Geological Report

for

WESTCOAST ET AL NORTH PORCUPINE YT F-72

Prepared for

Westcoast Petroleum Ltd.

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SECTION I

SUMMARY OF WELL DATA

Well Name	Westcoast et al North Porcupine YT F-72
Permittee	Westcoast Petroleum Ltd.
Operator	Westcoast Petroleum Ltd. 1100 Aquitaine Tower Calgary, Alberta
Location	Unit F Section 72 Latitude 67°31'23"N Longitude 137°59'06"W Universal Well Location Reference 67.52306°N 137.98500°W Unique Well Identifier 300F726740137450
Coordinates	67°31'23"North 137°59'06"West
Permit No.	5885
Contractor	Brinkerhoff Brothers Ltd. Rig No. 14 Modified National 50A 9000'
Drilling Authority	625
Well Classification	NFW
Elevations	Ground 1129' K.B. 1146'
Spudded	January 17, 1973 at 7:00 p.m. Suspended from May 6, 1973 to December 8, 1973
Completed Drilling	April 4, 1974
Total Depth	7388'
Well Status	Dry & Abandoned
Rig Release	April 6, 1974 at 12 Noon
Hole Sizes	17 1/2" from surface to 934' 8 3/4" from 934' to 6123' 6 1/4" from 6123' to 7189' 6 7/32" from 7189' to 7360' 5 31/32" from 7360' to 7388'
Casing	13 3/8" x 934' with 820 cubic feet 7" x 6104' with 200 sacks

SECTION II

GEOLOGICAL SUMMARY

(a) Formation Tops –

Permian	Spud	
Devonian Imperial Fm	960	(+ 186)
Devonian Prongs Creek Fm (based on palynology)	3000	(-1854)
Silurian Road River Fm (based on palynology)	4600	(-3454)

(b) Cored Intervals – None

(c) Core Descriptions – None

(d) Sample Descriptions – Start on next page

WESTCOAST ET AL N PORCUPINE YT F-72
67°31'22" 137°59'00"

0- 13	Surficial humus and tundra.
13- 50	Siltstone, dark grey, micaceous, clean even textured, indurated in part shaly, non calcareous, interbedded, hard, brittle compact nodular bands, blocky and rectangular, minute calcite filled fractures.
50- 90	2% very fine grained, well sorted, kaolinitic (arctic cement?) whitish cream dense and tight sandstone lenses, soft, nodular, pyritic, scattered isolated vugs, no permeability, remainder as above.
90- 140	Shale, dark grey, blocky, hard, heavily pyritic, fossils, even textured, Ironstone, lacks the above sandstone content. Brachiopods, crinoids, bryozoa.
140- 160	Quartzite, a metasediment, finely recrystallized, dark grey-brown, 5% calcareous, fused, silicified sandstone, a limy silt or calcareous siltstone, fossil relicts.
160- 170	Siltstone, as above with 10% slightly calcareous interbeds dark grey-brown.
170- 180	Shale, 15% calcareous, silty, remainder as above, interbeds dark grey-brown-black shale partings.
180- 190	Shale, dark grey-black, pyritic, micaceous, blocky and rectangular, in part silty, non calcareous.
190- 200	Quartzite, dark grey, crystalline, silicified silts. pyritic, as above, formerly 20%.
200- 250	Shale, as above, dark grey-black, pyritic, rectangular and blocky, micaceous in part silty, traces siliceous silt bands as above.
250- 270	Siltstone, calcareous and limy, medium granular, crystalline, dark grey-brown, 20%.
270- 320	Shale/Siltstone, all as above, calcite filled minute fracture planes, dark grey-brown, hard; Bryozoa, Crinoids.
320- 500	Shale, dark grey-black, becomes slightly fissile, pyritic, fossiliferous, micaceous in part sideritic, uniform even textured, marinal.
500- 620	As above with interbedded black bedded chert, traces medium grey, fine to medium crystalline quartzitic, silificied and fused silt bands.

620- 650 Quartzite, 10% light to medium grey, silicified and fused, calcareous, silts and silty sandstone, medium crystalline, fine grained, relict fossils, slightly salt & pepper.

650- 670 Sandstone, quartzitic, compacted, calcareous, light grey with slight brown tinge, fine grained, well sorted and cemented, dense, hard, calcareous specks, kaolinitic, scattered skeletal relicts, calcite crystals common as fracture fill.

670- 680 Shale, dark grey-black, micaceous, all as above.

680- 700 Sandstone, 30% as above, light grey, silicified, fine grained, well sorted, calcareous, indurated, dense and tight; abundant large crystals calcite rhombs, fractured.

700- 710 Shale, dark grey, micaceous and silty, rectangular and blocky, 50/50 sandstone and shale as above.

710- 730 Sandstone, 90% all as above, abundant calcite crystals.

730- 740 Shale, dark grey, fossiliferous, silty.

740- 750 Shale/Siltstone, as above, 75/25%.

750- 760 Sandstone, calcareous, all as above.

760- 850 Shale, 95%, dark grey, as above, traces dark grey, crypto-crystalline banded bioclastic limestone, very pyritic, dogtooth calcite crystals, fracturing, trace silicified siltstone, clean even textured, uniform.

850- 880 Siltstone, silicified and calcareous, fused, grey brown, trace fossils, indurated, fracturing, abundant calcite crystals, medium grey brown, quartzitic, in part crystalline metasediment.

880- 890 Shale, 60%, remainder as above, fused siltstone.

890- 900 Shale, 40%, interbeds of above types.

900- 910 Sandstone/Shale, 50/50%, all as above, calcareous, light grey-brown, fine grained, well sorted, in small part <1% sandstone breccia similar sandstone fragments embedded in like sandstone matrix, well cemented and tight.

910- 934 Sandstone, light grey, silicified, fused and in part fine crystalline, well sorted, quartzitic as above, light to dark grey, trace glauconite, trace breccia, granular to crystalline, indurated, increase in shale & siltstone content at base.

934 Casing Point

934- 940 Poor sample, cement.

940- 960 Limestone, mottled, light grey, bioclastic, crypto-micro crystalline, interbedded shale & siltstone.

960- 970 Siltstone, medium to dark grey, micromicaceous, blocky, trace hematitic dull red shale partings.

970- 990 Shale, generally medium grey with scattered dull red hematitic mottlings, ferriginous, micromicaceous, slickensides fairly common.

990-1010 Shale 75%, dark grey, blocky to platy, micromicaceous, carbonaceous in part, rare hematitic mottling, rare slickensides partly silty to very silty and grading to Siltstone 25%, medium grey, argillaceous to very argillaceous.

1010-1030 Shale, dark grey, platy to blocky, micromicaceous, in part slightly silty to silty, occasional slickensides.

1030-1040 Shale, as above, occasional hematitic mottling, occasional thin stringers of hard clean quartzose Siltstone with silica cement.

1040-1070 Shale, dark grey, blocky to platy, micromicaceous, carbonaceous in part, trace hematitic mottling, occasional hematitic mottling, occasional slickensides, occasional silica filled fractures.

1070-1080 Shale, as above, in part with reddish-brown tinge.

1080-1090 Shale, dark grey, blocky to platy, micromicaceous, carbonaceous, non calcareous, silty in part, occasional slickensides.

1090-1130 Shale 90%, as above, in part siltier and grading to Siltstone 10%, medium grey, quartzose, argillaceous to very argillaceous, occasional fractures filled with white dolomite or less commonly with silica.

1130-1150 Shale, as above, occasional hematitic mottling, occasional thin partings of clean, quartzose siltstone, very minor gas show at 1150' probably from open fracture.

1150-1170 Shale, dark grey, blocky to platy, micromicaceous, carbonaceous in part, non calcareous, occasional medium to coarse dolomite rhombs, locally abundant, occasional slickensides, occasional dolomite filled fractures.

1170-1200 Shale, as above, rare fine to very fine dolomite rhombs, rare hematitic mottling.

1200-1230 Shale, dark grey, blocky, micromicaceous, carbonaceous, slightly silty in part, slightly dolomitic in part, rare dolomite filled fractures.

1230-1240 Shale, very dark grey, blocky, micromicaceous, carbonaceous to very carbonaceous, abundant slickensides.

1240-1260 Shale, dark grey, carbonaceous, as above, occasional dolomite filled fractures.

1260-1270 Shale, as above, trace silicified limestone, medium grey, bioclastic, medium grained.

1270-1300 Shale, dark to very dark grey, blocky to platy, micromicaceous carbonaceous, occasional hematitic mottling, occasional dolomite filled fractures, numerous slickensides.

1300-1320 Shale, as above, in part slightly silty to silty, dolomite filled fractures more abundant, occasional thin stringers of clean to somewhat argillaceous quartz siltstone.

1320-1340 Shale 90%, silty to very silty, as above, in part slightly dolomitic, rare fossil fragments, occasional fractures filled with white coarsely crystalline dolomite.
Siltstone 10%, medium grey, quartzose, argillaceous, carbonaceous.

1340-1350 Sandstone 50%, salt & pepper, fine grained, fairly well sorted subangular, tightly cemented with silica and minor dolomite. Some grains appear to be silicified skeletal limestone grains.
Shale 50%, as above, in part irregularly interbedded with sandstone and occurring as small lenses within sandstone.

1350-1360 Sandstone 10%, as above.
Shale 90%, dark grey, blocky, micromicaceous, somewhat carbonaceous, slightly silty in part.

1360-1380 Shale, as above, occasional dolomite filled fractures.

1380-1400 Shale, dark to very dark grey, blocky to platy, micromicaceous, carbonaceous, slightly silty to silty occasional hematitic, mottling, occasional dolomite filled fractures, rare slickensides; trace siltstone, light to medium grey, quartzose, slightly argillaceous to argillaceous.

1400-1410 Shale 75%, dark grey, blocky, silty, slightly carbonaceous, in part micromicaceous, grading to
Siltstone 25%, medium grey, quartzose, very argillaceous.

1410-1430 Shale, dark grey to very dark grey, blocky to platy, slightly silty, carbonaceous, slightly micromicaceous, occasional hematitic mottling, occasional fractures filled with white dolomite.

1430-1440 Shale, as above, occasional slickensides, dolomite filled fractures more abundant.

1440-1480 Shale, very dark grey, as above, fractures less abundant.

1480-1490 Shale 90%, as from 1410-1430, fractures filled with pyrite or white dolomite, occasional slickensides.
Sandstone 10%, light grey, quartzose, occasional lithic grains, very fine grained, fairly well sorted, subangular, hard, tightly cemented with silica.

1490-1530 Shale, very dark to dark grey, platy, carbonaceous, micromicaceous in part, occasional dolomite filled fractures, occasional slickensides.

1530-1540 Shale, platy to blocky, as above, in part slightly silty; trace Siltstone, medium grey, very argillaceous.

1540-1550 Shale 90%, as above.
Siltstone 10%, light to medium grey, argillaceous to very argillaceous, quartzose, carbonaceous in part.

1550-1560 Sandstone 25%, medium grey, salt & pepper, very fine grained, fairly well sorted to poorly sorted, subangular to subrounded, carbonaceous in part, silty, tightly cemented with silica and dolomite.
Shale 75%, as above, silty in part.

1560-1580 Shale 90%, very dark to dark grey, blocky to platy, micromicaceous, silty in part, carbonaceous in part, rare slickensides, dolomite filled fractures with rare fracture porosity.
Siltstone 10%, medium grey, salt & pepper, argillaceous, carbonaceous in part.

1580-1590 Shale, very dark grey to black, blocky, slightly silty to silty, micromicaceous, slightly carbonaceous, non calcareous, occasional fractures filled with dolomite and pyrite.

1590-1620 Shale, as above, blocky to platy, slightly silty in part, occasional dolomite filled fractures, occasional slickensides.

1620-1630 Shale, as above; trace Sandstone, medium grey, salt & pepper, very fine grained, fairly well sorted, subangular, tightly cemented with silica.

1630-1650 Shale, very dark grey to black, blocky to platy, slightly silty to silty, micromicaceous, abundant finely disseminated organic matter.

1650-1660 Shale 95%, as above, in part grading to
Siltstone 5%, dark grey, quartzose, argillaceous, abundant disseminated organic matter.

1660-1690 Shale, as above, occasional slickensides, occasional dolomite filled fractures.

1690-1700 Shale, very dark grey to black, platy, slightly silty, micromicaceous in part, abundant organic matter, carbonaceous at least in part, non calcareous,numerous slickensides, rare fractures filled with dolomite and minor pyrite; abundant cavings.

1700-1710 Shale, as above, fewer slickensides.

1710-1720 Shale 90%, very dark grey to black, blocky to platy, slightly silty to silty, slightly micromicaceous, abundant organic matter, non calcareous, occasional slickensides.
Siltstone 10%, dark grey, quartzose, occasional grains of coaly material, argillaceous in part, dolomitic in part, sandy and grading to
Sandstone, trace, salt & pepper, very fine grained, fairly well sorted, silty, subangular, tightly cemented with silica.

1720-1730 Shale 80%, as above, frequent dolomite filled fractures.
Siltstone, 20%, as above.

1730-1740 Shale, as above; trace Sandstone as from 1710-1720; frequent dolomite filled fractures.

1740-1760 Shale, very dark grey, blocky, slightly silty, micromicaceous, occasional dolomite filled fractures.

1760-1780 Shale 60%, very dark grey, blocky, slightly silty to silty, somewhat micromicaceous, non calcareous, occasional slickensides, occasional fractures filled with calcite and dolomite.
Siltstone 40%, dark grey, blocky, salt & pepper, argillaceous, slightly calcareous.
Sandstone trace, light brownish grey, quartzose, occasional lithic grains, fine grained, well sorted, subangular, tightly cemented with silica and minor calcite.

1780-1790 Shale 30%, as above.
Siltstone 40%, as above.
Sandstone 30%, medium grey, salt & pepper, very fine grained fairly well sorted, subangular, silty, cemented with silica and minor dolomite, tight.

1790-1810 Shale, 60%, as above, silty, occasional dolomite filled fractures; Siltstone 40%, as above.

1810-1830 Shale 80%, very dark grey, blocky to platy, slightly silty, micromicaceous, non calcareous.
Siltstone 20%, as above.

1830-1840 Shale, as above, dolomite filled fractures fairly common.

1840-1850 Shale, as above, occasional dolomite filled fractures.

1850-1880 Shale, very dark grey, blocky to platy, slightly silty, micromicaceous, non calcareous, occasional plant fragments, occasional fractures filled with white dolomite.

1880-1900 Shale 95%, as above, in part silty.
Sandstone 5%, light grey, salt & pepper, very fine grained, in part grading to siltstone, well sorted, subangular, tightly cemented with silica.

1900-1910 Shale 70%, very dark grey, blocky, silty, micromicaceous, in part slightly calcareous, occasional fractures filled with white dolomite and calcite
Siltstone 20%, medium grey, salt & pepper, slightly argillaceous to argillaceous, in part slightly calcareous.
Sandstone 10%, as above, in part kaolinitic, occasional trace bitumen?, tight.

1910-1940 Shale 90%, as above; in part platy and less silty
Sandstone 10%, as above.

1940-1950 Shale 80%, very dark grey to black, platy to blocky, slightly silty in part, occasional slickensides, occasional dolomite filled fractures
Siltstone 20%, medium grey, salt & pepper, argillaceous in part, sandy in part.

1950-1980 Shale, 90%, as above, blocky, slightly silty to silty, micromicaceous
Siltstone 10%, as above, argillaceous, occasional dolomite filled fractures.

1980-2010 Shale, very dark grey, blocky to platy, silty in part, micromicaceous, very slightly calcareous in part, occasional slickensides, occasional dolomite filled fractures.

2010-2020 Shale 80%, as above.
Siltstone 20%, medium grey, salt & pepper, in part sandy and grading to very fine grained sandstone.

2020-2030 Shale 50%, as above.
Siltstone 50%, as above.

2030-2040 Shale 70%, as above.
Siltstone 30%, as above.

2040-2050 Shale 60%, very dark grey, blocky, slightly silty, micromicaceous, non calcareous.
Siltstone 40%, medium grey, salt & pepper, argillaceous, non calcareous.
Sandstone trace, light grey, very fine grained quartzose with occasional lithic grains, fairly well sorted, subangular, silty, tight.

2050-2080 Shale 70%, as above, in part black with abundant finely disseminated organic matter
Siltstone 30%, as above, in part sandy and grading to sandstone, as above.

2080-2110 Shale 90%, very dark grey to black, as above, slightly silty to silty, occasional dolomite filled fractures.
Siltstone 10%, as above.

2110-2130 Shale, very dark grey, blocky, silty, micromicaceous, rare coaly fragments, slightly calcareous in part.

2130-2150 Shale 70%, as above, in part very silty and grading to Siltstone 30%, dark grey, partly sandy, argillaceous to very argillaceous, slightly calcareous in part.

2150-2180 Shale 95%, dark to very dark grey, as above
Sandstone 5%, medium brownish grey, salt & pepper, very fine grained, fairly well sorted, subangular, silty, tight.

2180-2190 Shale, 75%, as above
Siltstone 20%, dark grey, salt & pepper, very argillaceous, slightly calcareous in part
Sandstone 5%, as above.

2190-2200 Shale 70%, dark to very dark grey, blocky, micromicaceous, slightly silty to very silty in part grading to siltstone as above
Siltstone 30%, medium grey, salt & pepper, sandy, in part grading to very fine grained sandstone, slightly calcareous, rare coaly plant fragments.

2200-2210 Shale 50%, as above, occasional fractures filled with dolomite and calcite
Siltstone 50%, as above.

2210-2230 Shale 80%, as above; Siltstone 20%, as above, argillaceous.

2230-2240 Shale 70%, very dark grey, blocky to platy, micromicaceous, silty in part, non calcareous
Siltstone 30%, medium grey, salt & pepper, poorly sorted, sandy, dolomitic, rare dolomite filled fractures.

2240-2300 Siltstone 70%, dark grey, blocky and chunky, slickensided, minor amount dark grey, very fine grained silicified sandstone, well sorted, dense, compact-fused, <5%.
Interbedded shale as above, in part distorted, blocky and rectangular; trace dull red ferruginous shale partings, abundant fractures, dolomite filled.

2300-2340 Shale 50%, Siltstone 50%, all as above.
Sandstone <5% as above, in part micaceous (phlogopite), subangular, highly siliceous, dense, dolomite crystals, distorted slickensided bedding planes.

2340-2360 Increase in sandstone content, in part micaceous.

2360-2420 All as above.

2420-2440 Shale, dark grey, nearly black, becoming slightly fissile in part, micaceous, interbedded siltstone and minor sandstone as above.

2440-2520 Shale 60%, Siltstone 40%.

2520-2530 Increase in sandstone content to 18%, siliceous, indurated, very fine grained, dense, compact, tight.

2530-2750 Shale 50%, Siltstone 50%, minor sandstone, all as above.
A homogenious, even textured, uniform repetitive series of thinly interbedded dark grey to black, distorted and slickensided, in part micaceous, indurated shales and siltstones with minor amount dark grey and very fine grained silicified and fused, dense, compact, tight sandstone stringers.
Graptolites.

2750-2820 Slight increase in sandstone content to 5%, color becoming slightly lighter grey, increasing siltiness.

2820-2870 Increase in fractures and dolomite veinlets, traces dull rusty red ferruginous shale partings throughout.

2870-2900 Becoming dark grey-black. Graptolites.
Fractures seem to occur in the sandstone stringers more prevalently than in the shales and siltstones.

2900-3060 Shale 85%, Siltstone 15%, all as above; Sandstone <5% becoming slightly more arenaceous, but still <5%.
Chunky & blocky, thin interbedding, trace pyrite disseminations, even, uniform.

3060-3070 Sandstone 50%, silicified, light grey-grey brown-medium and dark grey, very fine grained, well sorted, even textured, micaceous in part, equigranular, dense, compacted and tight, in part slightly salt & pepper, fine specked, fractures.
Remainder shale and siltstone as above, minute veinlets.
Plant remains. Graptolites.

3070-3120 Shale 70%, Siltstone 20%, with <10% sandstone as above, micaceous, chunky and blocky, hard, brittle (marinal). Graptolites.

3120-3220 Shale 70%, Siltstone 30%, with interbedded sandstone stringers, minor, dark grey-medium grey, micaceous, in part distorted, slickensides, hard, all as before, abundant dolomite veinlets with dogtooth recrystallizations, interbedded very fine grained silicified dense sandstone stringers; trace pyrite.

3220-3240 Shale 90%, predominantly dark grey-black, abundant dolomite filled minute fractures, micaceous, blocky.

3240-3270 Shale 75%, Siltstone 25%, all as above, <2% sandstone stringers.

3270-3290 Shale 90%, Siltstone as above 10%.

3290-3320 Shale 75%, Siltstone 25%, all as above, uniform, homogeneous, even textured, fractures.

3320-3340 Increase in amount sandstone, light to dark grey, very fine grained, siliceous, dense, 10%, quartzose, fused and compact, fractures, equigranular.

3340-3360 Shale 90%, predominantly shale, dark grey-black, abundant veinlets and dolomite fracture fill; minor sandstone ±2%.

3360-3380 Intense slickensides and distortion of bedding planes, abundant open fracture veins with white dogtooth, euhedral, dolomite recrystallizations, squeezed and gouged, inclusions of silt, ?possible fossil.

3380-3420 Shale 75%, Siltstone 25%, dark grey-black, micaceous, blocky, abundant fractures; trace light grey-brown very fine grained salt & pepper, quartzose, dense, tight sandstone.

3420-3510 Shale 90%, dark grey-black, micaceous, indurated; trace dull rusty red ferruginous shale partings; 10% siltstone, large euhedral dolomite crystals as fracture fill.

3510-3530 Shale 75%, Siltstone 25%, dark grey-black, micaceous, blocky and chunky, in small part slightly fissile, blocky, thin interbed. Plant remains. In part distorted, stressed and slickensided within bedding planes.

3530-3540 Becoming 10% Sandstone, medium-dark grey, fine grained, siliceous, dense, in part micaceous, minute fractures and veinlets within the sandstone beds, dolomite filled.

3540-3600 Shale 80%, Siltstone 20%, as above, abundant fractures and brecciation within minor sandstone stringers along parting planes. Shales in part compressed.

3600-3620 Increase in amount sandstone 10%, medium-dark grey, very fine grained, siliceous, intensive fracturing associated with the sandstone layers, brecciation within fracture zones, crystalline, dolomite filled. Fossils.

3620-3640 All as above.

3640-3650 Increase in amount sandstone 10%, medium grey, very fine grained, dense, siliceous, tight, shale breccia within groundmass of white crystalline dolomite, trace ferruginous shale as mottling, large euhedral dolomite crystals abundant; trace plant remains and graptolites.

3650-3680 Shale 90%, as above, blocky, rectangular, black-dark grey, micaceous.

3680-3770 Shale 80%, Siltstone 15% with Sandstone 5%; trace Ironstone, fractured and fissured, abundant white crystalline euhedral dolomite, minute veins.

3770-3840 Shale 90%, Siltstone 10%, dark grey-black, lacks sandstone of above, in part slickensides, non calcareous.
At 3830 trace pyrobitumen/carbon along minute fracture faces in dark grey very fine grained sandstone stringers, abundant white crystalline dolomite brecciated veinlets.

3840-3990 Shale 80%, Siltstone 20%, all as above, dark grey-black, micaceous, non calcareous, chunky and blocky, rectangular, in part slickensided and distorted; trace pyrite; plant spores?.

3990-4010 Shale 65%, Siltstone 35%, as above, in part becoming lighter brown grey color, micaceous, rusty red ferruginous shale partings.

4010-4070 Shale 75%, Siltstone 25%, trace minor sandstone.

4070-4100 Increase amount dark grey, very fine grained, siliceous, dense, well winnowed stringers sandstone <5%; abundant white crystalline dolomite as fracture filling.

4100-4140 Shale 65%, Siltstone 35%, even textured, uniform, micaceous, black, lacking any sandstone, slightly lighter grey in color, very micaceous.

4140-4200 Shale/Siltstone, dark grey-black, micaceous, chunky and blocky, hard, in part slickensided and distorted.

4200-4260 Shale/Siltstone, with minor fine grained sandstone stringers <5%, dark grey, abundant fractures with white crystalline dolomite filled veinlets, slight pyrite, brittle.

4260-4280 Shale 80%, as above, in part platy, in part silty and grading to Siltstone 20%, dark grey, argillaceous, micaceous, abundant dolomite filled fractures as above.

4280-4310 Shale 90%, black to very dark grey, blocky to platy, slightly silty, micaceous to very micaceous, non calcareous, locally slightly pyritic, occasional slickensides, numerous dolomite filled fractures.
Siltstone 10%, as above.

4310-4320 Shale 70%, as above, fractures less abundant.
Siltstone 30%, dark to very dark grey, argillaceous, slightly sandy in part, micaceous, non calcareous.

4320-4340 Shale 90%, as above.
Siltstone 10%, as above.

4340-4350 No Sample.

4350-4380 Shale, black to very dark grey, platy to blocky, slightly silty in part, micaceous, in part very micaceous and fissile, non calcareous, slightly dolomitic in part, common slickensides, occasional dolomite filled fractures.

4380-4420 Shale, blocky to platy as above, somewhat less micaceous.

4420-4450 Shale, black, in part very dark grey, blocky to platy, slightly silty to silty in part, micromicaceous, in part micaceous and slightly fissile, non calcareous, occasional slickensides, rare dolomite filled fractures.

4450-4480 Shale 95%, as above.
Siltstone 5%, dark grey to very dark grey, argillaceous, somewhat micaceous, in part slightly sandy, in part slightly calcareous.

4480-4600 Shale 90%, black to very dark grey, platy to blocky, slightly silty in part, micromicaceous, in part micaceous and fissile, non calcareous, slightly dolomitic in part, common slickensides, occasional to rare dolomite filled fractures.
Siltstone 10%, dark grey to very dark grey, argillaceous, somewhat micaceous, in part slightly sandy, in part slightly calcareous.

4600-4680 Shale 80%, very dark grey-black, blocky to platy, slightly silty, micromiacceous, non calcareous, in part dolomitic, common slickensides, occasional to rare dolomite filled fractures.
Siltstone 20%, dark grey to very dark grey, argillaceous, somewhat micaceous, in part slightly sandy, in part slightly calcareous; trace Sandstone, dark grey, fine grained, siliceous, well winnowed, dense.

4680-4700 Shale 95%, dark grey to black, micromicaceous, in part silty, slickensides and fractures, all as above; trace fine grained, dark grey, dense, siliceous sandstone stringers.

4700-4770 Shale 80%, Siltstone 20%, all as above, silt slight brownish tinge, blocky and rectangular, slickensides and fractures, non calcareous.

4770-4900 Shale 95%, black-dark grey, slightly silty, micaceous, indurated, blocky and rectangular, chunky, fractures and slickensides, trace arenaceous stringers, distorted and squeezed, non calcareous; very minor amounts dark grey siltstone, abundant fractures and minute veinlets, coarse crystalline white dolomite filling.

4900-4920 Shale 85%, Siltstone 15%, all as above, trace arenaceous stringers.

4920-4930 Shale 85%, Siltstone 15%, with trace scattered isolated fragments of a light grey-buff, fair grained, salt & pepper, silicified, rounded and well sorted sandstone stringer.

4930-4940 Increase arenaceous content, increase siltiness; trace dull red ferriginous shale partings.

4940-4990 Shale 75%, Siltstone 25%, as above, sporadic traces of light colored, fine grained, salt & pepper, well sorted, subrounded, dense, compact, silicified sandstone <1%, generally more sandy; abundant fractures and veinlets with coarse crystalline dolomite infill and loose crystals.

4990-5050 As above without the traces of sand; fractures, vein filling fragments, non calcareous, hard and indurated, micromicaceous.

5050-5100 Trace dark grey, siliceous, fine grained sandstone stringers, slightly white speckled, slightly calcareous, abundant fractures.

5100-5120 Shale 80%, Siltstone 20%, all as above with minor sandstone stringers, interbedded, abundant veinlets and brecciated fracture planes, minute. Trace ferriginous rusty red shale partings.

5120-5170 Shale 85%, Siltstone 15%, micromicaceous, dark grey-black, blocky, brittle, non calcareous, abundant minute fractures; trace dull red ferriginous shale partings.

5170-5240 Shale 70%, Siltstone 30%, as above, micromicaceous, blocky, chunky, fractures, non calcareous; minor amount sandstone 1%, dark grey, fine grained, siliceous.

5240-5260 Shale 50%, Siltstone 50%, dark grey, micromicaceous, blocky, uniform and even textured, generally barren.

5260-5290 Shale 70%, Siltstone 30%, all as above, trace rusty red ferriginous shale, abundant fractures & white dolomite crystals.

5290–5310 Becoming slightly more arenaceous, trace light buff, fine grained calcified glauconitic dense tight sandstone stringer in part salt & pepper, quartzose, <1%; cement? cavings.

5310–5340 All as above.

5340–5410 Becoming arenaceous and sandy with some slickensiding and distortion of bedding planes.

5410–5500 Shale 60%, Siltstone 40%, dark grey, micromicaceous, blocky, compact and firmer.

5500–5640 Shale 85%, Siltstone 15%, dark grey to black, micromicaceous, non calcareous, rectangular and chunky, indurated, in small part arenaceous with minor stringers dense, fine grained, sandstone, minor distortion and slickensides.

5640–5750 Shale 90%, Siltstone 10%, all as above; trace rusty dull red ferriginous shale partings.

5750–5820 Shale 75%, Siltstone 25%, with increase amount dark grey, salt & pepper, fine grained, dense, siliceous, subrounded well sorted stringers sandstone, <2%; abundant white crystalline dolomite as fracture filling.

5820–5830 Shale 90%, very dark grey to black, micromicaceous, slightly silty to silty, non calcareous, rare dolomite-filled fractures; Siltstone 10%, dark grey, argillaceous, micaceous in part, non calcareous, fractures fairly common.

5830–5880 Shale, as above with trace of Sandstone, medium grey, salt and pepper, very fine grained, silty, slightly argillaceous, fairly well sorted, subangular, tight; probably occurs in thin stringers.

5880–5920 Shale 90%, very dark grey to black, blocky to platy, micromicaceous to micaceous, slightly silty to silty, locally very slightly calcareous, occasional dolomite-filled fractures. Siltstone 10%, dark grey, salt and pepper, very argillaceous, micaceous, non calcareous.
Sandstone, trace as above.

5920–5930 Shale 75%, as above; Siltstone 25%, as above, in part less argillaceous.

5930–5940 Shale 90%, as above, occasional dolomite-filled fractures. Siltstone 10%, medium to dark grey, argillaceous, micaceous in part, slightly sandy in part, non calcareous.

5940–5970 Shale 80%, black to very dark grey, blocky to platy, slightly silty, micromicaceous, slightly calcareous in part, trace hematitic mottling (probably cavings), rare slickensides, occasional dolomite-filled fractures.

Siltstone 20%, as above.
Sandstone trace, medium grey, salt and pepper, very fine grained, fair sorting, subangular, tight, probably occurs as thin stringers.

Note: Samples from 5950-70 are contaminated with nut hulls (mud additive)

5970-6010 Shale 70%, as above, in part siltier.
Siltstone 30%, as above.

6010-6050 Shale 90%, dark grey to black, blocky, silty to slightly silty, micromicaceous to micaceous, slightly calcareous in part, occasional slickensides, occasional dolomite-filled fractures.
Siltstone 10%, dark grey, salt and pepper, argillaceous, micaceous in part, sandy in part, slightly calcareous in part.

6050-6060 Shale 90%, black to very dark grey, blocky to platy, slightly silty, micromicaceous, occasional coaly (?) fragments, non calcareous, common dolomite-filled fractures.
Siltstone 10%, dark grey, salt and pepper, very argillaceous, micaceous in part, non calcareous.

6060-6080 As above with trace of Sandstone, medium grey, salt and pepper, very fine grained, silty, fairly well sorted, subrounded, tight.

6080-6090 Shale, black to very dark grey, blocky to platy, silty to slightly silty, micromicaceous, very slightly calcareous in part, occasional dolomite-filled fractures; trace Sandstone as above.

6090-6110 Shale 90%, as above, in part very silty.
Sandstone 10%, as above.

6110-6130 Shale 80%, as above.
Siltstone 20%, dark grey, salt and pepper, argillaceous, in part sandy and poorly sorted, locally grading to sandstone as above.

6130-6160 Shale 90%, black to very dark grey, blocky to platy, micromicaceous, slightly silty, locally very slightly calcareous, rare slickensides, occasional fractures filled with dolomite and rare pyrite.
Siltstone 10%, dark grey, very argillaceous, micaceous in part.

6160-6190 Shale 80%, as above; Siltstone 10%, as above; Sandstone 10%, light to medium grey, salt and pepper, occasional coaly (?) fragments, very fine grained, slightly silty to silty, fairly well sorted, subrounded, siliceous in part, tight.

6190-6210 Shale 80%, as above, dolomite filled fractures fairly common; Siltstone 20%, as above; Sandstone trace, as above.

6210-6240 Shale, black to very dark grey, platy to blocky, micromicaceous, slightly silty to silty, occasional plant fragments, locally slightly calcareous, occasional slickensides, dolomite filled fractures fairly common; trace of Sandstone, as above.

6240-6390 Shale 85%, Siltstone 15%, all as above; trace scattered rusty red shale partings, slight distortion and slickensides and stressed shales with minor silty phases, non argillaceous and non calcareous, high degree of book page microfracturing, with coarse white crystalline dolomite infill abundant.

6390-6430 Traces dark grey, siliceous, fine grained, well sorted, dense sandstone stringers.

6430-6450 Shale 90%, Siltstone 10%, as above with increased amounts dark grey, dense, siliceous sandstone, fine grained, generally exhibits minute fractures, <2% sandstone.

6450- All as above without the sandstone content, dark grey-black, micromicaceous, rectangular and blocky, in small part slightly platy, even textured and uniform, distorted and stressed, abundant fractures with white coarse crystalline dolomite infill, traces calcite crystals, scattered minor sandstone stringers, very fine-fine grained, dark grey, siliceous, dense, tight.

Suspended at 6548' May 6/73.

Set casing (7") at 6104' and drilled fill to 6123 feet. Sample descriptions begin at this point.

6123-6130	Shale 90%, very dark grey to black, hard, micaceous, slightly calcareous, variably silty, in part grading to Siltstone 10%, dark grey, argillaceous to very argillaceous, slightly micaceous, occasional fractures and hairline fractures filled with dolomite.
6130-6150	Shale 80%, as above. Siltstone 20%, medium to dark grey, argillaceous, sandy in part, non-calcareous, fractures as above. Considerable cement contamination of samples in this interval.
6150-6170	Shale 90%, black to very dark grey, platy to blocky, hard, micromicaceous, slightly silty to silty, slightly calcareous in part. Siltstone 10%, dark to medium grey, in part slightly sandy, slightly calcareous in part; dolomite filled fractures.
6170-6190	Shale 80%, as above. Siltstone 20%, medium to dark grey, in part sandy to very sandy and grading to silty sandstone, argillaceous.
6190-6240	Shale, as above, occasional fractures filled with coarsely crystalline white dolomite. Siltstone, trace, as above.
6240-6250	Shale 90%, black to very dark grey, platy, hard, micro-micaceous, silty, in part grading to Siltstone 10%, very dark grey, argillaceous, micaceous in part, locally sandy to very sandy; occasional fractures filled with white, coarsely crystalline dolomite.
6250-6260	Shale 95%, as above; dolomite filled fractures somewhat more abundant. Siltstone 5%, as above.
6260-6300	Shale, as above; rare dolomite filled fractures.
6300-6310	Shale, very dark grey to black, platy to fissile, micaceous to very micaceous, slightly silty, locally slightly dolomitic; occasional dolomite filled fractures, rare slickensides.
6310-6340	Shale, very dark grey to black, platy, as above but less micaceous.

6340-6350 Shale, very dark grey to black, platy to blocky, slightly silty to silty, micromicaceous; occasional fractures filled with white, coarsely crystalline dolomite, rare slickensides.

6350-6390 Shale, black to very dark grey, platy, slightly silty in part, micromicaceous; occasional fractures filled with white, coarsely crystalline dolomite and rare pyrite; rare slickensides.

6390-6410 Shale, black to very dark grey, platy, locally blocky, slightly silty to silty, locally slightly dolomitic; occasional fractures filled with white, coarsely crystalline dolomite.

6410-6420 Shale, as above, trace of pyrite.

6420-6440 Shale 90%, as above; occasional fractures as above.
Siltstone 10%, dark grey, argillaceous to very argillaceous, micaceous.

6440-6470 Shale 95%, black to very dark grey, platy to blocky, slightly silty to silty, micromicaceous; occasional dolomite filled fractures.
Siltstone 5%, as above, in part very sandy and grading to silty sandstone.

6470-6480 Shale, as above.

6480-6500 Shale 90%, as above, in part grading to argillaceous siltstone, dolomite filled fractures fairly abundant.
Siltstone 10%, dark grey, poorly sorted, argillaceous to very argillaceous, dolomitic in part, in part sandy and grading to silty sandstone.

6500-6510 Shale, black to very dark grey, platy, slightly silty to silty, micromicaceous, slightly dolomitic in part, occasional fractures filled with white coarsely crystalline dolomite.

6510-6530 Shale 90%, as above.
Siltstone 10%, dark grey, poorly sorted, argillaceous, sandy to very sandy and grading to silty sandstone.

6530-6540 Shale, as above.

6540-6550 Shale, 80%, as above.
Siltstone 20%, dark grey, argillaceous, sandy, dolomitic.

6550-6560 Shale 90%, as above.
Siltstone 10%, as above.

6560-6580 Shale 95%, black to very dark grey, platy to blocky, slightly silty to silty, micromicaceous, slightly dolomitic in part, rare fractures filled with white, coarsely crystalline dolomite.
Sandstone 5%, light grey, salt and pepper, very fine grained, fairly well sorted, subrounded, silty, tight.

6580-6590 Shale 90%, as above.
Siltstone 10%, dark grey, argillaceous, slightly dolomitic, slightly sandy to sandy.

6590-6600 Shale 80%, as above.
Siltstone 20%, as above.

6600-6620 Shale 70%, as above.
Siltstone 10%, as above.
Sandstone 20%, light grey, salt and pepper, silty, in part very silty and argillaceous.

6620-6630 Shale, black to very dark grey, blocky to platy, silty, micromicaceous in part; rare dolomite filled fractures.

6630-6650 Shale 90%, as above; rare dolomite filled fractures.
Siltstone 10%, dark grey, argillaceous, slightly dolomitic, sandy, in part very sandy and grading to silty sandstone.

6650-6670 Shale 80%, as above, occasional dolomite filled fractures.
Siltstone 20%, as above.

6670-6680 Shale 90%, black to very dark grey, platy to blocky, variably micromicaceous, slightly dolomitic,silty, partly grading to shaly siltstone; rare fractures filled with white, coarsely crystalline dolomite.
Sandstone 10%, medium grey, salt and pepper, very fine grained, fair sorting, subrounded, silty, in part grading to sandy siltstone, dolomitic, tight.

6680-6690 Shale, slightly silty to silty, as above; rare dolomite filled fractures.

6690-6700 Shale 80%, as above; occasional dolomite filled fractures.
Siltstone 10%, very dark grey, argillaceous, slightly dolomitic, sandy, in part very sandy and grading to
Sandstone 10%, as from 6670-80.

6700-6720 Shale 95%, dark grey, platy, micromicaceous, some scattered silty streaks, some irregular fine fractures filled with secondary dolomite, trace of black brittle asphaltic material.
Siltstone 5%, dark grey, argillaceous, siliceous in part, grading to a very fine grained sandstone in part.

6720-6730 Shale 90%, dark grey, as above, some irregular fine fractures filled with secondary dolomite and some quartz
Siltstone 10%, as above, grading in part to a very fine grained sandstone.

6730-6750 Shale, dark grey, platy, micromicaceous, some silty streaks, some scattered fine fractures filled with dolomite.

Pipe correction at 6759' to 6792'

6790-6800 Shale 95%, dark grey, platy, micromicaceous, some scattered silty streaks and dark grey argillaceous siltstone, some scattered fine fractures filled with secondary dolomite.
Sandstone 5%, grey to dark grey, vrry fine grained, argillaceous, silty, siliceous, tight; trace of black brittle asphaltic material.

6800-6820 Shale, dark grey, platy, micromicaceous, silty, few thin irregular streaks of dark grey siltstone and very fine grained tight sandstone, some scattered fine fractures filled with secondary dolomite and trace of quartz, few scattered streaks of black bituminous shale.

6820-6840 Shale, as above, slight increase (to 5%) of siltstone and sandstone streaks, increased fractures filled with secondary dolomite in 6830' sample.

6840-6850 Shale, as above, some scattered fractures filled with secondary dolomite and some quartz.

6850-6900 Shale, dark grey, platy, micromicaceous, silty in part, scattered streaks (less than 5%) of dark grey siltstone and medium to dark grey, very fine grained sandstone, trace of disseminated pyrite,few irregular fine fractures filled with secondary dolomite and rarely quartz.

6900-6910 Shale, dark grey, platy, micromicaceous, silty in part, scattered irregular stringers (less than 5%) of siltstone and very fine grained sandstone, trace of fractures filled with dolomite, trace of streaks of iron stain.

6910-6920 Shale, as above, trace of sandstone, salt and pepper, very fine grained, siliceous, tight; few fractures filled with dolomite.

6920-6950 Shale, as above, slightly silty in part, some scattered irregular stringers (less than 5%) of siltstone and very fine grained sandstone; few fractures filled with dolomite trace of black bituminous shale.

6950-6960 Shale, as above, few fractures filled with dolomite and quartz, trace of black bituminous shale.

6960-6980 Shale, dark grey, platy, micromicaceous, trace of silty and sandy streaks, few fractures filled with dolomite and quartz.

6980-6990 Shale, dark grey, platy, micromicaceous, silty in part, few (3%) scattered streaks of medium grey, very fine grained argillaceous, siliceous, tight sandstone; trace of scattered fractures filled with dolomite and quartz.

6990-7000 Shale, as above; 2% sandstone stringers, as above, 3% sandstone, salt and pepper, very fine grained, siliceous, tight; trace of fractures as above; few streaks of black bituminous shale; rare loose calcite crystals.

7000-7020 Shale, as above; 3% sandstone stringers, medium dark grey, very fine grained, argillaceous, siliceous, tight; trace of fractures as above, few streaks of black bituminous shale.

7020-7040 Shale, dark grey, platy, micromicaceous, silty in part, trace of scattered fractures filled with dolomite.

7040-7050 Shale, very dark grey, platy to blocky, micromicaceous, silty in part, trace fractures filled with white coarsely crystalline dolomite.

7050-7060 Shale 90%, as above, trace fractures as above.
Siltstone 10%, dark grey, blocky, argillaceous to very argillaceous.

7060-7080 As above, with occasional stringers of Sandstone, trace, medium grey, salt and pepper, very fine grained, silty, fair sorting, subrounded.

7080-7100 Shale 80%, as above, slightly dolomitic, in part,rare dolomite filled fractures.
Siltstone 20%, dark grey, argillaceous, partly sandy, slightly dolomitic.

7100-7110 Shale, very dark grey to black, platy, slightly silty in part, rare fractures filled with white, coarsely crystalline dolomite, trace of pyrite.
Note: black, bituminous material in sample is X-pel-G, a mud additive.

7110-7120 Shale 90%, very dark grey to black, platy to blocky, silty, slightly dolomitic in part, trace pyrite, occasional dolomite filled fractures.
Siltstone 10%, as from 7100-10.

7120-7150 Shale 90%, platy, slightly silty to silty, as above.
Siltstone 10%, very dark grey, argillaceous to very argillaceous, slightly dolomitic, partly sandy.

7150-7190 Shale 95%, partly silty, as above.
Siltstone 5%, as above.

7190-7210 Shale 90%, very dark grey to black, platy to blocky, hard, slightly silty to silty, micromicaceous, abundant fractures filled with white, coarsely crystalline dolomite, occasional dolomite filled hairline fractures, occasional slickensides.
Siltstone 10%, as above.

7210-7220 Shale 95%, silty to slightly silty, as above; occasional dolomite filled fractures, occasional slickensides, pyrite fairly abundant.
Siltstone 5%, dark to very dark grey, argillaceous, slightly dolomitic, partly sandy and grading to very fine grained sandstone.

7220-7240 Shale, black to very dark grey, platy to blocky, slightly silty, locally silty, slightly dolomitic in part, micromicaceous, trace of pyrite; occasional fractures filled with silica and dolomite; fractures have irregular borders and locally appear lenticular or have book-leaf appearance; abundant slickensides.

7240-7250 Shale 80%, blocky to platy, silty to slightly silty, as above; fractures filled with silica and minor dolomite as above; occasional slickensides.
Siltstone 20%, very dark grey, argillaceous, slightly dolomitic, slightly sandy in part.
Sandstone trace, medium grey, salt and pepper, very fine grained, fair sorting, silty, siliceous, tight.

7250-7280 Shale 90%, as above; occasional fractures filled with white, coarsely crystalline dolomite and silica; trace of pyrite; abundant slickensides.
Siltstone 10%, as above.

7280-7290 Shale 90%, black to very dark grey, platy to blocky, variably silty, somewhat micromicaceous in part, hard, slightly dolomitic in part, occasional fractures filled with dolomite and silica, slickensides fairly abundant; trace pyrite.
Siltstone 10%, as above.

7290-7320 Shale 95%, black to very dark grey, blocky to platy, silty, somewhat micromicaceous, abundant fractures filled with silica and occasionally with dolomite, occasional slickensides, trace of pyrite. Siltstone 5%, very dark grey, argillaceous to very argillaceous, slightly sandy, slightly dolomitic.

7320-7350 Shale 80%, as above, in part very silty, fractures less abundant than above, occasional slickensides.
Siltstone 20%, very dark grey, argillaceous to very argillaceous, partly micromicaceous.

7350-7370 Shale 90%, as above, trace pyrite, slightly dolomitic, in part, occasional fractures filled with silica and dolomite, occasional slickensides.
Siltstone 10%, as above.

7370-7380 Shale 95%, black to very dark grey, platy to blocky, slightly silty to silty, partly micromicaceous, abundant fractures and hairline fractures filled with white quartz and minor calcite, rare slickensides.
Siltstone 5%, as above.

7380-7388 Shale, as above, occasional fractures filled with quartz and minor calcite, rare slickensides.

ROBERTSON RESEARCH (NORTH AMERICA) LIMITED

MEMORANDUM NO. 15

PALYNOLOGICAL ANALYSIS OF FIVE CUTTINGS SAMPLES (INTERVAL 90' - 900') FROM THE WESTCOAST ET AL PORCUPINE YT-F72 WELL.

PROJECT NO. RRNA/059

Sample 90' - 180':

This sample contains a rather large and diverse palynoflora. It is comprised basically of the genus Densosporites, including such species as Densosporites bialatus and Densosporites pseudoannulatus. Murospora spp., Reticulatisporites spp., and Triquitrites batillatus were also major constituents of this assemblage. The total aspect of the palynoflora has much in common with published assemblages from the Lower Carboniferous of the Northwest Territories. This is further enhanced by the presence of the genus Tripartites, which is considered to be restricted to the Mississippian. No palynomorphs definitely assignable to any other age were recovered, although one badly corroded striate grain, perhaps attributable to the Permian genus Vittatina, is present.

Sample 180' - 360':

As above, the majority of taxa support a Carboniferous age determination. Triquitrites, Murospora, Densosporites, Knoxisporites, and other

Carboniferous genera account for almost all of the assemblage. However, a few specimens of Weylandites cf. cincinnata and Vittatina cf. vittifera, both Permian taxa, are also present.

Sample 360' - 540':

The assemblage observed is similar to that in the preceeding sample. Again, Carboniferous forms such as Densosporites spinosus, D. landesii, D. tripapillatus, D. bialatus, Murospora intorta, M. aurita, Knoxisporites spp., Lycospora spp., Triquitrites spp., and Tripartites spp. comprise the majority of the assemblage. As in the above sample, a few individuals of the Permian genus Vittatina are also present.

Sample 540' - 710':

The assemblage in this sample material is again dominated by Carboniferous forms, such as Densosporites spp., Murospora spp., Knoxisporites spp., Triquitrites spp., Tripartites incisotrilobus, etc. Vittatina does not occur, but a single striate grain, probably Upper Pennsylvanian or Permian, is present. In addition, a palynomorph referrable to the Middle to Upper Devonian taxon Archeoperisaccus oblongatus, and a specimen perhaps attributable to the Upper Devonian Hymenozonotriletes lepidophytus occur here.

Sample 730' - 900':

Again, the Carboniferous genera Tripartites, Triquitrites, Knoxisporites, and Densosporites dominate the assemblage. A striate monosaccate grain, probably upper Pennsylvanian to Permian, a possible Vittatina, and one

specimen of the Permian taxon Weylandites cincinnata were recovered. As in the preceeding sample, a few Devonian spores, in this case aff. Hymenozonotriletes and Ancyrospora cf. simplex, are also present.

Degree of Organic Metamorphism

The palynomorphs in all the above samples were deep brown in colour. As a result, they would be classified 4 on a 1 to 6 scale.

ROBERTSON RESEARCH (NORTH AMERICA) LIMITED

MEMORANDUM NO. 19

PALYNOLOGICAL ANALYSIS OF CUTTINGS SAMPLES

(INTERVAL 90' - 6500') FROM THE WESTCOAST ET AL PORCUPINE YT-F72 WELL

PROJECT NO. RRNA/059

INTERVAL 90' - 900'; Permian to Mississippian

Carboniferous palynomorphs, in particular Densosporites bialatus, D. pseudoannulatus, D. spinosus, D. landesii, Murospora intorta, M. aurita, Knoxisporites spp. and Triquitrites spp. dominate the palynofloras in this interval. Tripartites, a genus which is considered restricted to the Lower Carboniferous, is present in samples 90' - 180', 360' - 540', 540' - 710', and 730' - 900'.

Although these Carboniferous taxa are dominant, the Permian genera Weylandites and Vittatina are occasionally found throughout the interval. A few specimens of these genera are definitely present in samples 180' - 360', 360' - 540', and 730' - 900'. Badly corroded grains attributable to Vittatina are also found in samples 90' - 180'.

The palynomorphs in this interval are deep brown in color, and would most likely be classified 4 on a 1 to 6 scale.

INTERVAL 1030' - 3000'; Middle to Upper Devonian, Givetian to Frasnian

This interval contains a rather diagnostic Givetian to Frasnian pollen assemblage comprised of such distinctive forms as Retusotriletes semizonalis, R. greggsii, Verruciretusispora magnifica, Archeoperisaccus cf. opiparus, and specimens attributable to Hystrichosporites. As a whole, the assemblage is dominated by species of the retusoid genera Retusotriletes and Verruciretusispora. In this interval, unoxidized palynomorphs exhibit a very dark brown to black color, thereby classifying them as 5 to 6 on a 1 to 6 scale.

INTERVAL 3000' - 4600'; ?Middle to ?Lower Devonian

The presence of a specimen attributable to Emphanisporites at 3000' - 3100', a genus considered restricted to the Middle to Lower Devonian, suggests that sediments of that age have been penetrated. Spores which are similar to palynomorphs found in Middle and Lower Devonian deposits of Eastern Canada are occasionally found throughout this interval. Dictyotriletes sp. cf. McGregor, Camarozonotriletes cf. breviculus, Verrucosisporites sp. cf. McGregor, and aff. Reticulatisporites emsiensis are examples of such taxa. However, this age determination must remain provisional, as little published data is available on Arctic Lower Devonian palynofloras, and since the assemblage here shows little similarity with Lower Devonian palynofloras of Eastern Canada.

Furthermore, this and succeeding intervals contain numerous Givetian to Frasnian palynomorphs, such as R. semizonalis, R. greggsii, and V. magnifica. It is assumed that these taxa are, at least in part, caved. Unoxidized residues

from this interval were not examined. However, the deep brown color of the oxidized palynomorphs indicates that they were most likely originally very dark brown to black (5 to 6 on a 1 to 6 scale).

INTERVAL 4600' - 4900'; ?Silurian

A single test of Desmochitina, a chitinozoan genus restricted to Lower Devonian - Ordovician strata, is present at 4600' - 4700'. This specimen is most similar to the Silurian and Ordovician species of Desmochitina, and is thus the first organism encountered suggesting a Silurian or older age. The presence of two additional Desmochitina tests at 4800' - 4900' further substantiates a Silurian to Ordovician age. One of these latter individuals has affinities with D. sulcata, a Middle Silurian form, perhaps suggesting an additional refinement of the age of this interval.

As stated previously, Givetian to Frasnian palynomorph taxa, as well as some indeterminate spores, are also present.

The chitinozoa are black, and are thus classed as 6.

INTERVAL 4900' - 6500'; Age indeterminate

This interval is barren of recognizable palynomorphs. A few highly carbonized spores are present, but their poor condition of preservation renders them unidentifiable.

The spores and other debris in this interval are black, and thus are rated as 6.

/RED
MAY/1973

ROBERTSON RESEARCH (NORTH AMERICA) LIMITED

MEMORANDUM NO. 40

A PALYNOLOGICAL ANALYSIS OF 8 SAMPLES FROM THE WESTCOAST ET AL. N. PORCUPINE F-72 WELL, 67° 40' N., 137° 45' W., WESTCOAST PETROLEUM LIMITED

Project No. RRNA/745/173

Eight cuttings samples from the interval 6600' - 7300' in the North Porcupine F-72 drillhole were palynologically examined. Two macerations from each sample were prepared. One set was oxidized to facilitate the examination of palynomorphs, the other remained unoxidized in order to determine the degree of organic metamorphism. The results of this study are summarized below.

Sample 6600':

Barren of recognizable palynomorphs. Kerogen black, registering 4 - 5 on a 1 - 5 scale.

Sample 6700':

Barren of recognizable palynomorphs, although one highly corroded process, possibly attributable to Hystrichosporites was recovered. This determination is highly provisional, and would indicate a Middle/Upper Devonian age for this sample. Kerogen black, registering 4 - 5 on a 1 - 5 scale.

Sample 6800':

Barren of recognizagle palynomorphs. Kerogen black, registering 4 - 5 on a 1 - 5 scale.

Sample 6900':

Barren of recognizable palynomorphs. Kerogen black, registering 4 - 5 on a 1 - 5 scale.

Sample 7000':

One specimen of the Paleozoic genus Acanthotriletes was recovered. However, this specimen was much lighter and better preserved than the associated Kerogen and is thus most likely caved. No other palynomorph was found. Kerogen dark brown to black, registering 4 - 5 on a 1 - 5 scale.

Sample 7100':

Barren of recognizable palynomorphs. Kerogen black, registering 4 - 5 on a 1 - 5 scale.

Sample 7200':

Barren of recognizable palynomorphs. Kerogen black, registering 4 - 5 on a 1 - 5 scale.

Sample 7300':

Barren of recognizable palynomorphs. Kerogen black, registering 4 - 5 on a 1 - 5 scale.

WELL HISTORY REPORT

Section III - Engineering Summary

(a) Report of Drill Stem Tests

No Drill Stem Tests run.

(b) Casing Record

(1) Surface Casing (Tally - Attachment #1)
Surface Casing in place 6:00 p.m. Feb. 2, 1973
- 13 3/8" landed at 934' K.B.
- 30 jts. of K55, 68#, Butt. ST&C
- 6 Baker centralizers
- 1 Baker guide shoe
- 1 Baker float collar
- cemented with 540 CF artic cement 15.7#/gal.
  280 CF neat oilwell B 15.5#/gal.
  20 bbls. returns

(2) Intermediate Casing (Attachments #2 and #3)
Intermediate Casing in place 11:30 p.m. Feb. 17, 1974
- 7" landed at 6104' K.B.
- 144 jts. of N80, 23#, LT&C
- 1 Texas shoe
- 2 Baker float collars
- cemented with 200 sacks Oilwell B cement

(c) Bit Record (Attachment #4)

Total number of bits - 106
12 - 12 1/4" and 17 1/2" Surface bits - 199.5 hrs. total drilling time.
94 - 8 3/4", 6 1/4", 6 7/32" and 5 31/32" bits - 2184.25 hrs. total drilling time.

(d) Mud Report

Basic mud - gel type mud of a total of 5,000 sacks of Magcogel plus 7,000 sacks of Magcobar.
Additional additives:

SAPP (Sodium Acid Pyrophosphate	-	10 sacks
Bicarbonate of Soda	-	30 sacks
Soda Ash (Sodium Carbonate)	-	165 sacks
Spersene (Chrome Lignosulfonate)	-	300 sacks
Caustic Soda	-	450 sacks
Drispac	-	150 sacks
Sawdust	-	2,000 sacks
Pipelax	-	165 gals.

(e) Deviation Record

Drilled depth - 7388' K.B.
Approx. true vertical depth - 7293' K.B.

(See Attachment #5 for deviation survey record)

(f) Abandonment Plugs

Ran abandonment plug @ 6160'-6060' - 50 sacks oilwell B cement. Plug in place 11:05 a.m. April 5, 1974. Felt plug at 6010' at 9:15 p.m. April 5, 1974.

(g) Lost Circulation Zones

No lost circulation problems.

(h) Report of Well Kicks and Blowouts

None to report.

WESTCOAST PETROLEUM LTD. ATTACHMENT #1

TALLY SHEET

Lease / Well Nº Westcoast et al Porcupine YT F-72 Date: Jan. 24, 1973

Description Buttress Size 13 3/8" Wt. 68 Grade K55 Rge. 2 Cond. New

Remarks: Surface Casing

1	30	84	31	58										
2	32	77												
3	29	69												
4	29	01												
5	30	00												
6	32	20												
7	30	67												
8	25	84												
9	29	63												
10	32	95	BJ JT											
	303	60	31	58										
11	33	57												
12	33	42												
13	34	25												
14	31	85												
15	33	42												
16	28	94												
17	26	85												
18	33	47												
19	32	72												
20	28	87												
	317	36												
21	28	54												
22	33	47												
23	32	07												
24	38	12	out											
25	31	64												
26	33	27												
27	32	84												
28	28	71												
29	31	23												
30	28	39												
Totals	318	28												

Total on location = 970.82

JT# 24 Less 38.12

932.70

float 1.65

shoe 1.80

Total run in hole = 936.15

Landed @ 934 K.B.

K.B. to Ground 16.60

SUMMARY

10	303
20	317
30	318
4	31
5	
6	
7	
	970

Form 262

WESTCOAST PETROLEUM LTD. ATTACHMENT #2

TALLY SHEET

Lease / Well Nº Westcoast et al Porcupine YT F-72 Date: Feb. 16/74

Description Mannesmann casing Size 7" Wt. 23#/Ft. Grade Mod N80 Rge. 3 Cond. New

Remarks: 2 Baker Float collars 1.50 each texas shoe .60
Type - RL

1	47	02	41	75	43	50	44	57	36	40	46	85	in	
2	42	10	39	96	42	71	46	22	43	08	47	00 *	out	
3	42	08	40	68	43	60	45	92	40	10	43	24 *	out	
4	39	80	42	86	44	36	41	55	41	78	25	30 *	out	
5	39	62	44	07	44	95	47	03	41	02				
6	36	08	43	48	40	31	45	00	41	23				
7	44	62	45	10	43	50	38	98	42	25				
8	35	30	44	55	41	90	44	28	43	53				
9	37	76	30	73	44	39	38	50	43	20				
10	36	46	44	68	42	00	46	76	42	12				
	400	84	417	86	431	22	438	81	414	71	162	39		
11	45	00	38	92	36	58	43	30	36	56				
12	42	56	45	65	38	44	43	26	43	35				
13	43	16	40	10	43	92	38	39	43	25				
14	46	57	44	30	44	88	38	48	41	90				
15	44	15	43	95	46	40	36	86	42	53				
16	43	94	45	62	49	90	42	12	36	90 *	out-23#			
17	41	58	45	08	40	05	43	53	41	01				
18	45	15	43	95	43	06	⊛ 38	02	44	80				
19	39	52	42	93	41	94	⊛ 37	72	46	81				
20	43	83	44	18	42	39	⊛ 44	88	44	69				
	435	46	434	68	427	56	406	56	421	80				
21	41	65	40	40	42	75	⊛ 42	83	37	65				
22	36	43	43	06	43	97	46	91	42	08 *	out-23#	egged		
23	36	60	44	14	42	66	45	37	45	52				
24	43	61	43	68	41	32	43	12	45	15				
25	42	29	35	90	47	00	44	06	45	18				
26	45	32	40	36	41	06	43	80	40	54				
27	43	52	43	05	44	61	44	76	45	53				
28	42	08	43	70	45	00	45	41 ⊛	46	95				
29	43	80	39	20	42	46	43	93	43	75				
30	45	75	42	02	43	46	45	78	41	79				
Totals	421	05	415	51	434	29	445	97	428	14				

SUMMARY

1
2
3
4
5
6
7

* Left Out ⊛ 26# casing out

Form 262

WESTCOAST PETROLEUM LTD.

ATTACHMENT #3

TALLY SHEET

Lease / Well Nº Westcoast et al Porcupine YT F-72 Date: Feb. 16, 1974

Description Mannesmann casing Size 7" Wt. 23# Grade Mod. N-80 Rge. 3 Cond. New

Remarks: 2 Baker Float collars @ 1.50 each 1 Texas shoe 0.60'

1			400	84									
2			435	46				Left Out					
3			421	05									
4			417	86			43	06			36	90	
5			434	68			41	94			42	08	
6			415	51			42	39			47	00	
7			431	22			42	75			43	24	
8			427	56			45	41			25	30	
9			434	29			215	55 -	26#		194	52 -	23#
10			438	81									
			406	56									
11			445	97					215	55			
12			414	71					194	52			
13			421	80					410	07 -	Total left out		
14			428	14									
15			162	39									
16			6536	85	- 154 jts.								
17													
18							6536	85					
19							-410	07					
20							6126	78					
							+3	60 -	Floats & shoe				
21							6130	38					
22							26	00 -	stick up				
23							6104	38 -	Casing landed K.B.				
24													
25													
26													
27													
28													
29													
30													
Totals													

SUMMARY

1	
2	
3	
4	
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6	
7	

Form 262

ATTACHMENT #4

Bit #	Size (in)	Type	Hours	Footage (ft)
1A	12 1/4	DTH	17.50	320
2A	12 1/4	DTH	15.00	337
3A	12 1/4	V2H	5.50	54
4A	12 1/4	SCH5J	29.25	199
1B	17 1/2	Opener	29.00	328
2B	17 1/2	Opener	38.25	438
3B	17 1/2	Opener	21.50	94
4B	17 1/2	L4J	12.25	50
5B	17 1/2	DGJ	4.25	9
6B	12 1/4	SCH5J	12.25	16
7B	17 1/2	S88J	11.25	16
8B	12 1/4	DTH	3.50	Cement float & shoe
1	8 3/4	X55R	32.00	376
2	8 3/4	ST3AJ	13.50	158
3	8 3/4	J33	34.50	293
4	8 3/4	DSS	24.50	492
5	8 3/4	DM	10.50	107
6	8 3/4	DSS	21.75	280
7	8 3/4	DSS	22.25	283
8	8 3/4	SSIGJ	27.25	198
9	8 3/4	DSS	26.25	238
10	8 3/4	ST3AJ	24.25	211
11	8 3/4	SSIG	26.75	197
12	8 3/4	ST3A	30.25	241
13	8 3/4	DSS	25.25	197
14	8 3/4	DM	1.50	8
15	8 3/4	SSIG	31.00	132
16	8 3/4	SSIG	23.00	133
17	8 3/4	SSIG	22.00	117
18	8 3/4	OWV	12.00	83
19	8 3/4	J33(rerun)	00.00	0
20	8 3/4	OWV	11.50	72
21	8 3/4	SA	20.00	166
22	8 3/4	MHNGJ	12.50	80
23	8 3/4	XIG	34.00	171
24	8 3/4	J33(rerun)	67.25	388
25	8 3/4	XIG	21.25	99
26	8 3/4	XIG	34.25	147
27	8 3/4	XDV	33.75	178
28	8 3/4	XIG	28.00	145
29	8 3/4	XIG	24.00	101
30	8 3/4	XDV	23.50	85
31	8 3/4	XIG	20.50	134
32	8 3/4	XIG	24.75	98
33	8 3/4	Clean out		

Bit #	Size (in)	Type	Hours	Footage (ft)	
34	8 3/4	XIG	Clean out		
35	8 3/4	XIG	Clean out		
36	8 3/4	XIG	47.75	2,434	
37	8 3/4	XIG	30.00	55	
38	8 3/4	XIG	54.50	127	
39	8 3/4	XIG	44.25	190	
40	8 3/4	STIAG	11.75	64	
41	8 3/4	STIAG	13.00	50	
42	8 3/4	SSIG	29.25	105	
43	8 3/4	S86	10.25	22	
44	8 3/4	STIAG	33.00	148	
45	8 3/4	XIG	28.25	150	
46	8 3/4	STIAG	31.00	136	
47	8 3/4	S44	19.75	114	
48	8 3/4	XIG	24.75	119	
49	8 3/4	S44	25.00	124	
50	8 3/4	S44	26.00	127	
51	8 3/4	S44	26.00	146	
52	8 3/4	XIG	16.50	106	
53	8 3/4	XIG	16.25	91	
54	8 3/4	S44	22.00	114	
55	8 3/4	S44	13.75	70	
56	8 3/4	S13G	18.00	80	
57	8 3/4	SSIG	20.75	75	
58	8 3/4	S44	26.00	109	
59	8 3/4	S44	17.50	80	
60	8 3/4	XIG	15.75	56	
61	8 3/4	XIG	21.00	66	
62	8 3/4	GJ33	53.50	117	
63	8 3/4	SDGH	25.50	119	
64	8 3/4	SDGH	21.50	81	
65	8 3/4	DSJ	7.00	144	Ream & clean
66	8 3/4	XIG	39.75		Ream & clean
67	8 3/4	XIG	53.50	1,126	Ream & clean
68	8 3/4	S44	67.50	642	Ream & clean
69	8 3/4	ST3	45.75	363	Ream & clean
70	8 3/4	XIG	31.50	1,593	Ream & clean
71	8 3/4	XIG	12.25	595	Ream & clean
72	6 1/4	SECS4	11.25	100	
73	6 1/4	DSCIG-J	14.25	112	
74	6 1/4	DSCIG-J	14.25	113	
75	6 1/4	SEC S4	5.25	29	
76	6 1/4	DSCIG-J	18.50	58	
77	6 1/4	DSCIG-J	17.50	57	

Bit #	Size (in)	Type	Hours	Footage (ft)
78	6 1/4	DSCIG-J	18.50	61
79	6 1/4	DSCIG-J	17.50	56
80	6 1/4	DSCIG-J	18.25	50
81	6 1/4	SDHJ	8.50	24
82	6 1/4	DSCIG-J	15.50	35
83	6 1/4	M4N		
84	6 1/4	OWVJ	9.00	22
85	6 1/4	DSCIG-J	10.00	27
86	6 1/4	M4N	1.00	2
87	6 3/16	Wil. Dia.	56.50	123
88	6 1/4	DSCIG-J	8.50	18
89	6 3/16	Wil. Dia.		
90	6 1/4	OWVJ	Clean out	
91	6 3/16	Wil. Dia.	59.00	146
92	6 7/32	Chr. Dia.	48.00	122
93	6 7/32	Chr. Dia.	37.00	49
94	5 31/32	Chr. Dia.	32.50	28

Attachment #5

WESTCOAST ET AL PORCUPINE YT F-72
DEVIATION RECORD

Date	Depth-Feet K.B.	Angle-Degrees
January 20, 1973	73	1/4
21	103	1/4
	133	1/4
	191	1/4
	217	1/2
	247	1/2
22	270	1/2
	306	3/4
	450	1/2
	485	3/4
	518	3/4
	546	1/2
23	609	1/2
	640	1/2
	659	3/4
	689	1
24	735	1/2
	766	1/2
	789	1/2
	829	1/2
25	859	1/2
	889	3/4
February 1	934	1
6	946	1/2
7	985	1/2
	1,027	1/2
	1,056	1/2
	1,096	1/2
	1,121	1/2
	1,181	1
	1,211	1
8	1,245	1 1/2
	1,275	1 3/4
	1,310	2
	1,338	2
	1,370	2
9	1,400	2
	1,434	2
	1,467	2
	1,499	2
	1,531	2
	1,562	2
10	1,590	2 1/2
	1,623	2 1/2
	1,654	2 1/2
	1,686	2 1/2
	1,716	3
11	1,750	3
	1,761	3

Date	Depth-Feet K.B.	Angle-Degrees
February 12	1,780	3
	1,813	2 1/2
	1,844	2 1/2
	1,907	2 1/2
	1,939	3
	1,970	2 1/2
	2,033	2 1/2
13	2,094	2 1/2
	2,125	2 1/2
	2,190	3
	2,253	4
15	2,280	3 1/2
16	2,315	3 1/2
	2,347	4
	2,360	3 1/2
17	2,387	3 1/2
	2,450	3 1/2
	2,480	3 1/2
	2,616	3 1/2
	2,545	3 1/2
19	2,700	4
	2,736	4
	2,767	4
	2,798	4
20	2,830	4
	2,861	4 1/2
	2,892	3 1/2
	2,923	5
	2,954	4
21	2,987	3 1/2
	3,018	4 1/2
	3,052	4 1/2
	3,080	4 1/2
	3,111	4 1/2
23	3,142	5 1/2
	3,175	5 1/2
	3,237	5 1/2
	3,268	6
24	3,300	5 1/4
	3,332	6
	3,364	7
25	3,395	6 1/2
	3,450	6 1/2
	3,490	6
26	3,521	6
	3,575	6 1/4
27	3,617	5 1/2
	3,647	5
	3,678	5
	3,709	5

Date	Depth-Feet K.B.	Angle-Degrees
February 28	3,772	5 1/2
March 1	3,800	5
	3,834	5 1/2
	3,863	6
	3,894	7 1/2
2	3,894	5 1/2
	3,925	7 1/2
	3,990	8
	4,013	1/2
3	4,044	7 1/2
	4,106	7 1/2
	4,138	7 1/2
4	4,170	8
	4,200	7 1/2
8	4,350	7 1/2
9	4,357	7
	4,420	7
	4,450	7
10	4,483	7
12	4,513	7
	4,544	7
	4,575	7
13	4,600	6
15	4,617	6
	4,649	6
	4,680	5 1/4
18	4,712	5
	4,755	5 1/4
19	4,776	5
	4,808	5
	4,839	5
	4,869	5
	4,902	5
20	4,934	5
	4,965	5
21	4,965	5
23	5,172	4 1/2
25	5,186	4 1/2
	5,218	4 1/2
26	5,247	4 1/2
	5,280	4 1/2
	5,311	5
27	5,340	4 1/2
	5,372	5
	5,404	5 1/2
	5,436	5 1/2
	5,468	5 1/2
28	5,499	5 1/2
	5,530	5 1/2
29	5,470	8
30	5,568	8

Date	Depth-Feet K.B.	Angle-Degrees
March 31	5,598	8 1/2
	5,628	8 1/2
	5,659	8 1/2
April 1	5,690	9
2	5,722	8 1/2
	5,755	8 1/2
	5,786	8
3	5,800	8
	5,817	8
4	5,845	8
	5,879	8
	5,943	9
5	5,975	9
	5,984	9
6	6,006	9 1/2
	6,037	10
7	6,069	10
	6,100	10
	6,129	10
8	6,161	10
	6,191	10
December 11	3,284	6
13	3,339	7 1/8
14	3,370	5
15	3,434	5 1/2
16	3,434	5 1/2
17	3,500	4 1/2
	3,565	4 3/4
18	3,625	4
19	3,625	4
20	3,720	3 3/4
	3,770	3 1/2
21	3,770	3 1/2
22	3,775	4
23	3,897	3 1/2
24	4,027	3 3/4
25	4,027	2 3/4
26	4,195	3 1/4
27	4,195	3 1/4
28	4,330	3
29	4,445	2 7/8
30	4,445	2 7/8
31	4,564	3 1/2
January 1, 1974	4,564	3 1/2
2	4,688	3 1/4
3	4,815	2 3/4
6	4,958	2 3/4
8	5,062	2 3/4
9	5,156	2 3/4

Date		Depth-Feet K.B.	Angle-Degrees
January	11	5,270	1 7/8
	12	5,340	2 1/4
	13	5,340	2 1/4
	14	5,420	2 3/4
	15	5,420	2 3/4
	16	5,495	2 7/8
	17	5,495	2 7/8
	18	5,604	3
	19	5,604	3
	20	5,684	3 3/4
	21	5,684	3 3/4
	22	5,704	4
	23	5,740	4
	24	5,806	3 1/2
	25	5,806	3 3/4
	26	5,806	3 3/4
	27	5,915	4 3/4
	28	5,915	4 3/4
	29	6,042	6 1/2
	30	6,042	6 1/2
	31	6,042	6 1/2
February	1	6,123	7 1/2
	2	6,123	7 1/2
	12	4,545	2 1/2
	13	4,545	2 1/2
	28	6,223	12
		6,123	7 1/2
March	1	6,335	12
	2	6,448	22
	3	6,468	21
	4	6,515	21
		6,535	22
	5	6,592	22
	6	6,653	22
		6,120	10
		6,123	7 1/2
	7	6,709	23
	8	6,709	23
	9	6,759	22
	10	6,816	22
	11	6,851	23
	12	6,851	23
	13	6,851	23
	14	6,873	22
		6,900	22
	15	6,900	22
	16	6,900	22
	17	6,900	22

Date		Depth-Feet K.B.	Angle-Degrees
March	18	7,025	22
	20	7,043	23
	21	7,043	23
	22	7,043	23
	23	7,043	23
	24	7,102	25
	25	7,165	25
	26	7,189	24
	29	7,311	22
	30	7,311	22
	31	7,311	22
April	1	7,311	22
	2	7,311	22
	3	7,311	22
	5	7,311	22

SECTION IV

LOGS

Type	Run No.	Date	Interval
Gamma Ray-Neutron Log	1	April 1, 1974	6000-7330'
Gamma Ray-Compensated Neutron Log	2	April 4, 1974	0-6124'
Borehole Compensated Sonic-Gamma Ray Log	1	April 5, 1974	6112-6600'
Velocity Survey		April 4, 1974	0-6600'