29806	5.46135	11.5224	-0.10244935
17.2	12.4008	0.0001	0.0017	10.9503	0.437621359	0	0	6.2004	100	0.000213628	2.3392	1.118	1.4104	5.934	12.5216	-0.09279249
18.7	11.4088	0.0001	0.0018	11.5219	0.463363792	0	0	5.7044	100	0.000232259	2.5432	1.2155	1.5334	6.4515	13.6136	-0.08397264
20.32	10.4975	0.0001	0.0019	12.0934	0.489106225	0	0	5.24875	100	0.000252379	2.76352	1.3208	1.66624	7.0104	14.79296	-0.07601112
22.09	9.658	0.0001	0.002	12.6878	0.514848658	0	0	4.829	100	0.000274363	3.00424	1.43585	1.81138	7.62105	16.08152	-0.06875525
24	8.8873	0.0001	0.0021	13.2593	0.540591091	0	0	4.44365	100	0.000298086	3.264	1.56	1.968	8.28	17.472	-0.06221088
26.09	8.1756	0.0001	0.0022	13.7851	0.566333524	0	0	4.0878	100	0.000324044	3.54824	1.69585	2.13938	9.00105	18.99352	-0.05624065
28.96	7.3664	0.0001	0.0023	14.4252	0.592075957	0	0	3.6832	100	0.00035969	3.93856	1.8824	2.37472	9.9912	21.08288	-0.04977819
31.74	6.7213	0.0001	0.0023	15.0424	0.592075957	0	0	3.36065	100	0.000394219	4.31664	2.0631	2.60268	10.9503	23.10672	-0.04541828
34.76	6.1374	0.0001	0.0024	15.614	0.617818389	0	0	3.0687	100	0.000431728	4.72736	2.2594	2.85032	11.9922	25.30528	-0.0407317
38.06	5.6053	0.0001	0.0025	16.2541	0.643560822	0	0	2.80265	100	0.000472715	5.17616	2.4739	3.12092	13.1307	27.70768	-0.03652368
41.56	5.1333	0.0001	0.0026	16.8713	0.669303255	0	0	2.56665	100	0.000516185	5.65216	2.7014	3.40792	14.3382	30.25688	-0.03282842
45.95	4.6425	0.0001	0.0027	17.2806	0.695045688	0	0	2.32125	100	0.00057071	6.2492	2.98675	3.7679	15.85275	33.4516	-0.02913181
50.12	4.2564	0.0001	0.0028	17.7727	0.720788121	0	0	2.1282	100	0.000622503	6.81632	3.2578	4.10984	17.2914	36.48736	-0.02619441
54.07	3.945	0.0001	0.0028	18.1519	0.720788121	0	0	1.9725	100	0.000671563	7.35352	3.51455	4.43374	18.65415	39.36296	-0.02428082
59.34	3.5952	0.0001	0.0029	18.7132	0.746530554	0	0	1.7976	100	0.000737017	8.07024	3.8571	4.86588	20.4723	43.19952	-0.02169062
64.7	3.2973	0.0001	0.003	19.2451	0.772272987	0	0	1.64865	100	0.00080359	8.7992	4.2055	5.3054	22.3215	47.1016	-0.01949581
69.92	3.0508	0.0001	0.0031	19.6247	0.79801542	0	0	1.5254	100	0.000868424	9.50912	4.5448	5.73344	24.1224	50.90176	-0.01767215
75.91	2.8101	0.0001	0.0032	20.2113	0.823757853	0	0	1.40505	100	0.000942821	10.32376	4.93415	6.22462	26.18895	55.26248	-0.01593854
82.82	2.5759	0.0001	0.0032	20.5416	0.823757853	0	0	1.28795	100	0.001028645	11.26352	5.3833	6.79124	28.5729	60.29296	-0.01460872
90.77	2.3501	0.0001	0.0033	21.3137	0.849500286	0	0	1.17505	100	0.001127386	12.34472	5.90005	7.44314	31.31565	66.08056	-0.01304563
98.85	2.1581	0	0.0034	21.6147	0.875242718	0	0	1.07905	100	0.001227741	13.4436	6.42525	8.1057	34.10325	71.9628	-0.01171886
107.62	1.9822	0.0001	0.0035	22.1526	0.900985151	0	0	0.9911	100	0.001336667	14.63632	6.9953	8.82484	37.1289	78.34736	-0.01052469
116.65	1.8287	0.0001	0.0035	22.5946	0.900985151	0	0	0.91435	100	0.001448822	15.8644	7.58225	9.5653	40.24425	84.9212	-0.00970996
126.56	1.6856	0.0001	0.0036	23.1128	0.926727584	0	0	0.8428	100	0.001571907	17.21216	8.2264	10.37792	43.6632	92.13568	-0.00874624
137.33	1.5533	0.0001	0.0037	23.6461	0.952470017	0	0	0.77665	100	0.001705673	18.67688	8.92645	11.26106	47.37885	99.97624	-0.00787288
149.66	1.4254	0.0001	0.0038	24.1285	0.97821245	0	0	0.7127	100	0.001858814	20.35376	9.7279	12.27212	51.6327	108.9525	-0.00705225
161.82	1.3182	0.0001	0.0038	24.562	0.97821245	0	0	0.6591	100	0.002009844	22.00752	10.5183	13.26924	55.8279	117.805	-0.00652231
177.03	1.205	0.0001	0.0039	25.2868	1.003954883	0	0	0.6025	100	0.002198756	24.07608	11.50695	14.51646	61.07535	128.8778	-0.00581651
192.29	1.1094	0.0001	0.004	25.7287	1.029697316	0	0	0.5547	100	0.002388289	26.15144	12.49885	15.76778	66.34005	139.9871	-0.00522105
207.34	1.0289	0.0001	0.0041	26.2094	1.055439749	0	0	0.51445	100	0.002575214	28.19824	13.4771	17.00188	71.5323	150.9435	-0.00471791
226.39	0.9423	0.0001	0.0042	26.7747	1.081182182	0	0	0.47115	100	0.002811182	30.78904	14.71535	18.56398	78.10455	164.8119	-0.00420721
247.18	0.863	0.0001	0.0043	27.4542	1.106924615	0	0	0.4315	100	0.003070037	33.61648	16.0667	20.26876	85.2771	179.947	-0.0037492
266.29	0.8011	0.0001	0.0043	27.8472	1.106924615	0	0	0.40055	100	0.003307388	36.21544	17.30885	21.83578	91.87005	193.8591	-0.00348014
290.84	0.7335	0.0001	0.0044	28.459	1.132667047	0	0	0.36675	100	0.003612305	39.55424	18.9046	23.84888	100.3398	211.7315	-0.00309787

RESULT3

315.99	0.6751	0.0001	0.0045	28.9767	1.15840948	0	0	0.33755	100	0.003924674	42.97464	20.53935	25.91118	109.0166	230.0407	-0.00276984
342.26	0.6233	0.0001	0.0046	29.5478	1.184151913	0	0	0.31165	100	0.004250954	46.54736	22.2469	28.06532	118.0797	249.1653	-0.00248203
373.81	0.5707	0.0001	0.0047	30.2088	1.209894346	0	0	0.28535	100	0.004642813	50.83816	24.29765	30.65242	128.9645	272.1337	-0.00220368
407.18	0.5239	0.0001	0.0048	30.9126	1.235636779	0	0	0.26195	100	0.005057276	55.37648	26.4667	33.38876	140.4771	296.4277	-0.001959886
441.59	0.4831	0.0001	0.0049	31.4219	1.261379212	0	0	0.24155	100	0.005484657	60.05624	28.70335	36.21038	152.3486	321.4775	-0.00174885
482.61	0.442	0.0001	0.005	32.0651	1.287121645	0	0	0.221	100	0.005994136	65.63496	31.36965	39.57402	166.5005	351.3401	-0.00154686
524.26	0.4069	0.0001	0.0051	32.7226	1.312864078	0	0	0.20345	100	0.006511439	71.29936	34.0769	42.98932	180.8697	381.6613	-0.00137487
567.29	0.376	0.0001	0.0052	33.2857	1.338606511	0	0	0.188	100	0.007045882	77.15144	36.87385	46.51778	195.7151	412.9871	-0.0012252
615.93	0.3463	0.0001	0.0053	33.9358	1.364348943	0	0	0.17315	100	0.007650003	83.76648	40.03545	50.50626	212.4959	448.397	-0.00108665
671.25	0.3178	0.0001	0.0054	34.4938	1.390091376	0	0	0.1589	100	0.008337091	91.29	43.63125	55.0425	231.5813	488.67	-0.00095875
726.47	0.2936	0.0001	0.0055	35.1524	1.415833809	0	0	0.1468	100	0.009022937	98.79992	47.22055	59.57054	250.6322	528.8702	-0.00085044
789.92	0.2701	0.0001	0.0056	35.8179	1.441576242	0	0	0.13505	100	0.009811002	107.4291	51.3448	64.77344	272.5224	575.0618	-0.00074954
858.98	0.2483	0.0001	0.0057	36.3748	1.467318675	0	0	0.12415	100	0.010668744	116.8213	55.8337	70.43636	296.3481	625.3374	-0.00065931
935.95	0.2279	0.0001	0.0058	36.9775	1.493061108	0	0	0.11395	100	0.011624731	127.2892	60.83675	76.7479	322.9028	681.3716	-0.00057759
1016.78	0.2098	0.0001	0.0059	37.5834	1.518803541	0	0	0.1049	100	0.012628659	138.2821	66.0907	83.37596	350.7891	740.2158	-0.00050635
1105.11	0.193	0.0001	0.006	38.1501	1.544545974	0	0	0.0965	100	0.01372574	150.295	71.83215	90.61902	381.263	804.5201	-0.00044259
1201.18	0.1776	0.0001	0.006	38.6333	1.544545974	0	0	0.0888	100	0.014918953	163.3605	78.0767	98.49676	414.4071	874.459	-0.00040719
1303.91	0.1636	0.0001	0.0061	39.1824	1.570288407	0	0	0.0818	100	0.016194885	177.3318	84.75415	106.9206	449.849	949.2465	-0.00035536
1416.84	0.1506	0.0001	0.0062	39.6634	1.59603084	0	0	0.0753	100	0.017597503	192.6902	92.0946	116.1809	488.8098	1031.46	-0.00030887
1539	0.1386	0.0001	0.0063	40.1184	1.621773272	0	0	0.0693	100	0.019114761	209.304	100.035	126.198	530.955	1120.392	-0.00026763
1674.57	0.1274	0.0001	0.0063	40.6304	1.621773272	0	0	0.0637	100	0.020798574	227.7415	108.8471	137.3147	577.7267	1219.987	-0.00024596
1820.01	0.1172	0.0001	0.0064	41.0299	1.647515705	0	0	0.0586	100	0.022604975	247.5214	118.3007	149.2408	627.9035	1324.967	-0.00021216
1979.9	0.1077	0.0001	0.0065	41.5494	1.673258138	0	0	0.05385	100	0.024590848	269.2664	128.6935	162.3518	683.0655	1441.367	-0.00018203
2147.94	0.0993	0.0001	0.0065	41.8786	1.673258138	0	0	0.04965	100	0.026677946	292.1198	139.6161	176.1311	741.0393	1563.7	-0.00016779
2334.15	0.0914	0.0001	0.0066	42.3423	1.699000571	0	0	0.0457	100	0.028990721	317.4444	151.7198	191.4003	805.2818	1699.261	-0.00014337
2536.75	0.0841	0.0001	0.0067	42.7121	1.724743004	0	0	0.04205	100	0.031507063	344.998	164.8888	208.0135	875.1788	1846.754	-0.00012177
2757.49	0.0774	0.0001	0.0067	43.1828	1.724743004	0	0	0.0387	100	0.034248708	375.0186	179.2369	226.1142	951.3341	2007.453	-0.00011203
2995.16	0.0712	0	0.0068	43.4361	1.750485437	0	0	0.0356	100	0.037200628	407.3418	194.6854	245.6031	1033.33	2180.476	-9.4541E-05
3255.63	0.0655	0.0001	0.0068	43.8495	1.750485437	0	0	0.03275	100	0.04043573	442.7657	211.616	266.9617	1123.192	2370.099	-8.6978E-05
3543.13	0.0602	0.0001	0.0069	44.1849	1.77622787	0	0	0.0301	100	0.044006551	481.8657	230.3035	290.5367	1222.38	2579.399	-7.2654E-05
3850.3	0.0554	0.0001	0.007	44.5601	1.801970303	0	0	0.0277	100	0.047821679	523.6408	250.2695	315.7246	1328.354	2803.018	-6.0172E-05
4181.35	0.051	0.0001	0.007	44.9255	1.801970303	0	0	0.0255	100	0.051933402	568.6636	271.7878	342.8707	1442.566	3044.023	-5.5408E-05
4439.69	0.048	0	0.0071	45.1763	1.827712736	0	0	0.024	100	0.055142049	603.7978	288.5799	364.0546	1531.693	3232.094	-4.6386E-05
4838.87	0.0441	0.0001	0.0071	45.5199	1.827712736	0	0	0.02205	100	0.060099963	658.0863	314.5266	396.7873	1669.41	3522.697	-4.2559E-05
5367.15	0.0397	0.0001	0.0072	45.9143	1.853455168	0	0	0.01985	100	0.066661331	729.9324	348.8648	440.1063	1851.667	3907.285	-3.3574E-05
5833	0.0366	0.0001	0.0072	46.401	1.853455168	0	0	0.0183	100	0.072447304	793.288	379.145	478.306	2012.385	4246.424	-3.0893E-05
6340.86	0.0336	0.0001	0.0073	46.8	1.879197601	0	0	0.0168	100	0.078755505	862.357	412.1559	519.9505	2187.597	4616.146	-2.4359E-05
6890.45	0.031	0	0.0073	47.0452	1.879197601	0	0	0.0155	100	0.085581094	937.1012	447.8793	565.0169	2377.205	5016.248	-2.2416E-05
7488.24	0.0285	0	0.0074	47.1356	1.904940034	0	0	0.01425	100	0.093005794	1018.401	486.7356	614.0357	2583.443	5451.439	-1.7189E-05
8139.15	0.0262	0.0001	0.0074	47.5734	1.904940034	0	0	0.0131	100	0.101090257	1106.924	529.0448	667.4103	2808.007	5925.301	-1.5814E-05
8845.07	0.0241	0.0001	0.0075	48.1291	1.930682467	0	0	0.01205	100	0.109857958	1202.93	574.9296	725.2957	3051.549	6439.211	-1.1641E-05
9610.44	0.0222	0.0001	0.0076	48.4977	1.9564249	0	0	0.0111	100	0.119364043	1307.02	624.6786	788.0561	3315.602	6996.4	-8.0358E-06
10447.01	0.0204	0.0001	0.0077	49.35897436	1.982167333	0	0	0.0102	100	0.12975445	1420.793	679.0557	856.6548	3604.218	7605.423	-4.9282E-06
11352.98	0.0188	0.0001	0.0077	49.35897436	1.982167333	0	0	0.0094	100	0.141006821	1544.005	737.9437	930.9444	3916.778	8264.969	-4.5349E-06
12338.03	0.0173	0.0001	0.0078	50	2.007909766	0	0	0.00865	100	0.153241386	1677.972	801.972	1011.718	4256.62	8982.086	-2.0864E-06
13410.58	0.0159	0.0001	0.0079	50.64102564	2.033652199	0	0	0.00795	100	0.166562722	1823.839	871.6877	1099.668	4626.65	9762.902	0
14573.05	0.0146	0.0002	0.0081	51.92307692	2.085137065	2.597402597	2.597402597	0.0073	97.4025974	0.181000887	1981.935	947.2483	1194.99	5027.702	10609.18	3.5329E-06
15839.36	0.0135	0.0002	0.0083	53.20512821	2.13662193	2.597402597	5.194805195	0.00675	94.80519481	0.196728771	2154.153	1029.558	1298.828	5464.579	11531.05	6.5009E-06
17214.43	0.0124	0.0003	0.0086	55.12820513	2.213849229	3.896103896	9.090909091	0.0062	90.90909091	0.213807481	2341.162	1118.938	1411.583	5938.978	12532.11	1.0468E-05
18707.61	0.0114	0.0004	0.009	57.69230769	2.316818961	5.194805195	14.28571429	0.0057	85.71428571	0.232353146	2544.235	1215.995	1534.024	6454.125	13619.14	1.5136E-05
20333.7	0.0105	0.0005	0.0095	60.8974359	2.445531125	6.493506494	20.77922078	0.00525	79.22077922	0.252549586	2765.383	1321.691	1667.363	7015.127	14802.93	2.0256E-05
22098.99	0.0097	0.0005	0.01	64.1025641	2.57424329	6.493506494	27.27272727	0.00485	72.72727273	0.274474925	3005.463	1436.434	1812.117	7624.152	16088.06	2.4462E-05
24017.94	0.0089	0.0006	0.0106	67.94871795	2.728697887	7.792207792	35.06493506	0.00445	64.93506494	0.298308759	3266.44	1561.166	1969.471	8286.189	17485.06	2.8939E-05
26104.72	0.0082	0.0006	0.0112	71.79487179	2.883152484	7.792207792	42.85714286	0.0041	57.14285714	0.324227083	3550.242	1696.807	2140.587	9006.128	19004.24	3.2542E-05
28368.24	0.0075	0.0007	0.0119	76.28205128	3.063349515	9.090909091	51.94805195	0.00375	48.05194805	0.352340561	3858.081	1843.936	2326.196	9787.043	20652.08	3.6298E-05
30830.11	0.0069	0.0007	0.0126	80.76923077	3.243546545	9.090909091	61.03896104	0.00345	38.96103896	0.382917596	4192.895	2003.957	2528.069	10636.39	22444.32	3.9244E-05
33505.71	0.0064	0.0006	0.0132	84.61538462	3.398001142	7.792207792	68.83116883	0.0032	31.16883117	0.41614921	4556.777	2177.871	2747.468	11559.47	24392.16	4.072E-05
36413.8	0.0059	0.0005	0.0137	87.82051282	3.526713307	6.493506494	75.32467532	0.00295	24.67532468	0.452268408	4952.277	2366.897	2985.932	12562.76	26509.25	4.1003E-05

RESULT3

39573.93	0.0054	0.0004	0.0141	90.38461538	3.629683038	5.194805195	80.51948052	0.0027	19.48051948	0.491518004	5382.054	2572.305	3245.062	13653.01	28809.82	4.033E-05
43008.79	0.005	0.0003	0.0144	92.30769231	3.706910337	3.896103896	84.41558442	0.0025	15.58441558	0.534179815	5849.195	2795.571	3526.721	14838.03	31310.4	3.8905E-05
46740.82	0.0046	0.0004	0.0148	94.87179487	3.809880069	5.194805195	89.61038961	0.0023	10.38961039	0.580532552	6356.752	3038.153	3832.747	16125.58	34027.32	3.8002E-05
50797.43	0.0042	0.0003	0.0151	96.79487179	3.887107367	3.896103896	93.50649351	0.0021	6.493506494	0.630916652	6908.45	3301.833	4165.389	17525.11	36980.53	3.6487E-05
55205.96	0.0039	0.0002	0.0153	98.07692308	3.938592233	2.597402597	96.1038961	0.00195	3.896103896	0.685671685	7508.011	3588.387	4526.889	19046.06	40189.94	3.4506E-05
59990.79	0.0036	0.0003	0.0156	100	4.015819532	3.896103896	100	0.0018	0	0.745100458	8158.747	3899.401	4919.245	20696.82	43673.3	3.3041E-05
																4.1003E-05

AIRMERCURY CAPILLARY PRESSURE DATA : BY PoroTechnology

SRP 3 @ 5683.5ft; Redman Barth #3

MICP Closure(psia) = 13411.

MICP Porosity = 1.98%

MICP Gr. Den.(gm/cc) = 2.627

MICP Bulk Density(gm/cc) = 2.574

MICP-Calc Air Perm = 0.000015 md

Median Pore Aperture Dia.(microns) = 0.0076

Injection Pressure (psia)	Pore Diameter (microns)	Hg (nwp) Saturation cum%PV	100-Hg(wp) Saturation cum%PV	Leverett "J" Function	Gas/Brine Pc (psia)	Gas/Oil Pc (psia)	Oil/Brine Pc (psia)	Ht. Above	Ht. Above
								Free Water (ft.) Gas/Brine	Free Water (ft.) Oil/Brine
5.19	41.14	0.0	100.0	0.00	0.71	0.34	0.43	1.8	3.8
5.48	38.90	0.0	100.0	0.00	0.75	0.36	0.45	1.9	4.0
5.84	36.56	0.0	100.0	0.00	0.79	0.38	0.48	2.0	4.3
6.24	34.21	0.0	100.0	0.00	0.85	0.41	0.51	2.2	4.5
6.48	32.90	0.0	100.0	0.00	0.88	0.42	0.53	2.2	4.7
6.73	31.68	0.0	100.0	0.00	0.92	0.44	0.55	2.3	4.9
7.03	30.33	0.0	100.0	0.00	0.96	0.46	0.58	2.4	5.1
7.33	29.09	0.0	100.0	0.00	1.00	0.48	0.60	2.5	5.3
7.58	28.13	0.0	100.0	0.00	1.03	0.49	0.62	2.6	5.5
7.83	27.24	0.0	100.0	0.00	1.06	0.51	0.64	2.7	5.7
8.18	26.07	0.0	100.0	0.00	1.11	0.53	0.67	2.8	6.0
8.53	24.99	0.0	100.0	0.00	1.16	0.55	0.70	2.9	6.2
9.07	23.51	0.0	100.0	0.00	1.23	0.59	0.74	3.1	6.6
9.60	22.22	0.0	100.0	0.00	1.31	0.62	0.79	3.3	7.0
10.44	20.44	0.0	100.0	0.00	1.42	0.68	0.86	3.6	7.6
11.34	18.81	0.0	100.0	0.00	1.54	0.74	0.93	3.9	8.3
12.33	17.30	0.0	100.0	0.00	1.68	0.80	1.01	4.3	9.0
13.40	15.92	0.0	100.0	0.00	1.82	0.87	1.10	4.6	9.8
14.56	14.65	0.0	100.0	0.00	1.98	0.95	1.19	5.0	10.6
15.83	13.48	0.0	100.0	0.00	2.15	1.03	1.30	5.5	11.5
17.20	12.40	0.0	100.0	0.00	2.34	1.12	1.41	5.9	12.5
18.70	11.41	0.0	100.0	0.00	2.54	1.22	1.53	6.5	13.6
20.32	10.50	0.0	100.0	0.00	2.76	1.32	1.67	7.0	14.8
22.09	9.66	0.0	100.0	0.00	3.00	1.44	1.81	7.6	16.1
24.00	8.89	0.0	100.0	0.00	3.26	1.56	1.97	8.3	17.5
26.09	8.18	0.0	100.0	0.00	3.55	1.70	2.14	9.0	19.0
28.96	7.37	0.0	100.0	0.00	3.94	1.88	2.37	10.0	21.1
31.74	6.72	0.0	100.0	0.00	4.32	2.06	2.60	11.0	23.1
34.76	6.137	0.0	100.0	0.00	4.73	2.26	2.85	12.0	25.3
38.06	5.605	0.0	100.0	0.00	5.18	2.47	3.12	13.1	27.7
41.56	5.133	0.0	100.0	0.00	5.65	2.70	3.41	14.3	30.3
45.95	4.643	0.0	100.0	0.00	6.25	2.99	3.77	15.9	33.5
50.12	4.256	0.0	100.0	0.00	6.82	3.26	4.11	17.3	36.5
54.07	3.945	0.0	100.0	0.00	7.35	3.51	4.43	18.7	39.4
59.34	3.595	0.0	100.0	0.00	8.07	3.86	4.87	20.5	43.2
64.70	3.297	0.0	100.0	0.00	8.80	4.21	5.31	22.3	47.1

AIRMERCURY CAPILLARY PRESSURE DATA : BY PoroTechnology

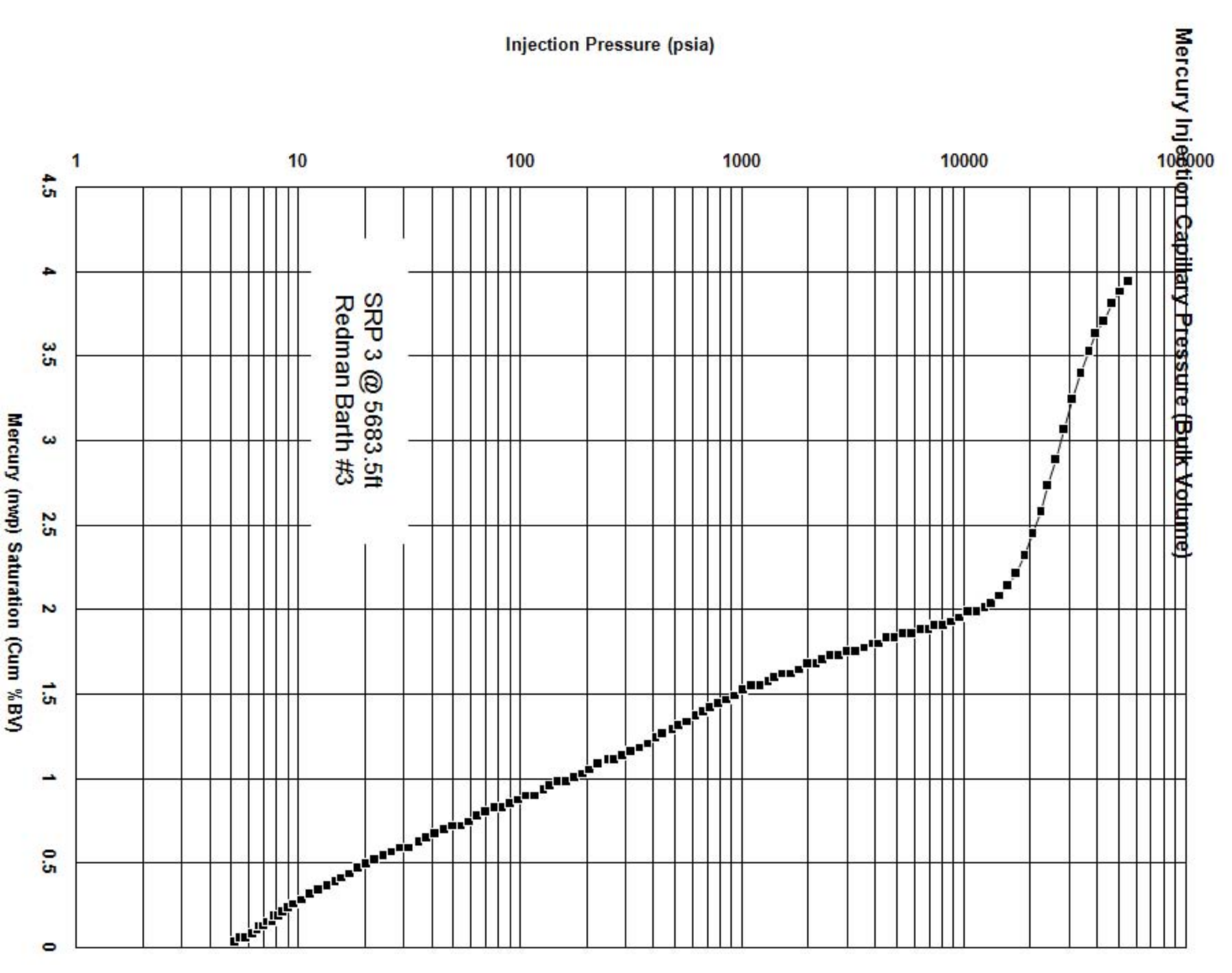
SRP 3 @ 5683.5ft; Redman Barth #3

Injection Pressure (psia)	Pore Diameter (microns)	Hg (nwp) Saturation cum%PV	100-Hg(wp) Saturation cum%PV	Leverett "J" Function	Gas/Brine Pc (psia)	Gas/Oil Pc (psia)	Oil/Brine Pc (psia)	Ht. Above Free Water (ft.) Gas/Brine	Ht. Above Free Water (ft.) Oil/Brine
69.92	3.051	0.0	100.0	0.00	9.51	4.54	5.73	24.1	50.9
75.91	2.810	0.0	100.0	0.00	10.32	4.93	6.22	26.2	55.3
82.82	2.576	0.0	100.0	0.00	11.26	5.38	6.79	28.6	60.3
90.77	2.350	0.0	100.0	0.00	12.34	5.90	7.44	31.3	66.1
98.85	2.158	0.0	100.0	0.00	13.44	6.43	8.11	34.1	72.0
107.62	1.982	0.0	100.0	0.00	14.64	7.00	8.82	37.1	78.3
116.65	1.829	0.0	100.0	0.00	15.86	7.58	9.57	40.2	84.9
126.56	1.686	0.0	100.0	0.00	17.21	8.23	10.38	43.7	92.1
137.33	1.553	0.0	100.0	0.00	18.68	8.93	11.26	47.4	100.0
149.66	1.425	0.0	100.0	0.00	20.35	9.73	12.27	51.6	109.0
161.82	1.318	0.0	100.0	0.00	22.01	10.52	13.27	55.8	117.8
177.03	1.205	0.0	100.0	0.00	24.08	11.51	14.52	61.1	128.9
192.29	1.109	0.0	100.0	0.00	26.15	12.50	15.77	66.3	140.0
207.34	1.029	0.0	100.0	0.00	28.20	13.48	17.00	71.5	150.9
226.39	0.942	0.0	100.0	0.00	30.79	14.72	18.56	78.1	164.8
247.18	0.863	0.0	100.0	0.00	33.62	16.07	20.27	85.3	180
266.29	0.801	0.0	100.0	0.00	36.22	17.31	21.84	91.9	194
290.84	0.734	0.0	100.0	0.00	39.55	18.90	23.85	100.3	212
315.99	0.675	0.0	100.0	0.00	42.97	20.54	25.91	109.0	230
342.26	0.623	0.0	100.0	0.00	46.55	22.25	28.07	118.1	249
373.81	0.571	0.0	100.0	0.00	50.84	24.30	30.65	129	272
407.18	0.524	0.0	100.0	0.01	55.38	26.47	33.39	140	296
441.59	0.483	0.0	100.0	0.01	60.06	28.70	36.21	152	321
482.61	0.442	0.0	100.0	0.01	65.63	31.37	39.57	167	351
524.26	0.407	0.0	100.0	0.01	71.30	34.08	42.99	181	382
567.29	0.376	0.0	100.0	0.01	77.15	36.87	46.52	196	413
615.93	0.346	0.0	100.0	0.01	83.77	40.04	50.51	212	448
671.25	0.318	0.0	100.0	0.01	91.29	43.63	55.04	232	489
726.47	0.294	0.0	100.0	0.01	98.80	47.22	59.57	251	529
789.92	0.270	0.0	100.0	0.01	107.43	51.34	64.77	273	575
858.98	0.248	0.0	100.0	0.01	116.82	55.83	70.44	296	625
935.95	0.228	0.0	100.0	0.01	127.29	60.84	76.75	323	681
1016.78	0.210	0.0	100.0	0.01	138.28	66.09	83.38	351	740
1105.11	0.193	0.0	100.0	0.01	150.29	71.83	90.62	381	805
1201.18	0.178	0.0	100.0	0.01	163.36	78.08	98.50	414	874
1303.91	0.164	0.0	100.0	0.02	177.33	84.75	106.92	450	949
1416.84	0.151	0.0	100.0	0.02	192.69	92.09	116.18	489	1031
1539.00	0.139	0.0	100.0	0.02	209.30	100.04	126.20	531	1120
1674.57	0.127	0.0	100.0	0.02	227.74	108.85	137.31	578	1219
1820.01	0.117	0.0	100.0	0.02	247.52	118.30	149.24	628	1325
1979.90	0.108	0.0	100.0	0.02	269.27	128.69	162.35	683	1441
2147.94	0.099	0.0	100.0	0.03	292.12	139.62	176.13	741	1564
2334.15	0.091	0.0	100.0	0.03	317.44	151.72	191.40	805	1699
2536.75	0.0841	0.0	100.0	0.03	345.00	164.89	208.01	875	1847

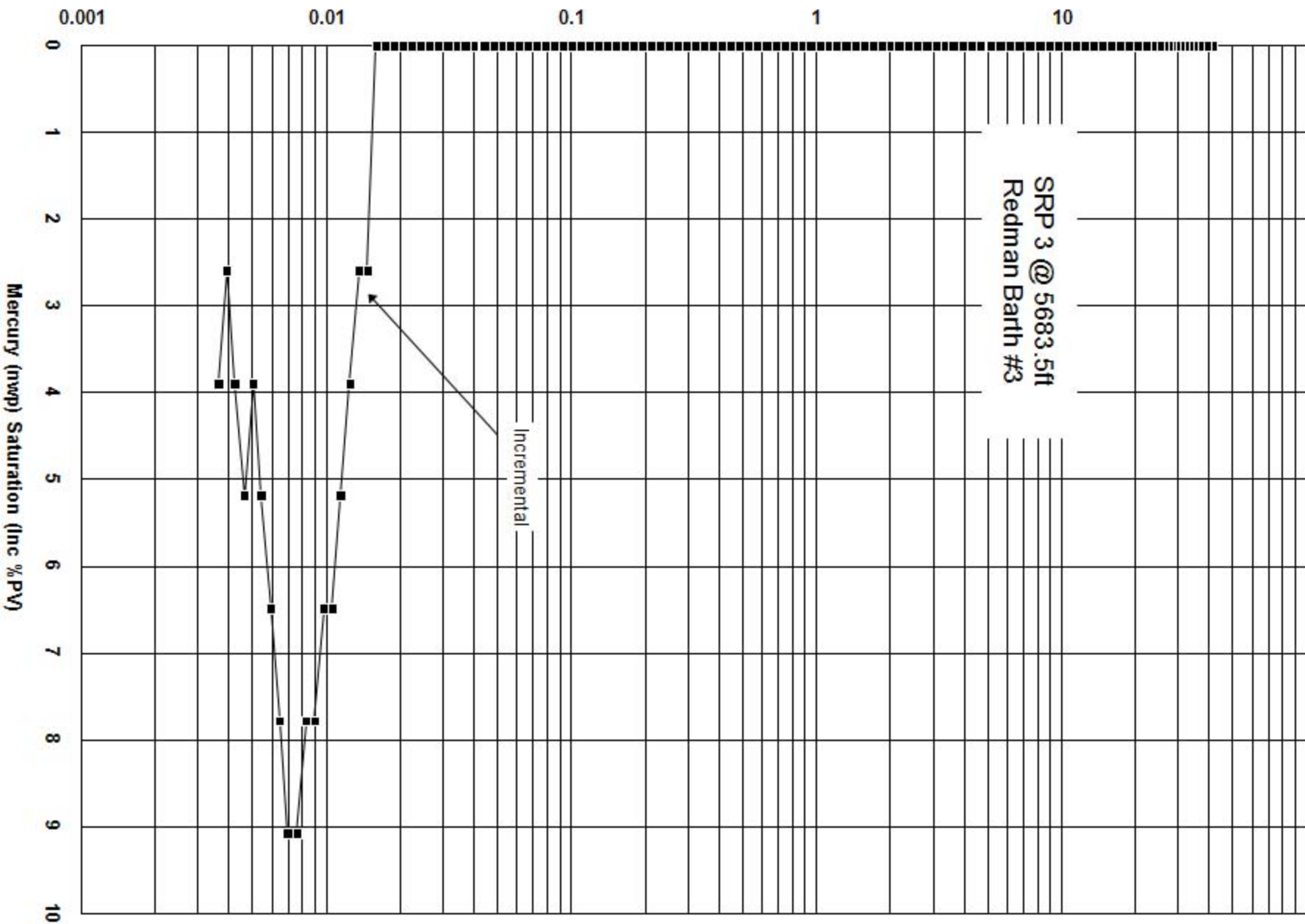
AIRMERCURY CAPILLARY PRESSURE DATA : BY PoroTechnology

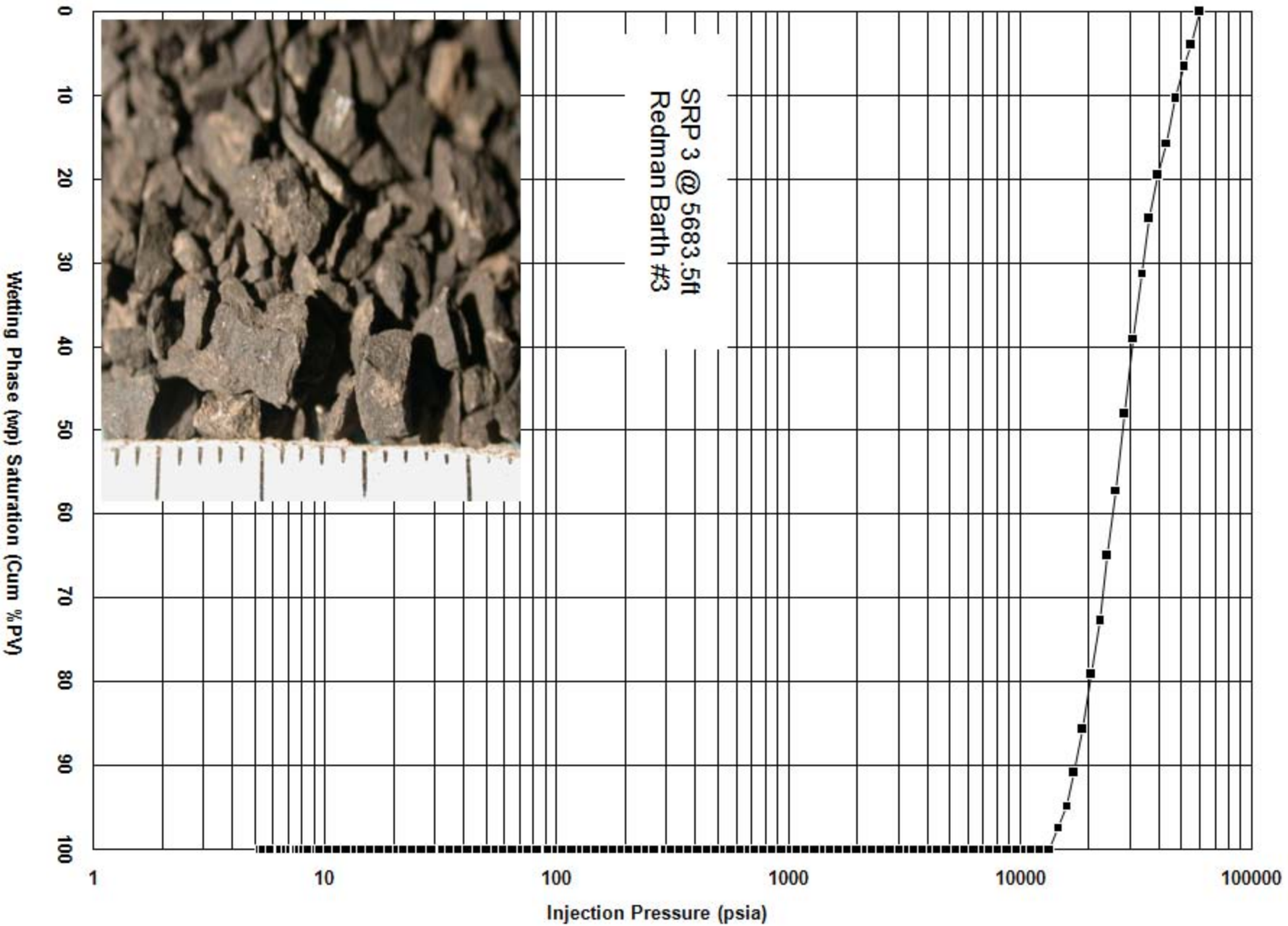
SRP 3 @ 5683.5ft; Redman Barth #3

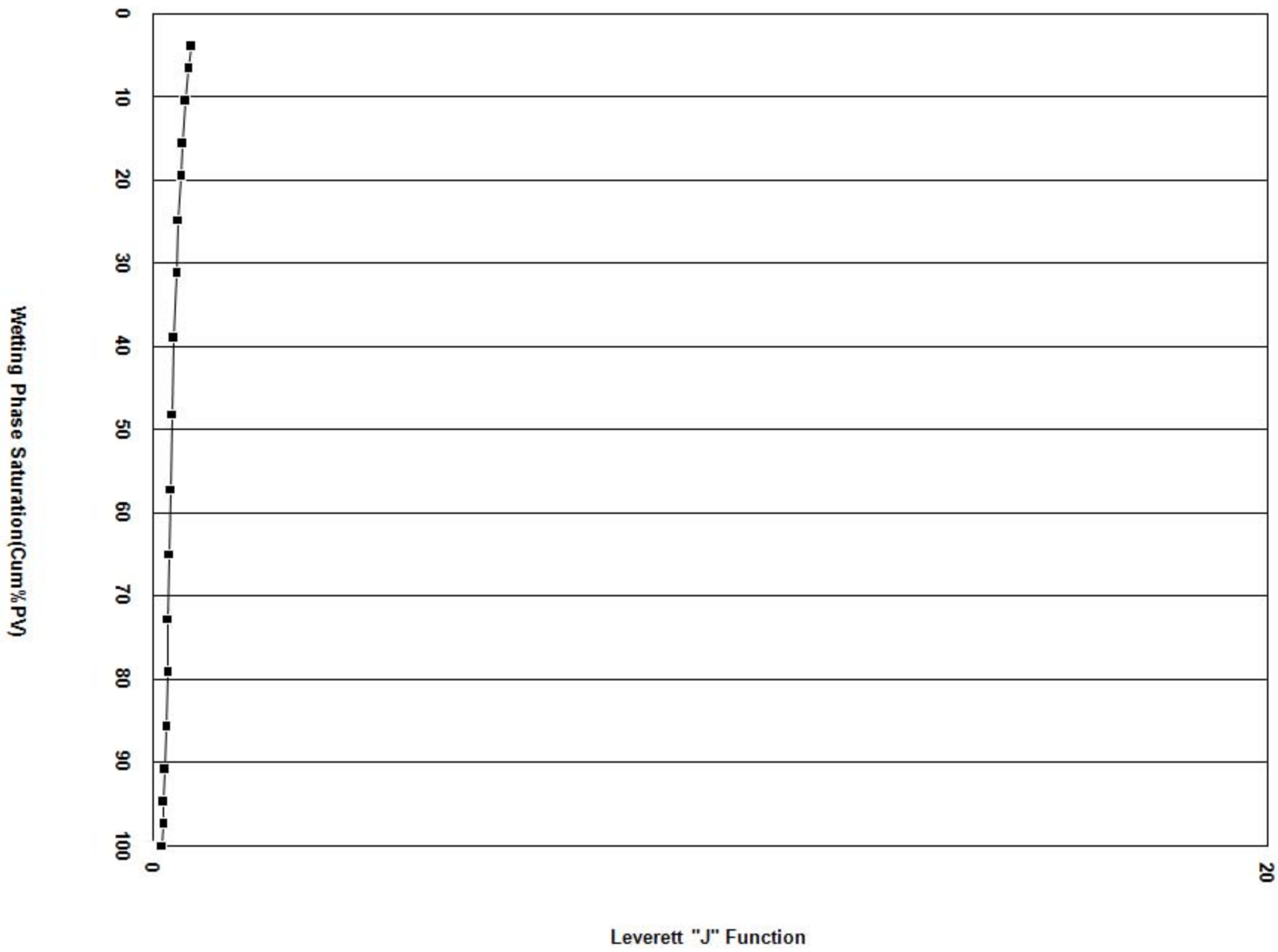
Injection Pressure (psia)	Pore Diameter (microns)	Hg (nwp) Saturation cum%PV	100-Hg(wp) Saturation cum%PV	Leverett "J" Function	Gas/Brine Pc (psia)	Gas/Oil Pc (psia)	Oil/Brine Pc (psia)	Ht. Above Free Water (ft.) Gas/Brine	Ht. Above Free Water (ft.) Oil/Brine
2757.49	0.0774	0.0	100.0	0.03	375.02	179.24	226.11	951	2007
2995.16	0.0712	0.0	100.0	0.04	407.34	194.69	245.60	1033	2180
3255.63	0.0655	0.0	100.0	0.04	442.77	211.62	266.96	1123	2370
3543.13	0.0602	0.0	100.0	0.04	481.87	230.30	290.54	1222	2579
3850.30	0.0554	0.0	100.0	0.05	523.64	250.27	315.72	1328	2803
4181.35	0.0510	0.0	100.0	0.05	568.66	271.79	342.87	1443	3044
4439.69	0.0480	0.0	100.0	0.06	603.80	288.58	364.05	1532	3232
4838.87	0.0441	0.0	100.0	0.06	658.09	314.53	396.79	1669	3523
5367.15	0.0397	0.0	100.0	0.07	729.93	348.86	440.11	1852	3907
5833.00	0.0366	0.0	100.0	0.07	793.29	379.15	478.31	2012	4246
6340.86	0.0336	0.0	100.0	0.08	862.36	412.16	519.95	2188	4616
6890.45	0.0310	0.0	100.0	0.09	937.10	447.88	565.02	2377	5016
7488.24	0.0285	0.0	100.0	0.09	1018.40	486.74	614.04	2583	5451
8139.15	0.0262	0.0	100.0	0.10	1106.92	529.04	667.41	2808	5925
8845.07	0.0241	0.0	100.0	0.11	1202.93	574.93	725.30	3052	6439
9610.44	0.0222	0.0	100.0	0.12	1307.02	624.68	788.06	3316	6996
10447.01	0.0204	0.0	100.0	0.13	1420.79	679.06	856.65	3604	7605
11352.98	0.0188	0.0	100.0	0.14	1544.01	737.94	930.94	3917	8265
12338.03	0.0173	0.0	100.0	0.15	1677.97	801.97	1011.72	4257	8982
13410.58	0.0159	0.0	100.0	0.17	1823.84	871.69	1099.67	4627	9763
14573.05	0.0146	2.6	97.4	0.18	1981.93	947.25	1194.99	5028	10609
15839.36	0.0135	5.2	94.8	0.20	2154.15	1029.56	1298.83	5465	11531
17214.43	0.0124	9.1	90.9	0.21	2341.16	1118.94	1411.58	5939	12532
18707.61	0.0114	14.3	85.7	0.23	2544.23	1215.99	1534.02	6454	13619
20333.70	0.0105	20.8	79.2	0.25	2765.38	1321.69	1667.36	7015	14803
22098.99	0.0097	27.3	72.7	0.27	3005.46	1436.43	1812.12	7624	16088
24017.94	0.0089	35.1	64.9	0.30	3266.44	1561.17	1969.47	8286	17485
26104.72	0.0082	42.9	57.1	0.32	3550.24	1696.81	2140.59	9006	19004
28368.24	0.0075	51.9	48.1	0.35	3858.08	1843.94	2326.20	9787	20652
30830.11	0.0069	61.0	39.0	0.38	4192.89	2003.96	2528.07	10636	22444
33505.71	0.0064	68.8	31.2	0.42	4556.78	2177.87	2747.47	11559	24392
36413.80	0.0059	75.3	24.7	0.45	4952.28	2366.90	2985.93	12563	26509
39573.93	0.0054	80.5	19.5	0.49	5382.05	2572.31	3245.06	13653	28810
43008.79	0.0050	84.4	15.6	0.53	5849.20	2795.57	3526.72	14838	31310
46740.82	0.0046	89.6	10.4	0.58	6356.75	3038.15	3832.75	16126	34027
50797.43	0.0042	93.5	6.5	0.63	6908.45	3301.83	4165.39	17525	36981
55205.96	0.0039	96.1	3.9	0.69	7508.01	3588.39	4526.89	19046	40190
59990.79	0.0036	100.0	0.0	0.75	8158.75	3899.40	4919.24	20697	43673



Pore Aperture Diameter (microns)







TEST4

PoroTechnol	60000psia	/Hg Capilla	Pressure				
AutoPore IV	500 V1.05	Serial: 2	78	Port: 2/2			Page 1
Sample ID:	SRP # 4; Fman Barth #3						
Operator:	PoroTechrgy						
Submitter:	Dolan Intertation Gp						
File:	C:\9500\DATA\010-157.SMP						
LP Analysis Time:	1/7/2010 9:33:08AM	Sample Weight:	4.940 g				
HP Analysis Time:	1/7/2010 11:56:45AM	Correction Type:	Blank				
Report Time:	1/7/2010 2:18:32PM	Flow Neg. In:	No				
Summary Report							
Penetrometer	07-0900 PEN						
Pen. Constant:	11.007	μL/pF		Pen. Weight:	57.3470	g	
Stem Volume:	0.392	mL	M	Max. Head Pure:	4.4500	psia	
Pen. Volume:	6.129	mL	A	Assembly Wt:	119.1630	g	
Adv. Contact Angle:	140.00	degrees		Rec. Contact Angle:	130.000	degree	
Hg Surface Tension:	480.00	dynes/cm		Hg Density:	13.5335	g/mL	
Evacuation Pressure:	50 μmHg						
Evacuation Time:	10 mins						
Mercury Filling Pressure:	4.92 psia						
Equilibration Rate:	0.003	μL/g/s					
Equilibration Rate:	0.002	μL/g/s					
Blank Correction Sample	\\9220DATA\A1\SD006.MP						
Blank Correction ID:	Fn 07-0822 Ink File(Qtz)						

TEST4

Total Intrusion Volume =			0.0101	m	L/g	
Total Pore Area =	3.6		61	m ² /g		
Median Pore Diameter (V _e) =			0.0117	μm		
Median Pore Diameter (A _v) =			0	0.0056	μm	
Average Pore Diameter (D _v) =			0.011	μm		
Bulk Density at 4.92 psia =			2.5648	g/mL		
Apparent (skeletal) Density =			2	0.6328	g/mL	
Porosity =	2.584		5	%		
Stem Volume Used =			13	% ****		
Porotechnology	60000psia	/Hg Capilla	Pressure			
AutoPore IV 5500 V1.05	Serial: 2		78		Port: 2/2	Page 1
Sample ID:	SRP # 4; Fman Barth #3					
Operator:	Porotechnology					
Submitter:	Dolan Interaction Gp					
File:	C:\9500\DATA\010-157.SMP					
LP Analysis Time:	1/7/2010 9:33:08AM	Sample Weight:	4.940 g			
HP Analysis Time:	1/7/2010 11:56:45AM	Correction Type:	Blank			
Report Time:	1/7/2010 2:18:32PM	Flow Neg. In:	No			
		Tabular Report				
		Incremental	Cumulative			
Pressure (psia)	Pore Diameter (μm)	Pore Volume (mL/g)	Pore Volume (mL/g)	% of Total Pore Volume	Incremental Pore Area (m ² /g)	

4.92	43.3182	0	0	0	0	
5.19	41.1364	0	0	0.3091	0	
5.48	38.8988	0	0.0001	0.5795	0	
5.84	36.5551	0.0001	0.0001	1.0817	0	
6.24	34.2123	0.0001	0.0002	1.7771	0	
6.48	32.8979	0	0.0002	2.0862	0	
6.73	31.6827	0	0.0002	2.3566	0	
7.03	30.3283	0	0.0003	2.6657	0	
7.33	29.0919	0	0.0003	3.1293	0	
7.58	28.1316	0	0.0003	3.3224	0	

TEST4

7.83	27.2355	0	0.0004	3.6315	0	
8.18	26.0687	0	0.0004	3.9792	0	
8.53	24.9949	0	0.0004	4.3269	0	
9.07	23.5075	0.0001	0.0005	4.9064	0	
9.6	22.2158	0	0.0005	5.2927	0	
10.44	20.4406	0.0001	0.0006	5.9881	0	
11.34	18.8091	0.0001	0.0007	6.6835	0	
12.33	17.3045	0.0001	0.0007	7.3016	0	
13.4	15.9206	0.0001	0.0008	7.9198	0	
14.56	14.6489	0.0001	0.0009	8.5379	0	
15.83	13.4767	0.0001	0.0009	9.156	0	
17.2	12.4008	0.0001	0.001	9.6969	0	
18.7	11.4088	0.0001	0.001	10.3536	0	
20.32	10.4975	0.0001	0.0011	10.8945	0	
22.09	9.658	0.0001	0.0011	11.3967	0	
24	8.8873	0.0001	0.0012	12.0148	0	
26.09	8.1756	0.0001	0.0013	12.5557	0	
28.96	7.3664	0.0001	0.0013	13.1352	0	
31.74	6.7213	0.0001	0.0014	13.8692	0	
34.76	6.1374	0.0001	0.0014	14.3715	0	
38.06	5.6053	0.0001	0.0015	15.0282	0	
41.56	5.1333	0.0001	0.0016	15.685	0	
46.03	4.6349	0	0.0016	16.0106	0	
50.2	4.2498	0	0.0016	16.3434	0	
54.16	3.939	0	0.0017	16.3919	0	
59.42	3.5901	0	0.0017	16.7168	0	
64.78	3.2928	0.0001	0.0017	17.3014	0	
70.01	3.047	0	0.0018	17.6901	0	
76.05	2.8049	0	0.0018	18.1485	0	
82.91	2.573	0	0.0019	18.6063	0	
90.87	2.3476	0.0001	0.0019	19.2195	0	
98.94	2.156	0	0.002	19.609	0	
107.71	1.9804	0.0001	0.002	20.2438	0	
116.75	1.8271	0	0.0021	20.5732	0	
126.63	1.6846	0.0001	0.0021	21.1617	0	
137.44	1.5521	0	0.0022	21.5622	0	
149.77	1.4243	0	0.0022	21.9825	0	
161.93	1.3174	0.0001	0.0023	22.5219	0	
177.14	1.2042	0.0001	0.0023	23.2491	0	
192.4	1.1087	0	0.0024	23.5224	0	
207.45	1.0283	0.0001	0.0024	24.0739	0	
226.51	0.9418	0.0001	0.0025	24.6651	0	
247.3	0.8626	0.0001	0.0025	25.2473	0	
266.41	0.8007	0	0.0026	25.607	0	
290.97	0.7332	0	0.0026	26.0799	0	
316.12	0.6748	0	0.0027	26.5649	0	
342.64	0.6226	0.0001	0.0027	27.2003	0	

TEST4

373.94	0.5705	0	0.0028	27.5192	0		
407.32	0.5237	0.0001	0.0029	28.3086	0.001		
441.73	0.4829	0	0.0029	28.7286	0		
482.75	0.4419	0.0001	0.0029	29.2469	0		
524.4	0.4068	0.0001	0.003	29.8595	0.001		
567.44	0.3759	0	0.003	30.186	0		
616.08	0.3463	0	0.0031	30.5113	0		
671.4	0.3177	0.0001	0.0031	31.0659	0.001		
726.63	0.2936	0.0001	0.0032	31.6097	0.001		
790.09	0.27	0	0.0032	32.0606	0.001		
859.14	0.2483	0.0001	0.0033	32.614	0.001		
936.12	0.2279	0	0.0033	33.0317	0.001		
1016.95	0.2098	0	0.0034	33.5034	0.001		
1105.28	0.193	0	0.0034	33.9814	0.001		
1201.36	0.1776	0	0.0035	34.3951	0.001		
1304.09	0.1636	0	0.0035	34.7618	0.001		
1417.02	0.1505	0	0.0035	35.229	0.001		
1539.19	0.1386	0.0001	0.0036	35.7261	0.001		
1674.76	0.1274	0	0.0036	35.9203	0.001		
1820.2	0.1172	0	0.0037	36.3542	0.001		
1980.09	0.1077	0	0.0037	36.7665	0.001		
2148.13	0.0993	0	0.0037	37.1377	0.001		
2334.35	0.0914	0	0.0038	37.3642	0.001		
2536.95	0.0841	0	0.0038	37.7285	0.002		
2757.68	0.0774	0	0.0038	38.0903	0.002		
2995.36	0.0712	0	0.0039	38.4599	0.002		
3255.83	0.0655	0	0.0039	38.6605	0.001		
3543.33	0.0602	0	0.0039	39.0181	0.002		
3850.5	0.0554	0	0.004	39.3431	0.002		
4181.55	0.051	0	0.004	39.7435	0.003		
4439.89	0.048	0	0.004	39.9301	0.002		
4839.08	0.0441	0	0.004	40.1493	0.002		
5367.36	0.0397	0	0.0041	40.5846	0.004		
5833.22	0.0366	0	0.0041	40.9141	0.003		
6341.08	0.0336	0	0.0042	41.278	0.004		
6890.66	0.031	0	0.0042	41.5285	0.003		
7488.46	0.0285	0	0.0042	41.9344	0.006		
8139.36	0.0262	0	0.0043	42.4108	0.007		
8845.29	0.0241	0	0.0043	42.7793	0.006		
9610.66	0.0222	0.0001	0.0044	43.234	0.008		
10447.23	0.0204	0	0.0044	43.8199	0.011		
11353.21	0.0188	0.0001	0.0045	44.3358	0.011		
12338.26	0.0173	0.0001	0.0046	45.0496	0.016		
13410.81	0.0159	0.0001	0.0047	45.7622	0.017		
14573.29	0.0146	0.0001	0.0048	46.7598	0.026		
15839.6	0.0135	0.0001	0.0049	47.6739	0.026		
17214.69	0.0124	0.0001	0.005	49.3536	0.052		

TEST4

18707.86	0.0114	0.0002	0.0052	50.396	0.035		
20333.99	0.0105	0.0002	0.0054	52.7339	0.086		
22099.3	0.0097	0.0003	0.0057	55.7005	0.119		
24018.27	0.0089	0.0003	0.006	58.5469	0.124		
26105.08	0.0082	0.0003	0.0063	63.1057	0.216		
28368.61	0.0075	0.0004	0.0067	64.9266	0.094		
30830.48	0.0069	0.0004	0.0071	67.7596	0.158		
33506.11	0.0064	0.0005	0.0076	74.5969	0.415		
36414.21	0.0059	0.0003	0.0079	77.5074	0.192		
39574.34	0.0054	0.0004	0.0083	81.594	0.293		
43009.2	0.005	0.0003	0.0086	84.376	0.217		
46741.24	0.0046	0.0004	0.009	90.0176	0.478		
50797.83	0.0042	0.0003	0.0093	92.4374	0.223		
55206.36	0.0039	0.0004	0.0097	98.0951	0.566		
59991.18	0.0036	0.0004	0.0101	100	0.207		

RESULT4

Int Pres psia	Pore Dia microns	Inc Int mL/gm	Cum Int mL/gm	Cum Int %PV(bc)	Cum Int %BV	Inc Int %PV(ac)	Cum Int %PV(ac)	Pore Rad microns	W.P. Sat %PV(ac)	Lev "J" Funct.	G/B Pc psia	G/O Pc psia	O/B Pc psia	Ht FWL,ft G/B	Ht FWL,ft O/B	Swanson's Sb/Pc(ac)
5.19	41.1364	0	0	0.3091	0	0	0	20.5682	100	4.93734E-05	0.70584	0.33735	0.42558	1.79055	3.77832	-0.2452249
5.48	38.8988	0	0.0001	0.5795	0.025973821	0	0	19.4494	100	5.21323E-05	0.74528	0.3562	0.44936	1.8906	3.98944	-0.2275079
5.84	36.5551	0.0001	0.0001	1.0817	0.025973821	0	0	18.27755	100	5.5557E-05	0.79424	0.3796	0.47888	2.0148	4.25152	-0.2134835
6.24	34.2123	0.0001	0.0002	1.7771	0.051947642	0	0	17.10615	100	5.93623E-05	0.84864	0.4056	0.51168	2.1528	4.54272	-0.1956362
6.48	32.8979	0	0.0002	2.0862	0.051947642	0	0	16.44895	100	6.16454E-05	0.88128	0.4212	0.53136	2.2356	4.71744	-0.1883904
6.73	31.6827	0	0.0002	2.3566	0.051947642	0	0	15.84135	100	6.40237E-05	0.91528	0.43745	0.55186	2.32185	4.89944	-0.1813922
7.03	30.3283	0	0.0003	2.6657	0.077921463	0	0	15.16415	100	6.68777E-05	0.95608	0.45695	0.57646	2.42535	5.11784	-0.1699567
7.33	29.0919	0	0.0003	3.1293	0.077921463	0	0	14.54595	100	6.97316E-05	0.99688	0.47645	0.60106	2.52885	5.33624	-0.1630008
7.58	28.1316	0	0.0003	3.3224	0.077921463	0	0	14.0658	100	7.21099E-05	1.03088	0.4927	0.62156	2.6151	5.51824	-0.1576248
7.83	27.2355	0	0.0004	3.6315	0.103895285	0	0	13.61775	100	7.44882E-05	1.06488	0.50895	0.64206	2.70135	5.70024	-0.1492748
8.18	26.0687	0	0.0004	3.9792	0.103895285	0	0	13.03435	100	7.78179E-05	1.11248	0.5317	0.67076	2.8221	5.95504	-0.1428878
8.53	24.9949	0	0.0004	4.3269	0.103895285	0	0	12.49745	100	8.11475E-05	1.16008	0.55445	0.69946	2.94285	6.20984	-0.1370248
9.07	23.5075	0.0001	0.0005	4.9064	0.129869106	0	0	11.75375	100	8.62846E-05	1.23352	0.58955	0.74374	3.12915	6.60296	-0.1260031
9.6	22.2158	0	0.0005	5.2927	0.129869106	0	0	11.1079	100	9.13266E-05	1.3056	0.624	0.7872	3.312	6.9888	-0.1190467
10.44	20.4406	0.0001	0.0006	5.9881	0.155842927	0	0	10.2203	100	9.93177E-05	1.41984	0.6786	0.85608	3.6018	7.60032	-0.1069803
11.34	18.8091	0.0001	0.0007	6.6835	0.181816748	0	0	9.40455	100	0.00010788	1.54224	0.7371	0.92988	3.9123	8.25552	-0.0961993
12.33	17.3045	0.0001	0.0007	7.3016	0.181816748	0	0	8.65225	100	0.000117298	1.67688	0.80145	1.01106	4.25385	8.97624	-0.0884753
13.4	15.9206	0.0001	0.0008	7.9198	0.207790569	0	0	7.9603	100	0.000127477	1.8224	0.871	1.0988	4.623	9.7552	-0.0794721
14.56	14.6489	0.0001	0.0009	8.5379	0.23376439	0	0	7.32445	100	0.000138512	1.98016	0.9464	1.19392	5.0232	10.59968	-0.0713567
15.83	13.4767	0.0001	0.0009	9.156	0.23376439	0	0	6.73835	100	0.000150594	2.15288	1.02895	1.29806	5.46135	11.52242	-0.0656319
17.2	12.4008	0.0001	0.001	9.6969	0.259738212	0	0	6.2004	100	0.000163627	2.3392	1.118	1.4104	5.934	12.5216	-0.0588941
18.7	11.4088	0.0001	0.001	10.3536	0.259738212	0	0	5.7044	100	0.000177897	2.5432	1.2155	1.5334	6.4515	13.6136	-0.05417
20.32	10.4975	0.0001	0.0011	10.8945	0.285712033	0	0	5.24875	100	0.000193308	2.76352	1.3208	1.66624	7.0104	14.79296	-0.0485731
22.09	9.658	0.0001	0.0011	11.3967	0.285712033	0	0	4.829	100	0.000210146	3.00424	1.43585	1.81138	7.62105	16.08152	-0.0446811
24	8.8873	0.0001	0.0012	12.0148	0.311685854	0	0	4.44365	100	0.000228316	3.264	1.56	1.968	8.28	17.472	-0.0400043
26.09	8.1756	0.0001	0.0013	12.5557	0.337659675	0	0	4.0878	100	0.000248199	3.54824	1.69585	2.13938	9.00105	18.99352	-0.0358397
28.96	7.3664	0.0001	0.0013	13.1352	0.337659675	0	0	3.6832	100	0.000275502	3.93856	1.8824	2.37472	9.9912	21.08288	-0.0322879
31.74	6.7213	0.0001	0.0014	13.8692	0.363633496	0	0	3.36065	100	0.000301949	4.31664	2.0631	2.60268	10.9503	23.10672	-0.0286416
34.76	6.1374	0.0001	0.0014	14.3715	0.363633496	0	0	3.0687	100	0.000330678	4.72736	2.2594	2.85032	11.9922	25.30528	-0.0261532
38.06	5.6053	0.0001	0.0015	15.0282	0.389607317	0	0	2.80265	100	0.000362072	5.17616	2.4739	3.12092	13.1307	27.70768	-0.0232031
41.56	5.1333	0.0001	0.0016	15.685	0.415581139	0	0	2.56665	100	0.000395368	5.65216	2.7014	3.40792	14.3382	30.25568	-0.0206241
46.03	4.6349	0	0.0016	16.0106	0.415581139	0	0	2.31745	100	0.000437892	6.26008	2.99195	3.77446	15.88035	33.50984	-0.0186212
50.2	4.2498	0	0.0016	16.3434	0.415581139	0	0	2.1249	100	0.000477562	6.8272	3.263	4.1164	17.319	36.5456	-0.0170744
54.16	3.939	0	0.0017	16.3919	0.44155496	0	0	1.9695	100	0.000515234	7.36576	3.5204	4.44112	18.6852	39.42848	-0.0153464
59.42	3.5901	0	0.0017	16.7168	0.44155496	0	0	1.79505	100	0.000565273	8.08112	3.8623	4.87244	20.4999	43.25776	-0.0139879
64.78	3.2928	0.0001	0.0017	17.3014	0.44155496	0	0	1.6464	100	0.000616264	8.81008	4.2107	5.31196	22.3491	47.15984	-0.0128305
70.01	3.047	0	0.0018	17.6901	0.467528781	0	0	1.5235	100	0.000666018	9.52136	4.55065	5.74082	24.15345	50.96728	-0.011501
76.05	2.8049	0	0.0018	18.1485	0.467528781	0	0	1.40245	100	0.000723478	10.3428	4.94325	6.2361	26.23725	55.3644	-0.0105876
82.91	2.573	0	0.0019	18.6063	0.493502602	0	0	1.2865	100	0.000788738	11.27576	5.38915	6.79862	28.60395	60.35848	-0.0093983
90.87	2.3476	0.0001	0.0019	19.2195	0.493502602	0	0	1.1738	100	0.000864463	12.35832	5.90655	7.45134	31.35015	66.15336	-0.008575
98.94	2.156	0	0.002	19.609	0.519476423	0	0	1.078	100	0.000941235	13.45584	6.4311	8.11308	34.1343	72.02832	-0.0076131
107.71	1.9804	0.0001	0.002	20.2438	0.519476423	0	0	0.9902	100	0.001024665	14.64856	7.00115	8.83222	37.15995	78.41288	-0.0069932
116.75	1.8271	0	0.0021	20.5732	0.545450244	0	0	0.91355	100	0.001110664	15.878	7.58875	9.5735	40.27875	84.994	-0.0062293
126.63	1.6846	0.0001	0.0021	21.1617	0.545450244	0	0	0.8423	100	0.001204655	17.22168	8.23095	10.38366	43.68735	92.18664	-0.0057432
137.44	1.5521	0	0.0022	21.5622	0.571424066	0	0	0.77605	100	0.001307492	18.69184	8.9336	11.27008	47.4168	100.0563	-0.0051025
149.77	1.4243	0	0.0022	21.9825	0.571424066	0	0	0.71215	100	0.00142479	20.36872	9.73505	12.28114	51.67065	109.0326	-0.0046825
161.93	1.3174	0.0001	0.0023	22.5219	0.597397887	0	0	0.6587	100	0.00154047	22.02248	10.52545	13.27826	55.86585	117.885	-0.0041704
177.14	1.2042	0.0001	0.0023	23.2491	0.597397887	0	0	0.6021	100	0.001685166	24.09104	11.5141	14.52548	61.1133	128.9579	-0.0038123
192.4	1.1087	0	0.0024	23.5224	0.623371708	0	0	0.55435	100	0.001830337	26.1664	12.506	15.7768	66.378	140.0672	-0.003375
207.45	1.0283	0.0001	0.0024	24.0739	0.623371708	0	0	0.51415	100	0.00197351	28.2132	13.48425	17.0109	71.57025	151.0236	-0.0031301
226.51	0.9418	0.0001	0.0025	24.6651	0.649345529	0	0	0.4709	100	0.002154832	30.80536	14.72315	18.57382	78.14595	164.8993	-0.0027521
247.3	0.8626	0.0001	0.0025	25.2473	0.649345529	0	0	0.4313	100	0.002352611	33.6328	16.0745	20.2786	85.3185	180.0344	-0.0025207
266.41	0.8007	0	0.0026	25.607	0.67531935	0	0	0.40035	100	0.002534408	36.23176	17.31665	21.84562	91.91145	193.9465	-0.0022424
290.97	0.7332	0	0.0026	26.0799	0.67531935	0	0	0.3666	100	0.002768052	39.57192	18.91305	23.85954	100.3847	211.8262	-0.0020531

RESULT4

316.12	0.6748	0	0.0027	26.5649	0.701293171	0	0	0.3374	100	0.003007308	42.99232	20.5478	25.92184	109.0614	230.1354	-0.0018076
342.64	0.6226	0.0001	0.0027	27.2003	0.701293171	0	0	0.3113	100	0.003259598	46.59904	22.2716	28.09648	118.2108	249.4419	-0.0016677
373.94	0.5705	0	0.0028	27.5192	0.727266993	0	0	0.28525	100	0.003557361	50.85584	24.3061	30.66308	129.0093	272.2283	-0.0014587
407.32	0.5237	0.0001	0.0029	28.3086	0.753240814	0	0	0.26185	100	0.003874911	55.39552	26.4758	33.40024	140.5254	296.529	-0.0012754
441.73	0.4829	0	0.0029	28.7286	0.753240814	0	0	0.24145	100	0.004202259	60.07528	28.71245	36.22186	152.3969	321.5794	-0.001176
482.75	0.4419	0.0001	0.0029	29.2469	0.753240814	0	0	0.22095	100	0.00459249	65.654	31.37875	39.5855	166.5488	351.442	-0.0010761
524.4	0.4068	0.0001	0.003	29.8595	0.779214635	0	0	0.2034	100	0.004988714	71.3184	34.086	43.0008	180.918	381.7632	-0.0009411
567.44	0.3759	0	0.003	30.186	0.779214635	0	0	0.18795	100	0.005398162	77.17184	36.8836	46.53008	195.7668	413.0963	-0.0008697
616.08	0.3463	0	0.0031	30.5113	0.805188456	0	0	0.17315	100	0.005860883	83.78688	40.0452	50.51856	212.5476	448.5062	-0.0007589
671.4	0.3177	0.0001	0.0031	31.0659	0.805188456	0	0	0.15885	100	0.006387153	91.3104	43.641	55.0548	231.633	488.7792	-0.0006963
726.63	0.2936	0.0001	0.0032	31.6097	0.831162277	0	0	0.1468	100	0.006912566	98.82168	47.23095	59.58366	250.6874	528.9866	-0.0006077
790.09	0.27	0	0.0032	32.0606	0.831162277	0	0	0.135	100	0.007516273	107.4522	51.35585	64.78738	272.5811	575.1855	-0.0005589
859.14	0.2483	0.0001	0.0033	32.614	0.857136098	0	0	0.12415	100	0.008173158	116.843	55.8441	70.44948	296.4033	625.4539	-0.0004837
936.12	0.2279	0	0.0033	33.0317	0.857136098	0	0	0.11395	100	0.008905483	127.3123	60.8478	76.76184	322.9614	681.4954	-0.0004439
1016.95	0.2098	0	0.0034	33.5034	0.88310992	0	0	0.1049	100	0.009674434	138.3052	66.10175	83.3899	350.8478	740.3396	-0.0003831
1105.28	0.193	0	0.0034	33.9814	0.88310992	0	0	0.0965	100	0.010514733	150.3181	71.8432	90.63296	381.3216	804.6438	-0.0003525
1201.36	0.1776	0	0.0035	34.3951	0.909083741	0	0	0.0888	100	0.01142876	163.385	78.0884	98.51152	414.4692	874.5901	-0.0003027
1304.09	0.1636	0	0.0035	34.7618	0.909083741	0	0	0.0818	100	0.01240605	177.3562	84.76585	106.9354	449.9111	949.3775	-0.0002788
1417.02	0.1505	0	0.0035	35.229	0.909083741	0	0	0.07525	100	0.013480374	192.7147	92.1063	116.1956	488.8719	1031.591	-0.0002566
1539.19	0.1386	0.0001	0.0036	35.7261	0.935057562	0	0	0.0693	100	0.0146426	209.3298	100.0474	126.2136	531.0206	1120.53	-0.0002194
1674.76	0.1274	0	0.0036	35.9203	0.935057562	0	0	0.0637	100	0.015932302	227.7674	108.8594	137.3303	577.7922	1219.225	-0.0002016
1820.2	0.1172	0	0.0037	36.3542	0.961031383	0	0	0.0586	100	0.0173159	247.5472	118.313	149.2564	627.969	1325.106	-0.0001712
1980.09	0.1077	0	0.0037	36.7665	0.961031383	0	0	0.05385	100	0.018836963	269.2922	128.7059	162.3674	683.1311	1441.506	-0.0001574
2148.13	0.0993	0	0.0037	37.1377	0.961031383	0	0	0.04965	100	0.020435559	292.1457	139.6285	176.1467	741.1049	1563.839	-0.0001451
2334.35	0.0914	0	0.0038	37.3642	0.987005204	0	0	0.0457	100	0.022207104	317.4716	151.7328	191.4167	805.3508	1699.407	-0.0001224
2536.95	0.0841	0	0.0038	37.7285	0.987005204	0	0	0.04205	100	0.024134475	345.0252	164.9018	208.0299	875.2478	1846.9	-0.0001126
2757.68	0.0774	0	0.0038	38.0903	0.987005204	0	0	0.0387	100	0.026234321	375.0445	179.2492	226.1298	951.3996	2007.591	-0.0001036
2995.36	0.0712	0	0.0039	38.4599	1.012979025	0	0	0.0356	100	0.028495415	407.369	194.6984	245.6195	1033.399	2180.622	-8.671E-05
3255.83	0.0655	0	0.0039	38.6605	1.012979025	0	0	0.03275	100	0.030973314	442.7929	211.629	266.9781	1123.261	2370.244	-7.978E-05
3543.33	0.0602	0	0.0039	39.0181	1.012979025	0	0	0.0301	100	0.033708355	481.8929	230.3165	290.5531	1222.449	2579.544	-7.33E-05
3850.5	0.0554	0	0.004	39.3431	1.038952847	0	0	0.0277	100	0.03663052	523.668	250.2825	315.741	1328.423	2803.164	-6.071E-05
4181.55	0.051	0	0.004	39.7435	1.038952847	0	0	0.0255	100	0.03977986	568.6908	271.8008	342.8871	1442.635	3044.168	-5.59E-05
4439.89	0.048	0	0.004	39.9301	1.038952847	0	0	0.024	100	0.042237496	603.825	288.5929	364.071	1531.762	3232.24	-5.265E-05
4839.08	0.0441	0	0.004	40.1493	1.038952847	0	0	0.02205	100	0.046035065	658.1149	314.5402	396.8046	1669.483	3522.85	-4.831E-05
5367.36	0.0397	0	0.0041	40.5846	1.064926668	0	0	0.01985	100	0.05106069	729.961	348.8784	440.1235	1851.739	3907.438	-3.871E-05
5833.22	0.0366	0	0.0041	40.9141	1.064926668	0	0	0.0183	100	0.055492503	793.3179	379.1593	478.324	2012.461	4246.584	-3.562E-05
6341.08	0.0336	0	0.0042	41.278	1.090900489	0	0	0.0168	100	0.060323869	862.3869	412.1702	519.9686	2187.673	4616.306	-2.867E-05
6890.66	0.031	0	0.0042	41.5285	1.090900489	0	0	0.0155	100	0.065552125	937.1298	447.8929	565.0341	2377.278	5016.4	-2.639E-05
7488.46	0.0285	0	0.0042	41.9344	1.090900489	0	0	0.01425	100	0.071239108	1018.431	486.7499	614.0537	2583.519	5451.599	-2.428E-05
8139.36	0.0262	0	0.0043	42.4108	1.11687431	0	0	0.0131	100	0.07743124	1106.953	529.0584	667.4275	2808.079	5925.454	-1.915E-05
8845.29	0.0241	0	0.0043	42.7793	1.11687431	0	0	0.01205	100	0.084146883	1202.959	574.9439	725.3138	3051.625	6439.371	-1.762E-05
9610.66	0.0222	0.0001	0.0044	43.234	1.142848131	0	0	0.0111	100	0.091427989	1307.05	624.6929	788.0741	3315.678	6996.56	-1.351E-05
10447.23	0.0204	0	0.0044	43.8199	1.142848131	0	0	0.0102	100	0.099386435	1420.823	679.07	856.6729	3604.294	7605.583	-1.243E-05
11353.21	0.0188	0.0001	0.0045	44.3358	1.168821952	0	0	0.0094	100	0.10800519	1544.037	737.9587	930.9632	3916.857	8265.137	-9.151E-06
12338.26	0.0173	0.0001	0.0046	45.0496	1.194795774	0	0	0.00865	100	0.117376154	1678.003	801.9869	1011.737	4256.7	8982.253	-6.315E-06
13410.81	0.0159	0.0001	0.0047	45.7622	1.220769595	0	0	0.00795	100	0.12757952	1823.87	871.7027	1099.686	4626.729	9763.07	-3.874E-06
14573.29	0.0146	0.0001	0.0048	46.7598	1.246743416	0	0	0.0073	100	0.138638408	1981.967	947.2639	1195.01	5027.785	10609.36	-1.782E-06
15839.6	0.0135	0.0001	0.0049	47.6739	1.272717237	1.668E-14	1.668E-14	0.00675	100	0.15068505	2154.186	1029.574	1298.847	5464.662	11531.23	2.8037E-20
17214.69	0.0124	0.0001	0.005	49.3536	1.298691058	1.923076923	1.923076923	0.0062	98.07692308	0.163766536	2341.198	1118.955	1411.605	5939.068	12532.29	1.5088E-06
18707.86	0.0114	0.0002	0.0052	50.396	1.350638701	3.846153846	5.769230769	0.0057	94.23076923	0.177971339	2544.269	1216.011	1534.045	6454.212	13619.32	4.1652E-06
20333.99	0.0105	0.0002	0.0054	52.7339	1.402586343	3.846153846	9.615384615	0.00525	90.38461538	0.193441015	2765.423	1321.709	1667.387	7015.227	14803.14	6.3868E-06
22099.3	0.0097	0.0003	0.0057	55.7005	1.480507806	5.769230769	15.38461538	0.00485	84.61538462	0.210234736	3005.505	1436.455	1812.143	7624.259	16088.29	9.4026E-06
24018.27	0.0089	0.0003	0.006	58.5469	1.55842927	5.769230769	21.15384615	0.00445	78.84615385	0.228490253	3266.485	1561.188	1969.498	8286.303	17485.3	1.1896E-05
26105.08	0.0082	0.0003	0.0063	63.1057	1.636350733	5.769230769	26.92307692	0.0041	73.07692308	0.248342463	3550.291	1696.83	2140.617	9006.253	19004.5	1.393E-05
28368.61	0.0075	0.0004	0.0067	64.9266	1.740246018	7.692307692	34.61538462	0.00375	65.38461538	0.269875843	3858.131	1843.96	2326.226	9787.17	20652.35	1.648E-05
30830.48	0.0069	0.0004	0.0071	67.7596	1.844141303	7.692307692	42.30769231	0.00345	57.69230769	0.293296069	4192.945	2003.981	2528.099	10636.52	22444.59	1.8534E-05
33506.11	0.0064	0.0005	0.0076	74.5969	1.974010408	9.615384615	51.92307692	0.0032	48.07692308	0.318749833	4556.831	2177.897	2747.501	11559.61	24392.45	2.093E-05
36414.21	0.0059	0.0003	0.0079	77.5074	2.051931872	5.769230769	57.69230769	0.00295	42.30769231	0.346415127	4952.333	2366.924	2985.965	12562.9	26509.54	2.1399E-05

RESULT4

39574.34	0.0054	0.0004	0.0083	81.594	2.155827157	7.692307692	65.38461538	0.0027	34.61538462	0.376478029	5382.11	2572.332	3245.096	13653.15	28810.12	2.2315E-05
43009.2	0.005	0.0003	0.0086	84.376	2.23374862	5.769230769	71.15384615	0.0025	28.84615385	0.409154489	5849.251	2795.598	3526.754	14838.17	31310.7	2.2345E-05
46741.24	0.0046	0.0004	0.009	90.0176	2.337643905	7.692307692	78.84615385	0.0023	21.15384615	0.444658077	6356.809	3038.181	3832.782	16125.73	34027.62	2.2783E-05
50797.83	0.0042	0.0003	0.0093	92.4374	2.415565368	5.769230769	84.61538462	0.0021	15.38461538	0.483249169	6908.505	3301.859	4165.422	17525.25	36980.82	2.2498E-05
55206.36	0.0039	0.0004	0.0097	98.0951	2.519460653	7.692307692	92.30769231	0.00195	7.692307692	0.525188332	7508.065	3588.413	4526.922	19046.19	40190.23	2.2583E-05
59991.18	0.0036	0.0004	0.0101	100	2.623355938	7.692307692	100	0.0018	0	0.570707211	8158.8	3899.427	4919.277	20696.96	43673.58	2.2514E-05
																2.2783E-05

AIRMERCURY CAPILLARY PRESSURE DATA : BY PoroTechnology

SRP 4 @ 5740.0ft; Redman Barth #3

MICP Closure(psia) = 17215.

MICP Porosity = 1.35%

MICP Gr. Den.(gm/cc) = 2.633

MICP Bulk Density(gm/cc) = 2.597

MICP-Calc. Air Perm = 0.000006 md

Median Pore Aperture Dia.(microns) = 0.0065

Injection Pressure (psia)	Pore Diameter (microns)	Hg (nwp) Saturation cum%PV	100-Hg(wp) Saturation cum%PV	Leverett "J" Function	Gas/Brine e Pc (psia)	Gas/Oil Pc (psia)	Oil/Brine Pc (psia)	Ht. Above Free Water (ft.) Gas/Brine	Ht. Above Free Water (ft.) Oil/Brine
5.19	41.14	0.0	100.0	0.00	0.71	0.34	0.43	1.8	3.8
5.48	38.90	0.0	100.0	0.00	0.75	0.36	0.45	1.9	4.0
5.84	36.56	0.0	100.0	0.00	0.79	0.38	0.48	2.0	4.3
6.24	34.21	0.0	100.0	0.00	0.85	0.41	0.51	2.2	4.5
6.48	32.90	0.0	100.0	0.00	0.88	0.42	0.53	2.2	4.7
6.73	31.68	0.0	100.0	0.00	0.92	0.44	0.55	2.3	4.9
7.03	30.33	0.0	100.0	0.00	0.96	0.46	0.58	2.4	5.1
7.33	29.09	0.0	100.0	0.00	1.00	0.48	0.60	2.5	5.3
7.58	28.13	0.0	100.0	0.00	1.03	0.49	0.62	2.6	5.5
7.83	27.24	0.0	100.0	0.00	1.06	0.51	0.64	2.7	5.7
8.18	26.07	0.0	100.0	0.00	1.11	0.53	0.67	2.8	6.0
8.53	24.99	0.0	100.0	0.00	1.16	0.55	0.70	2.9	6.2
9.07	23.51	0.0	100.0	0.00	1.23	0.59	0.74	3.1	6.6
9.60	22.22	0.0	100.0	0.00	1.31	0.62	0.79	3.3	7.0
10.44	20.44	0.0	100.0	0.00	1.42	0.68	0.86	3.6	7.6
11.34	18.81	0.0	100.0	0.00	1.54	0.74	0.93	3.9	8.3
12.33	17.30	0.0	100.0	0.00	1.68	0.80	1.01	4.3	9.0
13.40	15.92	0.0	100.0	0.00	1.82	0.87	1.10	4.6	9.8
14.56	14.65	0.0	100.0	0.00	1.98	0.95	1.19	5.0	10.6
15.83	13.48	0.0	100.0	0.00	2.15	1.03	1.30	5.5	11.5
17.20	12.40	0.0	100.0	0.00	2.34	1.12	1.41	5.9	12.5
18.70	11.41	0.0	100.0	0.00	2.54	1.22	1.53	6.5	13.6
20.32	10.50	0.0	100.0	0.00	2.76	1.32	1.67	7.0	14.8
22.09	9.66	0.0	100.0	0.00	3.00	1.44	1.81	7.6	16.1
24.00	8.89	0.0	100.0	0.00	3.26	1.56	1.97	8.3	17.5
26.09	8.18	0.0	100.0	0.00	3.55	1.70	2.14	9.0	19.0
28.96	7.37	0.0	100.0	0.00	3.94	1.88	2.37	10.0	21.1
31.74	6.72	0.0	100.0	0.00	4.32	2.06	2.60	11.0	23.1
34.76	6.137	0.0	100.0	0.00	4.73	2.26	2.85	12.0	25.3
38.06	5.605	0.0	100.0	0.00	5.18	2.47	3.12	13.1	27.7
41.56	5.133	0.0	100.0	0.00	5.65	2.70	3.41	14.3	30.3
46.03	4.635	0.0	100.0	0.00	6.26	2.99	3.77	15.9	33.5
50.20	4.250	0.0	100.0	0.00	6.83	3.26	4.12	17.3	36.5
54.16	3.939	0.0	100.0	0.00	7.37	3.52	4.44	18.7	39.4
59.42	3.590	0.0	100.0	0.00	8.08	3.86	4.87	20.5	43.3
64.78	3.293	0.0	100.0	0.00	8.81	4.21	5.31	22.3	47.2

AIRMERCURY CAPILLARY PRESSURE DATA : BY PoroTechnology

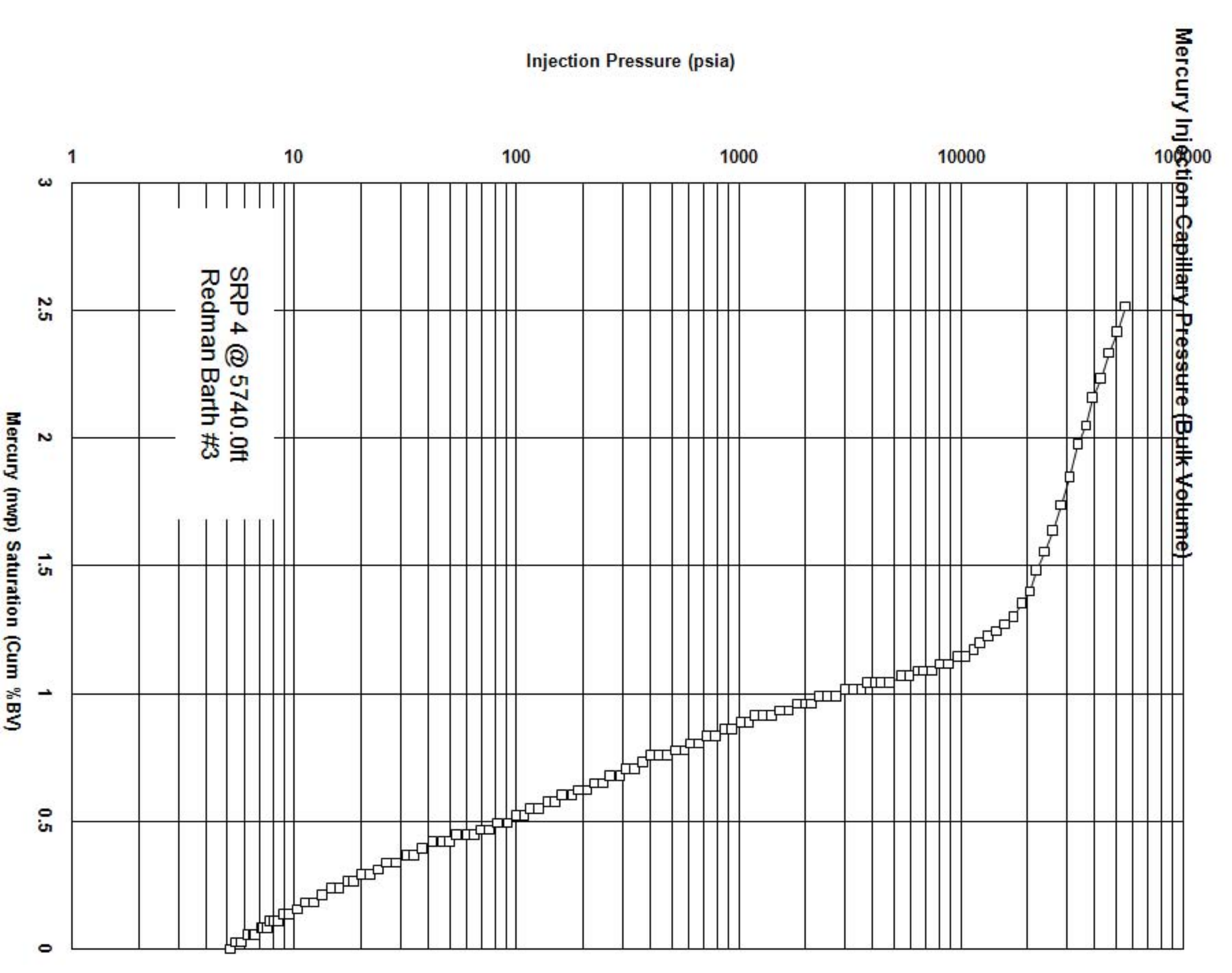
SRP 4 @ 5740.0ft; Redman Barth #3

Injection Pressure (psia)	Pore Diameter (microns)	Hg (nwp) Saturation cum%PV	100-Hg(wp) Saturation cum%PV	Leverett "J" Function	Gas/Brine e Pc (psia)	Gas/Oil Pc (psia)	Oil/Brine Pc (psia)	Ht. Above Free Water (ft.) Gas/Brine	Ht. Above Free Water (ft.) Oil/Brine
70.01	3.047	0.0	100.0	0.00	9.52	4.55	5.74	24.2	51.0
76.05	2.805	0.0	100.0	0.00	10.34	4.94	6.24	26.2	55.4
82.91	2.573	0.0	100.0	0.00	11.28	5.39	6.80	28.6	60.4
90.87	2.348	0.0	100.0	0.00	12.36	5.91	7.45	31.4	66.2
98.94	2.156	0.0	100.0	0.00	13.46	6.43	8.11	34.1	72.0
107.71	1.980	0.0	100.0	0.00	14.65	7.00	8.83	37.2	78.4
116.75	1.827	0.0	100.0	0.00	15.88	7.59	9.57	40.3	85.0
126.63	1.685	0.0	100.0	0.00	17.22	8.23	10.38	43.7	92.2
137.44	1.552	0.0	100.0	0.00	18.69	8.93	11.27	47.4	100.1
149.77	1.424	0.0	100.0	0.00	20.37	9.74	12.28	51.7	109.0
161.93	1.317	0.0	100.0	0.00	22.02	10.53	13.28	55.9	117.9
177.14	1.204	0.0	100.0	0.00	24.09	11.51	14.53	61.1	129.0
192.40	1.109	0.0	100.0	0.00	26.17	12.51	15.78	66.4	140.1
207.45	1.028	0.0	100.0	0.00	28.21	13.48	17.01	71.6	151.0
226.51	0.942	0.0	100.0	0.00	30.81	14.72	18.57	78.1	164.9
247.30	0.863	0.0	100.0	0.00	33.63	16.07	20.28	85.3	180
266.41	0.801	0.0	100.0	0.00	36.23	17.32	21.85	91.9	194
290.97	0.733	0.0	100.0	0.00	39.57	18.91	23.86	100.4	212
316.12	0.675	0.0	100.0	0.00	42.99	20.55	25.92	109.1	230
342.64	0.623	0.0	100.0	0.00	46.60	22.27	28.10	118.2	249
373.94	0.571	0.0	100.0	0.00	50.86	24.31	30.66	129	272
407.32	0.524	0.0	100.0	0.00	55.40	26.48	33.40	141	297
441.73	0.483	0.0	100.0	0.00	60.08	28.71	36.22	152	322
482.75	0.442	0.0	100.0	0.00	65.65	31.38	39.59	167	351
524.40	0.407	0.0	100.0	0.00	71.32	34.09	43.00	181	382
567.44	0.376	0.0	100.0	0.01	77.17	36.88	46.53	196	413
616.08	0.346	0.0	100.0	0.01	83.79	40.05	50.52	213	449
671.40	0.318	0.0	100.0	0.01	91.31	43.64	55.05	232	489
726.63	0.294	0.0	100.0	0.01	98.82	47.23	59.58	251	529
790.09	0.270	0.0	100.0	0.01	107.45	51.36	64.79	273	575
859.14	0.248	0.0	100.0	0.01	116.84	55.84	70.45	296	625
936.12	0.228	0.0	100.0	0.01	127.31	60.85	76.76	323	681
1016.95	0.210	0.0	100.0	0.01	138.31	66.10	83.39	351	740
1105.28	0.193	0.0	100.0	0.01	150.32	71.84	90.63	381	805
1201.36	0.178	0.0	100.0	0.01	163.38	78.09	98.51	414	875
1304.09	0.164	0.0	100.0	0.01	177.36	84.77	106.94	450	949
1417.02	0.151	0.0	100.0	0.01	192.71	92.11	116.20	489	1032
1539.19	0.139	0.0	100.0	0.01	209.33	100.05	126.21	531	1121
1674.76	0.127	0.0	100.0	0.02	227.77	108.86	137.33	578	1219
1820.20	0.117	0.0	100.0	0.02	247.55	118.31	149.26	628	1325
1980.09	0.108	0.0	100.0	0.02	269.29	128.71	162.37	683	1442
2148.13	0.099	0.0	100.0	0.02	292.15	139.63	176.15	741	1564
2334.35	0.091	0.0	100.0	0.02	317.47	151.73	191.42	805	1699
2536.95	0.0841	0.0	100.0	0.02	345.03	164.90	208.03	875	1847

AIRMERCURY CAPILLARY PRESSURE DATA : BY PoroTechnology

SRP 4 @ 5740.0ft; Redman Barth #3

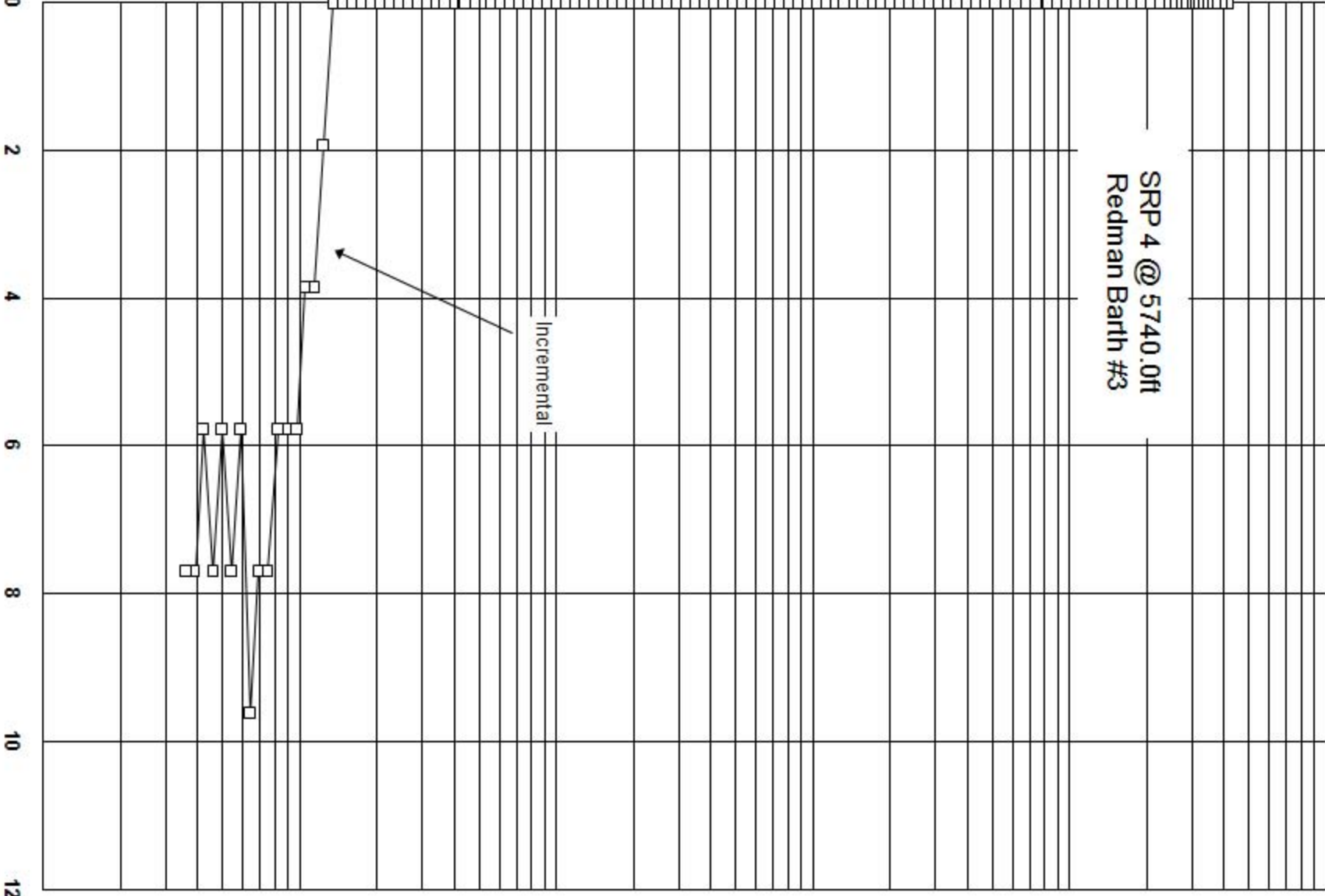
Injection Pressure (psia)	Pore Diameter (microns)	Hg (nwp) Saturation cum%PV	100-Hg(wp) Saturation cum%PV	Leverett "J" Function	Gas/Brine Pc (psia)	Gas/Oil Pc (psia)	Oil/Brine Pc (psia)	Ht. Above Free Water (ft.) Gas/Brine	Ht. Above Free Water (ft.) Oil/Brine
2757.68	0.0774	0.0	100.0	0.03	375.04	179.25	226.13	951	2008
2995.36	0.0712	0.0	100.0	0.03	407.37	194.70	245.62	1033	2181
3255.83	0.0655	0.0	100.0	0.03	442.79	211.63	266.98	1123	2370
3543.33	0.0602	0.0	100.0	0.03	481.89	230.32	290.55	1222	2580
3850.50	0.0554	0.0	100.0	0.04	523.67	250.28	315.74	1328	2803
4181.55	0.0510	0.0	100.0	0.04	568.69	271.80	342.89	1443	3044
4439.89	0.0480	0.0	100.0	0.04	603.83	288.59	364.07	1532	3232
4839.08	0.0441	0.0	100.0	0.05	658.11	314.54	396.80	1669	3523
5367.36	0.0397	0.0	100.0	0.05	729.96	348.88	440.12	1852	3907
5833.22	0.0366	0.0	100.0	0.06	793.32	379.16	478.32	2012	4247
6341.08	0.0336	0.0	100.0	0.06	862.39	412.17	519.97	2188	4616
6890.66	0.0310	0.0	100.0	0.07	937.13	447.89	565.03	2377	5016
7488.46	0.0285	0.0	100.0	0.07	1018.43	486.75	614.05	2584	5452
8139.36	0.0262	0.0	100.0	0.08	1106.95	529.06	667.43	2808	5925
8845.29	0.0241	0.0	100.0	0.08	1202.96	574.94	725.31	3052	6439
9610.66	0.0222	0.0	100.0	0.09	1307.05	624.69	788.07	3316	6997
10447.23	0.0204	0.0	100.0	0.10	1420.82	679.07	856.67	3604	7606
11353.21	0.0188	0.0	100.0	0.11	1544.04	737.96	930.96	3917	8265
12338.26	0.0173	0.0	100.0	0.12	1678.00	801.99	1011.74	4257	8982
13410.81	0.0159	0.0	100.0	0.13	1823.87	871.70	1099.69	4627	9763
14573.29	0.0146	0.0	100.0	0.14	1981.97	947.26	1195.01	5028	10609
15839.60	0.0135	0.0	100.0	0.15	2154.19	1029.57	1298.85	5465	11531
17214.69	0.0124	1.9	98.1	0.16	2341.20	1118.95	1411.60	5939	12532
18707.86	0.0114	5.8	94.2	0.18	2544.27	1216.01	1534.04	6454	13619
20333.99	0.0105	9.6	90.4	0.19	2765.42	1321.71	1667.39	7015	14803
22099.30	0.0097	15.4	84.6	0.21	3005.50	1436.45	1812.14	7624	16088
24018.27	0.0089	21.2	78.8	0.23	3266.48	1561.19	1969.50	8286	17485
26105.08	0.0082	26.9	73.1	0.25	3550.29	1696.83	2140.62	9006	19004
28368.61	0.0075	34.6	65.4	0.27	3858.13	1843.96	2326.23	9787	20652
30830.48	0.0069	42.3	57.7	0.29	4192.95	2003.98	2528.10	10637	22445
33506.11	0.0064	51.9	48.1	0.32	4556.83	2177.90	2747.50	11560	24392
36414.21	0.0059	57.7	42.3	0.35	4952.33	2366.92	2985.97	12563	26510
39574.34	0.0054	65.4	34.6	0.38	5382.11	2572.33	3245.10	13653	28810
43009.20	0.0050	71.2	28.8	0.41	5849.25	2795.60	3526.75	14838	31311
46741.24	0.0046	78.8	21.2	0.44	6356.81	3038.18	3832.78	16126	34028
50797.83	0.0042	84.6	15.4	0.48	6908.50	3301.86	4165.42	17525	36981
55206.36	0.0039	92.3	7.7	0.53	7508.06	3588.41	4526.92	19046	40190
59991.18	0.0036	100.0	0.0	0.57	8158.80	3899.43	4919.28	20697	43674



Pore Aperture Diameter (microns)

0.001 0.01 0.1 1 10

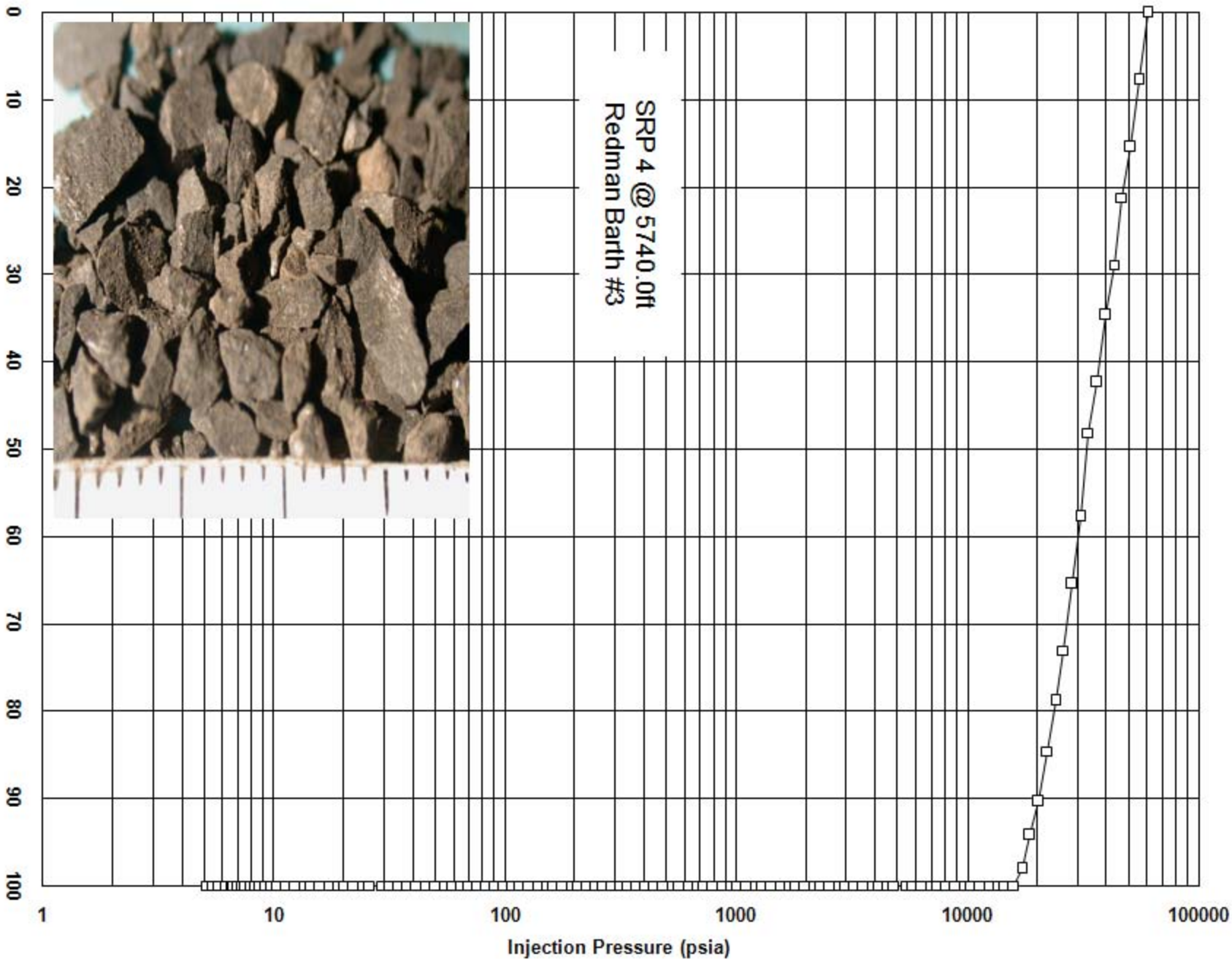
Mercury (nwp) Saturation (Inc %PV)

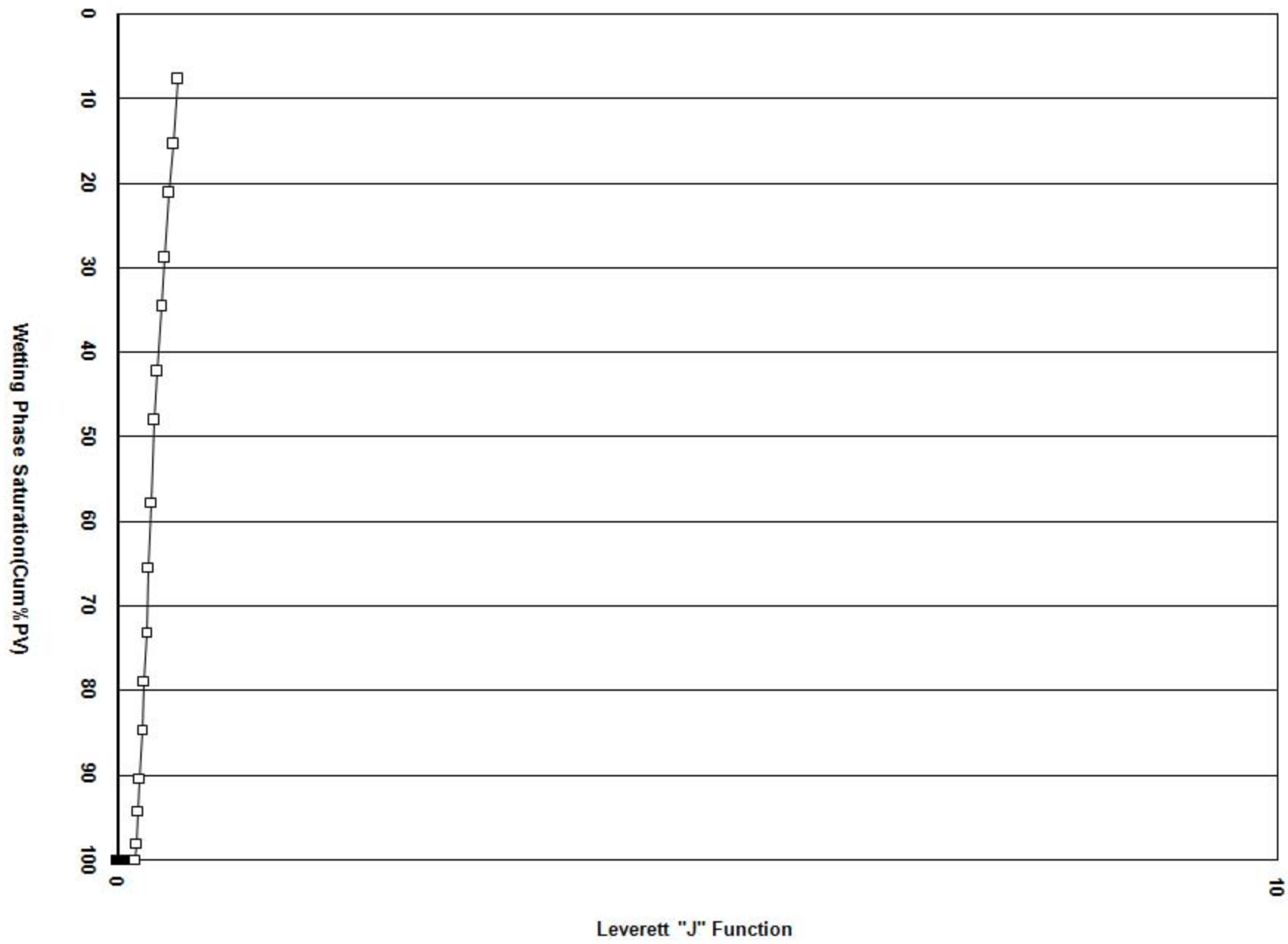


SRP 4 @ 5740.0ft
Redman Barth #3

Incremental

Wetting Phase (wp) Saturation (Cum %PV)







**ROCK MECHANICS TESTING & ANALYSES
REDMAN BARTH NO. 3
DOLAN INTEGRATION GROUP**

**ROCK MECHANICS FINAL REPORT
(Triaxial Compressive Tests)
(Acoustic Velocities)**

WFT Labs HH-45711

Performed by:
**Weatherford Laboratories
8845 Fallbrook Drive
Houston, TX 77064**

Ohmyoung Kwon, Ph.D.

Report Issued:
January 14, 2010

The interpretations or opinions expressed represent the best judgment of Weatherford Laboratories and assumes no responsibility and makes no warranty or representations, as to the productivity, proper operation, or profitability of any oil, gas or any other mineral well. These analyses, opinions or interpretations are based on observations and materials supplied by the client for whom this report is made.

Procedures for Triaxial Compressive Strength Test

The general procedures for triaxial compressive test are summarized in the following:

- 1) A right cylindrical plug is cut from the sample core and their ends ground parallel according to International Society for Rock Mechanics (ISRM) and American Society for Testing and Materials (ASTM) standards. A length to diameter ratio of 2:1 is recommended to obtain representative mechanical properties of the sample, which is also recommended by ASTM and ISRM. Physical dimensions and weight of the specimen are recorded and the specimen is saturated with simulated formation brine.
- 2) The specimen is then placed between two platens and a heat-shrink jacket is placed over the specimen.
- 3) Axial strain and radial strain devices are mounted in the endcaps and on the lateral surface of the specimen, respectively.
- 4) The specimen assembly is placed into the pressure vessel and the pressure vessel is filled with hydraulic oil.
- 5) Pore pressure and confining pressure is increased to the desired testing condition.
- 6) Measure ultrasonic velocities at the hydrostatic confining pressure.
- 7) Specimen assembly is brought into the contact with a loading piston that allows application of axial load.
- 8) Increase axial load at a constant rate until the specimen fails or axial strain reaches a desired amount of strain while confining pressure is held constant.
- 9) Reduce axial stress to the initial hydrostatic condition after sample fails or reaches a desired axial strain.
- 10) Reduce pore pressure and confining pressure to zero and disassemble sample.

SUMMARY OF TRIAXIAL COMPRESSIVE TESTS

saturated with 2% KCl

Dolan Integration Group
Redman Barth No. 3

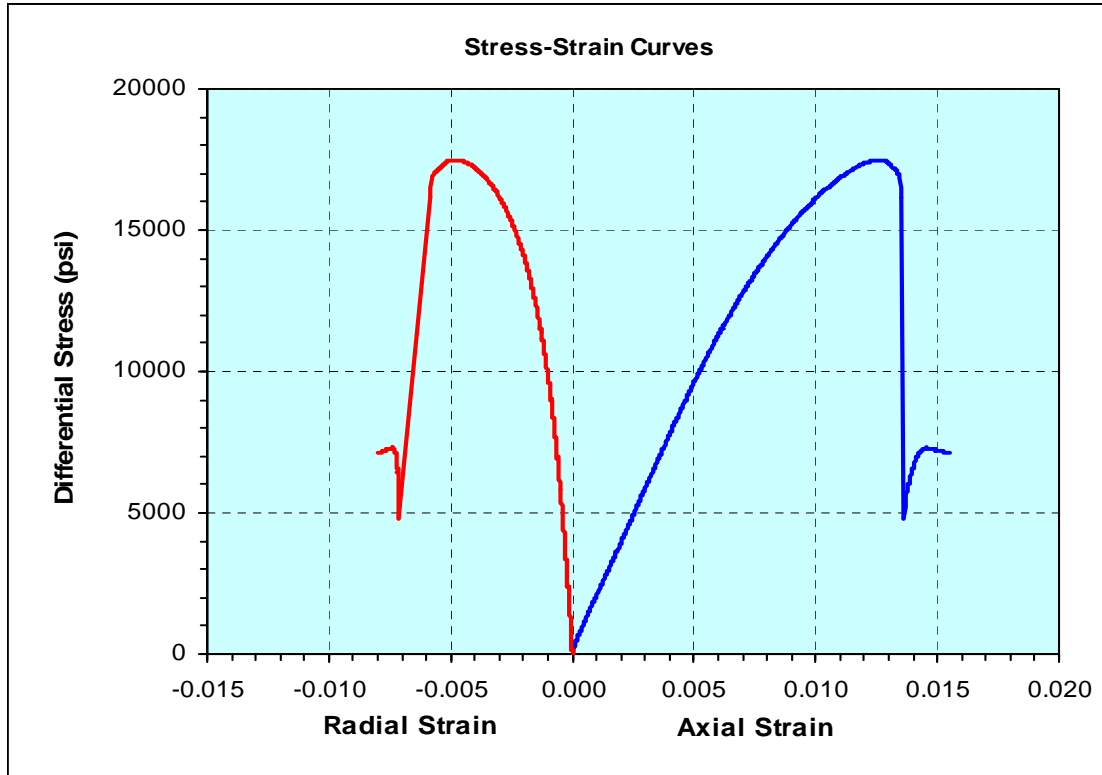
Sample No.	Depth (ft)	Confining Pressure (psi)	Pore Pressure (psi)	Compressive Strength (psi)	Static Young's Modulus ($\times 10^6$ psi)	Static Poisson's Ratio
5661VRM	5661.50	2500	500	19493	1.87	0.23
5680VRM	5680.50	2500	500	19921	2.15	0.23
5683VRM	5683.50	2500	500	25790	3.11	0.25
5790VRM	5790.00	2500	500	19397	1.93	0.25

SUMMARY OF ULTRASONIC VELOCITIES AND DYNAMIC ELASTIC PARAMETERS
saturated with 2% KCl

Dolan Integration Group
Redman Barth No. 3

Sample No.	Depth (ft)	Confining Pressure (psi)	Bulk Density (g/cc)	Ultrasonic Wave Velocity				Dynamic Elastic Parameter			
				Compressional		Shear		Young's Modulus (x10 ⁶ psi)	Poisson's Ratio	Bulk Modulus (x10 ⁶ psi)	Shear Modulus (x10 ⁶ psi)
				ft/sec	μsec/ft	ft/sec	μsec/ft				
5661VRM	5661.50	2500	2.56	13418	74.53	7636	130.96	5.06	0.26	3.52	2.01
5680VRM	5680.50	2500	2.55	13789	72.52	8172	122.37	5.64	0.23	3.47	2.29
5683VRM	5683.50	2500	2.59	15272	65.48	8801	113.62	6.78	0.25	4.54	2.71
5790VRM	5790.00	2500	2.61	14293	69.96	8074	123.85	5.79	0.27	4.12	2.29

Result of Triaxial Compressive Test



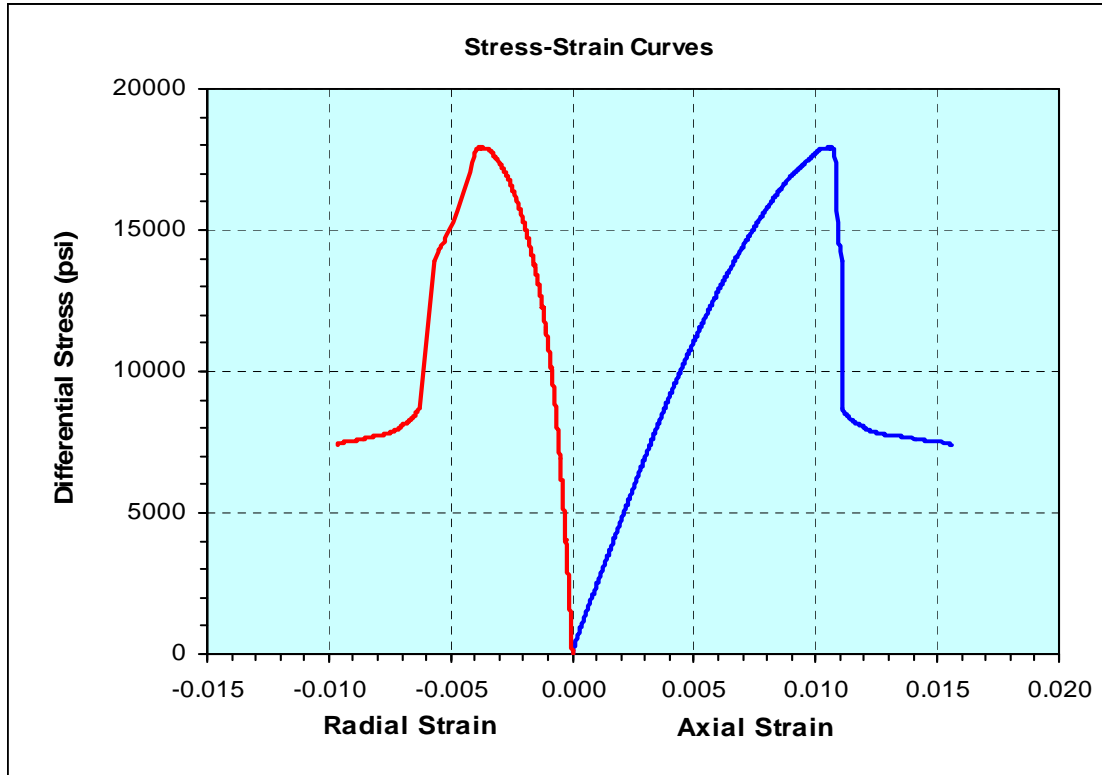
Company	Dolan
Project Title	Redman Barth
WFT Project No.	HH-45711
Date	January 2010

Sample No.	5661VRM
Depth (ft)	5661.50
Saturation State	4% KCl
Confining Pressure (psi)	2500
Pore Pressure (psi)	500
Bulk Density* (g/cc)	2.56
Compressive Strength (psi)	19493
Young's Modulus (x10 ⁶ psi)	1.87
Poisson's Ratio	0.23

* saturated



Result of Triaxial Compressive Test



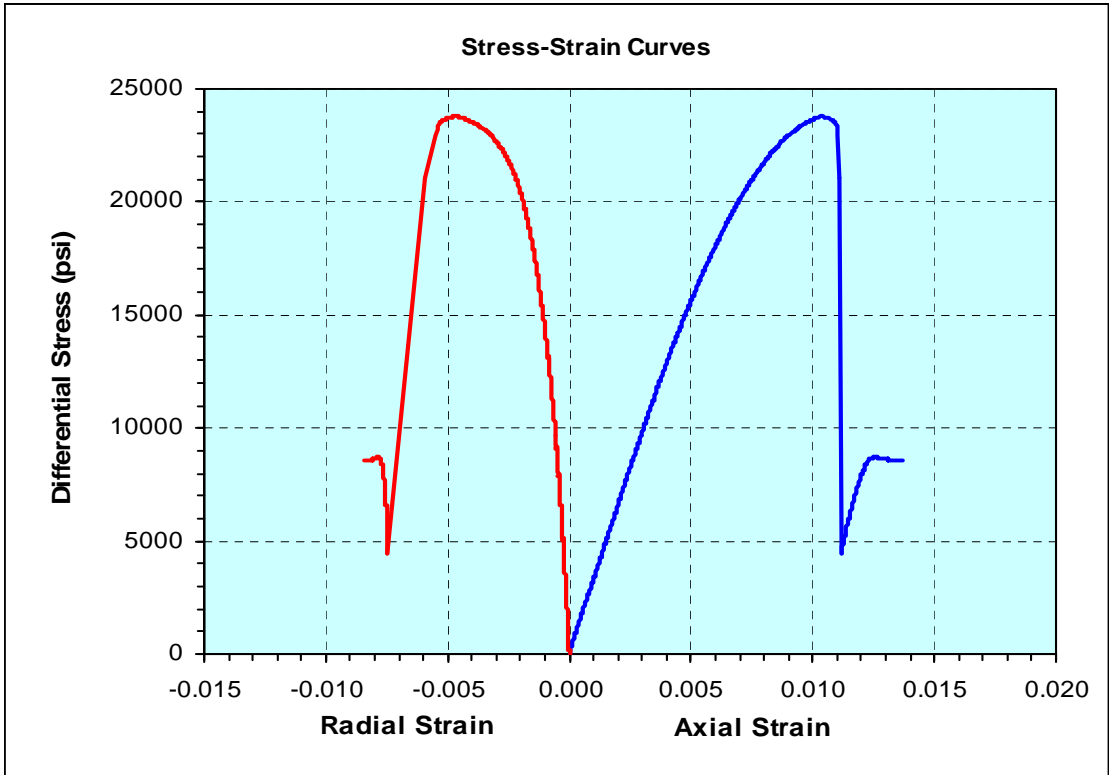
Company	Dolan
Project Title	Redman Barth
WFT Project No.	HH-45711
Date	January 2010

Sample No.	5680VRM
Depth (ft)	5680.50
Saturation State	4% KCl
Confining Pressure (psi)	2500
Pore Pressure (psi)	500
Bulk Density* (g/cc)	2.55
Compressive Strength (psi)	19921
Young's Modulus (x10 ⁶ psi)	2.15
Poisson's Ratio	0.23

* saturated



Result of Triaxial Compressive Test



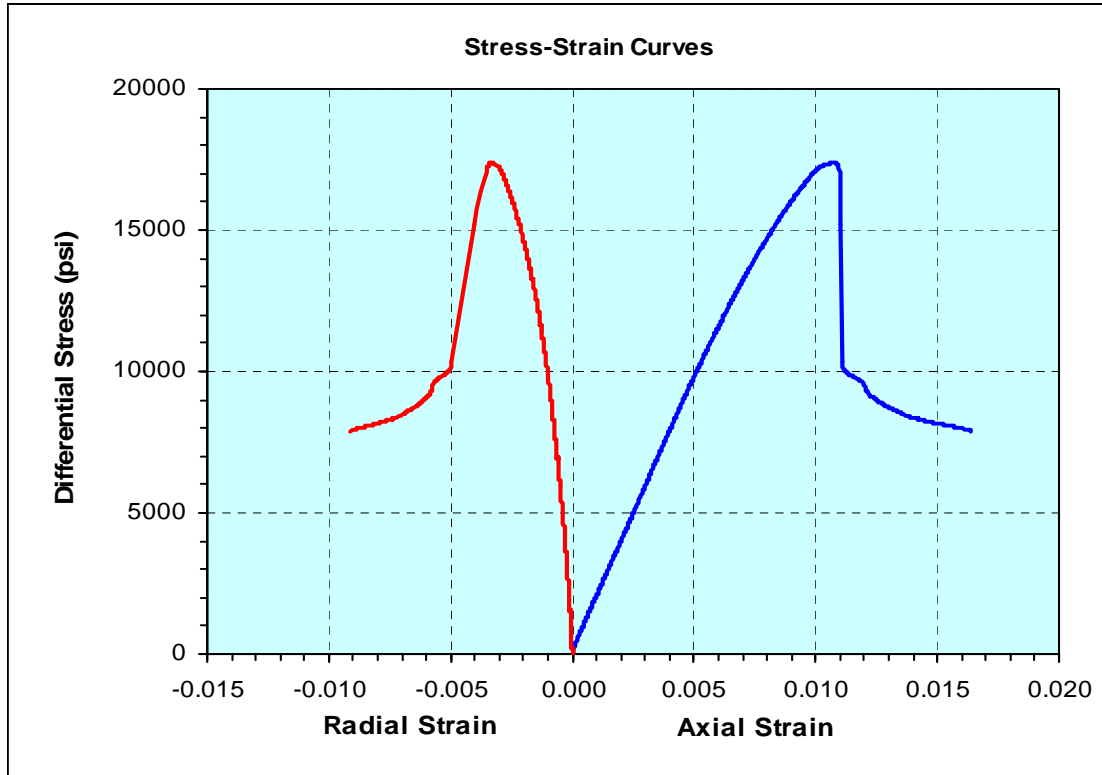
Company	Dolan
Project Title	Redman Barth
WFT Project No.	HH-45711
Date	January 2010

Sample No.	5683VRM
Depth (ft)	5683.50
Saturation State	4% KCl
Confining Pressure (psi)	2500
Pore Pressure (psi)	500
Bulk Density* (g/cc)	2.59
Compressive Strength (psi)	25790
Young's Modulus (x10 ⁶ psi)	3.11
Poisson's Ratio	0.25

* saturated



Result of Triaxial Compressive Test



Company	Dolan
Project Title	Redman Barth
WFT Project No.	HH-45711
Date	January 2010

Sample No.	5790VRM
Depth (ft)	5790.00
Saturation State	4% KCl
Confining Pressure (psi)	2500
Pore Pressure (psi)	500
Bulk Density* (g/cc)	2.61
Compressive Strength (psi)	19397
Young's Modulus (x10 ⁶ psi)	1.93
Poisson's Ratio	0.25

* saturated





**WEATHERFORD LABORATORIES
X-RAY DIFFRACTION
(WEIGHT %)**

Client: Dolan Integration Group
Well: Redman Barth No. 3
Area: Unknown
Sample Type: Conventional Core

File No: HH-45711
Date: 12/17/09
Analyst: G. Walker

Sample Depth (ft)	CLAYS				CARBONATES			OTHER MINERALS						TOTALS		
	Chlorite	Kaolinite	Illite	Mx I/S*	Calcite	Dol/Ank	Siderite	Quartz	K-spar	Plag.	Pyrite	Apatite	Barite	Clays	Carb.	Other
5634.50	14	1	20	2	22	2	Tr	27	1	5	4	2	0	37	24	39
5640.90	12	1	16	2	36	3	Tr	21	1	3	3	2	0	31	39	30
5653.90	9	1	12	1	53	2	Tr	13	1	2	4	2	0	23	55	22
5661.50	11	1	17	2	40	2	Tr	18	1	3	3	2	0	31	42	27
5665.60	11	1	15	2	40	6	Tr	17	1	3	2	2	0	29	46	25
5677.50	10	1	14	2	43	3	Tr	17	1	3	4	2	0	27	46	27
5680.50	9	1	12	1	47	3	Tr	18	1	3	3	2	0	23	50	27
5683.50	7	1	10	1	54	6	Tr	15	1	2	2	1	0	19	60	21
5686.60	13	1	20	2	32	2	Tr	21	1	3	3	2	0	36	34	30
5702.70	9	1	13	1	53	4	Tr	10	1	2	3	3	0	24	57	19
5705.10	10	1	15	2	45	7	Tr	13	1	2	2	2	0	28	52	20
5706.90	9	1	13	1	51	4	Tr	13	1	2	3	2	0	24	55	21
5715.50	9	1	15	1	49	2	Tr	13	1	2	4	3	0	26	51	23
5740.00	8	1	14	1	53	4	Tr	9	1	1	4	4	0	24	57	19
5747.00	8	1	14	1	51	2	Tr	13	1	1	4	4	0	24	53	23
AVERAGE	10	1	15	1	45	3	Tr	16	1	3	3	2	0	27	48	25

* Ordered interstratified mixed-layer illite/smectite; Approximately 10-15% expandable interlayers

Digital thin section photos available for the depths listed in the first four digits of the file name below:

5634_50_1A_25X.jpg

5634_50_1B_100X.jpg

5640_90_2A_25X.jpg

5640_90_2B_100X.jpg

5653_90_3A_25X.jpg

5653_90_3B_100X.jpg

5661_50_4A_25X.jpg

5661_50_4B_100X.jpg

5665_60_5A_25X.jpg

5665_60_5B_100X.jpg

5677_50_6A_25X.jpg

5677_50_6B_100X.jpg

5680_50_7A_25X.jpg

5680_50_7B_100X.jpg

5683_50_8A_25X.jpg

5683_50_8B_100X.jpg

5686_60_9A_50X.jpg

5686_60_9B_200X.jpg

5702_70_10A_25X.jpg

5702_70_10B_100X.jpg

5705_10_11A_25X.jpg

5705_10_11B_100X.jpg

5706_90_12A_50X.jpg

5706_90_12B_200X.jpg

5715_50_13A_50X.jpg

5715_50_13B_200X.jpg

5740_00_14A_25X.jpg

5740_00_14B_100X.jpg

5747_00_15A_25X.jpg

5747_00_15B_100X.jpg

BP Chemical Plant Well #4 & Redman Barth #3
Tight Rock Analysis
Project No: 503192
June 22, 2010



Sample ID	Depth (ft)	As Received Bulk Density (^g /cc)	As Received Grain Density (^g /cc)	Dry Grain Density (^g /cc)	Porosity (% of BV)	Water Saturation (% of PV)	Gas Saturation (% of PV)	Mobile Oil Saturation (% of PV)	Gas Filled Porosity (% of BV)	Bound Hydrocarbon Saturation (% of BV)	Bound Clay Water (% of BV)	Pressure-Decay Permeability (mD)
BP Chemical Plant #4												
BP Chemical Plant #4 1	1251.70	2.617	2.682	2.707	3.76	23.94	64.47	11.59	2.42	1.28	7.25	0.000223
BP Chemical Plant #4 2	1256.50	2.598	2.662	2.691	4.01	29.21	60.02	10.77	2.41	1.78	7.20	0.000173
Redman barth #3												
Redman barth #3 1	5635.50	2.669	2.712	2.714	1.67	0.59	94.10	5.31	1.58	0.60	1.57	0.000124
Redman Barth #3 2	5668.80	2.574	2.634	2.646	2.86	1.00	80.04	18.97	2.29	1.74	3.70	0.000173
Redman Barth #3 3	5677.50	2.530	2.596	2.608	3.11	1.50	81.34	17.15	2.53	2.37	4.21	0.000214
Redman Barth #3 4	5703.70	2.583	2.640	2.652	2.73	0.35	79.66	19.99	2.17	1.65	2.67	0.000170
Redman Barth #3 5	5715.40	2.611	2.647	2.660	2.01	4.80	67.84	27.36	1.37	1.22	4.44	0.000123
Redman Barth #3 6	5738.00	2.614	2.657	2.670	2.25	4.73	70.74	24.53	1.59	1.09	3.29	0.000135

Previous Conventional Results

Depth	Total Phi	Oil Sat	Wat Sat
5635.50	2.10	33.8	50
5668.50	7.40	32.1	23.8
5677.50	7.70	33.3	28.3
5703.50	5.00	56.3	31.6
5715.50	3.70	28.6	24.3
5738.50	6.50	42.8	40

This page left blank intentionally.



**WEATHERFORD LABORATORIES
X-RAY DIFFRACTION
(WEIGHT %)**

Client:
Well: Redman Barth No. 3
Area: Unknown
Sample Type: Cuttings

File No: HH-47670
Date: 06/21/10
Analyst: G. Walker

Sample Depth (ft)	CLAYS				CARBONATES			OTHER MINERALS						TOTALS		
	Chlorite	Kaolinite	Illite	Mx I/S*	Calcite	Fe-Dol	Siderite	Quartz	K-spar	Plag.	Pyrite	Apatite	Barite	Clays	Carb.	Other
5661.4	4	5	16	2	43	2	Tr	18	1	4	3	2	0	27	45	28
5683.5	2	3	12	1	52	7	Tr	16	1	2	2	2	0	18	59	23
5703.7	4	5	17	2	37	5	Tr	19	1	4	3	3	0	28	42	30
5747.0	5	6	21	2	34	7	Tr	15	1	2	4	3	0	34	41	25
AVERAGE	4	5	16	2	41	5	Tr	17	1	3	3	3	0	27	46	27

* Ordered interstratified mixed-layer illite/smectite; Approximately 10-15% expandable interlayers



Geochemical Services Group
143 Vision Park Blvd. Shenandoah, Texas 77384
Telephone: 281-681-2200 Fax: 281-681-0326

Client:
Attn: PK
Well Name: Redman Barth No. 3

Vitrinite Reflectance Report

Weatherford Project: HH-47670

Introduction:

Three polished whole rock cuttings samples (5661.4, 5683.5 and 5747') are analyzed for vitrinite reflectance thermal maturity (%Ro), a very basic estimate of relative abundances of visual kerogen types and other kerogen characteristics. Maturity data indicate that these samples are in the early 'Condensate and /or wet-gas window' zone (Table 1). Amorphous kerogen dominates over terrestrial kerogen in these samples.

Discussion:

The 3 Ro values are 1.10%, 1.11% and 1.12% respectively. Vitrinite reflectance data quality is considered to be reasonably good overall.

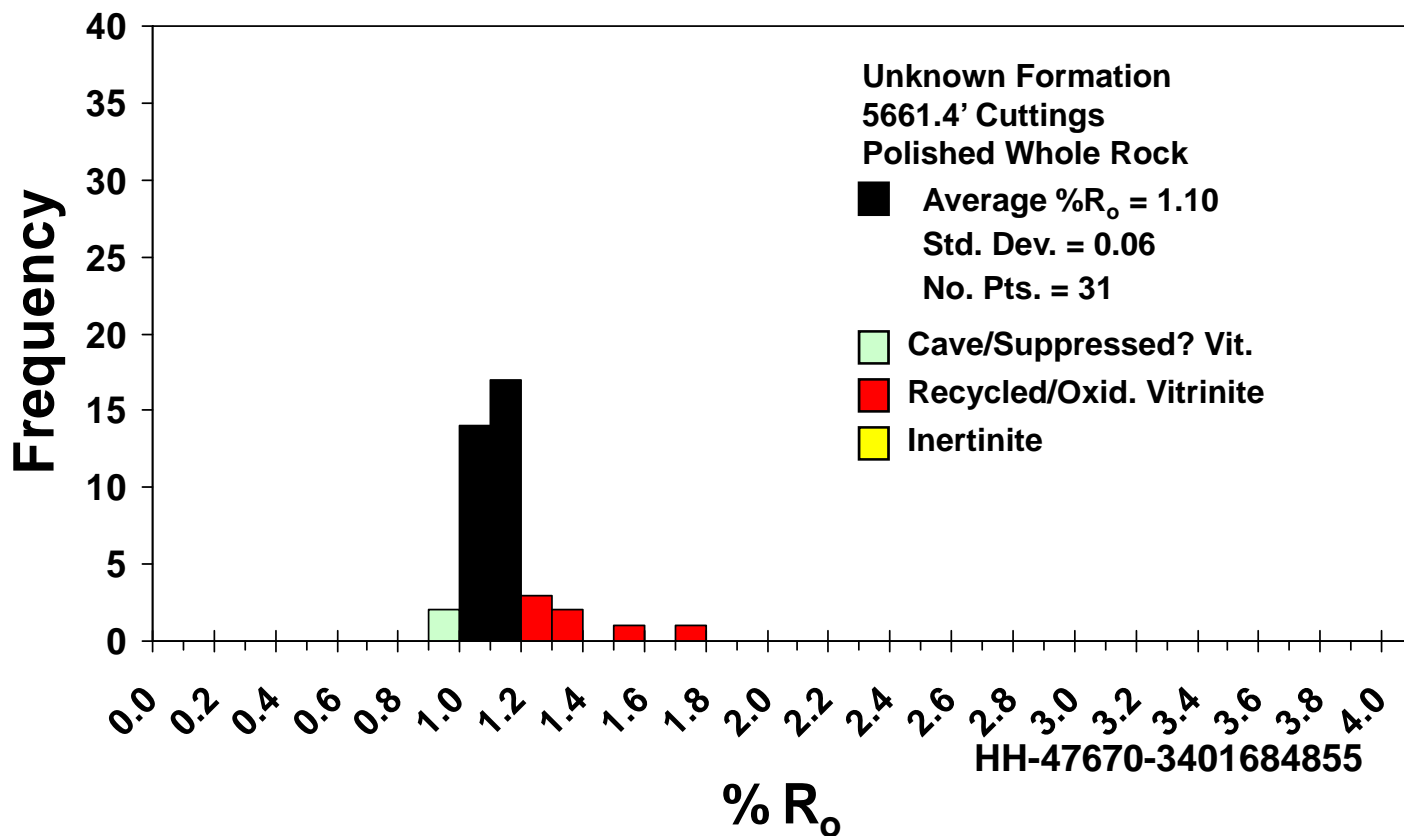
Minor solid bitumen particles are noted in these samples. Their presence is a clue that liquid hydrocarbon generation has likely occurred in the past

Framboidal pyrite is common in all 3 samples (Table 3). This may be indicative of marine influence. The sulfate reducing bacterial activity on organic matter in marine deposits reportedly can result in this type of pyrite. It is normally most common in hydrogen rich (reducing) marine source rocks. Common pyritized hollow spines in the deepest sample may be marine fossils.

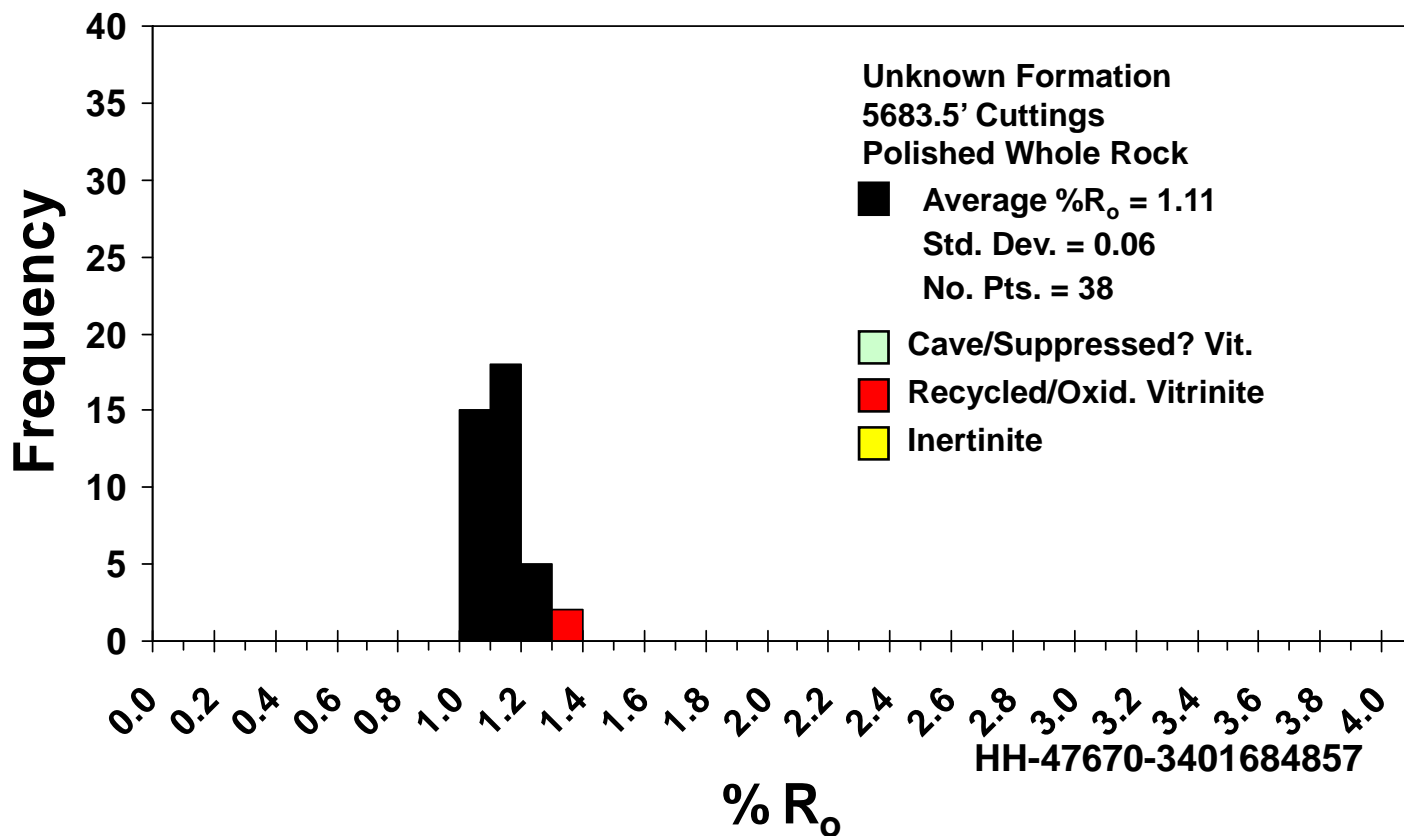
Vitrinite and TAI values are generally divided into the following categories of thermal maturity:

Immature:	0.02% to 0.60%	TAI up to 2+ (2.3)
Oil window maturity:	0.60% to 1.10%	TAI 2+(2.3) up to 3+(3.3)
Condensate and /or wet-gas window:	1.10% to 1.40%	TAI 3+ (3.3)
Dry gas window:	1.40% to 3.0 or 4.0%	TAI 4-(3.7) and higher

Redman Barth No. 3



Redman Barth No. 3



Redman Barth No. 3

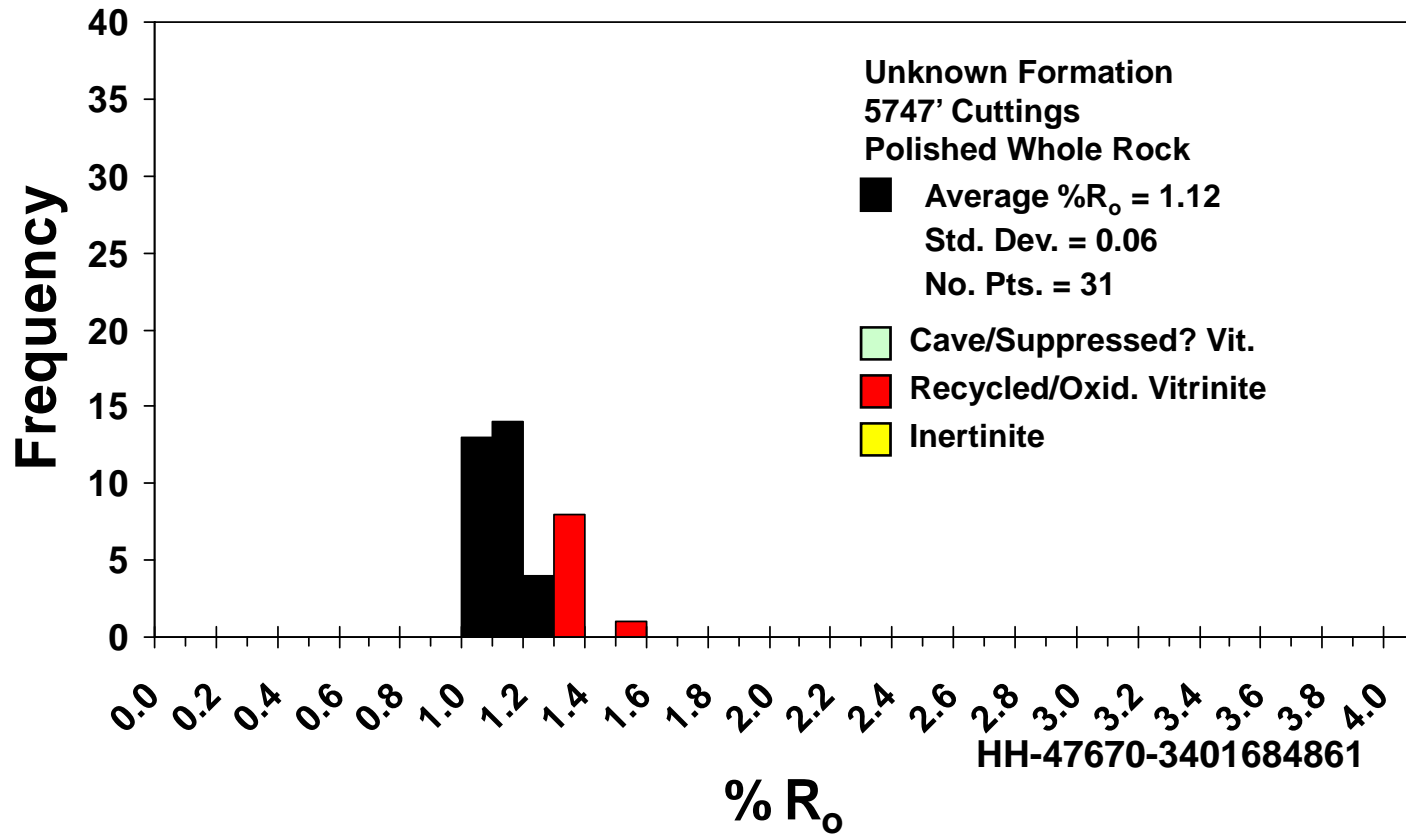


Table 1
Dispersed Organic Matter Thermal Alteration, Kerogen Type and Total Compositional Analysis

WFT ID	Well Name	Client ID	Depth 1	Depth 2	Depth Units	Type	Color	TAI	% Source Material						Preservation				Recovery			% Kerogen Comp.						Vitrinite				Comments					
									Amorphous Debris	Finely Dissem. OM	Herb. Plant Debris (Vit.)	Woody Plant Debris	Coaly Fragments	Algal Debris	Palynomorphs	Good	Fair	Poor	Very poor	Good	Very Poor	Barren	Indigenous Vitrinite	Caved Vitrinite	Recycled/Oxidized Vitrinite	Inertinite	Solid Bitumen	Drilling Additive/Contamination	Amorphous Kerogen	# of Readings	Total Sample Ro (%)		# of Indigenous Readings	Indigenous Ro (%)			
3401684855	Barth No. 3	1		5661.4	ft	Cutting			98		2					X										1	tr	1	tr	1		97	40	1.14	31	1.10	
3401684857	Barth No. 3	2		5683.5	ft	Cutting			98		2					X										1	tr	1	tr	2	96	40	1.12	38	1.11		
3401684861	Barth No. 3	4		5747	ft	Cutting			99		1					X									1	tr	tr	tr	1	98	40	1.17	31	1.12	common pyritized hollow spines		

tr = trace

TAI Scale: 1=Unaltered

3+ or 3.5

Color

Abbreviation

GLY	Green-Light Yellow	B	Brown
Y	Yellow	DBDG	Dark Brown-Dark Gray
YO	Yellow-Orange	DGBL	Dark Gray-Black
OB	Orange-Brown	BLK	Black
LB	Light Brown		

1+ or 1.5
2=Slight alteration
2+ or 2.5
3=Moderate alteration

4=Strong alteration
4+ or 4.5
5=Severe alteration

Table 3. Pyrite types and abundance in kerogen

1 = very rare
 2 = rare
 3 = common
 4 = abundant
 5 = very abundant

WFT ID	Well Name	Client ID	Depth 1	Depth 2	Depth Units	Type	Pyrite types		
							Finely Disseminated	Euhedral	Framboidal
3401684855	Redman Barth No. 3	1		5661.4	ft	Cutting	3	4	3
3401684857	Redman Barth No. 3	2		5683.5	ft	Cutting	3	4	3
3401684861	Redman Barth No. 3	4		5747	ft	Cutting	3	4	3

Table 4. Individual Reflectance Readings

Sample ID	3401684855		3401684857		3401684861	
Client ID	Redman Barth No. 3		Redman Barth No. 3		Redman Barth No. 3	
Well Name	Redman Barth No. 3		Redman Barth No. 3		Redman Barth No. 3	
Top Depth	5661.4		5683.5		5747.0	
	All Data	Indigeno us Data	All Data	Indigeno us Data	All Data	Indigeno us Data
	0.95	1	1.02	1.02	1.02	1.02
	0.97	1.01	1.03	1.03	1.02	1.02
	1	1.01	1.03	1.03	1.02	1.02
	1.01	1.02	1.03	1.03	1.05	1.05
	1.01	1.02	1.04	1.04	1.06	1.06
	1.02	1.03	1.04	1.04	1.06	1.06
	1.02	1.03	1.05	1.05	1.06	1.06
	1.03	1.04	1.05	1.05	1.07	1.07
	1.03	1.04	1.06	1.06	1.07	1.07
	1.04	1.05	1.06	1.06	1.07	1.07
	1.04	1.07	1.06	1.06	1.09	1.09
	1.05	1.08	1.07	1.07	1.09	1.09
	1.07	1.09	1.07	1.07	1.09	1.09
	1.08	1.09	1.08	1.08	1.11	1.11
	1.09	1.1	1.08	1.08	1.11	1.11
	1.09	1.11	1.1	1.1	1.13	1.13
	1.1	1.12	1.11	1.11	1.13	1.13
	1.11	1.12	1.11	1.11	1.14	1.14
	1.12	1.13	1.11	1.11	1.14	1.14
	1.12	1.13	1.12	1.12	1.14	1.14
	1.13	1.13	1.12	1.12	1.16	1.16
	1.13	1.14	1.12	1.12	1.16	1.16
	1.13	1.14	1.13	1.13	1.17	1.17
	1.14	1.15	1.13	1.13	1.18	1.18
	1.14	1.15	1.13	1.13	1.18	1.18
	1.15	1.16	1.14	1.14	1.19	1.19
	1.15	1.17	1.14	1.14	1.19	1.19
	1.16	1.17	1.15	1.15	1.2	1.2
	1.17	1.17	1.17	1.17	1.21	1.21
	1.17	1.2	1.18	1.18	1.21	1.21
	1.17	1.2	1.18	1.18	1.22	1.22
	1.2		1.19	1.19	1.26	
	1.2		1.19	1.19	1.26	
	1.23		1.2	1.2	1.28	
	1.25		1.21	1.21	1.29	
	1.28		1.21	1.21	1.31	
	1.32		1.21	1.21	1.32	
	1.35		1.23	1.23	1.34	
	1.59		1.28		1.35	
	1.73		1.34		1.57	
Average %R_o	1.14	1.10	1.12	1.11	1.17	1.12
Standard Dev.		0.06		0.06		0.06
# of Points	40	31	40	38	40	31



TOTAL ORGANIC CARBON, PROGRAMMED PYROLYSIS DATA

Well Name : REDMAN BARTH NO. 3	Operator : API # :	State : County :	Weatherford Labs Project HH-47670 / HH-47670
---------------------------------------	-------------------------------------	-----------------------------------	--

Client ID	Depth (ft)	Formation	Sample Type	Sample Prep	*	TOC	SRA			Tmax (°C)	Calc % Ro	Meas. % Ro	HI	OI	S2/S3	S1/TOC*100	PI	Notes		Lab ID
	Bottom						S1	S2	S3									Checks	Pyrogram	
1	5661.4		Cutting	NOPR		3.02	2.24	8.34	0.38	447	0.886	1.10	276	13	22	74	0.21	SRA TOC	n:its2sh	3401684855
2	5683.5		Cutting	NOPR		2.25	2.07	5.78	0.35	445	0.85	1.11	257	16	17	92	0.26	TOC	n:its2sh	3401684857
4	5747		Cutting	NOPR		2.50	2.13	6.54	0.49	445	0.85	1.12	261	20	13	85	0.25	SRA TOC	n:its2sh	3401684861

Notes:

"-1" – not measured or invalid value for T_{max}
 TOC - Total Organic Carbon, wt. %
 S1 - volatile hydrocarbon (HC) content, mg HC/ g rock
 S2 - remaining HC generative potential, mg HC/ g rock
 S3 - carbon dioxide content, mg CO₂/ g rock

* - comments regarding contamination
 ** - low S2, Tmax is unreliable
 Meas. %Ro - measured vitrinite reflectance
 HI - Hydrogen index = S2 x 100 / TOC, mg HC/ g TOC
 OI - Oxygen Index = S3 x 100 / TOC, mg CO₂/ g TOC
 PI - Production Index = S1 / (S1+S2)

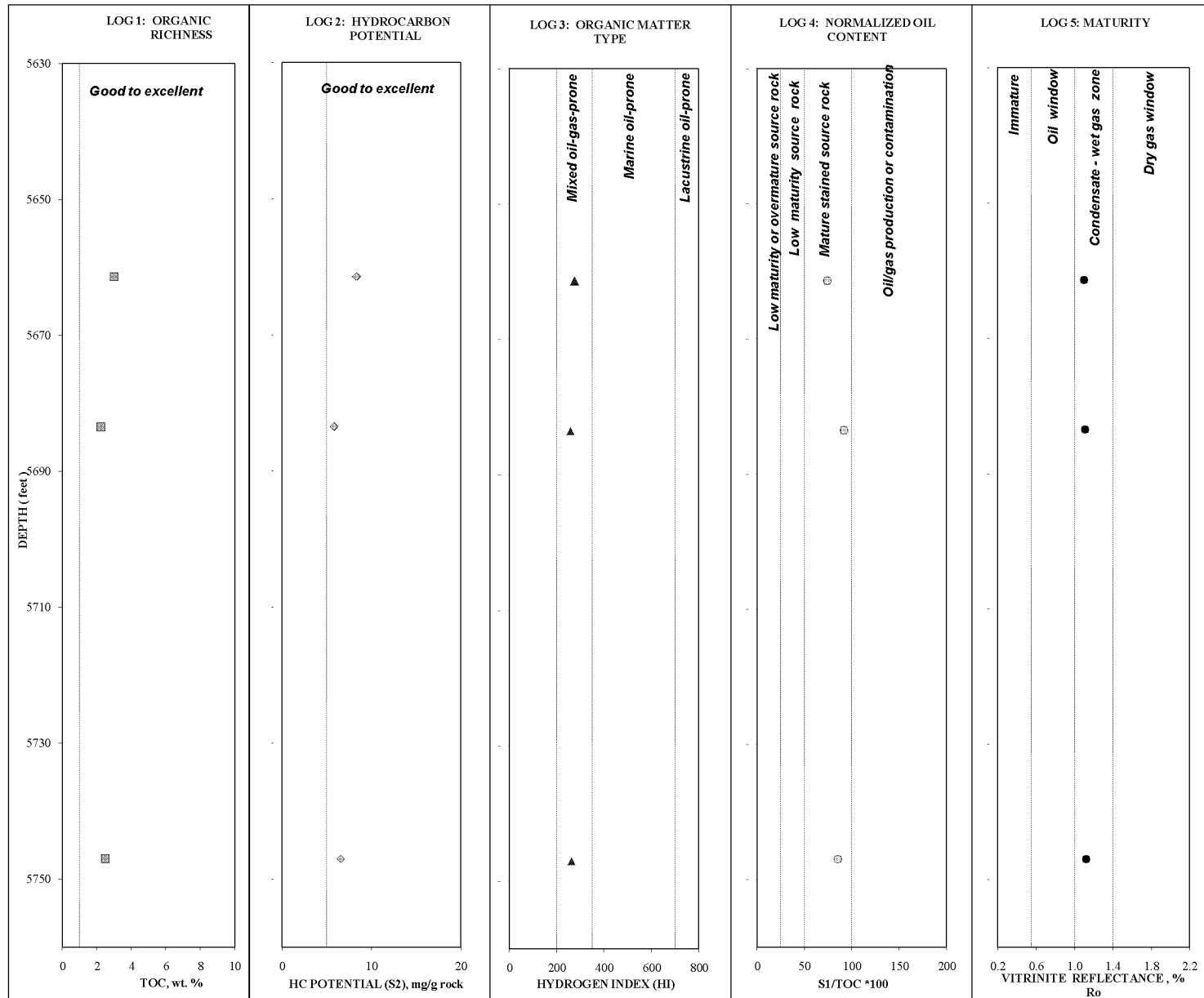
Pyrogram:
 f - flat S2 peak
 n - normal
 ltS2sh - low temperature S2 shoulder
 ltS2p - low temperature S2 peak
 htS2p - high temperature S2 peak

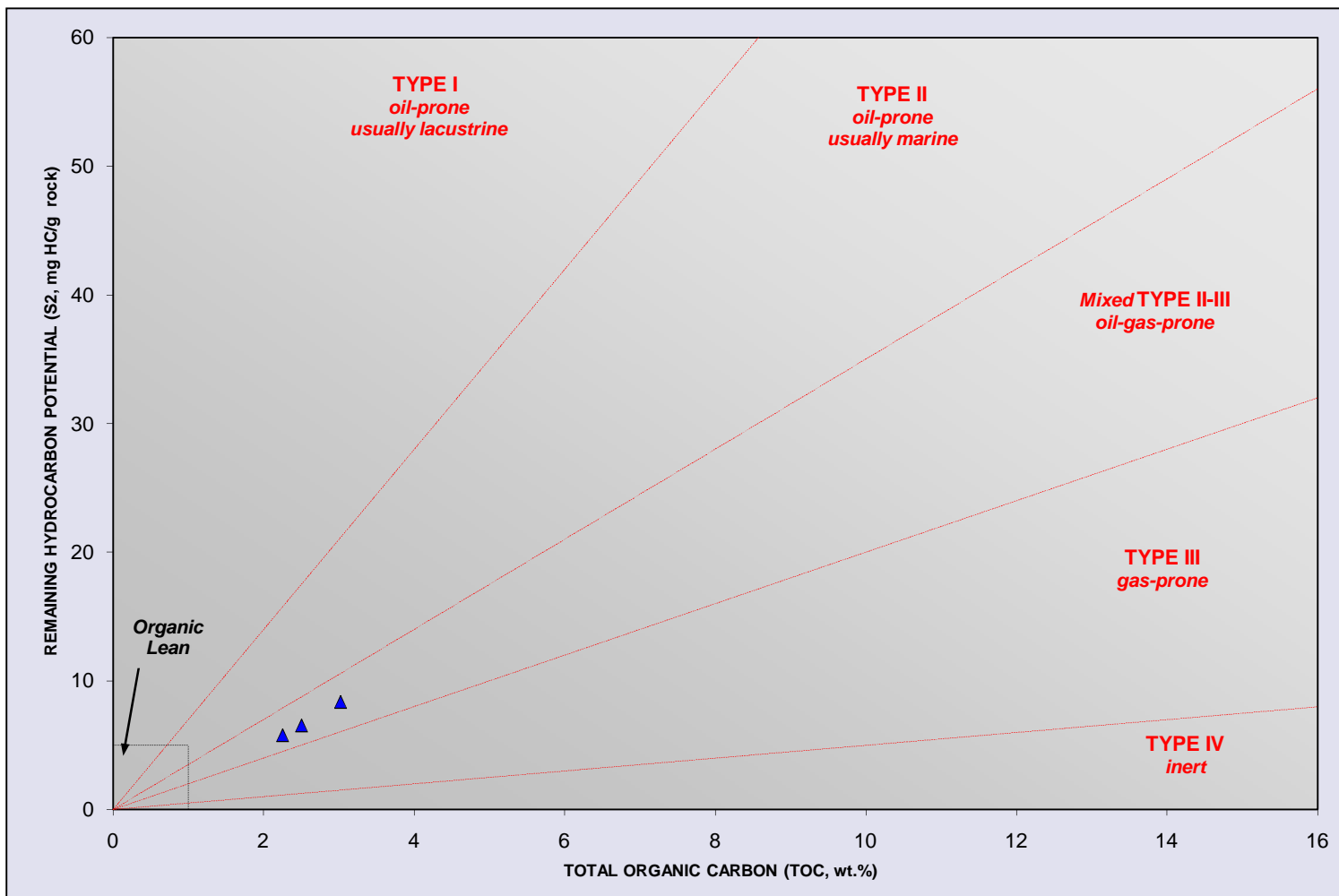
SRA - Programmed pyrolysis on SRA instrument
 RE - Programmed pyrolysis on Rock-Eval instrument
 EXT - Extracted Rock
 NOPR - Normal Preparation

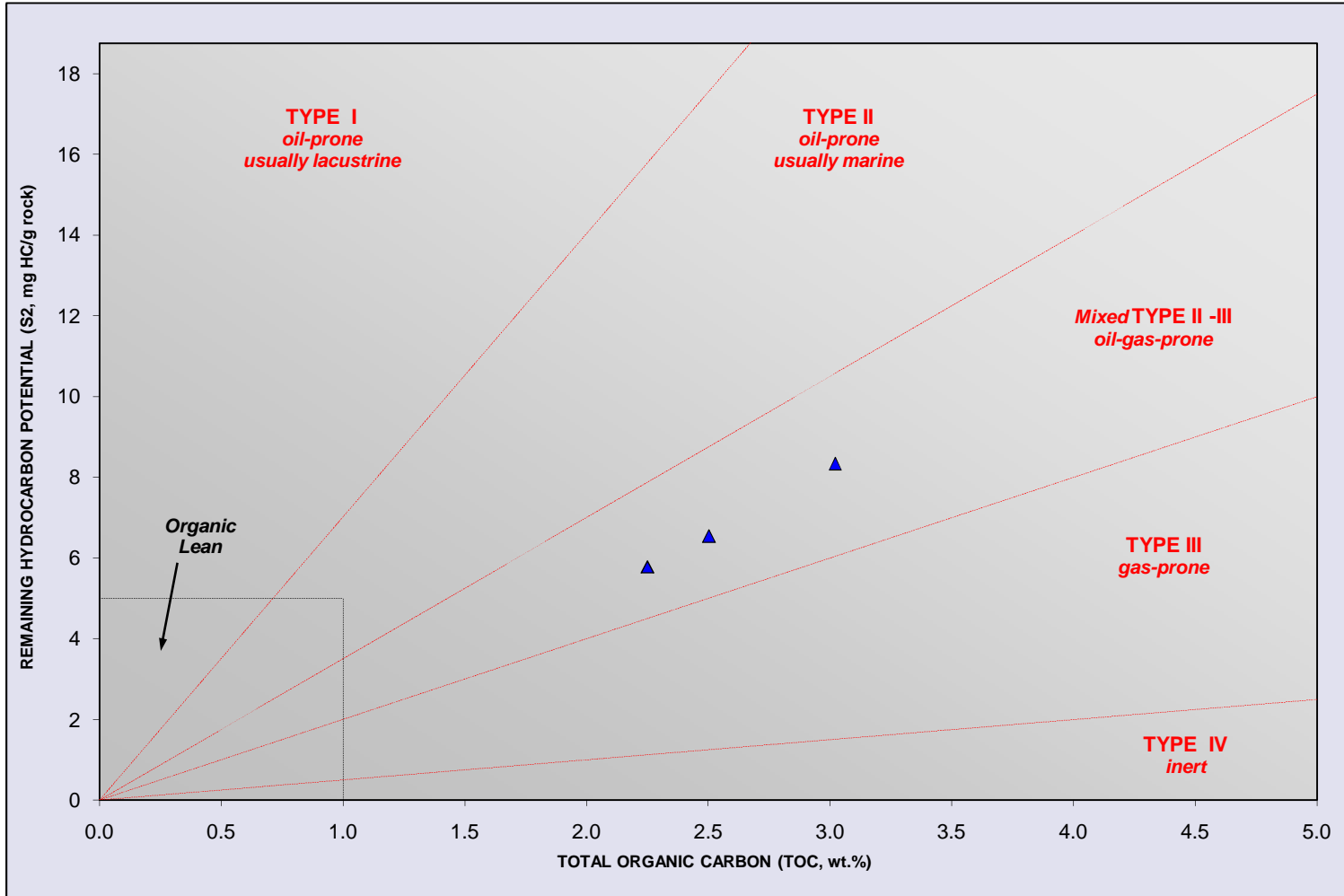
GEOCHEMICAL LOGS - REDMAN BARTH NO. 3

Company:

Project #: HH-47670 / HH-47670

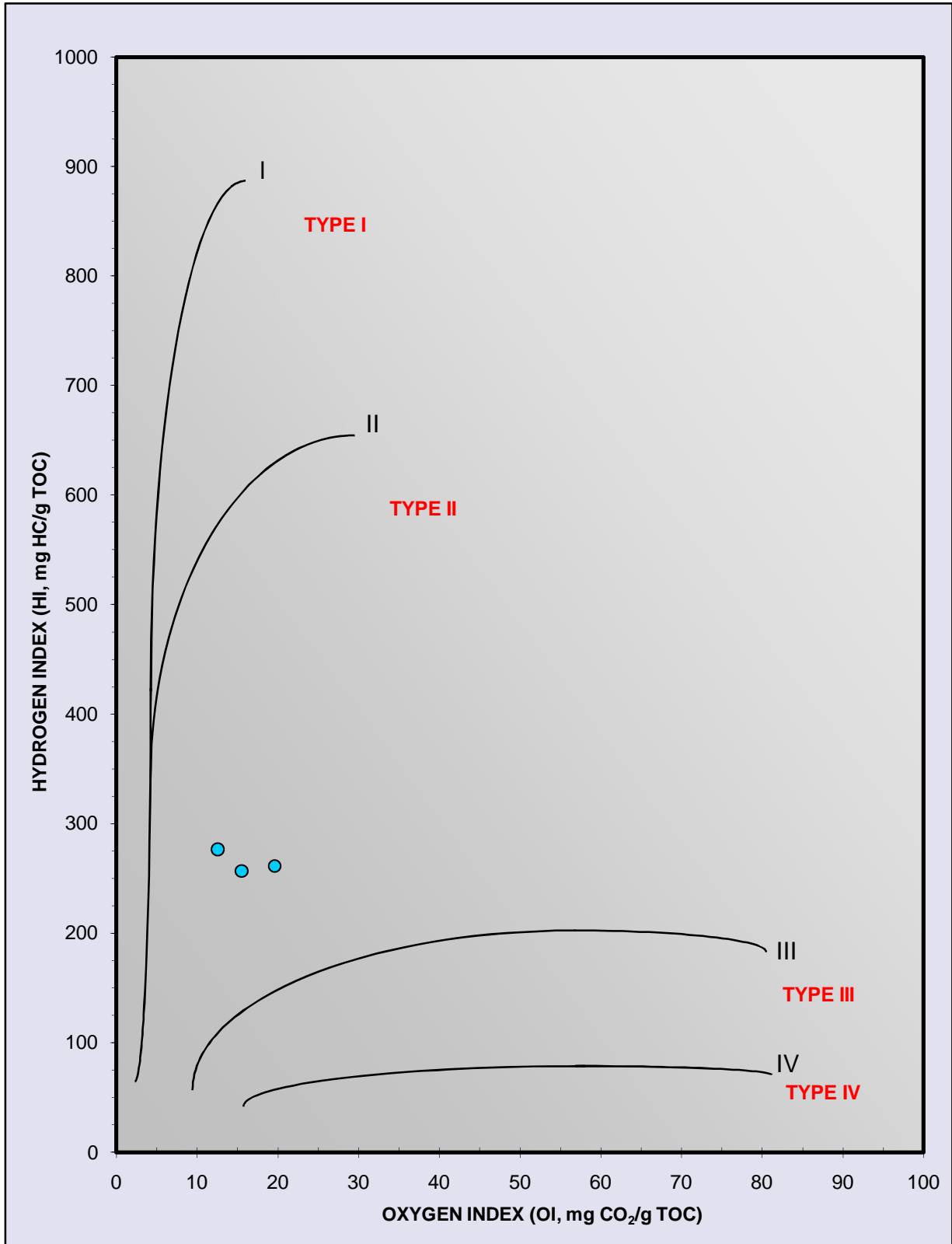






Company:

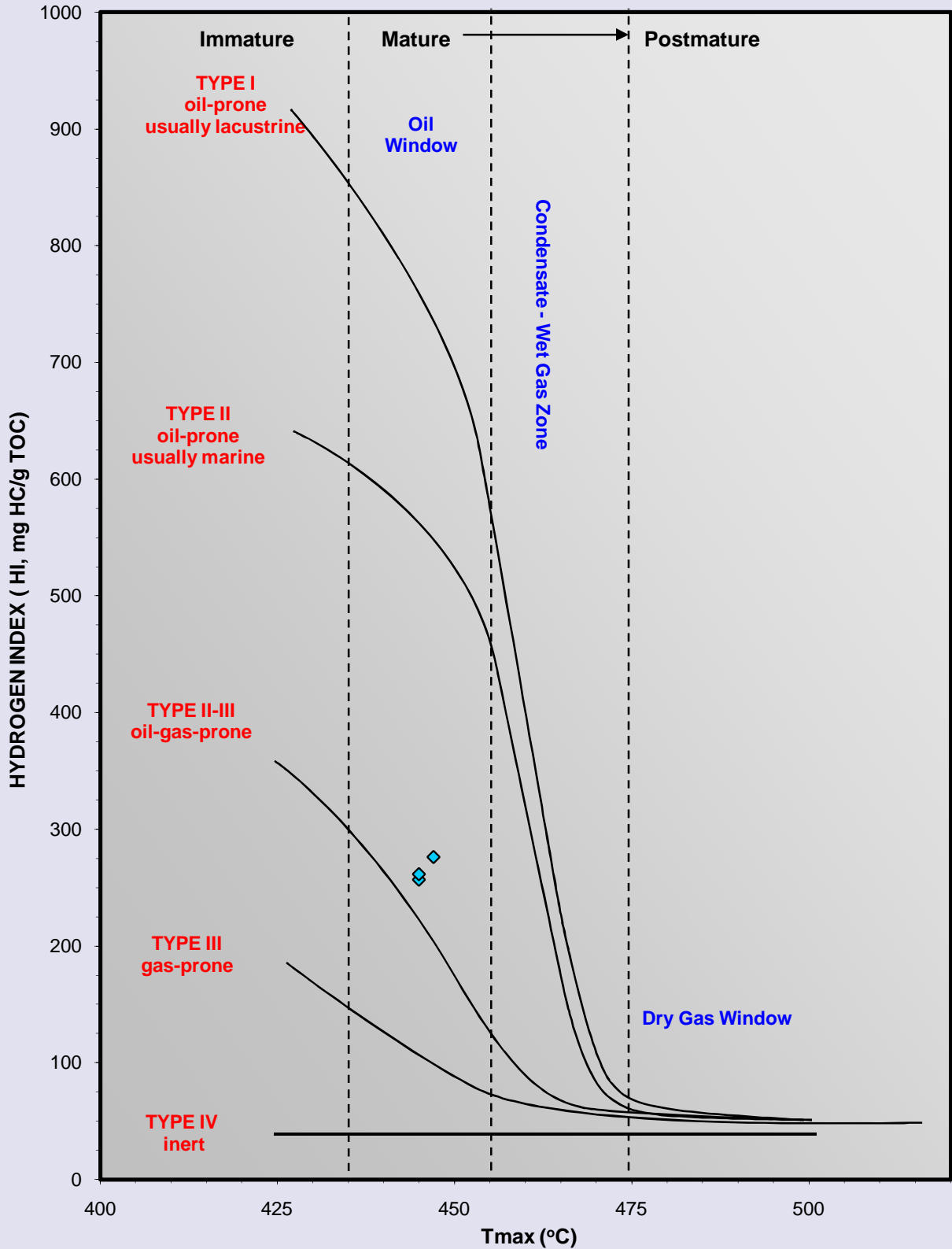
Project #: HH-47670 / HH-47670



KEROGEN TYPE AND MATURITY (Tmax) - REDMAN BARTH NO. 3

Company:

Project #: HH-47670 / HH-47670

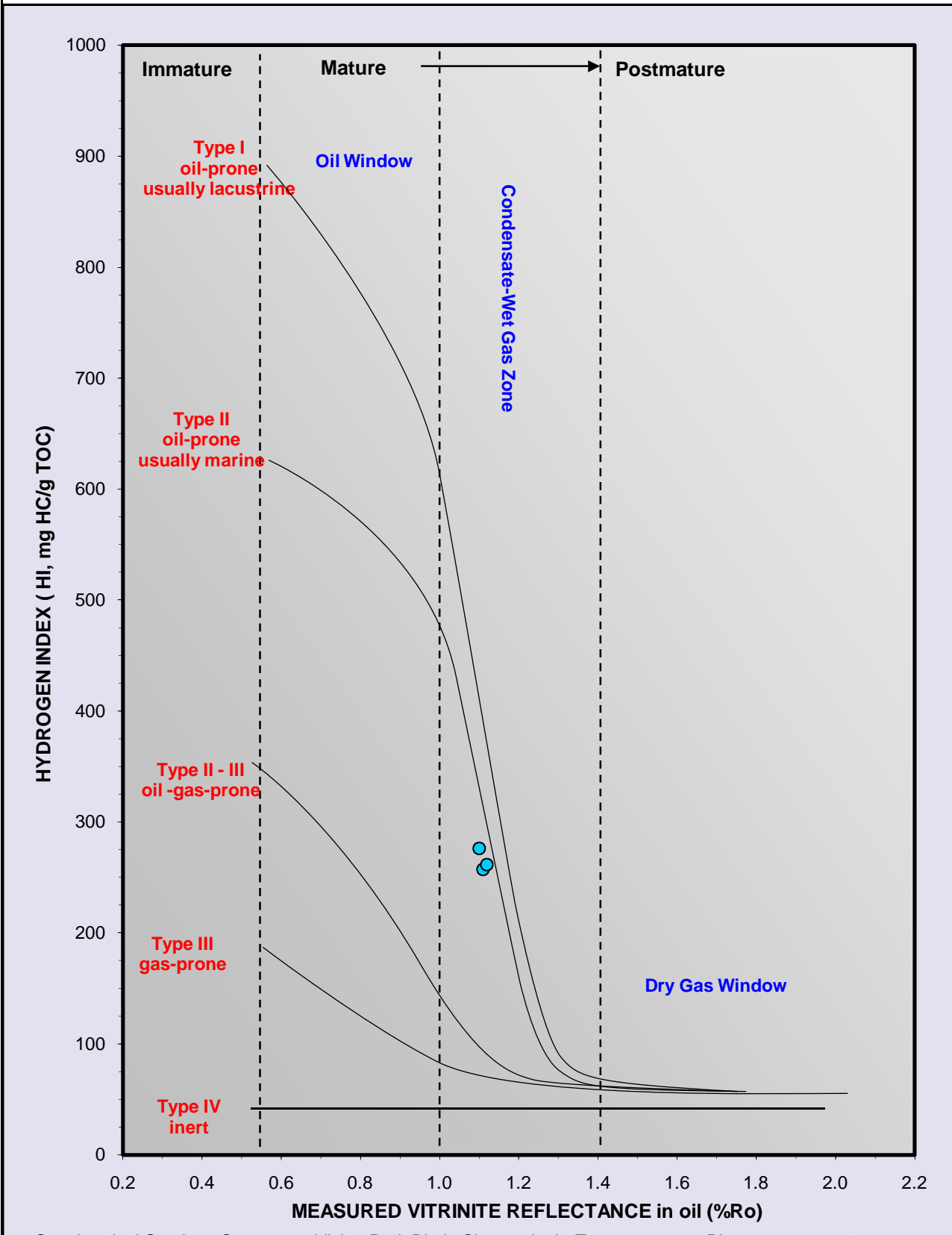


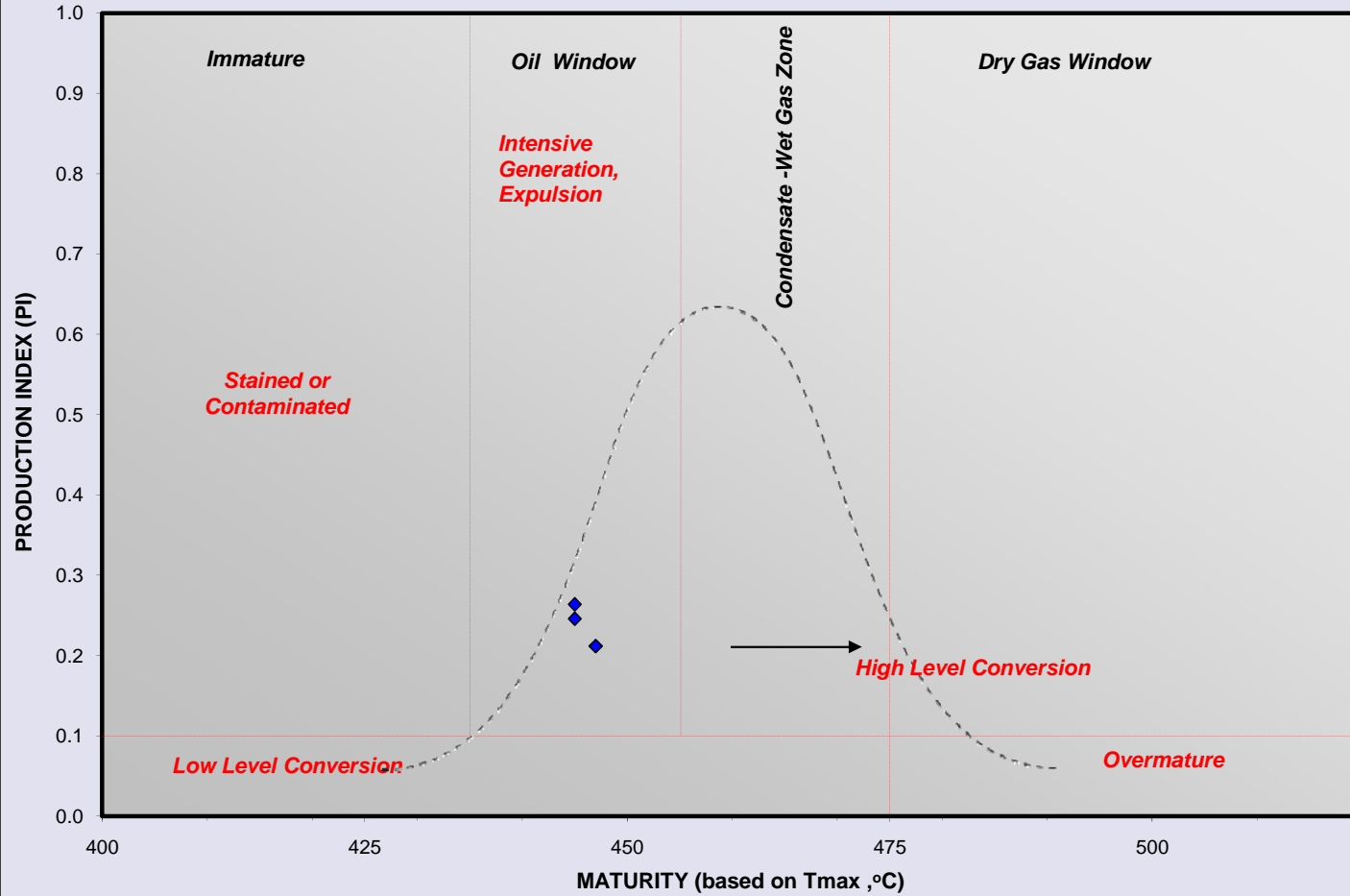


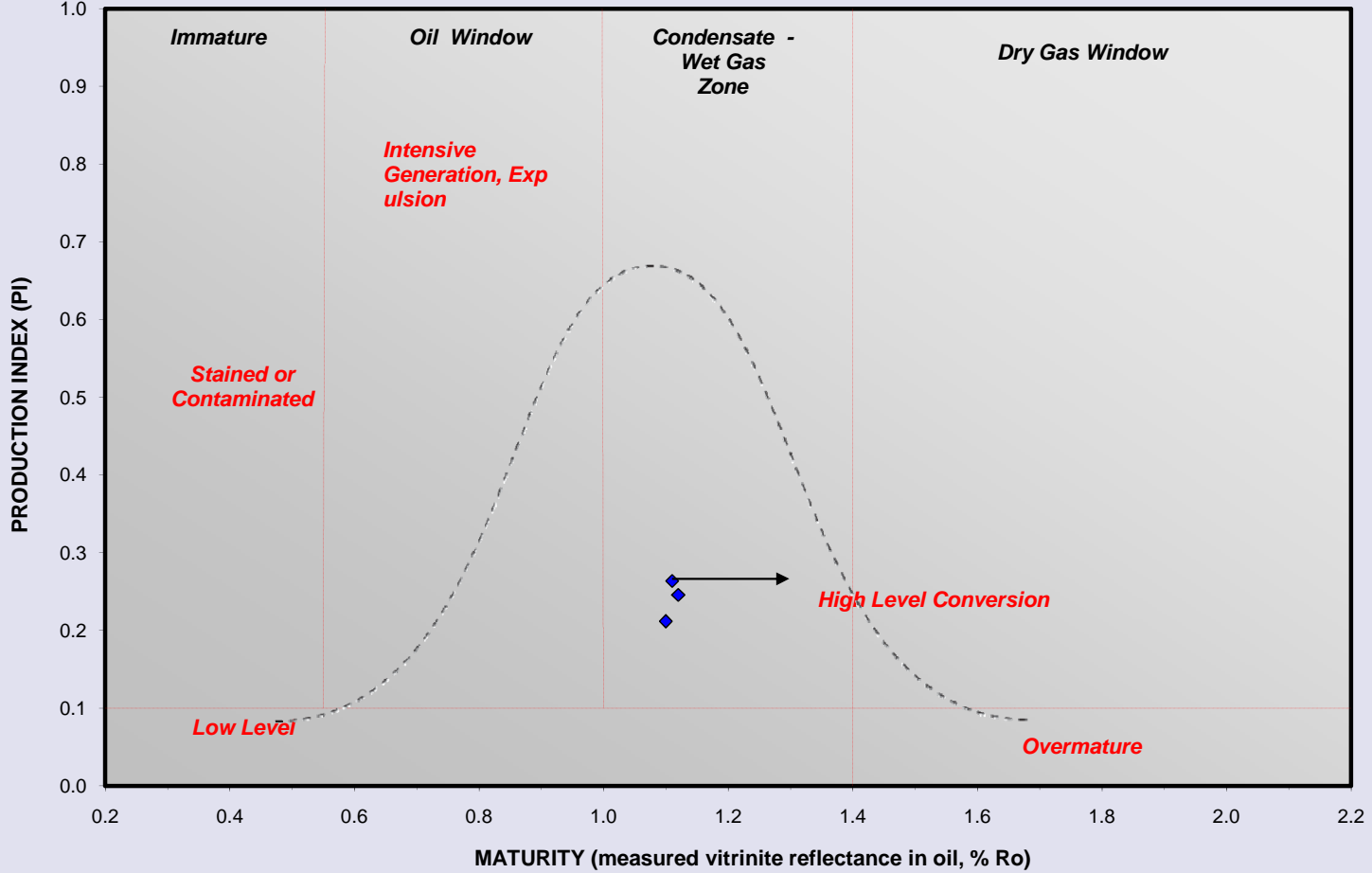
KEROGEN TYPE AND MATURITY (%Ro) - REDMAN BARTH NO. 3

Company:

Project# : HH-47670 / HH-47670









CHESAPEAKE ENERGY CORPORATION

FT Barth Job #10-0805

		VTPH (S1)	pTPH (S2)	S3	cTemp	tTemp	Std rec (S1)	Std rec (S2)	Std rec (S3)	cTemp rec
	CHK SAMPLE	STD CHK 99986	0.2	8.54		417	0.16 mg/g	8.41 mg/g	0.39 mg/g	418
							125.00	101.55	N/A	99.85
		TOC	TS				Std rec (C)	Std rec (S)		
	CHK SAMPLE	5.49	4.06				97.9	101.4		
	CHK SAMPLE	5.62	3.93				100.3	98.3		

DATE	FM	Depth	SAMPLE ID	Job #	vTPH (S1)	pTPH (S2)	S1+S2	cTemp	tTemp	Crucible weight (g)		Difference (mg)	Sample wt (mg)	% loss	Calc. %Ro	TOC	TC	TS	HI	PI	Calc. %Ro *	NOC
										Initial wt	Final wt											
	PNPL	5655.50	1	#10-0805	2.08	5.53	7.61	443.5	482.5	2.8132	2.8102	3.0	100.5	2.99	0.82	2.09	9.81	0.00	264.85	0.273	0.73	99.62
	PNPL	5661.40	2		2.71	8.11	10.82	445.6	484.6	2.9049	2.9006	4.3	99.8	4.31	0.86	3.31	10.46	0.01	244.87	0.250	0.75	81.82
	PNPL	5675.00	3		2.54	7.24	9.78	447.6	486.6	2.8586	2.8551	3.5	99.9	3.50	0.90	3.04	8.21	1.24	238.24	0.260	0.76	83.58
	PNPL	5678.40	4		3.25	8.94	12.19	448.5	487.5	2.9972	2.9940	3.2	100.0	3.20	0.91	3.58	8.23	0.56	249.72	0.267	0.74	90.78
	PNPL	5681.50	5		2.66	7.37	10.03	447.0	486.0	2.8924	2.8897	2.7	100.5	2.69	0.89	3.25	8.75	0.94	226.56	0.265	0.77	81.77
	PNPL	5684.50	6		2.94	7.65	10.59	445.4	484.4	2.9501	2.9474	2.7	100.1	2.70	0.86	3.04	7.96	0.42	251.73	0.278	0.74	96.74
	TRNN	5708.50	7		0.30	0.70	1.00	432.2	471.2	2.9518	2.9510	0.8	100.7	0.79	0.62	0.38	10.48	0.00	184.60	0.300	0.82	79.11
	LGNA	5747.50	8		2.43	6.84	9.27	448.5	487.5	2.8830	2.8799	3.1	99.7	3.11	0.91	2.84	8.67	1.11	240.85	0.262	0.75	85.56

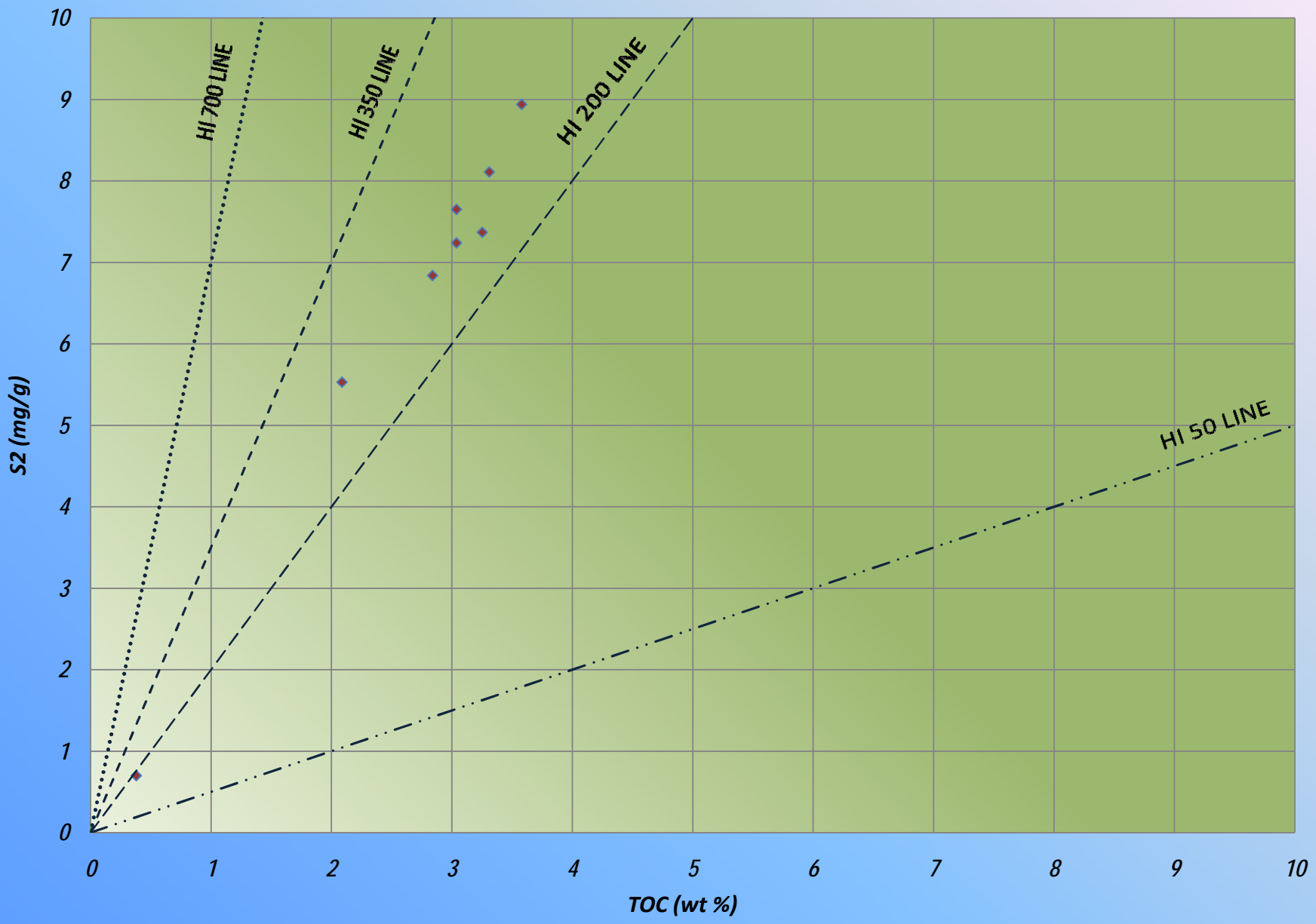
vTPH (S1) = Volatile Total Petroleum Hydrocarbons (mg/g)
 pTPH (S2) = Kerogen yield
 cTemp = calculated temperature (Rock Eval)
 tTemp = true temperature (Rock Eval temp + 39)
 TOC = Total Organic Carbon
 S3 (CO2) = Amount of CO₂ produced during pyrolysis of Kerogen
 HI = Hydrogen Index
 OI = Oxygen Index
 PI = Production Index

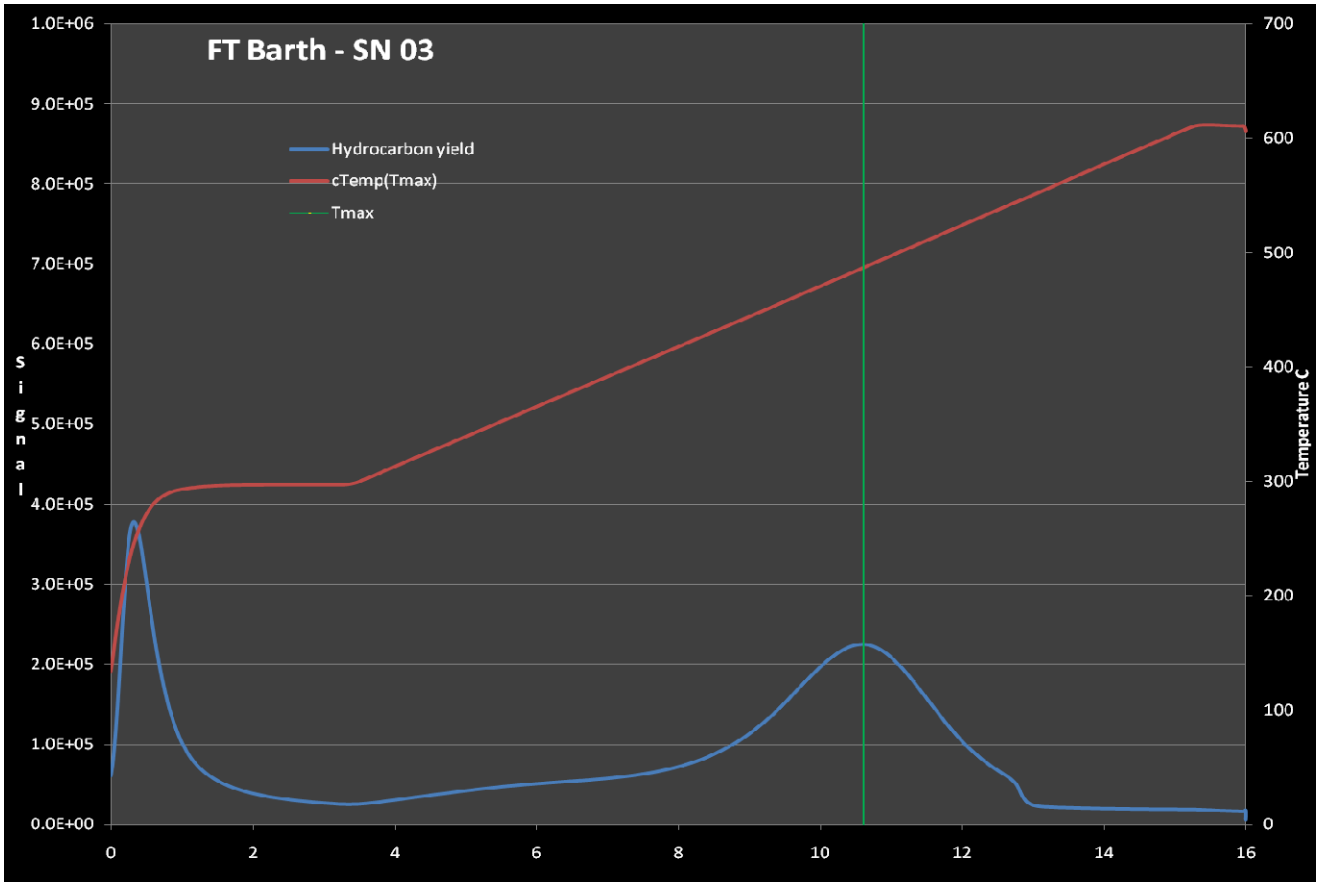
Calc. %Ro[†] = Calculated%VRo = 0.0180 x Tmax - 7.16 (Jarvie et al., 2001)

--

NOC** = Normalized Oil Content = (S1/TOC)*100 (Jarvie and Baker, 1984)

S2 VS TOC - FT Barth





Tight Rock Analysis

C# 3003

Chesapeake

Well : FT Barth

Job: 10-0805

As Received

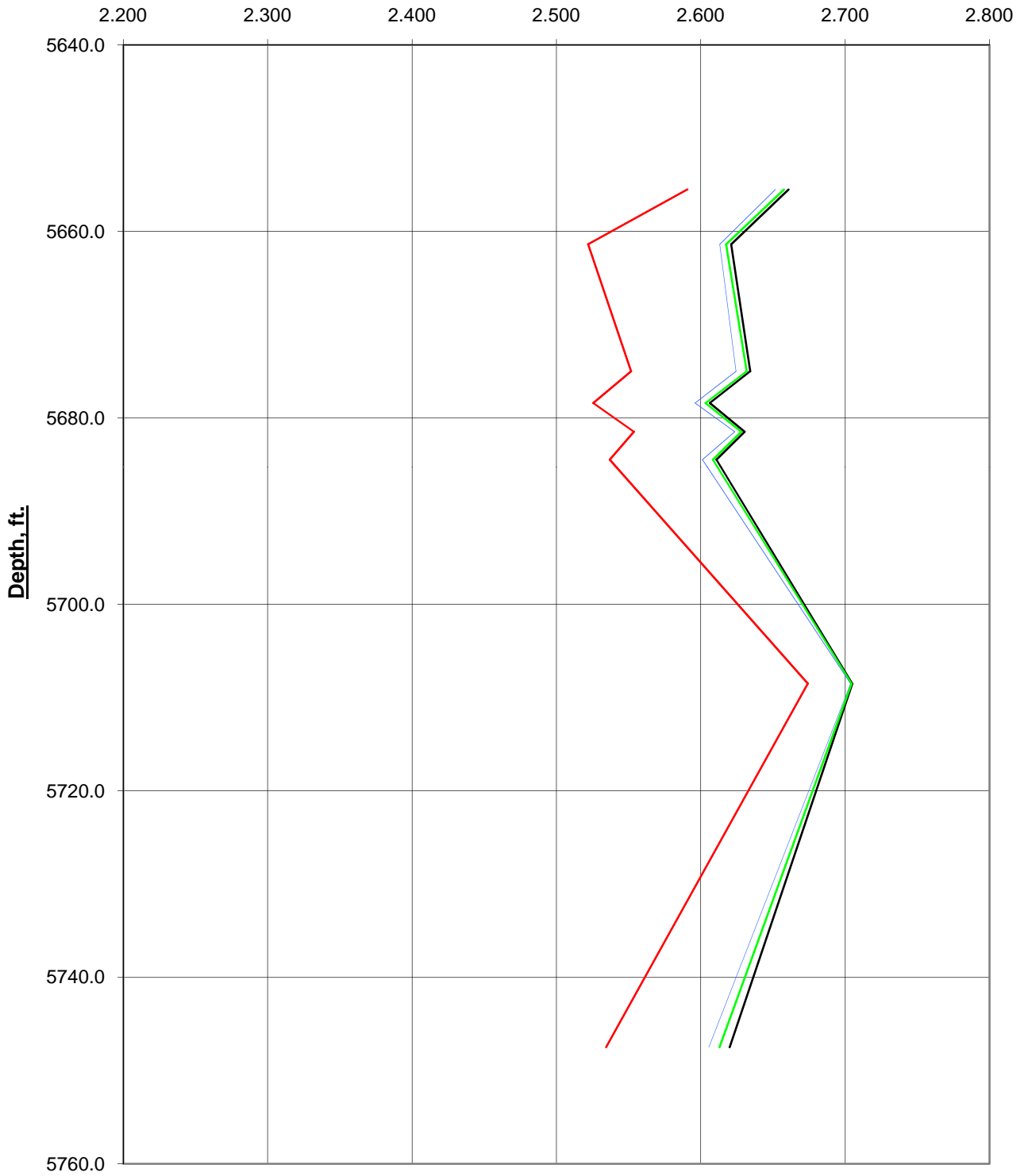
Sample ID	Depth, feet	FM	A-R Bulk Density, gms/cc	A-R Density, gms/cc	A-R minus Oil Density, gms/cc	Dry Grain Density, gms/cc	Porosity, % of BV	Water Saturation, % of PV	Gas Saturation, % of PV	Mobile Oil Saturation, % of PV	Gas Filled Porosity, % of BV	Expandable Clay Water, % of BV	Bound Hydrocarbon Saturation, % of BV	Bound Clay Water, % of BV	Pressure-Decay Permeability, md
-----------	-------------	----	--------------------------	---------------------	-------------------------------	---------------------------	-------------------	---------------------------	-------------------------	--------------------------------	------------------------------	--------------------------------	---------------------------------------	---------------------------	---------------------------------

1	5655.5	PNPL	2.591	2.652	2.658	2.661	2.8	4.3	81.6	14.1	2.3	0.4	1.4	4.7	0.000117
2	5661.4	PNPL	2.522	2.613	2.618	2.621	3.9	3.9	88.5	7.6	3.5	0.6	1.8	5.5	0.000160
3	5675.0	PNPL	2.552	2.624	2.632	2.634	3.3	1.8	83.4	14.9	2.8	0.5	1.4	4.7	0.000119
4	5678.4	PNPL	2.526	2.596	2.603	2.606	3.3	2.8	82.4	14.8	2.7	0.5	2.2	4.7	0.000109
5	5681.5	PNPL	2.554	2.624	2.628	2.630	3.0	2.8	87.3	9.9	2.7	0.3	1.6	3.9	0.000132
6	5684.5	PNPL	2.537	2.601	2.608	2.611	3.0	1.6	82.1	16.3	2.5	0.4	1.7	4.3	0.000124
7	5708.5	TRNN	2.674	2.704	2.704	2.705	1.2	2.3	93.8	3.9	1.1	0.0	0.3	1.0	0.000053
8	5747.5	LGNA	2.534	2.606	2.613	2.620	3.6	9.4	76.9	13.8	2.7	0.6	1.3	4.9	0.000094

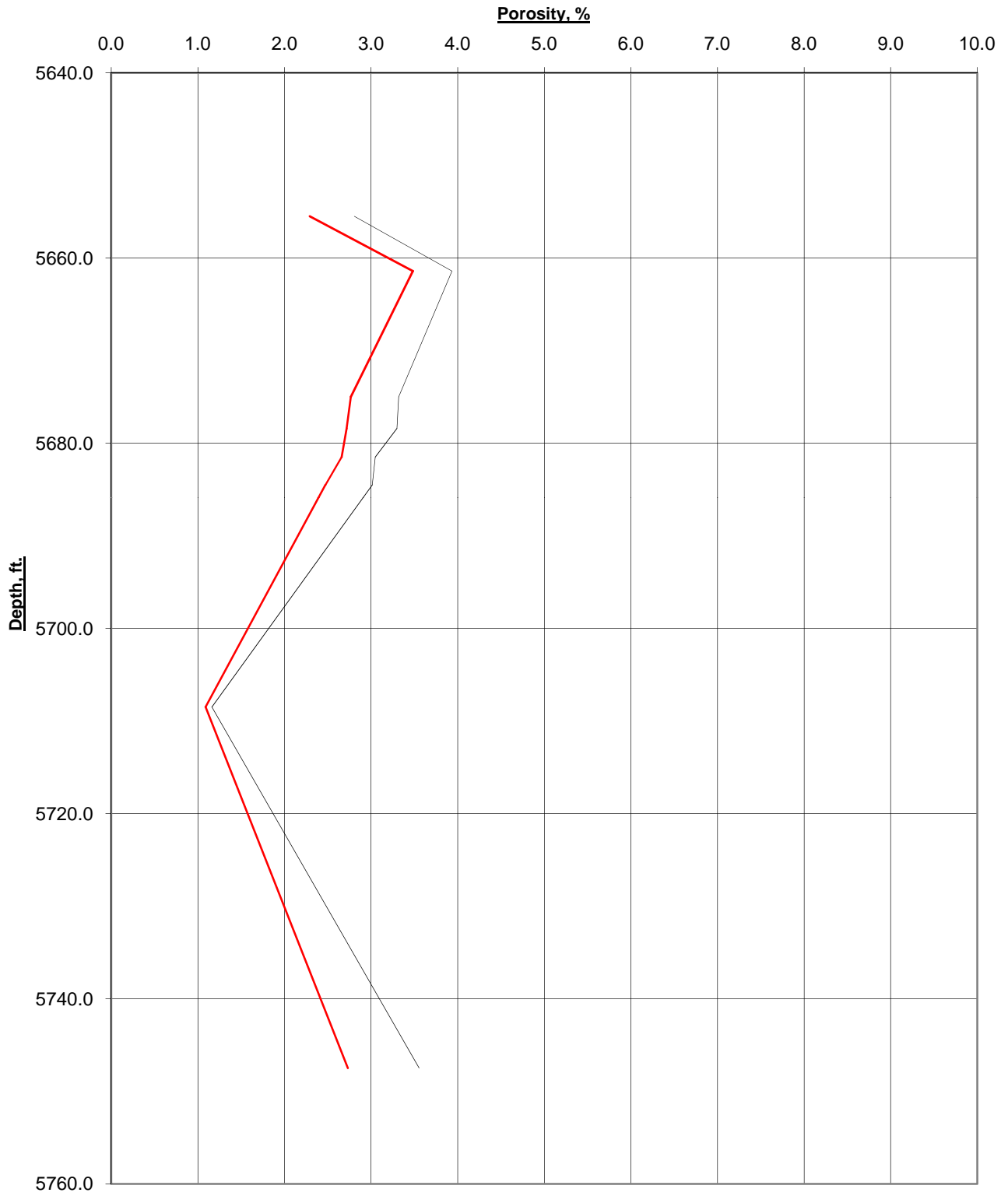
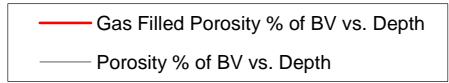
Density versus Depth

Density, gms/cc

- A-R Bulk Density vs. Depth
- A-R Density vs. Depth
- Dry Grain Density vs. Depth
- A-R minus Oil Density vs. Depth



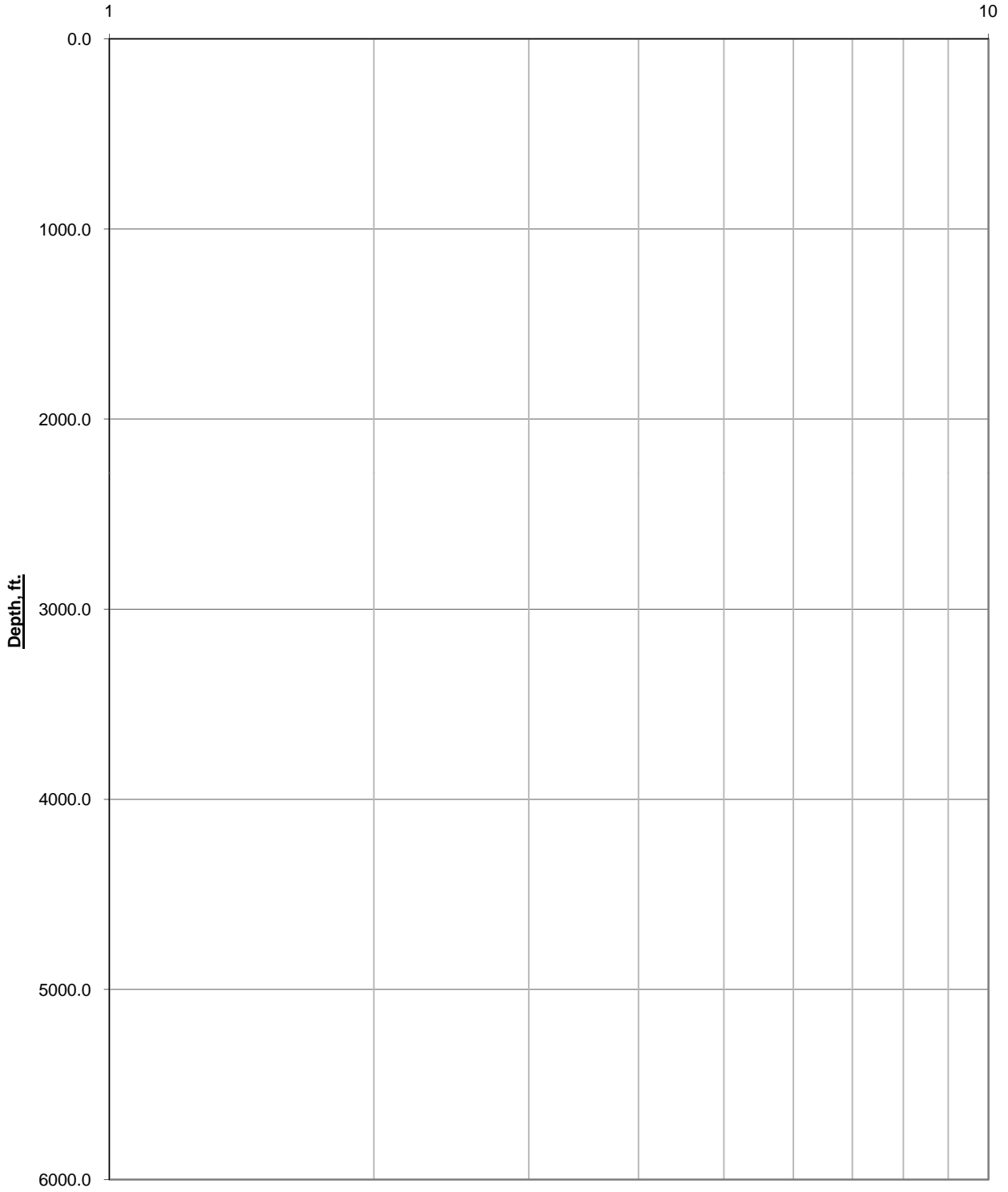
Porosity versus Depth



K versus Depth

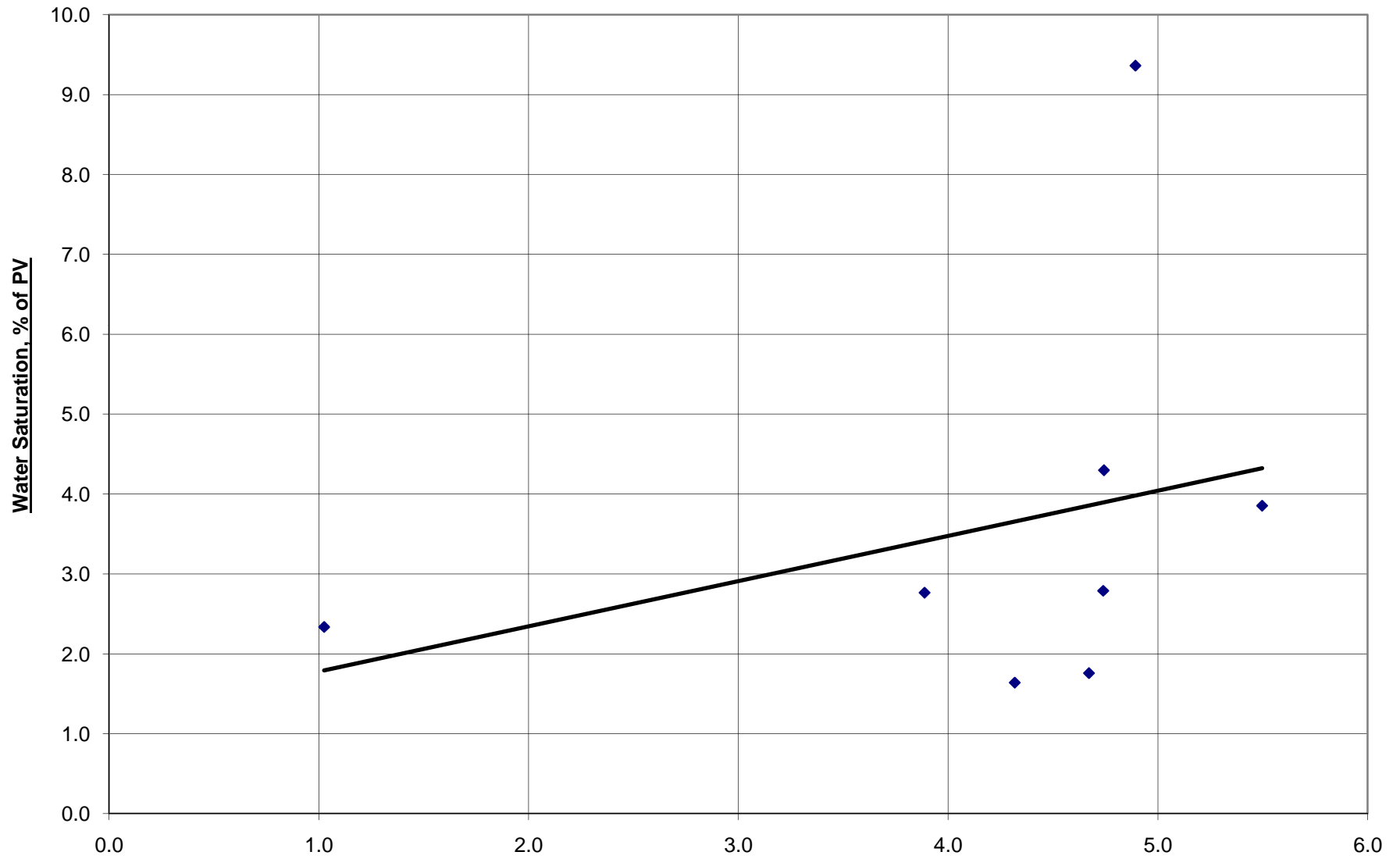
— Composite

K, md



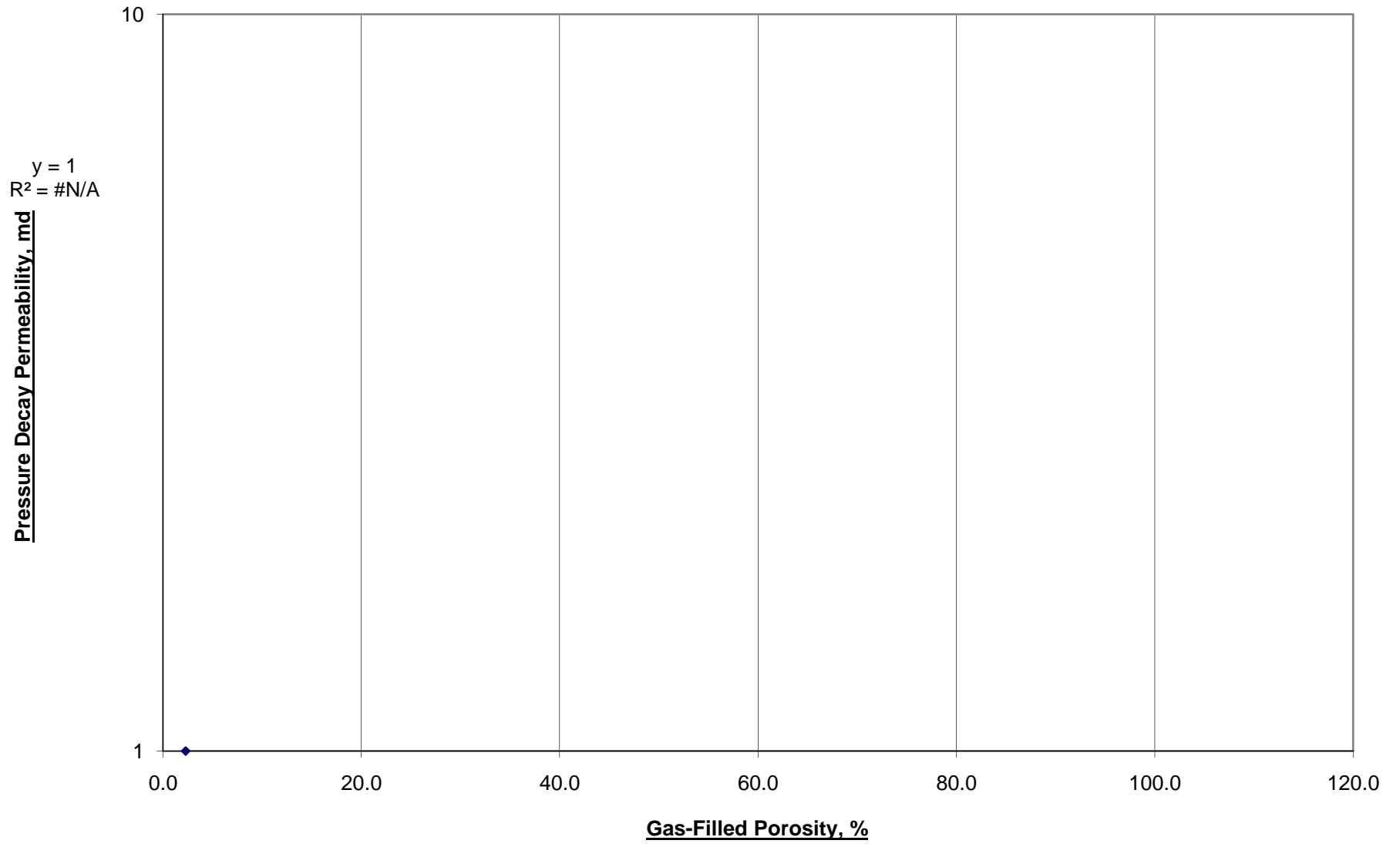
Bound Clay Water versus Water Saturation

$$y = 0.565x + 1.213$$
$$R^2 = 0.095$$



Gas-Filled Porosity versus Permeability

◆ Composite



WEIGHT PERCENT*Raw Data NORMALIZED to sum to 100%*

WELL NAME	FT Barth							
SAMPLE ID	1	2	3	4	5	6	7	8
SAMPLE DEPTH	5655.5	5661.4	5675.0	5678.4	5681.5	5684.5	5708.5	5747.5
FORMATION	PNPL	PNPL	PNPL	PNPL	PNPL	PNPL	TRNN	LGNA

NON-CLAY FRACTION

Quartz	15.9	16.6	14.9	16.7	16.7	18.7	2.1	11.6
K-Feldspar	1.1	1.1	1.3	1.4	1.4	1.3	0.0	1.7
Plagioclase	4.0	5.0	3.8	4.1	5.0	4.8	0.0	3.8
Apatite	1.2	1.2	1.6	1.4	1.9	1.4	0.5	2.4
Pyrite	1.0	1.5	2.7	1.4	2.0	1.0	0.4	1.6
Calcite	41.1	36.2	45.7	41.1	46.7	38.3	92.8	45.9
Dolomite	5.2	3.1	3.5	4.1	5.8	7.9	1.1	3.8
TOTAL	69.4	64.7	73.5	70.2	79.6	73.4	96.8	70.7

CLAY FRACTION

Mixed-Layer ILLITE/SMECTITE (Includes R3)	4.0	7.0	5.2	6.3	3.7	5.9	0.0	7.3
Illite + Mica	24.7	26.7	20.5	22.6	16.3	20.1	3.2	21.2
Chlorite	1.9	1.6	0.8	0.9	0.4	0.6	0.0	0.8
TOTAL	30.6	35.3	26.5	29.8	20.4	26.6	3.2	29.3

GRAND TOTAL	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
--------------------	-------	-------	-------	-------	-------	-------	-------	-------

% Expandable Layers in I/S	11.5	28.1	24.9	28.1	27.3	29.7	n/a	26.6
% I/S to Illite in <1.0um Fraction	23.4	34.4	38.4	37.8	44.0	41.8	0.0	49.9
% Expandable I/S Layers in sample	0.46	1.97	1.30	1.78	1.01	1.76	n/a	1.93

Comments

No TOC at time of Regression

Thin Section Images are available for:

5655'

5661'

5675'

5678'

5681'

5684'

5708'

5747'

Scanning Electron Microscope (SEM) images for:

5661'

5678'

5684'

POROTECHNOLOGY: 09/2010**SPL ID: Miscellaneous Well Shale Samples**

	Sample\Depth	Tab No.	FM	Sample Porosity(%)	Spl MICP Porosity(%)	Sample Air Perm(md)	Calc MICP Perm(md)	MICP Bulk Den(g/cc)	MICP Gr. Den (g/cc)
	Fred T. Barth 3								
34031228380000	Core @ 5630.4ft	1a	UTCA	N/A	0.62	N/A	0.0000010	2.679	2.696
34031228380000	Core @ 5640.8ft	2a	PNPL		0.93		0.0000025	2.586	2.610
34031228380000	Core @ 5660.0ft	3a	PNPL		0.70		0.0000013	2.581	2.600
34031228380000	Core @ 5664.0ft	4a	PNPL		0.75		0.0000017	2.573	2.592
34031228380000	Core @ 5674.5ft	5a	PNPL		0.75		0.0000017	2.581	2.601
34031228380000	Core @ 5678.5ft	6a	PNPL		0.74		0.0000017	2.559	2.578
34031228380000	Core @ 5681.5ft	7a	PNPL		0.74		0.0000021	2.554	2.574
34031228380000	Core @ 5682.5ft	8a	PNPL		2.22		0.0000131	2.523	2.580
34031228380000	Core @ 5684.5ft	9a	PNPL		1.70		0.0000081	2.495	2.539
34031228380000	Core @ 5701.6ft	10a	PNPL		0.39		0.0000004	2.597	2.607
34031228380000	Core @ 5704.6ft	11a	PNPL		0.40		0.0000004	2.524	2.535
34031228380000	Core @ 5715.5ft	12a	TRNN		0.45		0.0000007	2.624	2.636
34031228380000	Core @ 5716.9ft	13a	TRNN		0.39		0.0000005	2.614	2.624
34031228380000	Core @ 5734.0ft	14a	LGNA		0.23		0.0000003	2.509	2.514
34031228380000	Core @ 5737.0ft	1b	LGNA		0.62		0.0000015	2.367	2.382
34031228380000	Core @ 5738.5ft	2b	LGNA		0.44		0.0000006	2.600	2.611
34031228380000	Core @ 5745.5ft	3b	LGNA		0.41		0.0000007	2.539	2.550

api #	Well Name	Operator	Median Depth (feet)	Formation	Age	Sample Type	Sample Prep	*	TOC	S1	S2	S3	Tmax (°C)	**	Meas. % Ro	HI	OI	S2/S3	S1/TOC *100	PI	Notes	
																					Checks	Pyrogram
34031228380000	Barth 3		5630.4	UTCA		Cuttings	NOPR		2.08	0.90	3.49	0.19	450			168	9	18	43	0.21		
34031228380000	Barth 3		5631.5	UTCA		Cuttings	NOPR		2.61	1.28	5.90	0.17	451			226	7	35	49	0.18		
34031228380000	Barth 3		5633.5	PNPL		Cuttings	NOPR		1.90	0.73	3.27	0.16	450			172	8	20	38	0.18		
34031228380000	Barth 3		5637.0	PNPL		Cuttings	NOPR		2.61	1.37	5.53	0.17	450			212	7	33	52	0.20		
34031228380000	Barth 3		5640.8	PNPL		Cuttings	NOPR		2.84	1.49	6.54	0.74	453			230	26	9	52	0.19		
34031228380000	Barth 3		5646.5	PNPL		Cuttings	NOPR		3.01	1.96	7.50	0.20	452			249	7	38	65	0.21		
34031228380000	Barth 3		5648.8	PNPL		Cuttings	NOPR		2.26	1.43	4.83	0.12	449			214	5	40	63	0.23		
34031228380000	Barth 3		5650.5	PNPL		Cuttings	NOPR		1.73	1.04	3.49	0.12	450			202	7	29	60	0.23		
34031228380000	Barth 3		5652.8	PNPL		Cuttings	NOPR		1.85	1.17	3.80	0.18	449			205	10	21	63	0.24		
34031228380000	Barth 3		5654.5	PNPL		Cuttings	NOPR		3.41	1.81	7.67	0.20	453			225	6	38	53	0.19		
34031228380000	Barth 3		5657.6	PNPL		Cuttings	NOPR		2.96	1.52	7.45	0.15	454			252	5	50	51	0.17		
34031228380000	Barth 3		5659.3	PNPL		Cuttings	NOPR		3.61	1.67	8.50	0.16	455			235	4	53	46	0.16		
34031228380000	Barth 3		5660.0	PNPL		Cuttings	NOPR		3.39	2.05	8.40	0.16	459			248	5	53	60	0.20		
34031228380000	Barth 3		5662.0	PNPL		Cuttings	NOPR		3.56	2.04	8.56	0.15	455			240	4	57	57	0.19		
34031228380000	Barth 3		5664.0	PNPL		Cuttings	NOPR		3.38	1.64	8.80	0.16	457			260	5	55	49	0.16		
34031228380000	Barth 3		5666.3	PNPL		Cuttings	NOPR		2.52	1.43	5.89	0.20	450			234	8	29	57	0.20		
34031228380000	Barth 3		5669.3	PNPL		Cuttings	NOPR		3.23	1.74	8.29	0.20	454			257	6	41	54	0.17		
34031228380000	Barth 3		5671.5	PNPL		Cuttings	NOPR		2.46	1.22	5.38	0.18	453			219	7	30	50	0.18		
34031228380000	Barth 3		5674.5	PNPL		Cuttings	NOPR		3.81	2.04	10.26	0.13	456			269	3	79	54	0.17		
34031228380000	Barth 3		5676.0	PNPL		Cuttings	NOPR		2.98	1.74	7.13	0.22	451			239	7	32	58	0.20		
34031228380000	Barth 3		5678.5	PNPL		Cuttings	NOPR		4.02	2.22	10.45	0.12	457			260	3	87	55	0.18		
34031228380000	Barth 3		5680.0	PNPL		Cuttings	NOPR		3.27	1.32	5.51	0.22	451			169	7	25	40	0.19		
34031228380000	Barth 3		5681.5	PNPL		Cuttings	NOPR		3.45	1.65	9.01	0.69	456			261	20	13	48	0.15		
34031228380000	Barth 3		5682.5	PNPL		Cuttings	NOPR		3.28	2.07	9.77	0.16	454			298	5	61	63	0.17		
34031228380000	Barth 3		5683.5	PNPL		Cuttings	NOPR		3.55	1.91	9.01	0.22	455			254	6	41	54	0.17		
34031228380000	Barth 3		5684.5	PNPL		Cuttings	NOPR		3.73	1.95	9.77	0.16	456			262	4	61	52	0.17		
34031228380000	Barth 3		5686.5	PNPL		Cuttings	NOPR		2.94	1.45	6.28	0.21	456			214	7	30	49	0.19		
34031228380000	Barth 3		5701.6	PNPL		Cuttings	NOPR		3.07	1.46	6.94	0.20	457			226	7	35	48	0.17		
34031228380000	Barth 3		5703.2	PNPL		Cuttings	NOPR		2.78	1.40	6.06	0.26	453			218	9	23	50	0.19		
34031228380000	Barth 3		5704.6	PNPL		Cuttings	NOPR		2.48	1.55	4.74	0.32	452			191	13	15	63	0.25		
34031228380000	Barth 3		5706.0	PNPL		Cuttings	NOPR		2.09	1.16	4.15	0.18	451			199	9	23	56	0.22		
34031228380000	Barth 3		5707.0	TRNN		Cuttings	NOPR		2.55	1.30	5.64	0.26	455			221	10	22	51	0.19		
34031228380000	Barth 3		5708.0	TRNN		Cuttings	NOPR		2.81	1.48	6.21	0.22	456			221	8	28	53	0.19		
34031228380000	Barth 3		5710.0	TRNN		Cuttings	NOPR		2.89	1.38	6.39	0.27	455			221	9	24	48	0.18		
34031228380000	Barth 3		5712.9	TRNN		Cuttings	NOPR		1.86	0.93	3.53	0.26	449			190	14	14	50	0.21		
34031228380000	Barth 3		5715.5	TRNN		Cuttings	NOPR		2.51	1.31	5.10	0.24	450			203	10	21	52	0.20		

34031228380000	Barth 3		5716.9	TRNN		Cuttings	NOPR	2.73	1.99	6.19	0.26	452			227	10	24	73	0.24		
34031228380000	Barth 3		5732.5	LGNA		Cuttings	NOPR	3.10	1.26	6.50	0.25	458			210	8	26	41	0.16		
34031228380000	Barth 3		5734.0	LGNA		Cuttings	NOPR	2.64	1.21	5.70	1.00	453			216	38	6	46	0.18		
34031228380000	Barth 3		5736.5	LGNA		Cuttings	NOPR	3.16	1.42	6.51	0.31	456			206	10	21	45	0.18		
34031228380000	Barth 3		5737.0	LGNA		Cuttings	NOPR	1.93	0.72	3.20	0.18	454			166	9	18	37	0.18		
34031228380000	Barth 3		5738.5	LGNA		Cuttings	NOPR	3.38	1.60	8.12	0.85	458			240	25	10	47	0.16		
34031228380000	Barth 3		5745.5	LGNA		Cuttings	NOPR	3.57	1.38	8.37	0.95	459			234	27	9	39	0.14		
34031228380000	Barth 3		5747.0	LGNA		Cuttings	NOPR	3.28	1.60	7.11	0.33	455			217	10	22	49	0.18		

api #	Top Depth, feet	Well	A-R Bulk Density, gm/cc	Dry Bulk Density, gm/cc	Dry Grain Density, gm/cc	Dry Helium Porosity, % of BV	Dry Press Decay Permeability, md
34031228380000	5630.40	Fred T. Barth 3	2.65	2.63	2.74	4.1	2.41E-05
34031228380000	5640.80	Fred T. Barth 3	2.55	2.53	2.67	5.2	1.09E-04
34031228380000	5660.00	Fred T. Barth 3	2.55	2.53	2.65	4.7	2.04E-04
34031228380000	5664.00	Fred T. Barth 3	2.54	2.52	2.64	4.5	5.70E-05
34031228380000	5674.50	Fred T. Barth 3	2.50	2.48	2.65	6.5	2.19E-04
34031228380000	5678.50	Fred T. Barth 3	2.53	2.50	2.64	5.2	3.39E-04
34031228380000	5681.50	Fred T. Barth 3	2.54	2.52	2.66	5.3	1.26E-04
34031228380000	5682.50	Fred T. Barth 3	2.49	2.46	2.64	6.8	6.63E-05
34031228380000	5684.50	Fred T. Barth 3	2.50	2.47	2.65	6.6	1.68E-04
34031228380000	5701.60	Fred T. Barth 3	2.56	2.54	2.65	4.0	4.70E-05
34031228380000	5704.60	Fred T. Barth 3	2.60	2.59	2.69	3.7	8.96E-05
34031228380000	5715.50	Fred T. Barth 3	2.60	2.58	2.69	4.1	2.23E-05
34031228380000	5716.90	Fred T. Barth 3	2.59	2.57	2.67	3.8	4.83E-05
34031228380000	5734.00	Fred T. Barth 3	2.59	2.57	2.68	4.0	1.60E-04
34031228380000	5737.00	Fred T. Barth 3	2.56	2.54	2.65	4.1	3.81E-05
34031228380000	5738.50	Fred T. Barth 3	2.57	2.55	2.66	4.0	1.38E-04
34031228380000	5745.50	Fred T. Barth 3	2.57	2.56	2.65	3.5	6.98E-05



X-RAY DIFFRACTION

Well	Sample Depth (ft)	CLAYS				CARBONATES			OTHER MINERALS						TOTALS		
		Chlorite	Kaolinite	Illite	Mx I/S	Calcite	Fe-Dol	Siderite	Quartz	K-spar	Plag.	Pyrite	Apatite	Barite	Clays	Carb.	Other
Fred T. Barth 3	5630.40					18	5	Tr	21	1	4	5	2	0	44	23	33
Fred T. Barth 3	5640.80					24	5	Tr	24	1	4	2	2	0	38	29	33
Fred T. Barth 3	5660.00					44	4	Tr	17	1	4	2	2	0	26	48	26
Fred T. Barth 3	5664.00					37	5	Tr	19	1	3	3	2	0	30	42	28
Fred T. Barth 3	5674.50					43	7	Tr	15	1	4	3	1	0	26	50	24
Fred T. Barth 3	5678.50					46	4	Tr	17	1	3	3	2	0	24	50	26
Fred T. Barth 3	5681.50					47	6	Tr	18	1	4	3	2	0	19	53	28
Fred T. Barth 3	5682.50					47	3	Tr	15	1	4	3	2	0	25	50	25
Fred T. Barth 3	5684.50					35	7	Tr	21	1	4	3	2	0	27	42	31
Fred T. Barth 3	5701.60					58	4	Tr	8	1	2	3	2	0	22	62	16
Fred T. Barth 3	5704.60					58	4	Tr	9	1	1	4	2	0	21	62	17
Fred T. Barth 3	5715.50					38	9	Tr	13	1	2	3	2	0	32	47	21
Fred T. Barth 3	5716.90					43	8	Tr	12	1	2	3	2	0	29	51	20
Fred T. Barth 3	5734.00					53	3	Tr	9	1	2	3	6	0	23	56	21
Fred T. Barth 3	5737.00					55	3	Tr	9	1	2	4	4	0	22	58	20
Fred T. Barth 3	5738.50					55	4	Tr	9	1	1	4	5	0	21	59	20
Fred T. Barth 3	5745.50					55	2	Tr	9	1	2	4	5	0	22	57	21



Source Rock Analyses

TOC, Rock-Eval and Maturity Testing

Barth #3
Coshocton, Ohio

August 13, 2010

218 Higgins Street
Humble, TX 77338
832.644.1184

GEO MARK RESEARCH, LTD.

9748 Whithorn Drive
Houston, TX 77095
281.856.9333

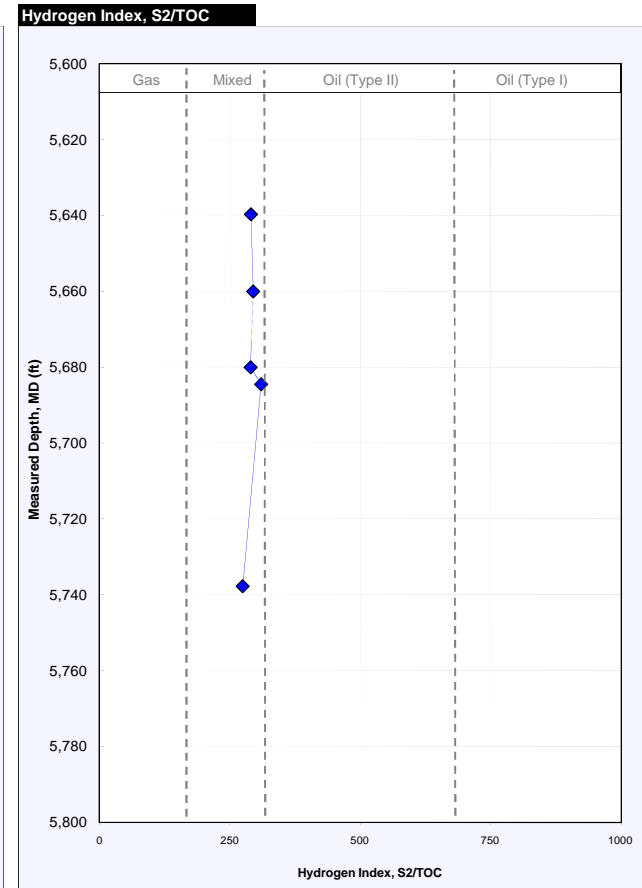
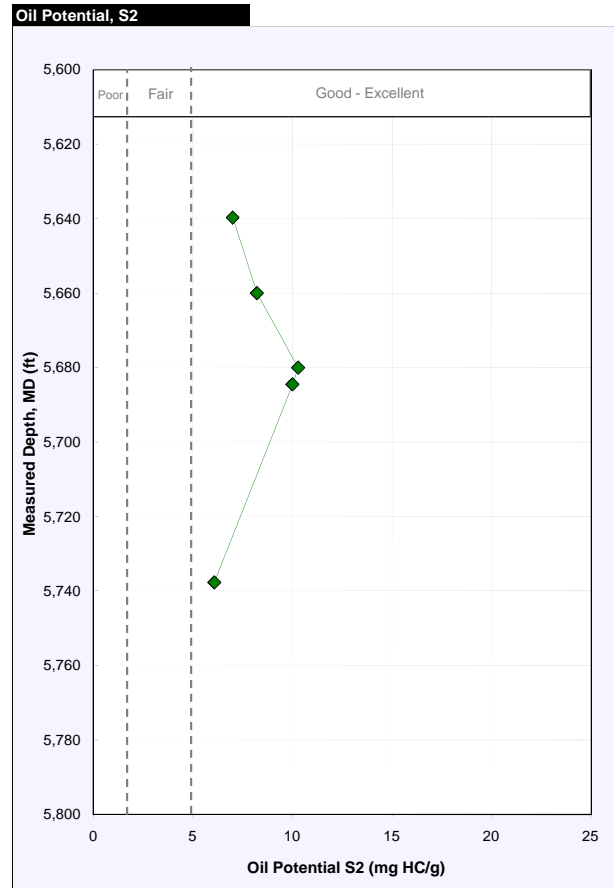
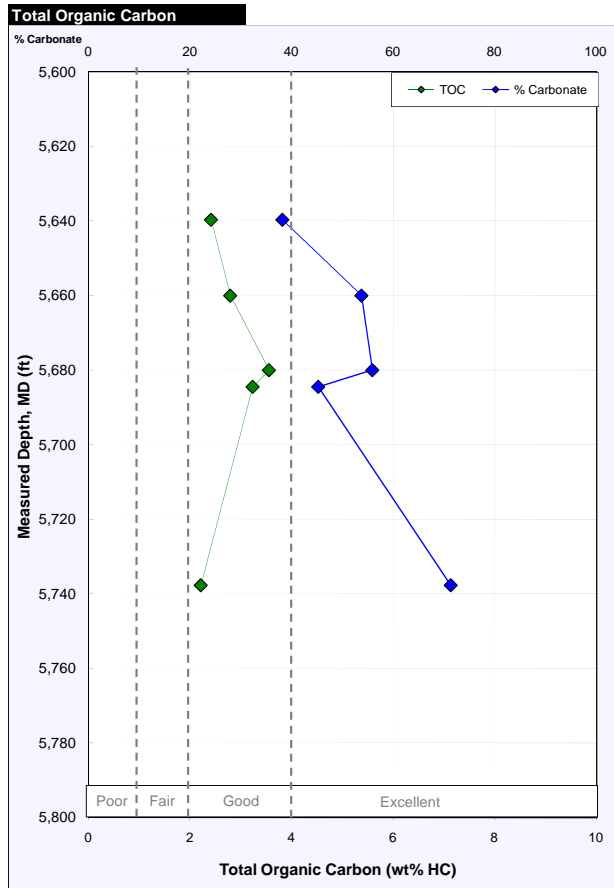
Dennis Prezbindowski
Petroleum Consulting Inc



SOURCE ROCK ANALYSES

GEO MARK RESEARCH, LTD.

Barth #3, Coshocton, Ohio

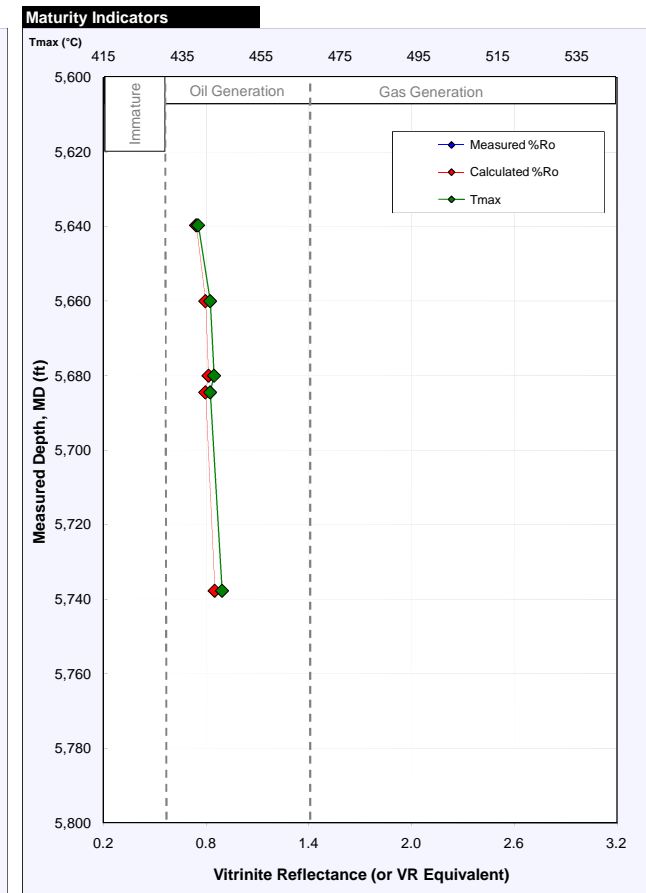
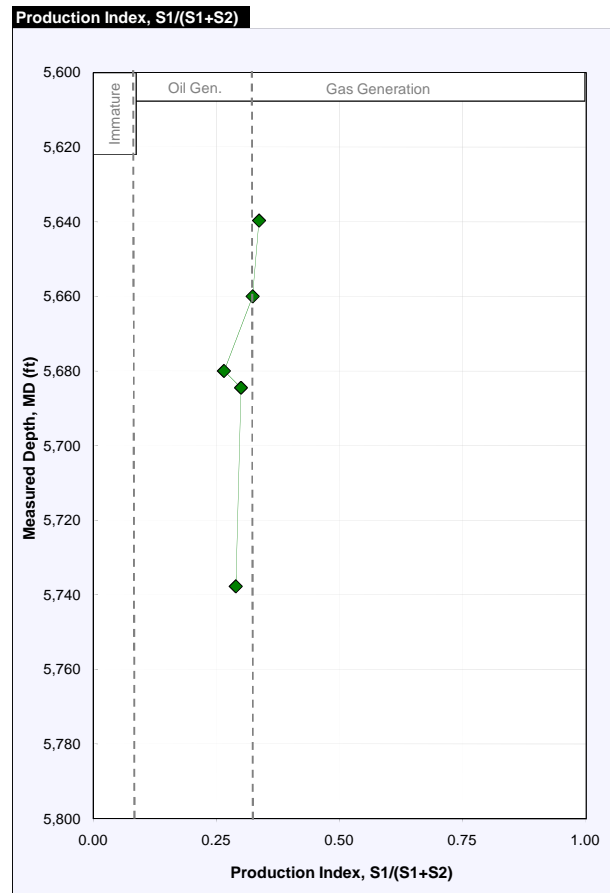
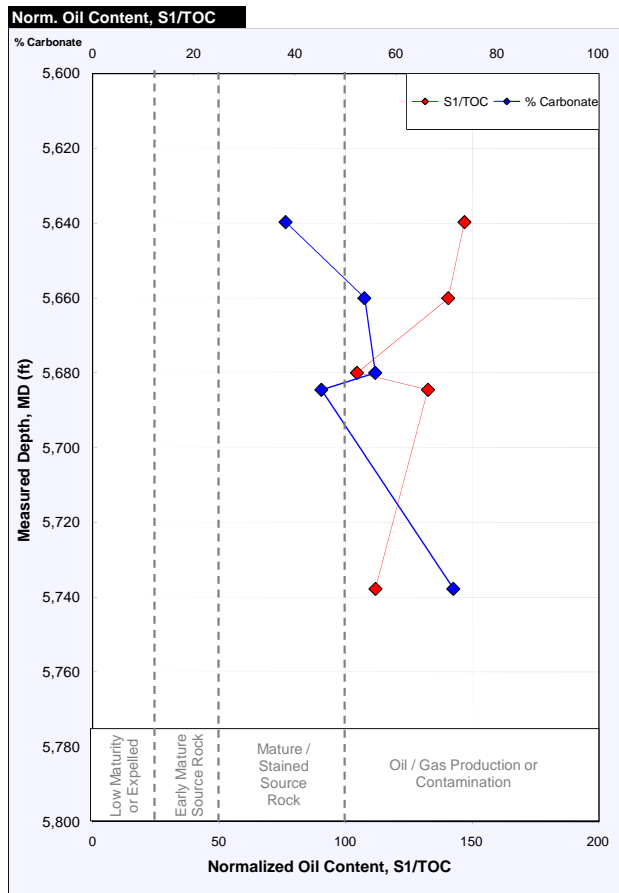




SOURCE ROCK ANALYSES

GeoMark RESEARCH, LTD.

Barth #3, Coshocton, Ohio



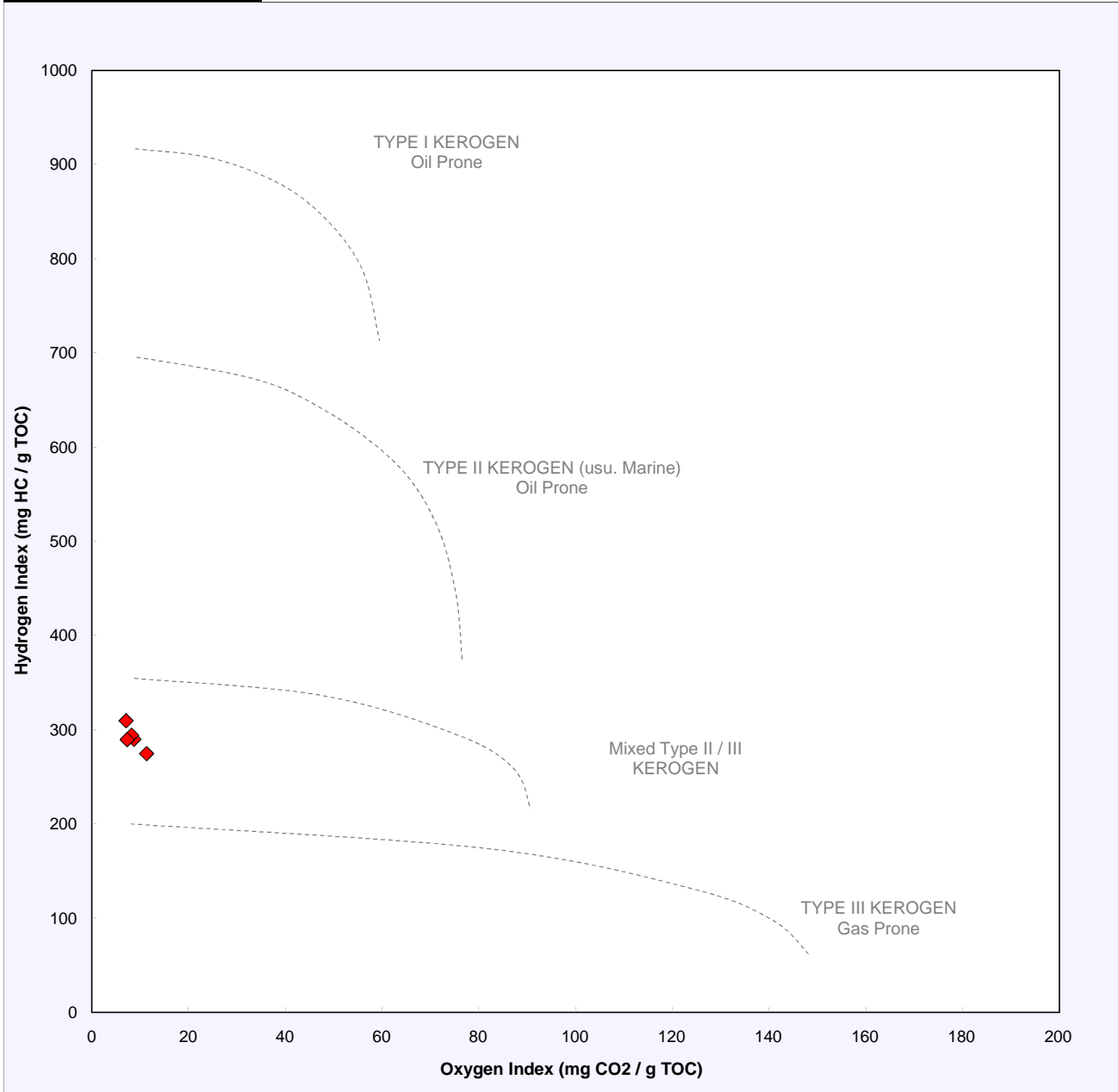


SOURCE ROCK ANALYSES

GEO MARK RESEARCH, LTD.

Barth #3, Coshocton, Ohio

Pseudo Van Krevelen Plot



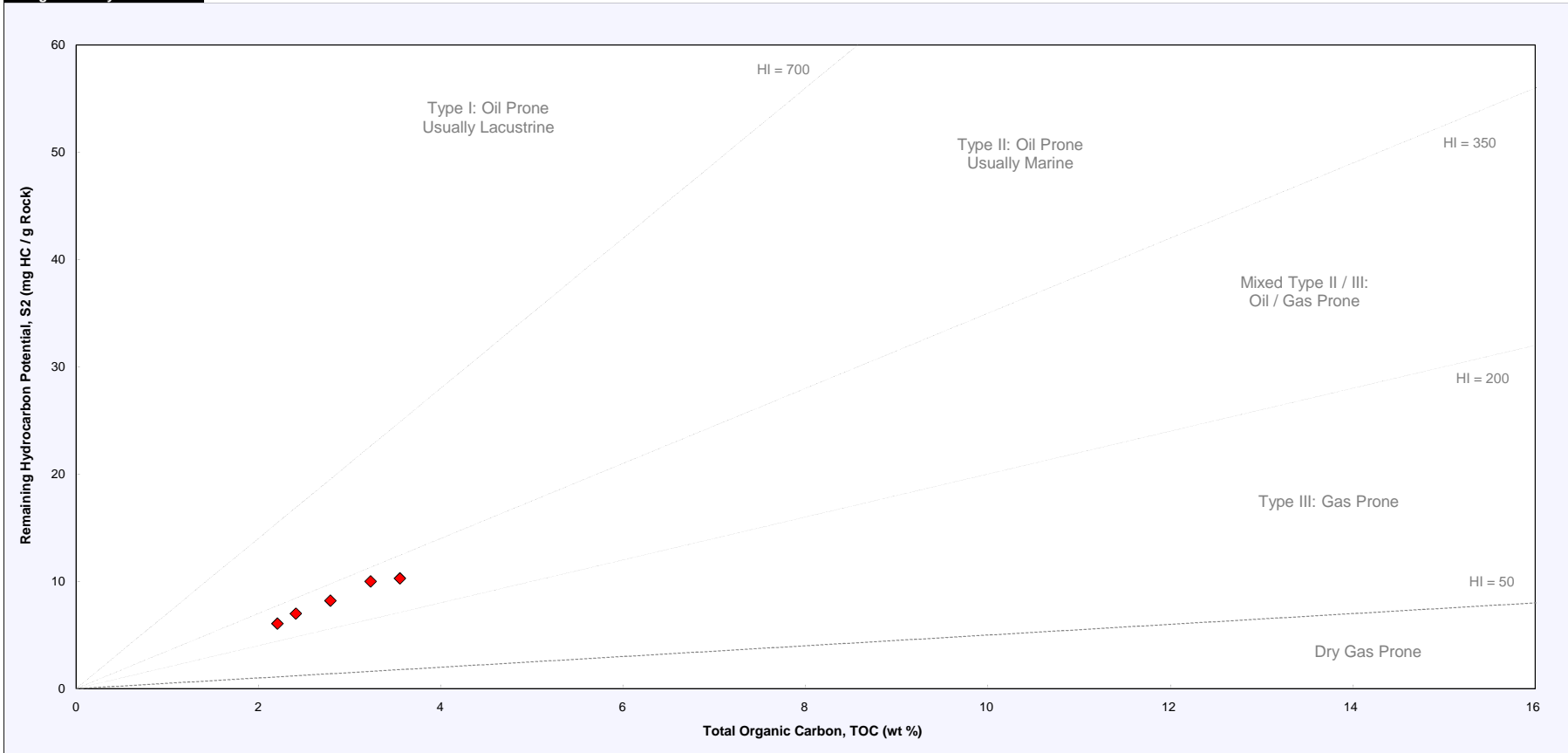


SOURCE ROCK ANALYSES

GEO MARK RESEARCH, LTD.

Barth #3, Coshocton, Ohio

Kerogen Quality Plot



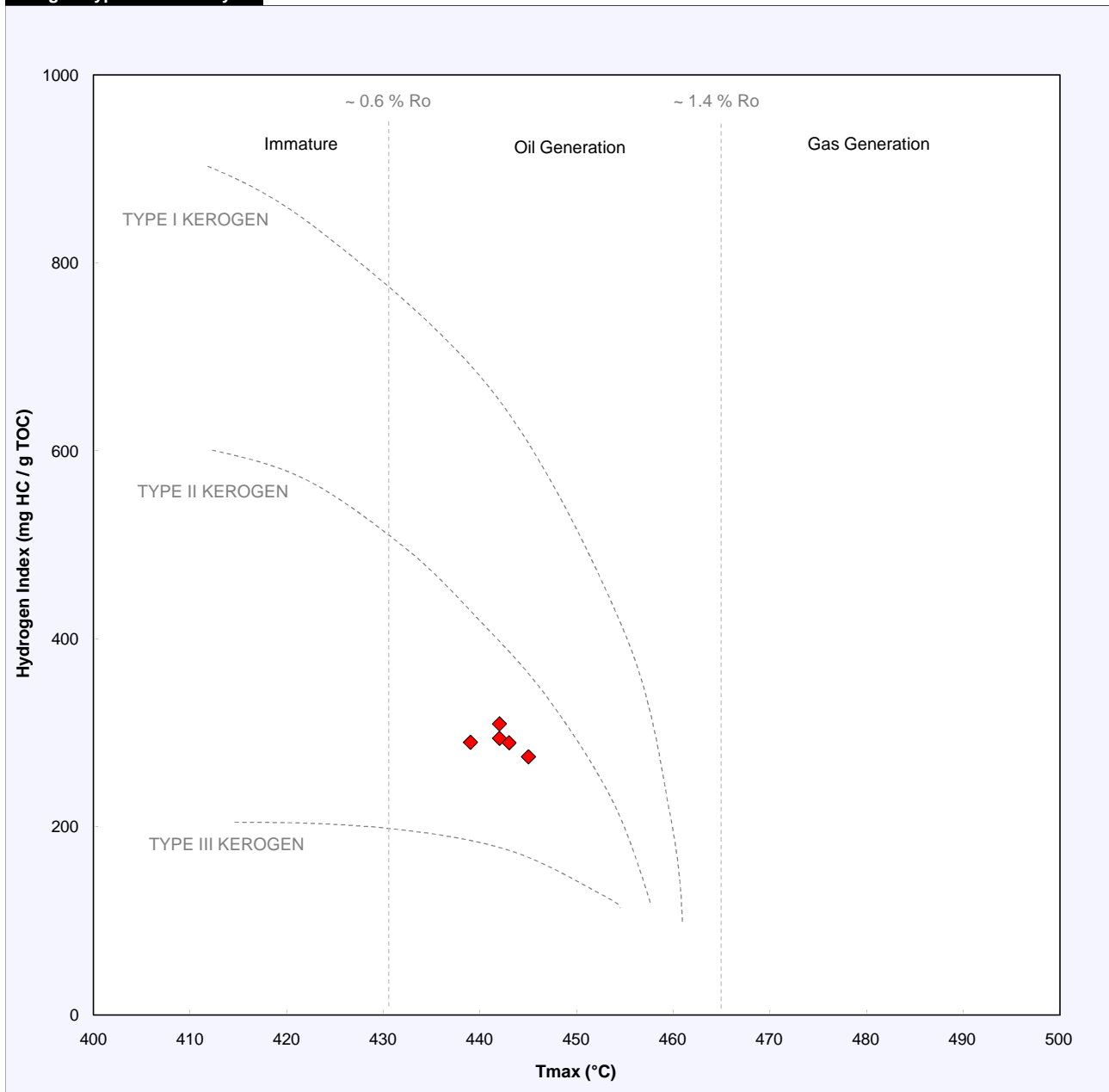


SOURCE ROCK ANALYSES

GEO MARK RESEARCH, LTD.

Barth #3, Coshocton, Ohio

Kerogen Type and Maturity



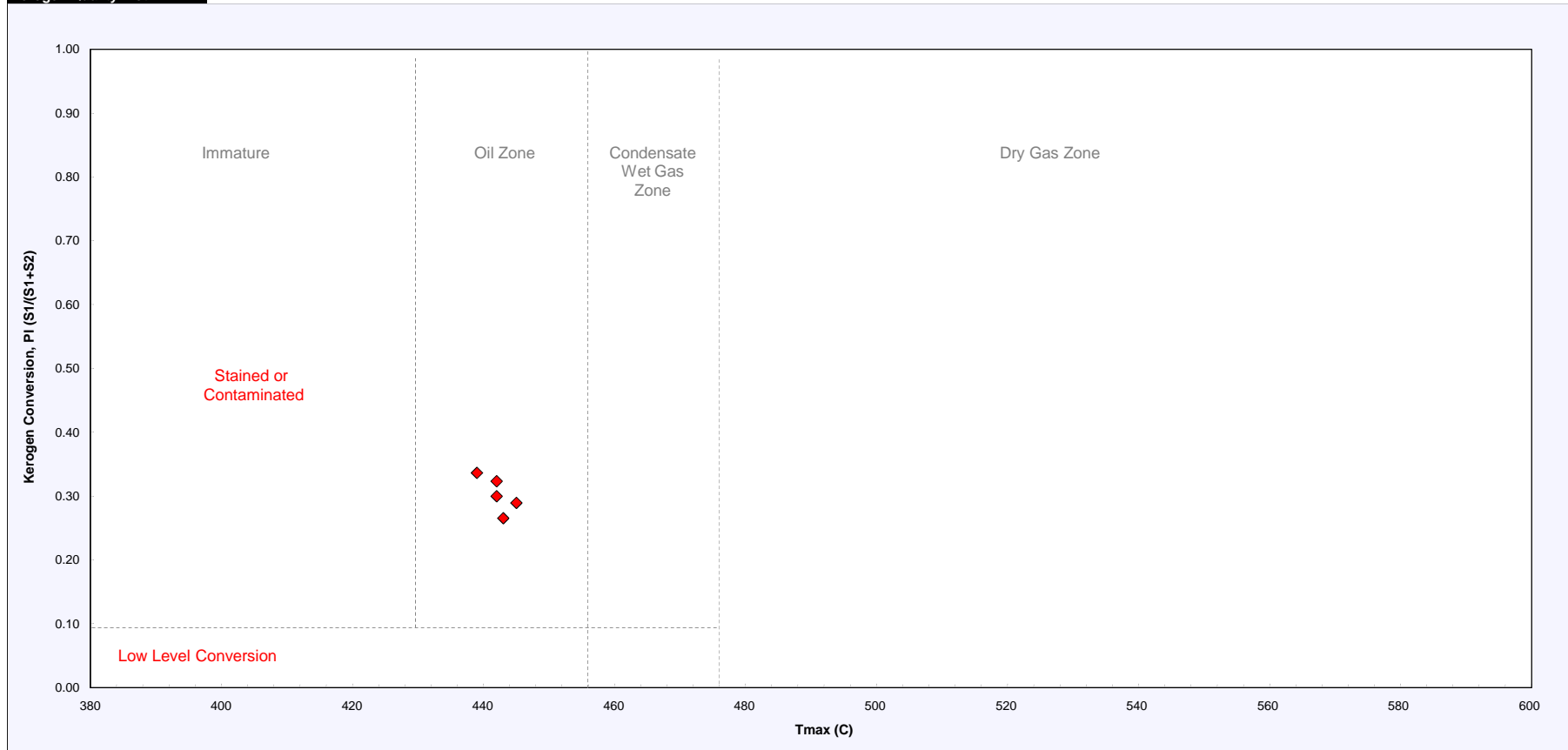


SOURCE ROCK ANALYSES

GEO MARK RESEARCH, LTD.

Barth #3, Coshocton, Ohio

Kerogen Quality Plot



Oil Information Library System

9748 Whithorn Drive
Houston, Texas 77095

Tel: (281) 856-9333

Fax: (281) 856-2987

info@geomarkresearch.com

www.RFDbase.com

GEOCHEMICAL SUMMARY SHEET

Country: USA

Depth (ft): 5639.7

15-Sep-10

Basin: Appalachian

Age: Ordovician

Sample ID: XOH0006

Field:

Formation: Utica-Pt. Pleasant

LAT: 40.32

Well: Redman Barth #3

calcareous shale

LONG: -81.777

BULK PROPERTIES

API Gravity:

% S:

ppm V:

C15 + Composition

% < C15:

ppm Ni:

% Sat: 58.5

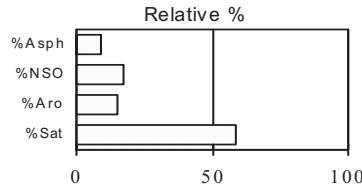
% Aro: 14.7

% NSO: 17.6

% Asph: 9.1

Sat/Aro=3.98

n-Paraffin/Naphthene=



Miscellaneous:

EOM = 5,980 ppm

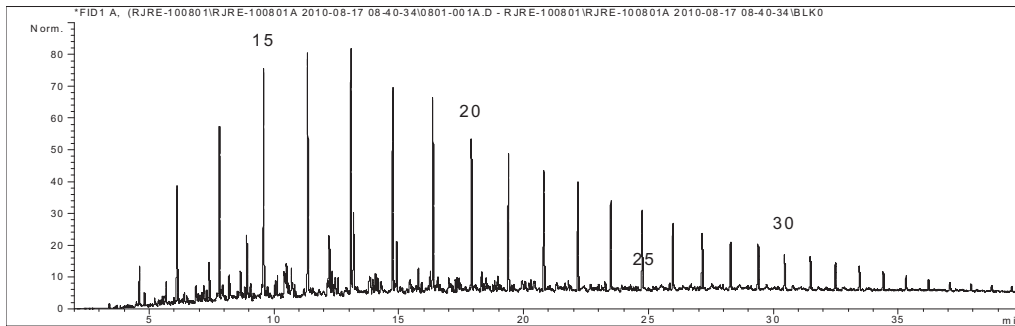
Stable Carbon Isotope Composition

δ per mil PDB

C15+ Saturate: -29.88

C15+ Aromatic: -28.14

Canonical Variable: 1.48



WHOLE CRUDE GAS CHROMATOGRAPHY

Pr/Ph=1.60

Pr/n-C17=0.34

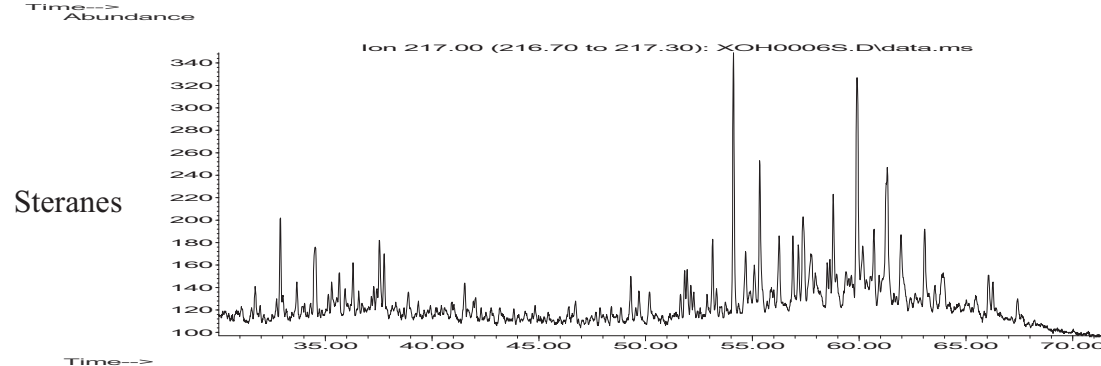
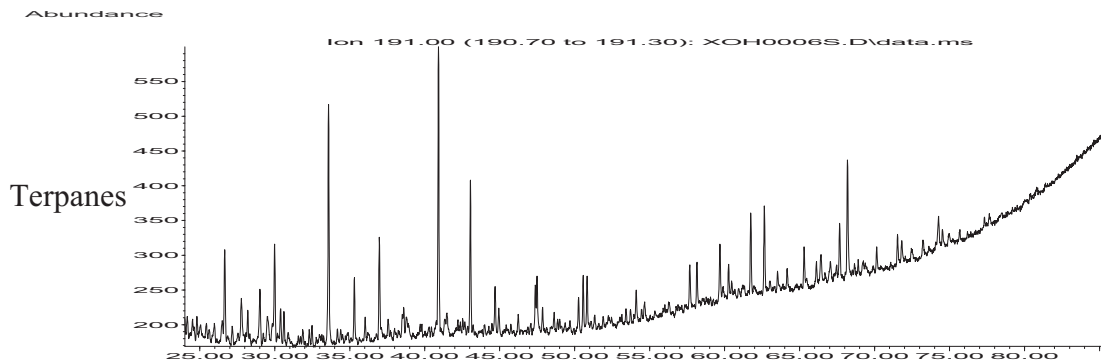
Ph/n-C18=0.25

n-C27/n-C17=0.23

CPI=1.059

BIOMARKERS

ppm C30 Hopane: 1



OilMod Ratios

C19/C23=0.32

C22/C21=0.43

C24/C23=0.54

C26/C25=1.13

Tet/C23=0.13

C27T/C27=0.04

C28/H=0.97

C29/H=0.61

C30X/H=4.40

OL/H=0.18

C31R/H=0.37

GA/C31R=0.86

C35S/C34S=

Ster/Terp=

Rearr/Reg=8.59

%C27=32.8

%C28=24.4

%C29=42.9

C29 20S/R=1.09

C27 Ts/Tm=7.93

C29 Ts/Tm=3.44

DM/H=0.11

TAS3(CR)=0.89

Projected Source Rock Type:

Age:

Thermal Maturity Level:

Degree of Biodegradation:

Oil Information Library System

9748 Whithorn Drive Tel: (281) 856-9333
 Houston, Texas 77095 Fax: (281) 856-2987
 info@geomarkresearch.com
 www.RFDbase.com

GEOCHEMICAL SUMMARY SHEET

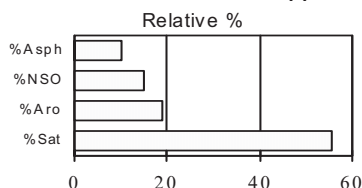
Country: USA Depth (ft): **5660** 15-Sep-10
 Basin: **Appalachian** Age: **Ordovician** Sample ID: **XOH0007**
 Field: Formation: **Utica-Pt. Pleasant** LAT: 40.32
 Well: **Redman Barth #3** **calcareous shale** LONG: -81.777

BULK PROPERTIES

C15 + Composition

% Sat: **55.5**
 % Aro: **19.0**
 % NSO: **15.2**
 % Asph: **10.3**
 Sat/Aro=**2.92**
 n-Paraffin/Naphthene=

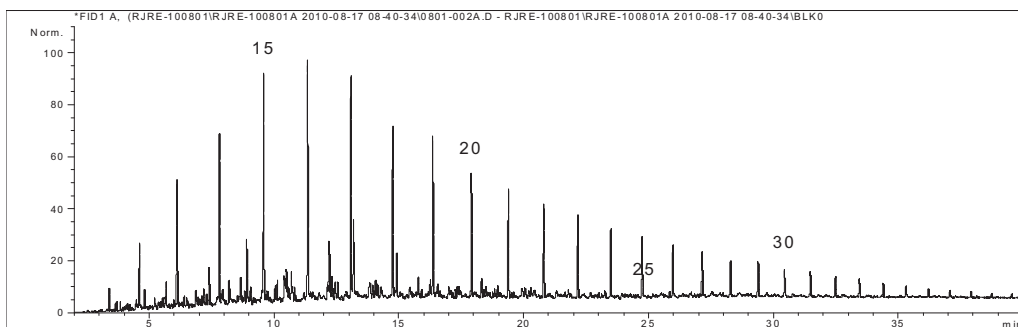
API Gravity: % S: ppm V:
 %< C15: ppm Ni:



Stable Carbon Isotope Composition

δ per mil PDB
 C15+ Saturate: **-29.80**
 C15+ Aromatic: **-27.94**
 Canonical Variable: **1.72**

Miscellaneous: EOM = 6,882 ppm

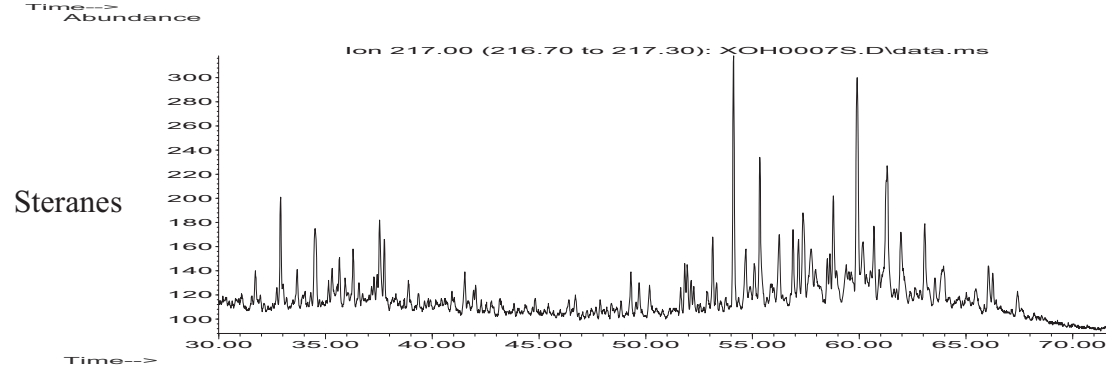
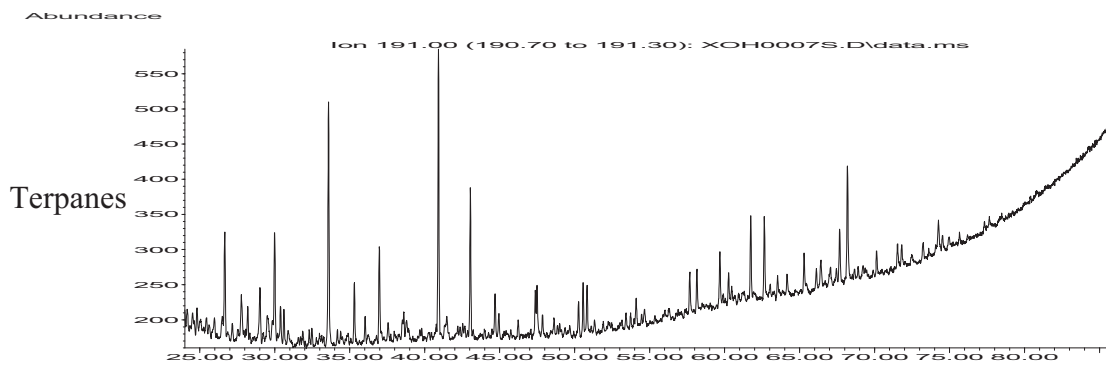


WHOLE CRUDE GAS CHROMATOGRAPHY

Pr/Ph=**1.75**
 Pr/n-C17=**0.36**
 Ph/n-C18=**0.26**
 n-C27/n-C17=**0.20**
 CPI=**1.061**

BIOMARKERS

ppm C30 Hopane: **1**



OilMod Ratios

C19/C23=**0.38**
 C22/C21=**0.40**
 C24/C23=**0.53**
 C26/C25=**1.10**
 Tet/C23=**0.13**
 C27T/C27=
 C28/H=**0.84**
 C29/H=**0.65**
 C30X/H=**4.57**
 OL/H=**0.27**
 C31R/H=**0.43**
 GA/C31R=**0.94**
 C35S/C34S=
 Ster/Terp=
 Rearr/Reg=**8.40**
 %C27=**31.9**
 %C28=**25.7**
 %C29=**42.5**
 C29 20S/R=**1.00**
 C27 Ts/Tm=**5.90**
 C29 Ts/Tm=**3.29**
 DM/H=
 TAS3(CR)=**0.76**

Projected Source Rock Type:

Age:

Thermal Maturity Level:

Degree of Biodegradation:

Oil Information Library System

9748 Whithorn Drive Tel: (281) 856-9333
 Houston, Texas 77095 Fax: (281) 856-2987
 info@geomarkresearch.com
 www.RFDbase.com

GEOCHEMICAL SUMMARY SHEET

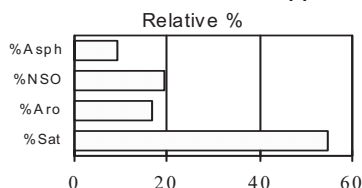
Country: USA	Depth (ft): 5680	15-Sep-10
Basin: Appalachian	Age: Ordovician	Sample ID: XOH0008
Field:	Formation: Utica-Pt. Pleasant	LAT: 40.32
Well: Redman Barth #3	calcareous shale	LONG: -81.777

BULK PROPERTIES

C15 + Composition

% Sat: **54.6**
 % Aro: **16.8**
 % NSO: **19.4**
 % Asph: **9.3**
 Sat/Aro = **3.26**
 n-Paraffin/Naphthene =

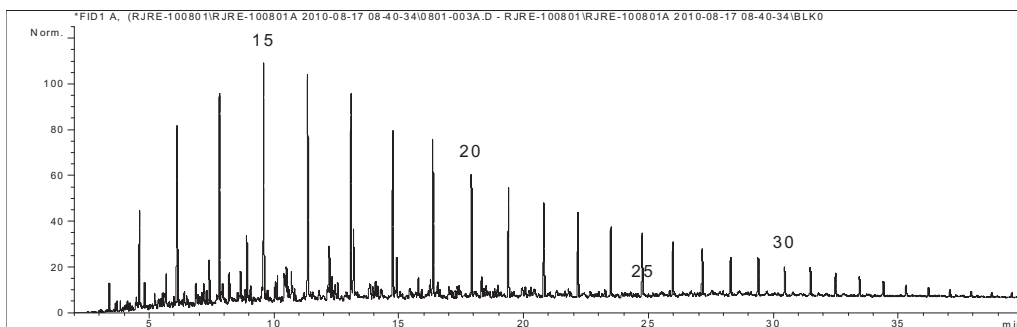
API Gravity: % S: ppm V:
 % < C15: ppm Ni:



Stable Carbon Isotope Composition

δ per mil PDB
 C15+ Saturate: **-29.86**
 C15+ Aromatic: **-27.91**
 Canonical Variable: **1.94**

Miscellaneous: EOM = 6,321 ppm

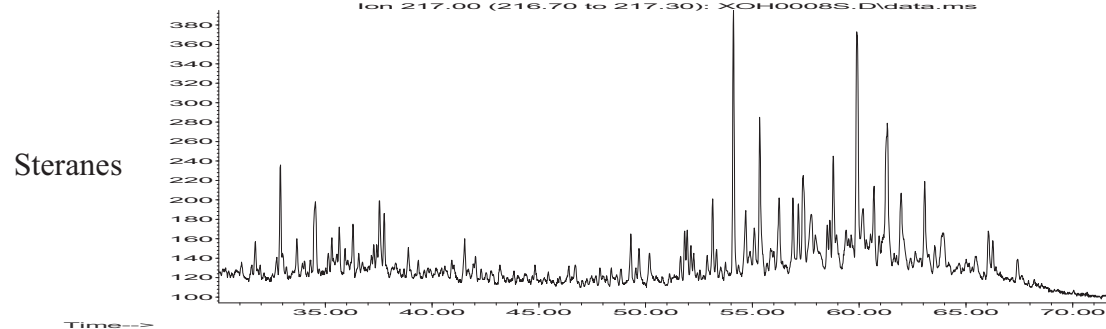
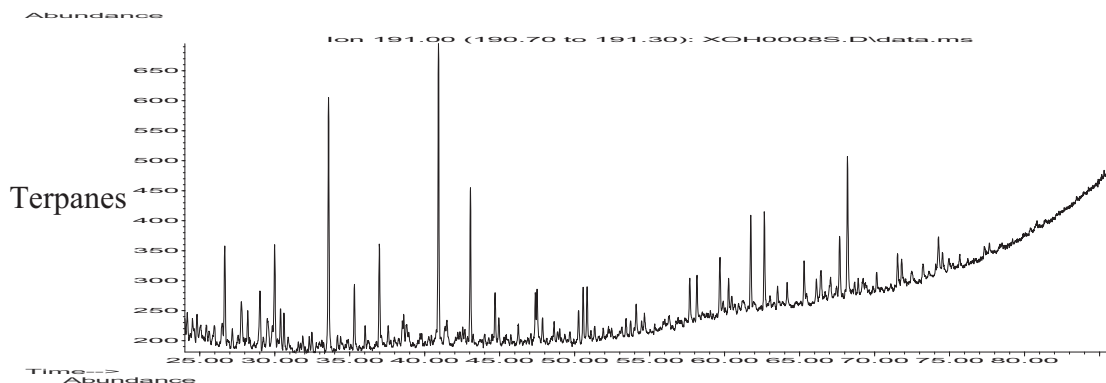


WHOLE CRUDE GAS CHROMATOGRAPHY

Pr/Ph = **1.71**
 Pr/n-C17 = **0.34**
 Ph/n-C18 = **0.25**
 n-C27/n-C17 = **0.23**
 CPI = **1.076**

BIOMARKERS

ppm C30 Hopane: 1



OilMod Ratios

C19/C23 = **0.34**
 C22/C21 = **0.41**
 C24/C23 = **0.53**
 C26/C25 = **1.04**
 Tet/C23 = **0.11**
 C27T/C27 = **0.02**
 C28/H = **1.24**
 C29/H = **0.61**
 C30X/H = **6.91**
 OL/H = **0.18**
 C31R/H = **0.36**
 GA/C31R = **1.67**
 C35S/C34S =
 Ster/Terp =
 Rearr/Reg = **8.77**
 %C27 = **33.3**
 %C28 = **23.6**
 %C29 = **43.1**
 C29 20S/R = **0.96**
 C27 Ts/Tm = **7.67**
 C29 Ts/Tm = **5.05**
 DM/H =
 TAS3(CR) = **0.86**

Projected Source Rock Type:

Age:

Thermal Maturity Level:

Degree of Biodegradation:

Oil Information Library System

9748 Whithorn Drive
Houston, Texas 77095

Tel: (281) 856-9333
Fax: (281) 856-2987
info@geomarkresearch.com
www.RFDbase.com

GEOCHEMICAL SUMMARY SHEET

Country: USA Depth (ft): 5684.5
Basin: Appalachian Age: Ordovician
Field: Formation: Utica-Pt. Pleasant
Well: Redman Barth #3 calcareous shale

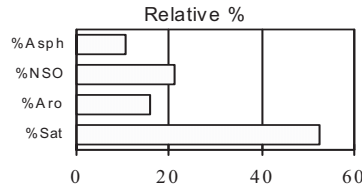
15-Sep-10
Sample ID: XOH0009
LAT: 40.32
LONG: -81.777

BULK PROPERTIES

C15 + Composition

% Sat: **52.3**
% Aro: **16.0**
% NSO: **21.1**
% Asph: **10.5**
Sat/Aro=**3.27**
n-Paraffin/Naphthene=

API Gravity: % S: ppm V:
%< C15: ppm Ni:



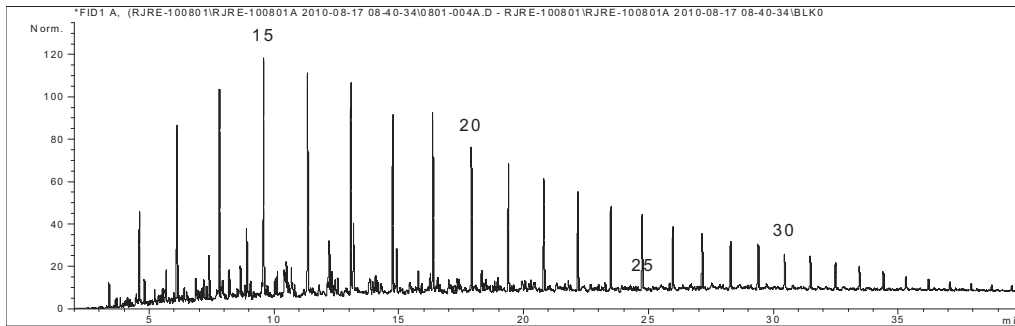
Miscellaneous:

EOM = 7,121 ppm

Stable Carbon Isotope Composition

δ per mil PDB

C15+ Saturate: **-29.92**
C15+ Aromatic: **-27.93**
Canonical Variable: **2.04**

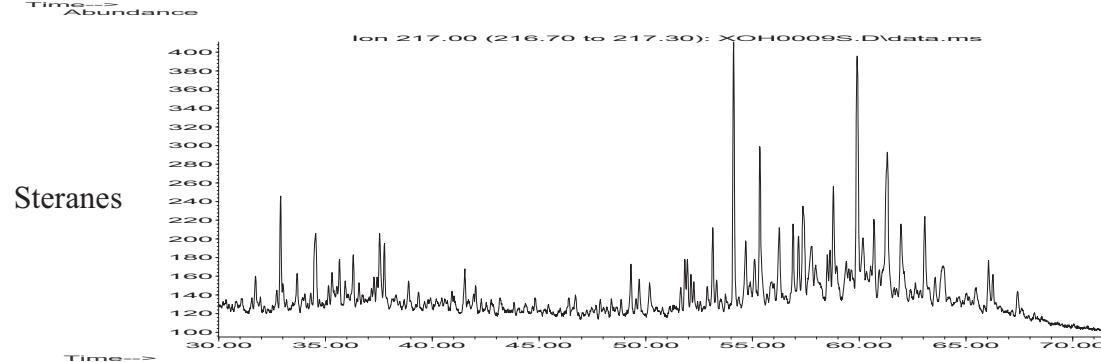
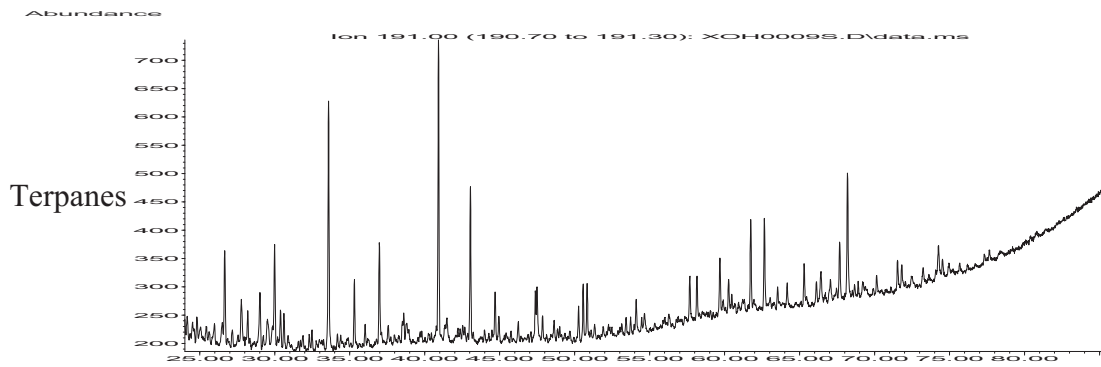


WHOLE CRUDE GAS CHROMATOGRAPHY

Pr/Ph= **1.59**
Pr/n-C17= **0.34**
Ph/n-C18= **0.25**
n-C27/n-C17= **0.26**
CPI= **1.065**

BIOMARKERS

ppm C30 Hopane: 0



OilMod Ratios

C19/C23= **0.32**
C22/C21= **0.41**
C24/C23= **0.52**
C26/C25= **1.05**
Tet/C23= **0.12**
C27T/C27= **0.04**
C28/H= **1.24**
C29/H= **0.62**
C30X/H= **6.44**
OL/H= **0.12**
C31R/H= **0.44**
GA/C31R= **1.40**
C35S/C34S=
Ster/Terp=
Rearr/Reg= **9.50**
%C27= **33.6**
%C28= **24.3**
%C29= **42.1**
C29 20S/R= **0.63**
C27 Ts/Tm= **8.32**
C29 Ts/Tm= **4.71**
DM/H= **0.18**
TAS3(CR)= **0.87**

Projected Source Rock Type:

Age:

Thermal Maturity Level:

Degree of Biodegradation:

Oil Information Library System

9748 Whithorn Drive
Houston, Texas 77095

Tel: (281) 856-9333
Fax: (281) 856-2987
info@geomarkresearch.com
www.RFDbase.com

GEOCHEMICAL SUMMARY SHEET

Country: USA Depth (ft): 5737.7
Basin: Appalachian Age: Ordovician
Field: Formation: Utica-Pt. Pleasant
Well: Redman Barth #3 calcareous shale

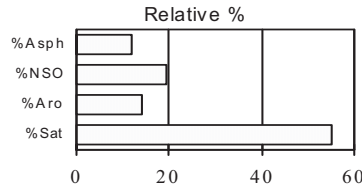
15-Sep-10
Sample ID: XOH0010
LAT: 40.32
LONG: -81.777

BULK PROPERTIES

C15 + Composition

% Sat: **55.0**
% Aro: **14.0**
% NSO: **19.3**
% Asph: **11.8**
Sat/Aro=**3.94**

API Gravity: % S: ppm V:
%< C15: ppm Ni:



Stable Carbon Isotope Composition

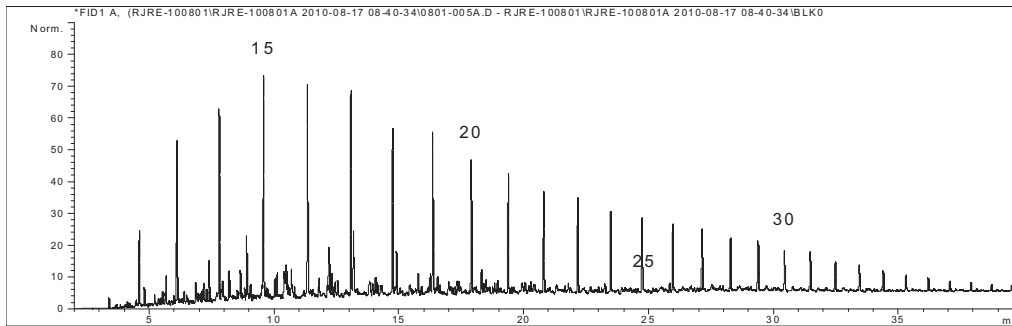
δ per mil PDB

C15+ Saturate: **-29.79**
C15+ Aromatic: **-28.15**
Canonical Variable: **1.23**

n-Paraffin/Naphthene=

Miscellaneous:

EOM = 4,526 ppm

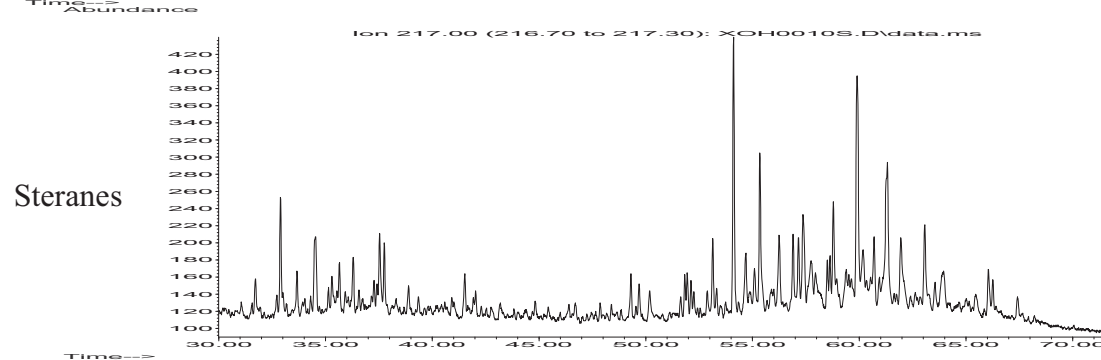
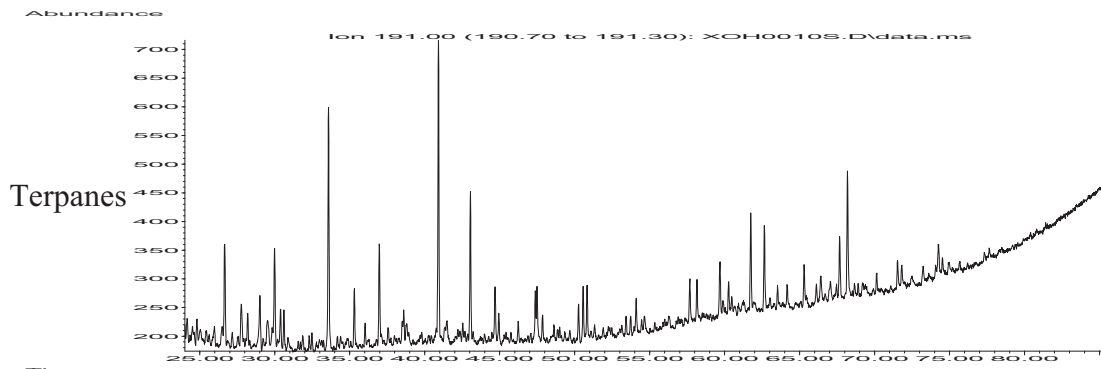


WHOLE CRUDE GAS CHROMATOGRAPHY

Pr/Ph= **1.49**
Pr/n-C17= **0.32**
Ph/n-C18= **0.26**
n-C27/n-C17= **0.30**
CPI= **1.059**

BIOMARKERS

ppm C30 Hopane: 1



OilMod Ratios

C19/C23= **0.34**
C22/C21= **0.42**
C24/C23= **0.51**
C26/C25= **1.04**
Tet/C23= **0.13**
C27T/C27=
C28/H= **1.00**
C29/H= **0.76**
C30X/H= **5.84**
OL/H= **0.14**
C31R/H=
GA/C31R=
C35S/C34S=
Ster/Terp=
Rearr/Reg= **9.76**
%C27= **32.5**
%C28= **25.5**
%C29= **42.0**
C29 20S/R= **1.00**
C27 Ts/Tm= **8.50**
C29 Ts/Tm= **3.82**
DM/H= **0.08**
TAS3(CR)= **0.89**

Projected Source Rock Type:

Age:

Thermal Maturity Level:

Degree of Biodegradation:



TOTAL ORGANIC CARBON, PROGRAMMED PYROLYSIS DATA

C#3003

Company : SHELL

Weatherford Labs Project : BH-49668 / BH-49668

Client ID	Well Name	Operator	Depth (') Top	Formation	Sample Type	Sample Prep	*	TOC	SRA			Tmax (°C)	**	Meas. % Ro	HI	OI	S2/S3	S1/TOC #100	PI	Notes		LAB ID
									S1	S2	S3									Checks	Pyrogram	
2459	2459 Samples		870		Core	NOPR		0.36	0.07	0.47	0.51	434			132	144	0.92	20	0.13	TOC	n:its2sh	3401845349
2459	2459 Samples		900		Core	NOPR		0.87	0.15	1.58	0.74	439			181	85	2.14	17	0.09	TOC	n	3401845351
2459	2459 Samples		970		Core	NOPR		3.17	0.86	11.09	0.53	435			350	17	20.92	27	0.07	SRA TOC	n	3401845353
2459	2459 Samples		1040		Core	NOPR		2.50	0.73	8.15	0.56	437			325	22	14.55	29	0.08	TOC	n	3401845355
2459	2459 Samples		1090		Core	NOPR		2.06	0.69	7.04	0.44	438			342	21	16.00	34	0.09	TOC	n	3401845357
2459	2459 Samples		1110		Core	NOPR		0.52	1.99	1.92	0.39	417			369	75	4.92	383	0.51	TOC	n:its2sh	3401845359
2619	2619 Samples		159		Core	NOPR		2.53	0.26	2.20	0.28	435			87	11	7.86	10	0.11	SRA TOC	n:its2sh	3401845361
2619	2619 Samples		229		Core	NOPR		77.33	6.18	221.50	2.70	438			286	3	82.04	8	0.03	SRA TOC	n	3401845363
2619	2619 Samples		246		Core	NOPR		62.97	3.74	147.10	2.00	429			234	3	73.55	6	0.02	SRA TOC	n	3401845365
3256	3256 Samples		2060		Core	NOPR		0.90	0.36	1.54	0.46	444			171	51	3.35	40	0.19	SRA TOC	n:its2sh	3401845159
3256	3256 Samples		2070		Core	NOPR		1.35	0.54	2.15	0.52	443			159	38	4.13	40	0.20	SRA	n:its2sh	3401845161
3256	3256 Samples		2085		Core	NOPR		1.00	0.44	1.66	0.45	444			166	45	3.69	44	0.21	SRA	n:its2sh	3401845163
3256	3256 Samples		2130		Core	NOPR		1.85	1.00	3.46	0.54	441			187	29	6.41	54	0.22	SRA TOC	n:its2sh	3401845165
3256	3256 Samples		2150		Core	NOPR		1.55	0.91	2.73	0.50	441			176	32	5.46	59	0.25	SRA TOC	n:its2sh	3401845167
3256	3256 Samples		2180		Core	NOPR		1.50	0.94	2.66	0.58	442			177	39	4.59	63	0.26	SRA	n:its2sh	3401845169
3256	3256 Samples		2210		Core	NOPR		1.70	0.96	2.96	0.34	442			174	20	8.71	56	0.24	SRA	n:its2sh	3401845171
3256	3256 Samples		2220		Core	NOPR		1.71	1.19	3.02	0.43	442			177	25	7.02	70	0.28	SRA	n:its2sh	3401845173
3256	3256 Samples		2230		Core	NOPR		1.62	1.05	3.10	0.46	442			191	28	6.74	65	0.25	SRA TOC	n:its2sh	3401845175
3256	3256 Samples		2240		Core	NOPR		2.02	1.24	3.68	0.42	443			182	21	8.76	61	0.25	SRA TOC	n:its2sh	3401845177
3256	3256 Samples		2250		Core	NOPR		1.61	0.96	2.97	0.47	442			184	29	6.32	60	0.24		n:its2sh	3401845179
3256	3256 Samples		2260		Core	NOPR		1.82	0.99	3.32	0.56	443			183	31	5.93	54	0.23		n:its2sh	3401845181
3256	3256 Samples		2264		Core	NOPR		1.64	0.84	2.93	0.45	443			179	27	6.51	51	0.22	TOC	n:its2sh	3401845183
3256	3256 Samples		2268		Core	NOPR		1.69	0.62	2.82	0.37	445			167	22	7.62	37	0.18		n:its2sh	3401845185
3256	3256 Samples		2280		Core	NOPR		0.09	0.09	0.20	0.49	409	**		215	527	0.41	97	0.31	SRA TOC	f	3401845187
3372	3372 Samples		1218		Core	NOPR		1.55	0.22	3.90	0.65	434			251	42	6.00	14	0.05		n	3401845203
3372	3372 Samples		1256		Core	NOPR		2.35	0.61	13.16	0.72	428			560	31	18.28	26	0.04	SRA TOC	n	3401845205
3372	3372 Samples		1273		Core	NOPR		3.32	1.04	22.03	0.71	429			663	21	31.03	31	0.05	SRA	n	3401845207
3372	3372 Samples		1295		Core	NOPR		1.24	0.25	4.26	0.82	432			343	66	5.20	20	0.06	TOC	n	3401845209
3372	3372 Samples		1313		Core	NOPR		2.19	0.38	7.84	0.83	430			358	38	9.45	17	0.05		n	3401845211
3372	3372 Samples		1330		Core	NOPR		2.39	0.67	13.68	0.56	429			572	23	24.43	28	0.05	SRA TOC	n	3401845213
3372	3372 Samples		1352		Core	NOPR		1.75	0.37	5.56	0.81	430			319	46	6.86	21	0.06		n	3401845215
3372	3372 Samples		1368		Core	NOPR		1.05	0.23	3.08	0.86	429			295	82	3.58	22	0.07	TOC	n	3401845217
3372	3372 Samples		1377		Core	NOPR		1.54	0.28	4.73	0.76	432			307	49	6.22	18	0.06		n	3401845219
3372	3372 Samples		1383		Core	NOPR		1.73	0.33	5.92	0.69	429			341	40	8.58	19	0.05	TOC	n	3401845221
3372	3372 Samples		1397		Core	NOPR		1.98	0.62	11.12	0.57	429			562	29	19.51	31	0.05		n	3401845223
3372	3372 Samples		1405		Core	NOPR		1.82	0.56	10.93	0.57	431			601	31	19.18	31	0.05		n	3401845225
3372	3372 Samples		1414		Core	NOPR		4.04	1.03	25.55	0.65	423			632	16	39.31	25	0.04	SRA TOC	n	3401845227
3372	3372 Samples		1428		Core	NOPR		2.70	0.91	17.39	0.57	429			645	21	30.51	34	0.05	TOC	n	3401845229
3372	3372 Samples		1431		Core	NOPR		2.91	0.90	13.69	0.53	429			470	18	25.83	31	0.06	TOC	n	3401845231
3372	3372 Samples		1435		Core	NOPR		2.75	1.20	12.04	0.48	427			438	17	25.08	44	0.09	TOC	n	3401845233
3372	3372 Samples		1442		Core	NOPR		4.39	1.45	32.53	0.48	427			741	11	67.77	33	0.04	SRA TOC	n	3401845235
3372	3372 Samples		1451		Core	NOPR		2.38	0.86	15.70	0.48	431			661	20	32.71	36	0.05	TOC	n	3401845237
3372	3372 Samples		1456		Core	NOPR		5.08	2.04	36.39	0.56	427			716	11	64.98	40	0.05	SRA TOC	n	3401845239

TOTAL ORGANIC CARBON, PROGRAMMED PYROLYSIS DATA

Company : SHELL

Weatherford Labs Project : BH-49668 / BH-49668

Client ID	Well Name	Operator	Depth (') Top	Formation	Sample Type	Sample Prep	*	TOC	SRA			Tmax (°C)	**	Meas. % Ro	HI	OI	S2/S3	S1/TOC *100	PI	Notes		LAB ID
									S1	S2	S3									Checks	Pyrogram	
3372	3372 Samples		1459		Core	NOPR		3.09	0.99	18.54	0.39	432			599	13	47.54	32	0.05	TOC	n	3401845241
3372	3372 Samples		1464		Core	NOPR		1.98	0.53	9.84	0.40	431			496	20	24.60	27	0.05	TOC	n	3401845243
3372	3372 Samples		1469		Core	NOPR		3.35	1.57	23.61	0.55	428			706	16	42.93	47	0.06	SRA TOC	n	3401845245
3372	3372 Samples		1473		Core	NOPR		4.85	2.18	33.73	0.51	428			696	11	66.14	45	0.06	TOC	n	3401845247
3372	3372 Samples		1477		Core	NOPR		3.23	0.91	16.03	0.39	430			496	12	41.10	28	0.05	TOC	n	3401845249
3372	3372 Samples		1481		Core	NOPR		4.10	1.20	28.94	0.53	429			706	13	54.60	29	0.04	TOC	n	3401845251
3372	3372 Samples		1486.5		Core	NOPR		0.49	0.18	2.17	0.31	429			445	64	7.00	37	0.08	TOC	n	3401845253
3372	3372 Samples		1493		Core	NOPR		2.72	0.62	14.77	0.46	432			544	17	32.11	23	0.04	SRA TOC	n	3401845255
	Barth-1		5641.5		Core	NOPR		3.29	2.42	7.05	0.38	447			215	12	18.55	74	0.26	TOC	n:Its2sh	3401845367
	Barth-1		5681		Core	NOPR		4.85	2.14	8.79	0.42	449			181	9	20.93	44	0.20	TOC	n:Its2sh	3401845369
	Barth-1		5709		Core	NOPR		3.15	1.68	5.99	0.45	447			190	14	13.31	53	0.22	TOC	n:Its2sh	3401845371
	Barth-1		5737		Core	NOPR		2.57	1.67	5.53	0.50	444			215	19	11.06	65	0.23	TOC	n:Its2sh	3401845373

Notes:

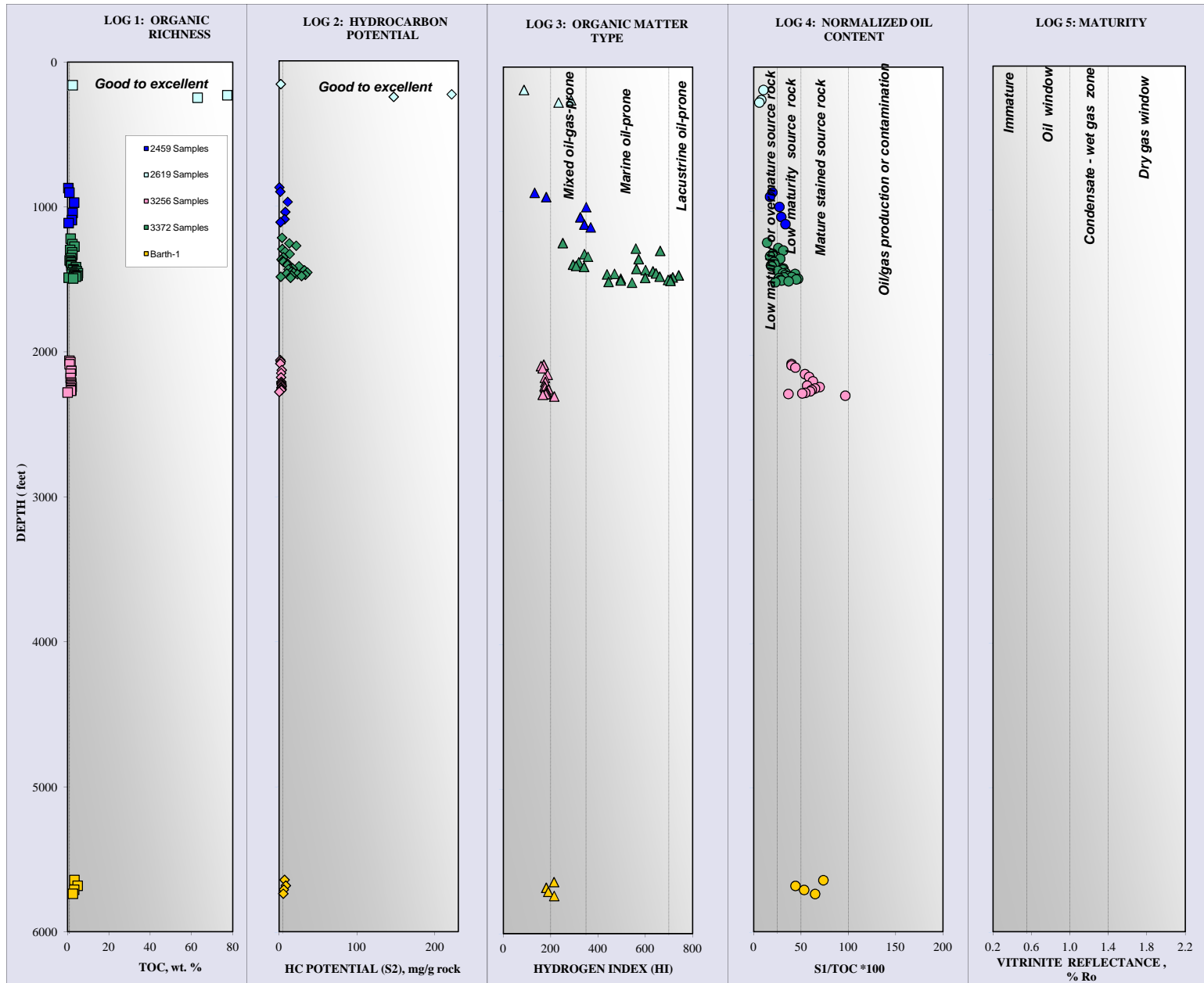
"-1" – not measured or invalid value for T_{max}
 TOC - Total Organic Carbon, wt. %
 S1 - volatile hydrocarbon (HC) content, mg HC/ g rock
 S2 - remaining HC generative potential, mg HC/ g rock
 S3 - carbon dioxide content, mg CO₂/ g rock

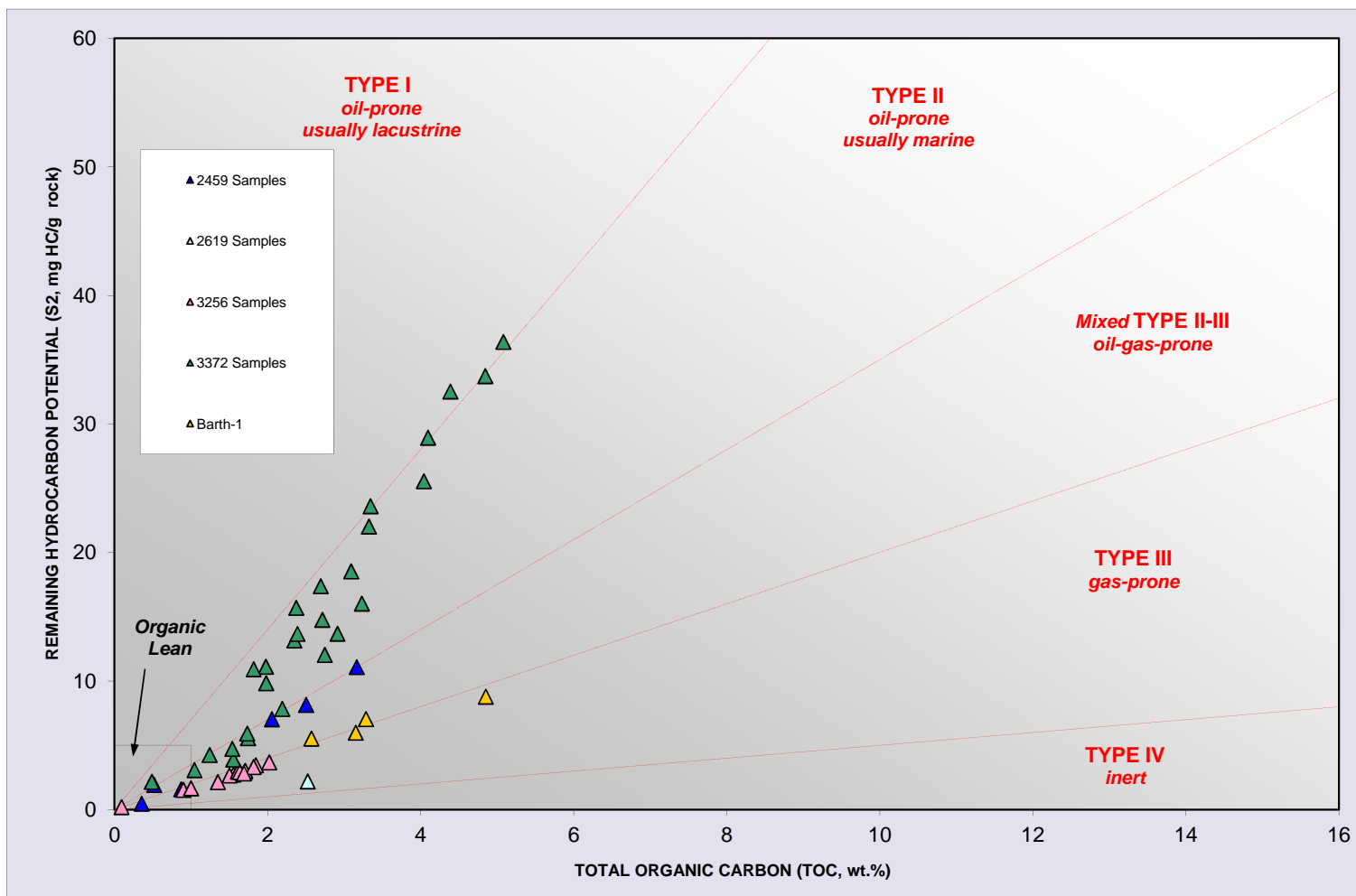
* - comments regarding contamination
 ** - low S2, Tmax is unreliable
 Meas. %Ro - measured vitrinite reflectance
 HI - Hydrogen index = S2 x 100 / TOC, mg HC/ g TOC
 OI - Oxygen Index = S3 x 100 / TOC, mg CO₂/ g TOC
 PI - Production Index = S1 / (S1+S2)

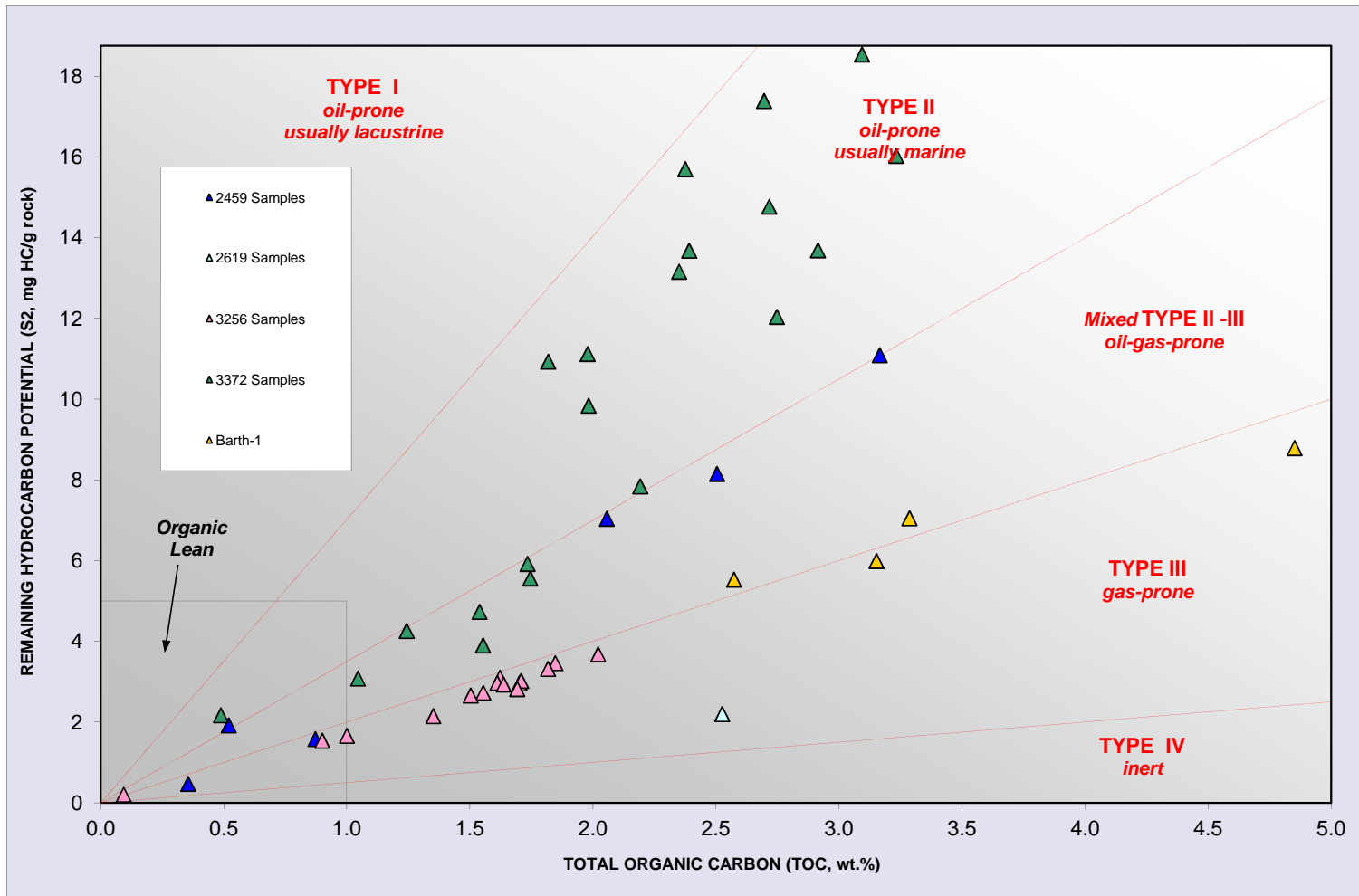
Pyrogram:

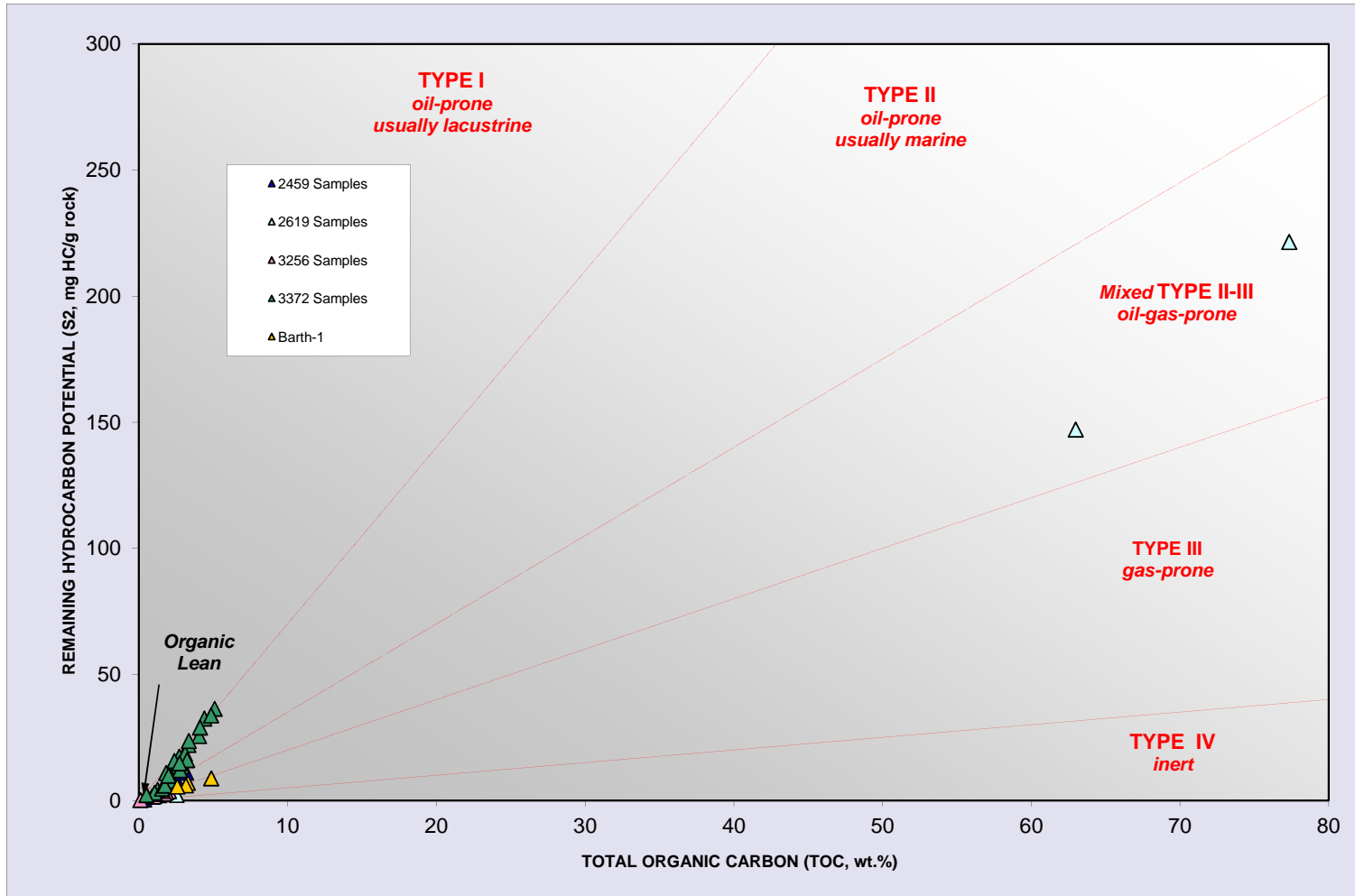
f - flat S2 peak
 n - normal
 ltS2sh - low temperature S2 shoulder
 ltS2p - low temperature S2 peak
 htS2p - high temperature S2 peak

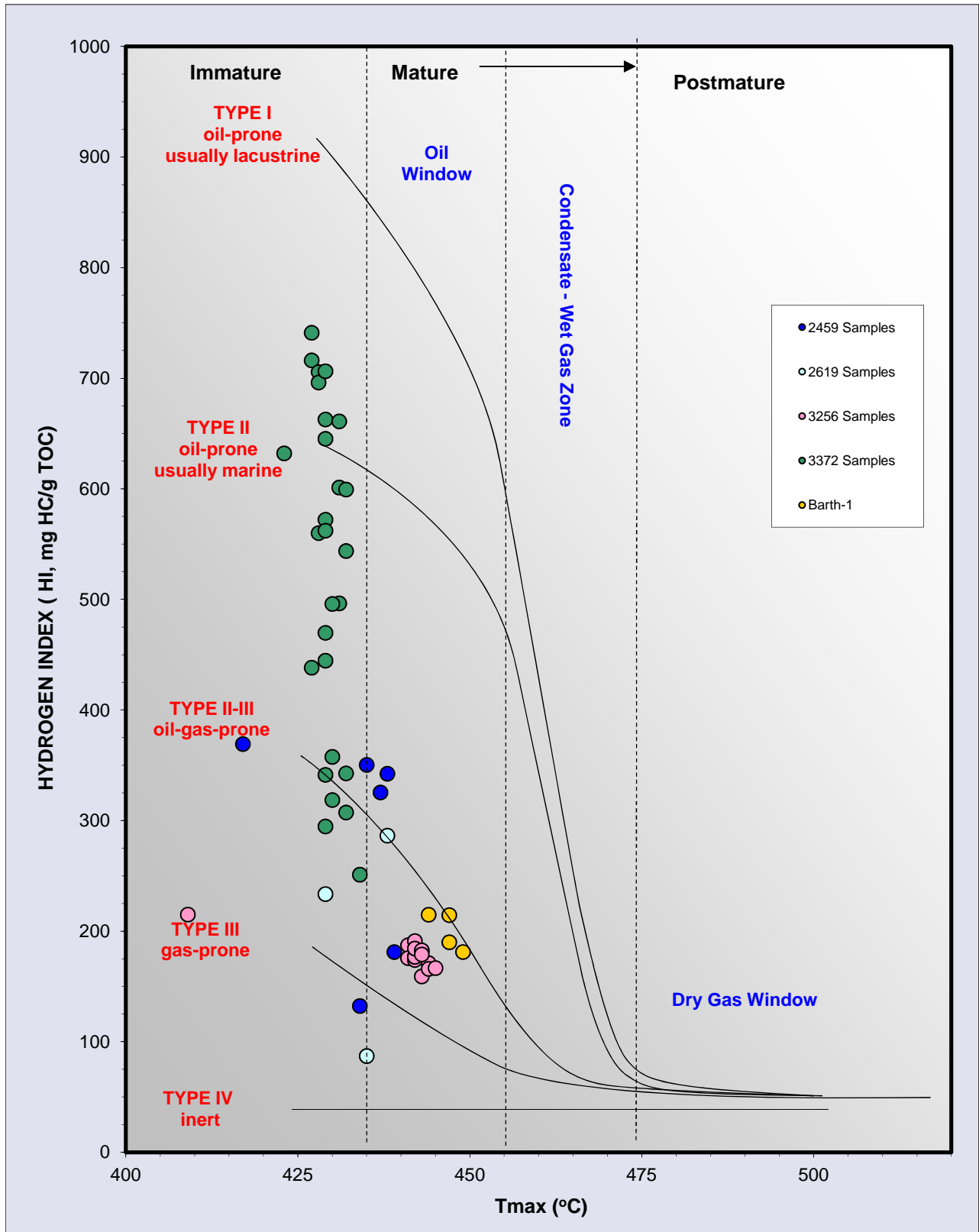
RE - Programmed pyrolysis on Rock-Eval instrument
 EXT - Extracted Rock
 NOPR - Normal Preparation

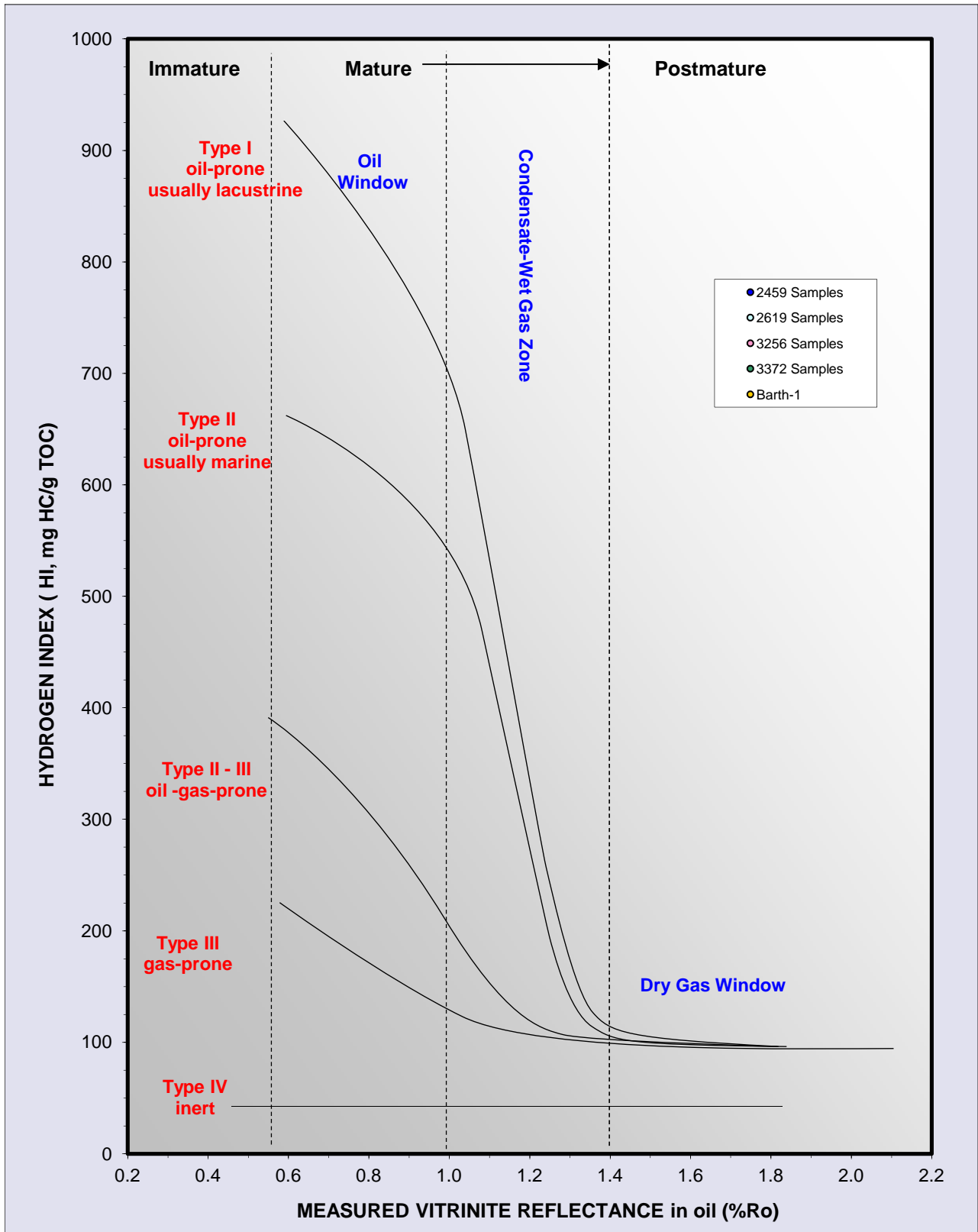


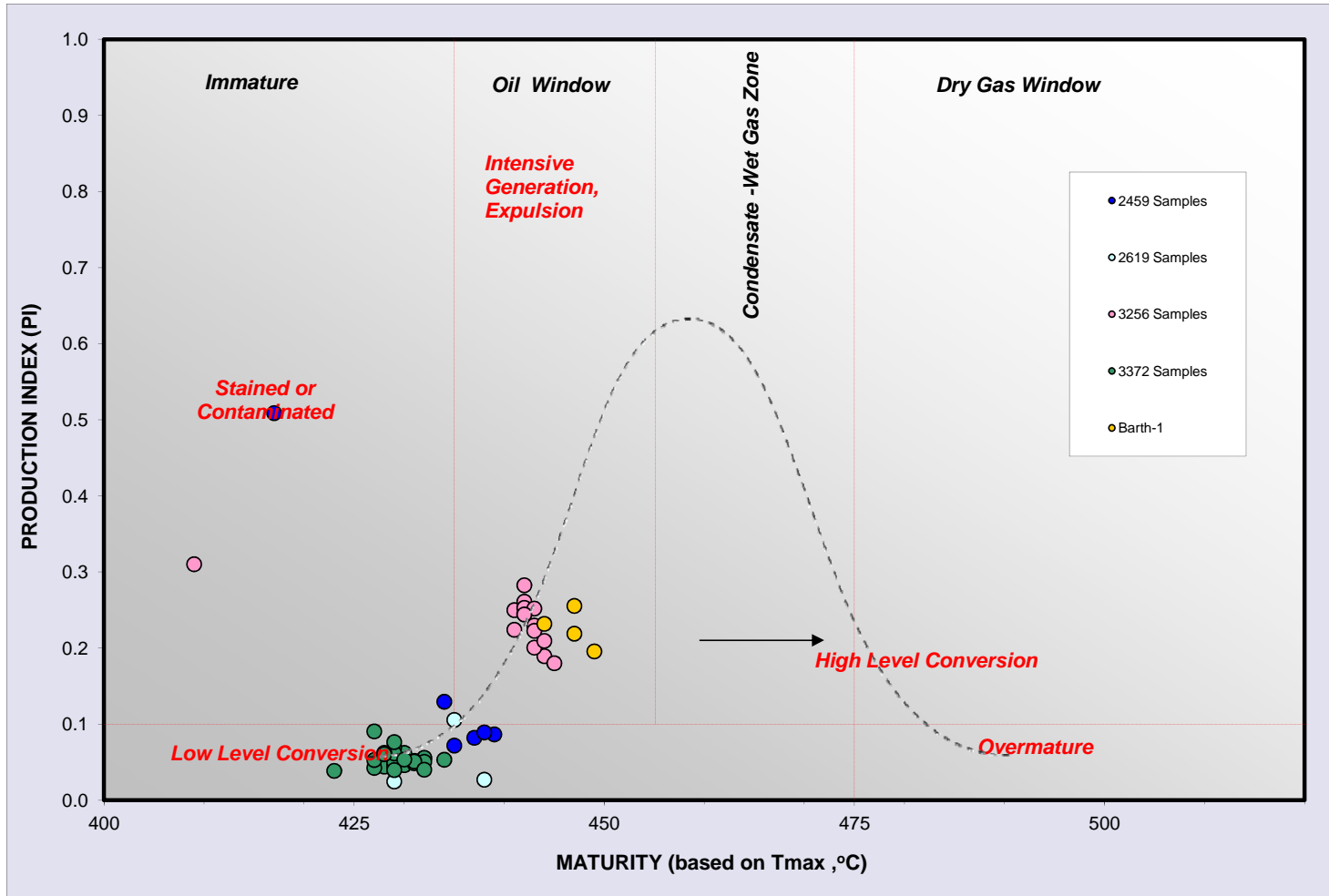


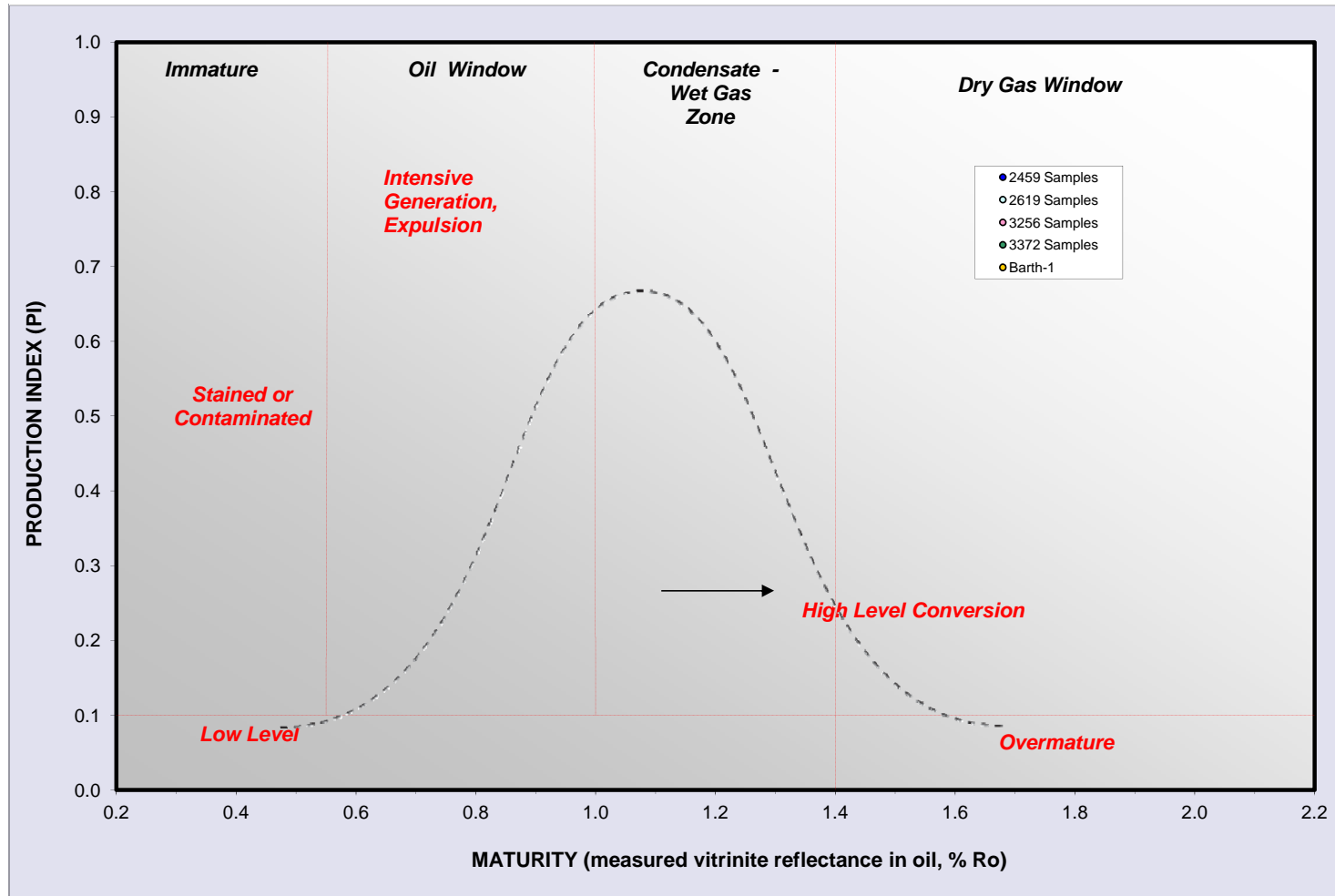












Core #'s - 2627, 2958,
3003, 3372, 3373, 3374

Core #'s - 2627, 2958, 3003, 3372, 3373, 3374						LECO		Rock Eval						CLAYS				
								Measured Values										
Well Name/Outcrop Location	core_samp_no	API/Sample ID	Sample Depth	Formation	Sample Type	Leco Percent Carbonate	TOC	S1	S2	S3	Tmax (°C)	HI	OI	Chlorite	Kaolinite	Smectite	Illite	Mx I/S1
USS Chemicals - 4	2958	34145202120000	2956.0	Utica/Pt. Pleasant	Core	15.91	0.28	0.05	0.28	0.15	436	100	54	9	Tr		33	3
USS Chemicals - 4	2958	34145202120000	3060.0	Utica/Pt. Pleasant	Core	23.68	0.45	0.11	1.07	0.16	437	238	36					
USS Chemicals - 4	2958	34145202120000	3070.4	Utica/Pt. Pleasant	Core	13.45	0.36	0.07	0.50	0.14	436	139	39	12	Tr		40	6
USS Chemicals - 4	2958	34145202120000	3076.0	Utica/Pt. Pleasant	Core	19.40	0.21	0.05	0.23	0.10	433	110	48	8	Tr		27	5
Prudential 1-A	3372	34101201960000	1481.4	Utica/Pt. Pleasant	Core	74.11	3.76	1.39	32.86	0.64	433	874	17	Tr	Tr		6	2
Prudential 1-A	3372	34101201960000	1475.8	Utica/Pt. Pleasant	Core	26.72	6.35	3.82	59.35	0.50	427	935	8	Tr	Tr		22	4
Prudential 1-A	3372	34101201960000	1474.6	Utica/Pt. Pleasant	Core	75.20	1.11	0.78	6.66	0.39	432	600	35					
Prudential 1-A	3372	34101201960000	1469.2	Utica/Pt. Pleasant	Core	34.76	4.16	2.28	36.80	0.53	431	885	13	Tr	Tr		25	4
Prudential 1-A	3372	34101201960000	1464.3	Utica/Pt. Pleasant	Core	45.34	1.91	1.17	15.56	0.35	433	815	18					
Prudential 1-A	3372	34101201960000	1461.2	Utica/Pt. Pleasant	Core	55.60	2.90	2.18	25.80	0.41	432	890	14	Tr	Tr		16	3
Prudential 1-A	3372	34101201960000	1451.9	Utica/Pt. Pleasant	Core	50.91	2.82	1.76	23.17	0.47	433	822	17	Tr	Tr		24	4
Prudential 1-A	3372	34101201960000	1426.3	Utica/Pt. Pleasant	Core	58.42	2.18	1.39	16.13	0.37	431	740	17	3	Tr		14	3
Prudential 1-A	3372	34101201960000	1421.3	Utica/Pt. Pleasant	Core	25.68	1.47	0.57	7.14	0.46	431	486	31					
Prudential 1-A	3372	34101201960000	1415.9	Utica/Pt. Pleasant	Core	46.72	2.09	1.14	14.77	0.42	431	707	20					
Prudential 1-A	3372	34101201960000	1414.9	Utica/Pt. Pleasant	Core	26.92	2.49	1.21	19.06	0.48	433	765	19	4	Tr		23	5
Prudential 1-A	3372	34101201960000	1405.8	Utica/Pt. Pleasant	Core	43.90	2.73	1.47	19.91	0.50	431	729	18					
Prudential 1-A	3372	34101201960000	1392.7	Utica/Pt. Pleasant	Core	39.24	2.29	1.19	16.07	0.48	431	702	21					
Prudential 1-A	3372	34101201960000	1381.6	Utica/Pt. Pleasant	Core	43.39	3.53	1.85	28.05	0.61	432	795	17	4	Tr		21	4
Prudential 1-A	3372	34101201960000	1373.8	Utica/Pt. Pleasant	Core	26.41	2.04	0.93	12.62	0.55	431	619	27					
Prudential 1-A	3372	34101201960000	1365.0	Utica/Pt. Pleasant	Core	50.24	0.88	0.34	3.52	0.40	434	400	45	1	Tr		9	4
Prudential 1-A	3372	34101201960000	1355.6	Utica/Pt. Pleasant	Core	29.13	1.71	0.72	7.88	0.52	430	461	30	4	Tr		29	7
Prudential 1-A	3372	34101201960000	1345.0	Utica/Pt. Pleasant	Core	28.84	1.68	0.74	7.42	0.39	436	442	23					
Prudential 1-A	3372	34101201960000	1323.5	Utica/Pt. Pleasant	Core	25.19	2.67	1.28	19.72	0.68	432	739	25	6	Tr		24	5
Prudential 1-A	3372	34101201960000	1303.0	Utica/Pt. Pleasant	Core	26.50	2.03	0.75	10.26	0.52	436	505	26					
Prudential 1-A	3372	34101201960000	1273.8	Utica/Pt. Pleasant	Core	25.20	1.42	0.53	6.25	0.43	436	440	30	7	Tr		29	3
Prudential 1-A	3372	34101201960000	1235.0	Utica/Pt. Pleasant	Core	21.31	1.12	0.41	4.21	0.40	437	376	36					
Wenig 1	3373	34101201940000	1450.2	Utica/Pt. Pleasant	Core	58.69	4.82	2.01	42.24	0.73	435	876	15					
Wenig 1	3373	34101201940000	1442.8	Utica/Pt. Pleasant	Core	55.44	3.80	2.15	34.52	0.68	436	908	18					
Wenig 1	3373	34101201940000	1437.8	Utica/Pt. Pleasant	Core	48.73	3.13	1.36	22.84	0.67	431	730	21					
Wenig 1	3373	34101201940000	1435.8	Utica/Pt. Pleasant	Core	15.00	2.23	0.59	13.04	0.46	437	585	21					
Wenig 1	3373	34101201940000	1429.8	Utica/Pt. Pleasant	Core	54.73	3.96	1.64	34.01	0.74	436	859	19					
Wenig 1	3373	34101201940000	1424.4	Utica/Pt. Pleasant	Core	50.91	6.38	3.33	54.84	0.81	429	860	13					
Wenig 1	3373	34101201940000	1420.5	Utica/Pt. Pleasant	Core	41.29	1.34	0.48	7.09	0.48	433	529	36					
Wenig 1	3373	34101201940000	1415.0	Utica/Pt. Pleasant	Core	40.90	0.90	0.26	3.65	0.45	436	406	50					
Wenig 1	3373	34101201940000	1380.7	Utica/Pt. Pleasant	Core	39.51	1.96	0.82	12.78	0.61	432	652	31					
Wenig 1	3373	34101201940000	1370.0	Utica/Pt. Pleasant	Core	35.08	1.66	0.59	9.57	0.54	431	577	33					
Wenig 1	3373	34101201940000	1360.0	Utica/Pt. Pleasant	Core	30.70	1.67	0.64	9.51	0.57	430	569	34					
Wenig 1	3373	34101201940000	1350.0	Utica/Pt. Pleasant	Core	36.29	1.79	0.77	10.48	0.48	427	585	27	4	Tr		22	7
Wenig 1	3373	34101201940000	1340.0	Utica/Pt. Pleasant	Core	21.48	1.18	0.34	4.86	0.40	434	412	34					
Wenig 1	3373	34101201940000	1325.0	Utica/Pt. Pleasant	Core	26.64	2.24	0.86	13.70	0.56	431	612	25	5	Tr		28	6
Wenig 1	3373	34101201940000	1300.0	Utica/Pt. Pleasant	Core	29.48	2.35	0.92	15.47	0.61	428	658	26	4	Tr		23	4
Wenig 1	3373	34101201940000	1290.0	Utica/Pt. Pleasant	Core	31.13	2.59	1.01	16.57	0.62	431	640	24					
Wenig 1	3373	34101201940000	1272.6	Utica/Pt. Pleasant	Core	28.34	1.74	0.61	8.18	0.67	432	470	39	5	Tr		21	6
Wenig 1	3373	34101201940000	1260.0	Utica/Pt. Pleasant	Core	28.77	2.00	0.71	10.87	0.54	433	544	27					
Wenig 1	3373	34101201940000	1240.0	Utica/Pt. Pleasant	Core	28.26	1.46	0.45	6.29	0.49	432	431	34	6	Tr		28	3
Wenig 1	3373	34101201940000	1455.6	Utica/Pt. Pleasant	Core													

Supplied by: Conoco Phillips

Well Name/Outcrop Location	core_samp_no	API/Sample ID	Sample Depth	Formation	Sample Type	Leco Percent Carbonate	TOC	S1	S2	S3	Tmax (°C)	HI	OI	Chlorite	Kaolinite	Smectite	Illite	Mx I/S1
Heckathorn 1	3374	34175202870000	1291.0	Utica/Pt. Pleasant	Core									2	4		11	67
Heckathorn 1	3374	34175202870000	1283.1	Utica/Pt. Pleasant	Core	73.82	3.46	1.90	30.16	0.77	436	872	22	Tr	Tr		9	2
Heckathorn 1	3374	34175202870000	1282.1	Utica/Pt. Pleasant	Core	13.79	2.92	1.22	21.93	0.67	435	751	23					
Heckathorn 1	3374	34175202870000	1278.6	Utica/Pt. Pleasant	Core	27.86	4.93	2.12	32.92	0.65	437	668	13	1	Tr		37	8
Heckathorn 1	3374	34175202870000	1276.1	Utica/Pt. Pleasant	Core	51.87	3.13	1.86	25.20	0.71	436	805	23					
Heckathorn 1	3374	34175202870000	1275.1	Utica/Pt. Pleasant	Core	25.48	6.22	3.39	54.86	0.80	432	882	13	2	Tr		37	8
Heckathorn 1	3374	34175202870000	1273.1	Utica/Pt. Pleasant	Core	53.54	1.10	0.49	5.22	0.52	437	475	47					
Heckathorn 1	3374	34175202870000	1271.0	Utica/Pt. Pleasant	Core	24.46	1.65	0.77	10.63	0.55	437	644	33	7	Tr		28	4
Heckathorn 1	3374	34175202870000	1265.0	Utica/Pt. Pleasant	Core	27.88	0.57	0.20	1.60	0.40	438	281	70					
Heckathorn 1	3374	34175202870000	1255.0	Utica/Pt. Pleasant	Core	33.96	1.20	0.55	5.09	0.49	435	424	41	5	Tr		21	4
Heckathorn 1	3374	34175202870000	1250.0	Utica/Pt. Pleasant	Core	32.62	1.62	0.77	8.14	0.55	438	502	34					
Heckathorn 1	3374	34175202870000	1245.0	Utica/Pt. Pleasant	Core	46.25	1.87	1.00	10.78	0.63	430	576	34	4	Tr		23	4
Heckathorn 1	3374	34175202870000	1240.0	Utica/Pt. Pleasant	Core	31.80	2.06	0.97	12.57	0.66	430	610	32					
Heckathorn 1	3374	34175202870000	1235.0	Utica/Pt. Pleasant	Core	29.49	1.33	0.52	6.21	0.55	431	467	41					
Heckathorn 1	3374	34175202870000	1223.0	Utica/Pt. Pleasant	Core	29.71	1.32	0.57	6.06	0.54	432	459	41	3	1		19	2
Heckathorn 1	3374	34175202870000	1208.0	Utica/Pt. Pleasant	Core	30.37	1.68	0.89	10.29	0.60	431	613	36					
Heckathorn 1	3374	34175202870000	1200.0	Utica/Pt. Pleasant	Core	32.95	1.45	0.66	7.48	0.55	432	516	38					
Heckathorn 1	3374	34175202870000	1190.1	Utica/Pt. Pleasant	Core	36.14	2.80	1.77	21.27	0.65	429	760	23					
Heckathorn 1	3374	34175202870000	1176.0	Utica/Pt. Pleasant	Core	29.26	1.65	0.77	9.27	0.62	432	562	38	4	Tr		21	3
Heckathorn 1	3374	34175202870000	1158.0	Utica/Pt. Pleasant	Core	28.93	1.54	0.72	7.98	0.55	433	518	36					
Heckathorn 1	3374	34175202870000	1126.0	Utica/Pt. Pleasant	Core	21.84	1.20	0.49	5.43	0.47	438	453	39	6	Tr		28	2
Heckathorn 1	3374	34175202870000	1110.0	Utica/Pt. Pleasant	Core	27.27	1.78	0.64	9.00	0.42	433	506	24	5	Tr		25	8
DNR American Aggregates	2627	34165600050000	1074.3	Utica/Pt. Pleasant	Core													
DNR American Aggregates	2627	34165600050000	1061.6	Utica/Pt. Pleasant	Core	29.70	7.00	5.87	58.75	0.74	441	839	11	Tr	Tr		28	1
DNR American Aggregates	2627	34165600050000	1060.0	Utica/Pt. Pleasant	Core	73.47	0.97	1.05	5.03	0.48	438	519	49	1	Tr		10	3
DNR American Aggregates	2627	34165600050000	1056.0	Utica/Pt. Pleasant	Core	66.01	1.77	1.71	12.14	0.62	440	686	35					
DNR American Aggregates	2627	34165600050000	1054.0	Utica/Pt. Pleasant	Core	76.84	1.08	1.04	6.10	0.53	442	565	49	1	Tr		12	1
DNR American Aggregates	2627	34165600050000	1045.0	Utica/Pt. Pleasant	Core	56.63	1.39	1.32	8.42	0.54	440	606	39					
DNR American Aggregates	2627	34165600050000	1035.0	Utica/Pt. Pleasant	Core	86.17	0.59	0.43	2.38	0.42	441	403	71	1	Tr		8	2
DNR American Aggregates	2627	34165600050000	1029.0	Utica/Pt. Pleasant	Core	93.69	0.10	0.07	0.12	0.25	0	120	250					
DNR American Aggregates	2627	34165600050000	1027.0	Utica/Pt. Pleasant	Core	38.48	1.10	0.77	5.78	0.51	440	525	46					
DNR American Aggregates	2627	34165600050000	1018.0	Utica/Pt. Pleasant	Core	44.99	1.57	1.16	11.05	0.51	438	704	32	4	Tr		29	3
DNR American Aggregates	2627	34165600050000	1007.2	Utica/Pt. Pleasant	Core	64.33	2.24	2.00	17.09	0.52	439	763	23					
DNR American Aggregates	2627	34165600050000	999.0	Utica/Pt. Pleasant	Core	71.55	1.56	1.72	10.97	0.76	441	703	49					
DNR American Aggregates	2627	34165600050000	991.5	Utica/Pt. Pleasant	Core	57.26	0.51	1.99	2.09	0.44	411	410	86					
DNR American Aggregates	2627	34165600050000	985.0	Utica/Pt. Pleasant	Core	68.10	1.40	1.30	10.08	0.51	442	720	36					
DNR American Aggregates	2627	34165600050000	980.0	Utica/Pt. Pleasant	Core													
DNR American Aggregates	2627	34165600050000	970.0	Utica/Pt. Pleasant	Core	50.93	1.69	1.38	11.14	0.56	439	659	33	2	Tr		17	4
DNR American Aggregates	2627	34165600050000	954.8	Utica/Pt. Pleasant	Core	22.15	2.17	1.21	14.04	0.55	439	647	25	6	Tr		34	7
DNR American Aggregates	2627	34165600050000	945.0	Utica/Pt. Pleasant	Core													
DNR American Aggregates	2627	34165600050000	930.9	Utica/Pt. Pleasant	Core	20.38	0.67	0.27	2.19	0.32	438	327	48					
DNR American Aggregates	2627	34165600050000	918.0	Utica/Pt. Pleasant	Core	21.80	0.74	0.33	2.52	0.39	438	341	53					
DNR American Aggregates	2627	34165600050000	912.0	Utica/Pt. Pleasant	Core	13.13	1.15	0.56	4.49	0.38	437	390	33	12	Tr		34	4
DNR American Aggregates	2627	34165600050000	900.0	Utica/Pt. Pleasant	Core	21.21	0.55	0.15	1.32	0.31	438	240	56	9	Tr		27	7
DNR American Aggregates	2627	34165600050000	880.0	Utica/Pt. Pleasant	Core	16.26	0.30	0.05	0.42	0.31	440	140	103					
DNR American Aggregates	2627	34165600050000	860.0	Utica/Pt. Pleasant	Core	22.12	0.38	0.08	0.65	0.38	440	171	100	9	Tr		29	7
Barth	3003	34031228380000	5738.0	Utica/Pt. Pleasant	Core	69.00	1.84	2.63	5.20	0.47	447	283	26	Tr	Tr		14	4
Barth	3003	34031228380000	5715.4	Utica/Pt. Pleasant	Core	59.59	1.79	2.88	5.84	0.49	446	326	27	1	Tr		12	1
Barth	3003	34031228380000	5703.7	Utica/Pt. Pleasant	Core	64.28	2.31	3.66	7.36	0.44	446	319	19	1	Tr		18	7
Barth	3003	34031228380000	5677.5	Utica/Pt. Pleasant	Core	49.51	3.51	5.10	11.53	0.47	447	328	13	1	Tr		18	4
Barth	3003	34031228380000	5668.8	Utica/Pt. Pleasant	Core	56.89	2.49	3.56	8.00	0.49	447	321	20					
Barth	3003	34031228380000	5635.5	Utica/Pt. Pleasant	Core	83.84	0.62	0.57	1.29	0.41	438	208	66	1	Tr		4	2

Calcite	Dolomite*	Fe-Dol*	Siderite	Quartz	K-spar	Plag.	Pyrite	Apatite	Marcasite	Barite	Clays	Carb.	Other	Dry Grain Density	Porosity	SiO ₂	TiO ₂	Al ₂ O ₃	Fe ₂ O ₃	MnO	MgO
Tr	0	Tr	Tr	3	8	2	3	Tr	Tr	0	84.0		16.0	2.64	16.4	56.28	0.45	26.31	1.84	0.01	4.03
63	0	6	Tr	9	3	2	2	3	1	0	11.0	69.0	20.0	2.58	3.7	7.82	0.1	1.87	0.72	0.05	1.24
19	0	3	Tr	20	4	3	3	1	1	0	46.0	22.0	32.0	2.54	7.9	40.52	0.71	13.55	3.35	0.04	2.16
10	0	6	Tr	13	5	3	2	11	3	0	47.0	16.0	37.0	2.52	7.7	37.65	0.68	14.77	3.66	0.04	2.48
14	0	9	Tr	25	6	4	2	1	0	0	39.0	23.0	38.0	2.68	7.9	47.06	0.72	14.47	3.63	0.06	2.64
24	0	11	Tr	24	3	3	4	1	0	0	30.0	35.0	35.0	2.73	7.9	32.04	0.59	10.12	6.74	0.09	2.52
33	0	8	Tr	18	3	3	3	1	0	0	31.0	41.0	28.0	2.73	4.9	21.6	0.38	6.76	4.64	0.1	1.98
20	0	16	Tr	25	4	5	4	1	0	0	25.0	36.0	39.0	2.71	6.1	36.68	0.61	10.26	4.56	0.11	3.52
13	0	15	Tr	29	3	5	5	1	1	0	28.0	28.0	44.0	2.7	12.0	44.21	0.71	11.64	5.06	0.08	3.18
15	0	5	Tr	29	5	5	4	1	0	0	36.0	20.0	44.0	2.69	6.1	47.56	0.84	15.14	4.98	0.08	2.65
20	0	6	Tr	25	3	4	3	1	0	0	38.0	26.0	36.0	2.69	8.0	43.16	0.76	13.76	4.91	0.08	2.5
32	0	2	Tr	10	1	2	5	16	3	0	29.0	34.0	37.0	2.51	4.5	34.3	0.63	12.69	3.9	0.05	2.27
63	0	4	Tr	9	1	3	3	3	0	0	14.0	67.0	19.0	2.69	2.9	10.1	0.19	3.18	1.37	0.06	1.14
66	0	4	Tr	9	Tr	1	2	3	1	0	14.0	70.0	16.0	2.66	1.7	10.98	0.14	3.14	1.11	0.07	1.09
77	0	3	Tr	5	Tr	2	2	Tr	0	0	11.0	80.0	9.0	2.69	2.1	14.77	0.28	5.24	1.77	0.05	1.5
31	0	9	Tr	15	1	2	3	2	1	0	36.0	40.0	24.0	2.75	10.1	29.55	0.6	10.87	3.32	0.05	2.47
41	0	9	Tr	17	1	3	3	2	1	0	23.0	50.0	27.0	2.69	4.0	28.06	0.53	9.1	2.67	0.05	2.26
14	0	4	Tr	22	3	4	4	2	Tr	0	47.0	18.0	35.0	2.67	4.4	36.53	0.55	12.49	2.83	0.05	2.51
9	0	3	Tr	25	3	5	3	2	0	0	50.0	12.0	38.0	2.72	8.0	51.71	1	17.98	5.86	0.08	3.41
14	0	4	Tr	25	4	5	4	1	0	0	43.0	18.0	39.0	2.76	8.0	44.88	0.87	15.5	5.85	0.1	3.18
16	0	3	Tr	24	3	4	4	1	0	0	45.0	19.0	36.0	2.77	8.5	44.68	0.87	15.5	5.68	0.09	3.15
61	4	0	Tr	7	Tr	2	3	4	1	0	18.0	65.0	17.0	2.7		13.43	0.24	4.84	1.92	0.05	1.52
57	7	0	Tr	14	Tr	4	2	1	1	0	14.0	64.0	22.0	2.71		20.36	0.42	7.64	2.16	0.06	1.93
51	8	0	Tr	10	Tr	1	2	2	Tr	0	26.0	59.0	15.0	2.7		20.02	0.29	4.83	1.82	0.05	1.59
45	4	0	Tr	19	1	3	3	1	1	0	23.0	49.0	28.0	2.66		26.95	0.4	7.45	2.24	0.04	1.53
82	2	0	Tr	5	Tr	2	2	0	Tr	0	7.0	84.0	9.0	2.74		8.25	0.16	2.51	1.49	0.05	1.14

XRF Analysis

Element Oxides in %							Trace Elements in ppm															
CaO	Na ₂ O	K ₂ O	P ₂ O ₅	S	Cl	Total	V	Cr	Co	Ni	Cu	Zn	Ga	As	Br	Rb	Sr	Y	Zr	Nb	Mo	Ba
5.67	0.49	4.48	0.29	0.74	0.01	94.51	120	68	38	49	22	93	24.6	3	0.8	148.3	190	33.3	214	16.3	< 1.0	482
4.61	0.61	4.82	0.27	0.83	0.01	94.96	132	67	26	48	15	104	30	1.5	1.2	164.5	186	33.5	209	20.2	< 1.0	563
7.96	0.86	3.96	0.28	1.23	0.01	93.03	101	51	34	45	18	125	24.6	3.5	< 0.3	131.1	232	31.4	263	18.5	< 1.0	519
38.04	0.52	1.34	0.49	0.68	0.02	61.34	117	44	37	48	31	51	18.3	5.2	1.4	108.7	369	31.8	162	10.8	< 1.0	392
15.73	0.66	4.38	0.41	1.73	0.01	79.02	151	45	19	75	30	163	19.8	5.6	2.8	112.3	338	30.8	143	9.9	5.8	385
35.85	0.43	1.34	0.46	0.88	0.01	67.1	98	37	32	43	19	40	19.3	1.8	1.9	113.5	303	31.8	180	10.5	< 1.0	349
28.2	0.2	2.08	0.35	0.8	0.01	70.91	58	12	19	30	14	31	12.2	< 0.4	2	66	532	35.4	171	6.1	< 1.0	252
24.91	0.39	2.65	0.47	1.09	0.01	73.59	61	25	27	43	20	48	13.8	3	1.5	82.1	739	28.6	104	7.4	1.2	271
19.86	0.22	2.73	0.26	0.69	0.01	78.53	76	26	42	40	20	180	15.7	3.8	2.2	95.4	446	25.8	107	8.6	< 1.0	294
14.79	<0.05	3.01	0.29	0.68	0.01	83.33	75	28	26	37	17	94	15.5	2	3.2	90	573	22.8	81	8.9	< 0.6	314
24.54	0.45	2.41	0.58	0.94	0.01	72.45	45	19	17	35	19	14	13.2	2.6	1.3	84.9	587	21.9	81	5.3	< 1.0	240
25.45	0.42	2.01	0.5	0.72	0.01	72.62	52	14	17	33	18	13	10.9	1.3	1.4	66.3	766	19.2	59	3.1	< 1.0	217
13.47	0.54	3.5	0.32	1.08	0.01	85.15	29	< 1.0	12	21	14	11	7.8	< 0.2	2	42.9	821	20.5	38	2	< 1.0	130
12.65	0.5	3.4	0.24	1.27	0.01	83.25	61	27	28	52	34	21	15.2	7.1	1.8	92.5	449	30.3	146	7.2	3.9	258
14	0.39	3.27	0.16	1.19	0.01	83.55	33	2	< 11	32	19	37	7	< 0.5	5.6	39.4	993	22.7	34	2.2	< 1.0	109
39.68	0.47	1.29	0.49	0.59	0.01	63.19	121	34	34	53	26	50	18.5	6.1	2.3	106.8	376	32.5	157	9.6	< 1.0	368
24.84	0.14	2.08	0.34	0.82	0.01	72.89	126	39	30	67	27	54	17.2	6.9	3.3	99.8	396	30.7	144	9.4	4.9	350
11.58	<0.05	3.36	0.16	1.01	0.01	81.39	141	40	21	68	27	135	18	6.2	2.4	101.9	379	32.4	141	8.8	2.6	336
18.99	0.33	2.55	0.2	0.93	0.01	79.47	128	40	33	69	21	73	19.8	4.5	3.9	112.1	417	33.1	129	9.4	2.3	359
17.86	0.27	2.96	0.23	0.83	0.01	79.23	100	27	28	45	21	34	16.2	2.3	1.9	87	464	30.3	159	9	< 1.0	314
18.48	0.56	2.77	0.28	1	0.01	78.75	96	29	29	43	21	63	17.1	3.8	2.3	100.2	520	26.1	113	10.3	< 1.0	440
15.54	0.39	3.36	0.33	1.02	0.01	81.01	81	24	19	35	19	76	15.3	2.8	1.4	85.1	425	20.5	93	7.5	< 1.0	296
14.78	0.42	3.17	0.26	1.13	0.01	81.85	39	4	8	38	20	113	14.7	10.5	4.3	64.6	295	11	143	3.7	1.2	122
15.99	0.47	3.04	0.21	1.42	0.01	80.81	30	9	15	33	18	62	12	1.9	3.2	67.8	576	17.9	60	3	< 1.0	223
15.76	0.44	3.24	0.2	1.18	0.01	82.85	28	< 1.0	< 3.0	28	18	108	7.5	0.6	2.4	39.3	902	22.3	31	< 0.7	< 1.0	122

CaO	Na ₂ O	K ₂ O	P ₂ O ₅	S	Cl	Total	V	Cr	Co	Ni	Cu	Zn	Ga	As	Br	Rb	Sr	Y	Zr	Nb	Mo	Ba
0.4	0.28	6.61	0.09	0.81	0	97.12	144	45	20	57	26	52	20.7	5.1	2.4	119.3	307	29.4	139	10.4	2.9	409
46.07	0.33	0.69	0.43	0.28	0.02	59.63	134	53	20	52	27	56	22.2	5.1	2	131.5	279	32.2	152	10.3	< 1.0	416
15.32	0.64	3.92	0.47	1.33	0.01	82.01	104	37	24	67	26	50	15.8	8.4	1.5	95.1	290	30.2	166	9.3	6.2	322
14.68	1.73	4.41	2.72	1.33	0.03	84.17	87	30	34	45	18	67	15.2	3.2	0.7	84.8	404	28.9	143	9	1.7	374
12.44	<0.05	4.09	0.21	0.45	0.01	85.8	53	11	30	63	24	31	11.7	5.7	2.6	59	675	24.8	82	2.7	< 1.0	181
20.17	1.37	2.67	0.44	2.82	0.01	79.59	87	29	39	120	32	452	17.3	16.7	1.9	87.7	458	35.5	116	6.9	< 1.0	318
32.16	0.66	1.75	0.29	1.55	0.01	71.9	81	39	8	35	18	41	21.1	1.2	2.2	126.6	330	24	125	10.1	< 1.0	416
18.25	0.45	2.71	0.27	1.19	0.01	78.61	98	45	16	52	33	26	23.9	10.6	3.6	134	393	58.6	143	14.7	2.8	388
13.54	0.54	3.04	0.27	1.51	0.01	83.79	96	43	14	60	31	88	18.8	4.6	2	123.1	322	28.5	125	9.9	< 1.0	385
11.96	0.28	4.01	0.19	1.03	0.01	88.72	12	< 1.0	< 3.0	16	10	7	5.2	< 0.5	4.1	19.6	558	18	18	< 1.0	< 1.0	76
13.54	0.24	3.65	0.17	1.12	0.01	83.89	11	< 1.0	< 3.0	10	4	13	26.2	9.4	0.5	83.6	338	12.2	282	10.8	2.2	41
15.84	1.81	3.48	2.97	1.89	0.03	79.87	132	49	26	43	21	86	23.2	2.6	1	135.2	433	30.6	149	12.5	< 1.0	455
45.66	0.61	0.78	0.44	0.52	0.02	64.07	115	48	29	46	21	74	23.2	3.5	1.5	134.4	396	30.7	156	10.9	< 1.0	431
45.62	0.39	0.76	0.38	0.33	0.02	64.02	123	56	29	51	20	83	25.9	2.6	1.1	155	239	29.4	189	17	< 1.0	514
40.21	0.86	1.26	0.85	0.6	0.01	67.43	50	15	15	33	19	73	17.1	2.8	2	84.5	601	54.4	162	6.2	< 1.0	246
23.94	0.36	2.66	0.43	0.83	0.01	75.09	49	19	20	30	14	38	13.4	< 0.5	0.4	75.9	1101	26	99	6.6	< 1.0	242
27.93	0.27	2.16	0.36	0.69	0.02	74.1	62	23	21	36	16	43	15.3	< 0.5	1.7	94.5	727	23.2	97	7.7	< 1.0	331
20.7	0.67	3.56	0.94	0.76	0.03	81.62	16	< 1.0	< 11	18	9	23	7.9	1.2	1.4	45.9	881	21.3	47	2.1	< 1.0	139
6.32	0.3	4.45	0.27	0.81	0.01	92.17	20	< 1.0	< 3.0	12	4	26	5.4	< 0.5	2.4	27.7	856	10.8	13	< 1.1	< 1.0	68
10.69	0.39	3.81	0.27	0.97	0.01	86.51	20	< 1.0	< 3.0	15	11	23	7	< 0.5	< 0.5	28.4	751	12.3	29	< 1.0	< 1.0	65
11.62	0.31	3.82	0.25	0.71	0.01	86.67	77	48	21	63	33	91	20.8	11.6	3.7	119.5	471	66	124	8.5	3.5	383
40.47	0.86	1.09	0.78	0.67	0.01	65.88	18	< 1.0	< 3.0	14	20	20	7.2	< 0.3	3.1	20.6	1804	14	19	< 1.0	< 1.0	336
33.81	0.47	1.62	0.4	0.53	0.01	69.42	43	14	< 9.2	44	27	197	11.7	2.7	3	66.2	1058	26.9	73	4.7	< 0.4	212
36.22	0.45	1.04	0.39	0.46	0.01	67.18	39	< 1.8	< 3.0	31	18	56	8.2	0.8	2.5	40.6	1306	26.3	63	< 1.4	< 1.0	118
29.42	0.43	1.73	0.39	0.71	0.01	71.32	41	8	< 3.0	26	12	26	10.5	< 0.5	1.6	62.8	1146	23.4	75	5.1	< 1.0	200
47.13	0.39	0.5	0.21	0.38	0.01	62.23	28	< 1.7	< 3.0	25	14	20	8.7	< 0.3	2.1	44.3	1545	26.7	46	1.8	< 1.0	150

Hf	Pb	Th	U
8	20.7	17.5	2.5
5.2	30.7	18	1.3
8.6	36.1	16.2	2.6
5.6	26.4	12.8	1.8
4.4	21.6	12.1	6.5
6.4	23.4	13.2	1.3
6.3	17.7	9.8	2.5
3.5	20.3	9.5	4
5.7	13.2	12.7	2.3
2.4	13.1	9	3.3
2.3	14.4	9.3	2.2
2	11.7	7.2	2.5
< 1.0	27.6	5.3	1.6
5.5	27.8	11.9	1.9
1.7	9.5	5.4	3.5
5	18.5	11.8	2.2
5.7	26.5	11.4	2.7
4.3	22.5	11.2	3.2
5.2	19.3	11.6	3.5
6	21	10.3	5
4	18.6	11.2	4.1
3	20.3	9.5	2.3
5.3	29.7	25.5	2
1.9	14.6	7.4	1.2
< 1.0	12.6	5.3	3.6

Hf	Pb	Th	U
4.7	18.5	12	2.5
5.1	16.9	13.6	1.9
7.3	28.5	11.7	2.5
4.3	17.7	10.9	1.4
1.8	31.9	7.5	1.1
3.4	43.2	10.9	1.7
5.3	10.4	12.1	3
< 1.0	24.2	16.6	12.8
4.3	21.3	12.3	1.5
< 1.0	7.3	3.5	0.5
11.8	34	31.3	7.5
4.8	22.1	14.5	1.3
6.2	25	14.4	1.3
5.9	19.2	16.1	3.4
< 1.0	22.3	34.9	8.8
2.9	15.1	9.1	5
4	15.2	10.9	2.4
< 1.8	8.2	6.3	3.2
< 1.0	5.4	4.2	1.1
< 1.0	6.2	4.4	< 0.7
< 1.0	18.6	12.1	8.4
< 1.0	9.6	4.5	6.6
< 1.6	10	8.1	5.8
2.6	7.5	6.1	4.8
2.4	10.7	8.2	4.3
1.7	11.2	6.4	5.5

Palynology sample data for Fred Barth-3

C# 3003

depth	type	Acanthochitina cancellata	Belonechitina hirsuta	Belonechitina micracantha	Belonechitina robusta	Belonechitina spp.	Belonechitina tribulosa	Belonechitina wesenbergensis	Calpichitina lata	Calpichitina spp.	Chitinozoans undifferentiated	Conochitina minnesotensis
5630	CO					23			27	143	35	
5633	CO					2				5	26	
5650	CO		8		13						47	
5668.5	CO		1			2		1			15	
5673.5	CO										14	
5684.5	CO	1	1			4					18	
5710.2	CO	1			2	3		22			77	5
5716.5	CO	1	17	1	4	1	9	45	4			
5747	CO				1	5	1	10			37	

C# 3003

Conochitina spp.	Cyathochitina kuckersiana	Cyathochitina kuckersiana	Cyathochitina spp.	Desmochitina minor gr.	Desmochitina rugosa	Fungochitina spp.	Graptolite tissue	Hercochitina spp.	Hercochitina turnbulli	Hercochitina aff. turnbulli	Kalochitina multispinosa	Leiosphaeridia (<50 microns)
			1	8		44	65		10	49	20	32
1				2		28	32		4		4	
			5	6		14	15		1			
						6	1		1			
			14	10		1		4				6
			1	4					1		1	
	2			49	1		48	3	7			1
	1		55	51			16					1
1	9	14		1		10						

C# 3003

Leiosphaeridia (>55 microns)	Navifusa spp.	Scolecodonts indeterminate	Sphaeroclitina leptota	Sphaeroclitina spp.	Sponge spicules	Veryhachium trispinose
	4		5	1		
11	46			1		
10	2	1				
1						
2		1				
1						
77	1					
+						1
19					3	

Well Name : Fred Barth-3

Operator :
 Well Code : FREDBARTH-3
 Lat/Long : 0° 0' 0.00"N 0° 0' 0.00"E
 Interval : 5600' - 5770'
 Scale : 1:500
 Chart date: 19 June 2012

C# 3003

**Ellington
USA**

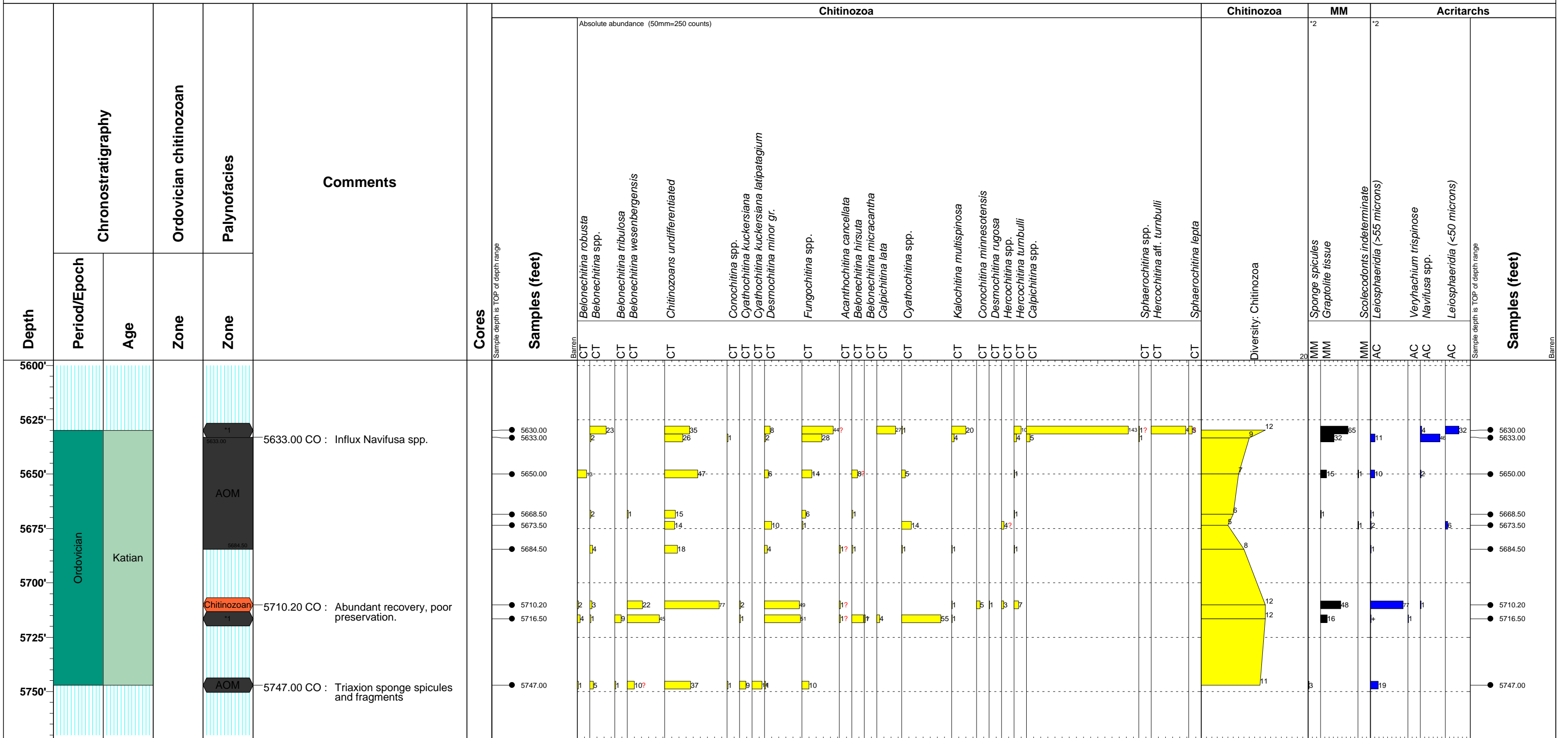
Project : UTICA
 Chart : Fred Barth-3

IGD Boundary Key
 - - - Possible
 - - - Probable
 - - - Confident
 ~~~~~ Unconformable  
 ~~~~~ ?Unconformable  
 - - - Fault
 - - - ?Fault

Sampling
 - Cutting
 ● Core
 ● Sidewall core
 + Corrected core

Core corrections
 Fred Barth-3

Text Keys
 *1 AOM/Chitinozoan
 *2 Absolute abundance (30mm=250 counts)



5633.00 CO : Influx Navifusa spp.

5710.20 CO : Abundant recovery, poor preservation.

5747.00 CO : Triaxion sponge spicules and fragments

SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.
 Lakefield - Ontario - KOL 2H0
 Phone: 705-652-2000 FAX: 705-652-6365

September-10-12

Hull & Associates Inc.

Attn : Travis Smith

6397 Emerald Parkway, Suite 200
 Dublin, OH
 43016, USA
 Phone:614-793-8777
 Fax:614-793-9070
 Email:tsmith@hullinc.com

Date Rec. : 30 August 2012
LR Report: CA11163-AUG12
Reference: PO#:1000

Copy: #1

CERTIFICATE OF ANALYSIS

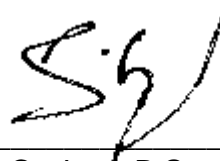
Final Report

| Analysis | 3:
Analysis
Approval
Date | 4:
Analysis
Approval
Time | 5:
Core 2962 | 6:
Core 3003 |
|---------------------|------------------------------------|------------------------------------|-----------------|-----------------|
| Sample Date & Time | | | 27-Aug-12 14:40 | 27-Aug-12 14:45 |
| Cerium [µg/g] | 10-Sep-12 | 10:38 | 55 | 52 |
| Cesium [µg/g] | 10-Sep-12 | 10:38 | 9.4 | 3.3 |
| Dysprosium [µg/g] | 10-Sep-12 | 10:38 | 3.4 | 3.4 |
| Erbium [µg/g] | 10-Sep-12 | 10:38 | 2.1 | 2.1 |
| Europium [µg/g] | 10-Sep-12 | 10:38 | 0.95 | 0.85 |
| Gadolinium [µg/g] | 10-Sep-12 | 10:38 | 4.2 | 4.2 |
| Germanium [µg/g] | 07-Sep-12 | 10:47 | 1.1 | 0.9 |
| Holmium [µg/g] | 10-Sep-12 | 10:38 | 0.70 | 0.70 |
| Hafnium [µg/g] | 07-Sep-12 | 10:47 | 2.2 | 1.8 |
| Lanthanum [µg/g] | 10-Sep-12 | 10:38 | 29 | 28 |
| Lutetium [µg/g] | 10-Sep-12 | 10:38 | 0.33 | 0.28 |
| Neodymium [µg/g] | 10-Sep-12 | 10:38 | 26 | 25 |
| Niobium [µg/g] | 07-Sep-12 | 10:47 | 7.2 | 7.9 |
| Praseodymium [µg/g] | 10-Sep-12 | 10:38 | 6.5 | 6.2 |
| Rubidium [µg/g] | 10-Sep-12 | 10:38 | 160 | 68 |
| Scandium [µg/g] | 10-Sep-12 | 10:38 | 19 | 9.8 |
| Samarium [µg/g] | 10-Sep-12 | 10:38 | 4.9 | 4.7 |
| Terbium [µg/g] | 10-Sep-12 | 10:38 | 0.59 | 0.61 |
| Thulium [µg/g] | 10-Sep-12 | 10:38 | 0.30 | 0.29 |
| Ytterbium [µg/g] | 10-Sep-12 | 10:38 | 2.1 | 1.8 |
| Yttrium [µg/g] | 07-Sep-12 | 10:47 | 17 | 21 |

SGS Canada Inc.

P.O. Box 4300 - 185 Concession St.
Lakefield - Ontario - K0L 2H0
Phone: 705-652-2000 FAX: 705-652-6365

LR Report : CA11163-AUG12



*Brian Graham B.Sc.
Project Specialist
Environmental Services, Analytical*