AMOCO CANADA PETROLEUM CO. LTD.

AMOCO A-2 POINTED MOUNTAIN K-45A
60'24"N-123'54"W

POINTED MOUNTAIN
NWT

Décollement Consulting Ltd.

CALGARY - ALBERTA - CANADA

AMOCO CANADA PETROLEUM CO. LTD.

AMOCO A-2 POINTED MOUNTAIN K-45A
60'24"N-123'54"W

POINTED MOUNTAIN
NWT

GEOLOGICAL REPORT

ON

AMOCO A-2 POINTED MOUNTAIN K-45 A
60'24"N-123'54"W

FOR

AMOCO CANADA PETROLEUM CO. LTD.

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June, 1994

Keith W. Robertson, B.Sc.
Wellsite Geologist

DECOLLEMENT CONSULTING LTD.

WELL DATA SUMMARY

WELL NAME: AMOCO A-2 POINTED MOUNTAIN K-45
OPERATOR: AMOCO CANADA PETROLEUM
LOCATION: 60'24"N-123'54"W
NS CO-ORDINATES: 60' 24" NORTH LATITUDE
EW CO-ORDINATES: 123'54" WEST LONGITUDE
PROVINCE: NWT
AREA: POINTED MOUNTAIN
DRILLING CONTRACTOR: DRIVE Rig #: 41
WELL LICENCE NUMBER:
ELEVATIONS - GROUND LEVEL: 368.29m
- KELLY BUSHING: 374.64m
SPUD DATE: JUN 22, 1994 at 0900 hours
T.D. DATE: JUL 04, 1994 at 1345 hours
SAMPLE INTERVAL: 2850.00m - 3225.00m

ELECTRICAL LOGS RUN:

Rep#	Log#	Description	From(m)	To(m)
1	1	CNL-LDT-PE-GR-CAL	2854.00	3216.20

DRILL STEM TESTS:

DST#	From(m)	To(m)

CORES CUT:

Cores#	From(m)	To(m)	Formation

WELL STATUS: NAHANNI GAS WELL

CASING SUMMARY

String#	Name	Casing Size (mm)	Hole Size (mm)	Joints (#)	Weight (kg/m)	Landed At (m)	Cement (tonnes)	Cement Type
1	SURFACE CASING	339.00	444.50	N/A	81.30	976.60	500.00 SKS	LaFARGE "B" +3%CaCl2
2	INTERMEDIATE CASING	244.50	311.10	N/A	64.90	2124.60	700.00 SKS	"G" +2% GEL 1.2% HR12 & "G" + 20% SILICA FLOUR + 1.2% HR12
3	PRODUCTION CASING	177.80	222.20	N/A	34.30	2788.00	400.00 SKS	OWG +4% GEL +2% HR12 & OWG + 20% SILICA FLOUR + 1.2% HR12
4	LINER	114.30	N/A	N/A	18.23	2830.00	5.00	THERMAL 40F CMT +0.5% D24 + 0.5% T-10 + 0.2% R-55

DAILY DRILLING SUMMARY

Date	0800 Depth (m)	Progress (m)	Hours Drlg.	Mud Weight (kg/m**3)	Vis (s/L)	Fluid Loss (cc/30min)	PH	Activity
JUN 22, 1994	2856.00	0.00	0.00	N/A	N/A	N/A	N/A	DRILL OUT MOUSE HOLE
JUN 23, 1994	2860.00	4.00	1.50	N/A	N/A	N/A	N/A	DIRECTION DRILL
JUN 24, 1994	2914.00	54.00	14.75	N/A	N/A	N/A	N/A	RIH WITH BIT #2
JUN 25, 1994	2920.00	6.00	2.00	N/A	N/A	N/A	N/A	DRILLING WITH MWD
JUN 26, 1994	2978.00	58.00	19.75	1010.00	33.00	N/A	10.50	TRIP FOR BIT #2
JUN 27, 1994	2992.00	14.00	4.25	1000.00	35.00	N/A	10.50	DIRECTIONAL DRILL WITH MUD MOTOR
JUN 28, 1994	3013.00	21.00	11.75	1000.00	35.00	N/A	10.50	TRIP FOR BIT #3
JUN 29, 1994	3044.00	31.00	10.75	1010.00	37.00	10.00	10.00	DRILL AHEAD WITH MUD MOTOR
JUN 30, 1994	3057.00	13.00	7.75	1010.00	37.00	10.00	10.00	RIH AFTER BIT TRIP
JUL 01, 1994	3093.00	36.00	16.00	1015.00	43.00	8.00	10.00	DRILL AHEAD
JUL 02, 1994	3161.00	68.00	18.75	1015.00	43.00	8.00	10.00	TRIP FOR BIT; RIG REPAIR
JUL 03, 1994	3161.00	0.00	0.00	1015.00	43.00	8.00	10.00	REPAIR ROTARY TABLE
JUL 04, 1994	3182.00	21.00	6.00	1030.00	47.00	7.00	10.00	DRILLING AHEAD
JUL 05, 1994	3216.00	34.00	7.50	1040.00	48.00	6.50	9.50	POOH TO LOG

DEVIATION SURVEYS

Measured Depth (m)	Angle of Inclination (Degree)	Azimuth (Degree)	T.V.D. (m)	Latitude (m)	Departure (m)	Vert. Section (m)	Dog Leg Severity (Deg/30m)
2854.00	14.00	96.020	2829.28	2.87	303.98	287.59	0.00
2862.57	17.80	89.200	2837.52	2.78	306.32	289.77	14.80
2871.97	20.80	82.900	2846.39	3.01	309.42	292.76	11.64
2881.58	21.20	77.560	2855.37	3.59	312.81	296.15	6.10
2891.11	21.00	73.150	2864.46	4.46	315.59	299.02	6.51
2900.77	22.30	70.500	2873.43	5.44	318.97	302.58	5.06
2910.00	24.00	70.300	2882.41	6.73	322.59	306.42	5.23
2920.18	24.30	66.600	2891.05	8.15	326.19	310.29	4.89
2929.85	24.00	61.500	2900.04	9.91	329.81	314.29	6.42
2939.41	23.30	56.400	2908.80	11.89	333.10	318.04	6.78
2949.13	23.20	50.300	2917.73	14.17	336.17	321.71	7.43
2958.77	22.70	46.000	2926.61	16.68	338.97	325.18	5.44
2972.00	21.90	41.500	2939.57	20.51	342.65	329.92	4.04
2982.45	21.50	41.100	2948.56	23.20	345.00	333.04	1.32
2992.13	20.80	41.800	2957.58	25.82	347.31	336.09	2.30
3001.07	21.20	38.500	2965.93	28.26	349.38	338.85	4.19
3010.58	21.80	36.600	2974.78	31.03	351.50	341.77	2.90
3020.27	23.70	36.500	2983.71	34.04	353.73	344.88	5.89
3029.85	26.00	33.000	2992.41	37.35	356.02	348.14	8.54
3039.53	29.70	30.700	3000.97	41.19	358.40	351.67	11.94
3200.00	22.26	23.650	3142.39	106.25	389.77	402.91	2.09

BIT RECORD

Bit #:	1 **Size:** 155.60mm **Make:** HW **Type:** ATJ-M33D
Serial #:	L12WG **Jets:** 7.10, 12.70, 12.70, N/A
Depth:	**In:** 2856.00m **Out:** 2916.00m **Made:** 60.00m
Hours:	16.25hrs **Accumulated Hours:** 16.25hrs
FOB:	5000.00/N/AdaN **RPM:** 30.00/N/A **PP:** 6500.00kpa
Mud Density:	1010.00kg/m**3 **Viscosity:** 33.00sec/l **Vertical Deviation:** 22.10Deg
Condition:	7-8-1.00
Remark:	DRILL WITH MUD MOTOR

Bit #:	2 **Size:** 155.60mm **Make:** HW **Type:** ATJ-M33D
Serial #:	L13W5 **Jets:** 7.90, 7.90, 12.90, N/A
Depth:	**In:** 2916.00m **Out:** 2978.00m **Made:** 62.00m
Hours:	17.75hrs **Accumulated Hours:** 34.00hrs
FOB:	9000.00/10000.00daN **RPM:** N/A/N/A **PP:** 9000.00kpa
Mud Density:	1000.00kg/m**3 **Viscosity:** 35.00sec/l **Vertical Deviation:** 22.70Deg
Condition:	5-8-2.00
Remark:	DRILL WITH MUD MOTOR

Bit #:	3 **Size:** 155.60mm **Make:** DIABT **Type:** TD268PDC
Serial #:	4930324 **Jets:** 20.60, 20.60, 20.60, N/A
Depth:	**In:** 2978.00m **Out:** 3013.00m **Made:** 35.00m
Hours:	15.75hrs **Accumulated Hours:** 49.75hrs
FOB:	3000.00/7000.00daN **RPM:** 40.00/N/A **PP:** 9500.00kpa
Mud Density:	1010.00kg/m**3 **Viscosity:** 37.00sec/l **Vertical Deviation:** 20.80Deg
Condition:	5–I
Remark:	DRILL WITH MUD MOTOR

Bit #:	4 **Size:** 155.60mm **Make:** SMITH **Type:** F57D
Serial #:	LA2293 **Jets:** 8.70, 8.70, 11.10, N/A
Depth:	**In:** 3013.00m **Out:** 3057.00m **Made:** 44.00m
Hours:	18.50hrs **Accumulated Hours:** 68.25hrs
FOB:	6000.00/8000.00daN **RPM:** N/A/N/A **PP:** 3000.00kpa
Mud Density:	1015.00kg/m**3 **Viscosity:** 31.00sec/l **Vertical Deviation:** 21.00Deg
Condition:	3/8/SD/A/E/3.00/WT/PR/N/A
Remark:	DRILL WITH MUD MOTOR

Bit #:	5 **Size:** 155.60mm **Make:** SMITH **Type:** F57D
Serial #:	LA2290 **Jets:** 11.00, 11.00, 14.00, N/A
Depth:	**In:** 3057.00m **Out:** 3161.00m **Made:** 104.00m
Hours:	35.75hrs **Accumulated Hours:** 104.00hrs
FOB:	7500.00/9000.00daN **RPM:** 60.00/65.00 **PP:** 9000.00kpa
Mud Density:	1025.00kg/m**3 **Viscosity:** 45.00sec/l **Vertical Deviation:** 23.00Deg
Condition:	6-3-1.00

Bit #:	6 **Size:** 155.60mm **Make:** SMITH **Type:** F57D
Serial #:	LA2292 **Jets:** 11.00, 11.00, 14.00, N/A
Depth:	**In:** 3161.00m **Out:** 3216.00m **Made:** 55.00m
Hours:	13.50hrs **Accumulated Hours:** 117.50hrs
FOB:	9000.00/N/AdaN **RPM:** 60.00/N/A **PP:** 9500.00kpa
Mud Density:	1040.00kg/m**3 **Viscosity:** 48.00sec/l **Vertical Deviation:** 26.00Deg
Condition:	1-1-I
Remark:	NO MUD MOTOR

LOGGING REPORT

Date: JUL 06, 1994
Logging Company: ATLAS
Logging Engineer: EMERY MAH
Truck Number: 6334
Hole Size: 155.60mm
Depth (Driller's): 3216.00m
Depth (Strap):
Depth (Logger's): 3216.20m
Last Casing: Depth : 2854.00m **Size:** 114.30mm **Weight:** 18.23kg/m

MUD DETAILS

Mud Type: HEC POLY
Mud Type: 1040.00kg/m**3
Viscosity: 48.00sec/l
pH: 9.50
Fluid Loss: 6.50cc/30min
Salinity: 1300.00ppm

OPERATIONS SUMMARY

Hole conditions prior to logging: GOOD
Circulation time after T.D.: 5 HRS
Number of Dummy Trips: 1
Description of Dummy Trips: 20 STANDS
Number of Runs in Hole: **Total:** 1 **Suceeded:** 1 **Failed :** 0

LOGGING SEQUENCE

Logs	Time (Hrs)	Interval From (m)	Interval To (m)	Remarks
CNL-LDT-PE-GR-CAL	3.00	2854.00	3216.20	REPEATIBILITY POOR, BEST LOG UNDER BOREHOLE CONDITIONS.

Total Hours Logging: 3.00

FURTHER REMARKS

REPEATIBILITY IS POOR DUE TO GAS IN BOREHOLE. NAHANNI WASHED OUT, PAD NOT TOUCHING BOREHOLE SO DENSITY LOGREADING HIGH WHILE NEUTRON IS DEPRESSED. HIGH TEMPS IN BOREHOLE SO TOOL CANNOT LOG FOR ANY LENGTH OF TIME.

FORMATION TOPS

Kelly Bushing : 374.64m

Formation	Prognosis (m)	Sample Top (m)	Sample TVD (m)	Log Top (m)	Log TVD (m)	Subsea (m)
2ND BLACK SHALE	2768.00	2768.00	2768.00	2768.00	2768.00	-2393.36
NAHANNI	3073.00	3083.00	3035.46	3078.00	3033.00	-2658.36

FORMATION SUMMARY

The Amoco A-2 Pointed Mountain K-45 well was serviced over the week preceding the spud date of June 22, 1994. The existing A-2 well was damaged beyond repair and after abandoning the lower section , a window was cut at 2854m. measured depth, heading north of the existing 57.0 degree azimuth. A build, turn and hold wellpath was established to get 50 metres north of the existing wellbore. The top 120 metres of the Nahanni formation was penetrated for production. An HEC polymer mud system was used in the new section. No problems were encountered while drilling; however the well was considered to be hot with temperatures of 80 to 120 degrees C.

The top of the NAHANNI was encountered 5 metres below prognosis at a depth of 3078. Drilling continued as planned approximately 120 metres (vertical) into the formation at which point a gyro survey and one log was run to comply with NEB requests.

Due to the sour nature of the formation Safety Boss supplied the wellsite with H2S detection and safety equipment. Two engineers, a directional driller and two MWD hands were always available for consultation in the event of an emergency.

A high alloy 4.5 inch liner was cemented from thirty metres above the window to the NAHANNI top. Once the liner is set an acid wash is planned and the well should return to production.

FORMATION EVALUATIONS

Formation:	NAHANNI		
Age:	DEVONIAN		
Member:	N/A		
Sample Top:	3083.00m	**Sample TVD:**	3035.50m
Log Top:	3078.00m	**Log TVD:**	3033.00m
Thickness:	1.00m	**Subsea:**	-2658.36m

Evaluation: The NAHANNI formation comprises a massive, medium to dark gray dolomite that is fractured vertical throughout. Fractures and pore spaces are generally filled with secondary white dolomite although locally the fractures may be open containing clear quartz crystals. The dolomite is predominantly fine to very fine crystalline near the top of the formation but decreases to micro to macro crystalline for the remainder of the section. Pressure deformed dolomite rhombs are often visible throughout. Black bitumen and carbonaceous matrix are common at the top but decrease to"scattered " and "occasional " with increasing depth. No visible fluorescence was noted."

Conclusion: Although there was no visible fluoresence noted through out porosity was estimated to be good. With acidization this well will be an excellent gas producing zone.

SAMPLE DESCRIPTIONS

Well Name: AMOCO A-2 POINTED MOUNTAIN K-45
Location: 60'24N-123'54"W"

2850.00 to 2865.00m Interval: 15.00m	SHALE: 100%, black to dark gray, blocky to sub platy, silty, slightly micromicaceous and carbonaceous, moderately firm, slightly calcareous throughout, trace of disseminated pyrite and occasional pyrite blebs and minor laminae, minor calcite veins from fractures.
2865.00 to 2880.00m Interval: 15.00m	SHALE: 100%, as above, black to dark gray, blocky to sub platy, silty in part, slightly micromicaceous and carbonaceous, calcareous in part with occasional calcite veins, trace of pyrite (5%), moderately firm to firm.
2880.00 to 2895.00m Interval: 15.00m	SHALE: 100%, black to dark gray, blocky to sub platy, silty in part, micromicaceous and slightly carbonaceous in part, calcareous, trace of pyrite decreasing to 1 to 2 %, decrease in calcite veins, (less fractures), moderately firm to firm.
2895.00 to 2900.00m Interval: 5.00m	SHALE: 100%, dark gray to black, blocky to sub platy, silty in part, micromicaceous, slightly carbonaceous in part, slightly calcareous, trace of pyrite, moderately firm.
2900.00 to 2905.00m Interval: 5.00m	SHALE: 100%, as above with increase in calcite veins and occasional pyrite stringers indicating increase in fractures.
2905.00 to 2915.00m Interval: 10.00m	SHALE: 100%, as above, black to dark gray, micromicaceous, carbonaceous becoming more calcareous and limy but with decrease in white calcite from fractures, 2 to 3 % disseminated pyrite and pyrite stringers, moderately firm, blocky to sub platy.
2915.00 to 2925.00m Interval: 10.00m	SHALE: 100%, black, dark gray, blocky to sub platy, micromicaceous, slightly calcareous, mottled with white calcareous specks, (marly in part), occasional calcite crystals, trace of pyrite.
2925.00 to 2930.00m Interval: 5.00m	SHALE: 100%, as above, black to dark gray, micromicaceous, carbonaceous, calcareous, moderately firm.
2930.00 to 2940.00m Interval: 10.00m	SHALE: 100%, as above, black, moderately firm, black to sub platy, calcareous with occasional light gray mottled marlstone stringers, (very dirty), 1 to 2 % white calcite crystals from minor fractures.
2940.00 to 2950.00m Interval: 10.00m	SHALE: 100%, as above with slight increase in calcite crystals to 7% (increase in fractures), trace of pyrite but less marly than above.
2950.00 to 2965.00m Interval: 15.00m	SHALE: 100%, black to dark gray, blocky to sub platy, micromicaceous and carbonaceous, calcareous throughout, mottled with white calcareous specks in part, trace of pyrite and pyrite stringers and blebs, moderately firm.
2965.00 to 2970.00m Interval: 5.00m	SHALE: 100%, as above, black, blocky to sub platy, micromicaceous, carbonaceous, calcareous, trace of pyrite, moderately firm.
2970.00 to 2980.00m Interval: 10.00m	SHALE: 100%, black to dark gray, blocky to sub platy, micromicaceous, carbonaceous, calcareous, moderately firm, trace of pyrite.
2980.00 to 2990.00m Interval: 10.00m	SHALE: 100%, as above, black to dark gray, micromicaceous, carbonaceous, calcareous.
2990.00 to 3000.00m Interval: 10.00m	SHALE: 100%, black to dark gray, blocky to sub platy, carbonaceous, micromicaceous, calcareous, moderately firm, trace of pyrite, occasionally medium gray marly stringers throughout.

3000.00 to 3010.00m Interval: 10.00m	SHALE: 100%, black to dark gray, as above, carbonaceous, micromicaceous, calcareous with stringers of mottled light gray calcareous specks, marly in part.
3010.00 to 3020.00m Interval: 10.00m	SHALE: 100%, black to dark gray, blocky to sub platy, carbonaceous, micromicaceous, calcareous with stringers of light gray mottled marlstone, trace of pyrite, 7 to 10 % white calcite crystals from fractures.
3020.00 to 3025.00m Interval: 5.00m	SHALE: 100%, black to dark gray, blocky to sub platy, carbonaceous, micromicaceous, calcareous with stringers of light gray, mottled marlstone, trace of pyrite, decrease in calcite crystals.
3025.00 to 3030.00m Interval: 5.00m	SHALE: 100%, as above with 10% calcite crystals from fractures.
3030.00 to 3040.00m Interval: 10.00m	SHALE: 70%, black, dark gray, blocky to sub platy, carbonaceous, micromicaceous, calcareous becoming very limy throughout, moderately firm, decrease in pyrite and calcite crystals, (no fractures), □30% MARLSTONE; light gray, mottled, very argillaceous and dirty, limy.
3040.00 to 3045.00m Interval: 5.00m	SHALE: 100%, as above, black, blocky, sub platy, micromicaceous, carbonaceous, calcareous with mottled light gray marly stringers, moderately firm to hard.
3045.00 to 3055.00m Interval: 10.00m	SHALE: 80%, as above, black, micromicaceous, carbonaceous, calcareous with mottled light gray marly stringers, moderately firm to hard, blocky with 20% MARLSTONE; light gray, very argillaceous and dirty, very calcareous.
3055.00 to 3073.00m Interval: 18.00m	SHALE: 70%, black, dark gray, occasionally mottled, blocky, sub platy in part, micromicaceous, very calcareous with scattered white calcareous specks throughout, limy throughout, moderately firm to hard; 30% MARLSTONE;; medium gray, mottled, crypto to micro crystalline, very argillaceous and dirty, carbonaceous shale partings throughout, hard, dense, tight.
3073.00 to 3083.00m Interval: 10.00m	SHALE: 50%, black, dark gray, blocky, sub platy, micromicaceous, carbonaceous, very calcareous, mottled with white calcareous specks and stringers, occasional subround oolitic calcareous specks, limy, moderately firm to hard; 50% MARLSTONE;; as above becoming more marly with depth, light to medium gray, mottled, cryptocrystalline to microcrystalline, very argillaceous and dirty, carbonaceous shale partings throughout, hard, dense, tight.
3083.00 to 3090.00m Interval: 7.00m	DOLOMITE: 100%, light gray, translucent, very fine crystalline, occasionally fine crystalline, dolomite crystals throughout, well cemented with calcareous and dolomite secondary cement, abundant black bitumen in intercrystalline spaces; abundant fractures with 35% white calcite/dolomitic crystals infilling pore spaces, occasional open fractures with local clear quartz crystals, 10% porosity but variable due to amounts of fractures.
3090.00 to 3095.00m Interval: 5.00m	DOLOMITE: 100%, light to medium gray, occasionally dark gray, well indurated, visible dolomite rhombs, predominantly very fine crystalline, occasionally microcrystalline, (decrease in size from above), increase in argillaceous and shale matrix (25%), abundant black bitumen throughout in pore spaces; 30% white calcite/dolomitic secondary crystals in fractures, occasional local clear quartz crystals found in open fractures.

3095.00 to 3110.00m Interval: 15.00m	DOLOMITE: 100%, medium gray, mottled, well indurated, microcrystalline with occasional very fine crystalline dolomite rhombs throughout, 5 to 10 % black shale matrix , occasional visible black bitumen in pore spaces, occasional bituminous cement, abundant fractures throughout with up to 30 % white , secondary dolomitic crystals from fractures and occasional local clear quartz crystals, black bitumen also associated with fractures; intercrystalline and fracture porosity.
3110.00 to 3115.00m Interval: 5.00m	DOLOMITE: 100%, medium to dark gray, mottled, well indurated, microcrystalline, occasionally very fine crystalline and cryptocrystalline in part, argillaceous and carbonaceous throughout with occasional black bituminous cement in part, decrease in amount of fractures; 15 to 20% white secondary dolomitic crystals from fractures, occasional open fractures noted due to visible dolomite rhombs and local clear quartz crystals; 7 to 10 % fracture and intercrystalline porosity, no visible fluorescence.
3115.00 to 3120.00m Interval: 5.00m	DOLOMITE: 100%, as above, medium to dark gray, mottled, well indurated in part, increase in very fine crystals becoming grainy in texture, microcrystalline in part, argillaceous in part, carbonaceous throughout with occasional black bituminous cement, decrease in fractures, 10 to 15% white secondary dolomitic crystals from fractures with occasional local quartz crystals, 10 % fracture porosity with increase in intercrystalline porosity, no visible fluorescence.
3120.00 to 3130.00m Interval: 10.00m	DOLOMITE: 100%, medium to dark gray, mottled, moderately indurated, microcrystalline with very fine crystalline dolomite rhombs throughout, very fine crystals generally associated with fractures, argillaceous in part, carbonaceous in part with occasional black bituminous cement, decrease in amount of fractures, 7 to 10 % white secondary dolomitic crystals from fractures, occasional locally developed clear quartz crystals, trace of pyrite, 7 to 10% fracture porosity, no visible flouresence.
3130.00 to 3140.00m Interval: 10.00m	DOLOMITE: 100%, as above, becoming predominantly very fine crystalline, occasionally microcrystalline in part, grainy texture, carbonaceous in part, moderately indurated, 7 to 10% white secondary dolomitic crystals from fractures, locally developed quartz crystals, 7 to 10% fracture porosity no visible fluorescence, occasional pin point porosity.
3140.00 to 3145.00m Interval: 5.00m	DOLOMITE: 100%, as above, becoming more consolidated (well indurated), decrease in very fine crystalline with increase in microcrystalline dolomite, fracture and intercrystalline porosity as above, no fluorescence, carbonaceous throughout.
3145.00 to 3155.00m Interval: 10.00m	DOLOMITE: 100%, as above, medium to dark gray, mottled, moderately indurated with very fine crystalline and microcrystalline dolomite rhombs throughout, carbonaceous in part, slight increase in white secondary dolomite from fractures, 10 % fracture porosity, occasionally intercrystalline and pin point porosity, local clear quartz crystals.
3155.00 to 3165.00m Interval: 10.00m	DOLOMITE: 100%, medium to dark gray, occasionally mottled, microcrystalline, occasionally very fine crystalline in part[, clean in part, occasional carbonaceous matrix in part, moderately indurated, 10 to 15% secondary dolomite from fractures, occasional well developed dolomite rhombs visible, 7 to 10% fracture and intercrystalline porosity, no shows, occasional local clear quartz crystals indicating open fractures.

3165.00 to 3175.00m Interval: 10.00m	DOLOMITE: 100%, as above with slight increase in crystal size. (macro crystalline to very fine crystalline), moderately indurated, porosity and shows as above, occasional trace of black bitumen in fracture areas, slightly more carbonaceous than above.
3175.00 to 3185.00m Interval: 10.00m	DOLOMITE: 100%, medium to dark gray, as above, occasionally mottled, microcrystalline to macrocrystalline to very fine crystalline in part, clean in part with occasional carbonaceous matrix, grainy texture, moderately indurated, 10% secondary dolomite from fractures, 7 to 10% intercrystalline and fracture porosity, occasional trace of local clear quartz crystals due to open fractures, (not common), (slight decrease in amount of fractures in formation).
3185.00 to 3190.00m Interval: 5.00m	DOLOMITE: 100%, medium to dark gray, mottled, as above, microcrystalline to macro crystalline to very fine crystalline, clean in part, slightly carbonaceous in part, grainy texture, moderately indurated, 15 to 20% secondary dolomite from fractures, 10% intercrystalline and fracture porosity, trace of carbon and black bitumen in fractures, (increase in amount of fractures), occasional partly dev dolomite rhombs.
3190.00 to 3205.00m Interval: 15.00m	DOLOMITE: 100%, as above, medium to dark gray, crystal size continuing to remain the same(micro to macro to very fine crystalline) but decrease in secondary white dolomite crystals from fractures to 7 to 10%; porosity increasing slightly to 10 to 15%, previous porosity spaces contains secondary dolomite, trace of clear quartz crystals and visible dolomite rhombs indicating open fractures.
3205.00 to 3216.00m Interval: 11.00m	DOLOMITE: 100%, medium to dark gray, occasionally mottled, micro to macro to very fine crystalline, grainy texture, clean in part, visible dolomite rhombs in part, 10% white secondary dolomite from fractures throughout, 10 to 15% fracture and intercrystalline porosity, fractures may be open in part, trace of carbonaceous matrix, local quartz crystals, no visible fluorescence.