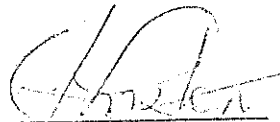


WELL HISTORY REPORT

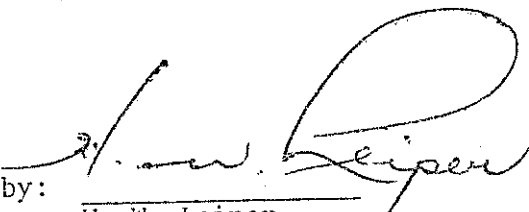
PACIFIC IMP ET AL ROLAND BAY YT L-41

PACIFIC PETROLEUMS LTD.
P. O. BOX 6666
CALGARY, Alberta
T2P 6T6

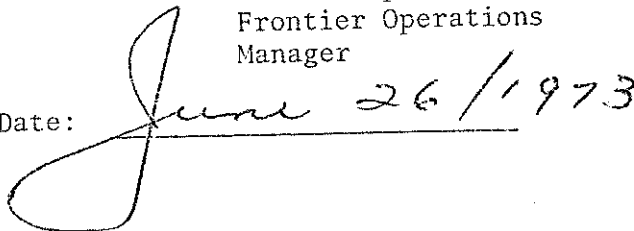
Compiled by:


C. G. Johnston

Submitted by:


H. W. Leiper
Frontier Operations
Manager

Date:


June 26/1973

PACIFIC PETROLEUMS LTD.
WELL HISTORY

PACIFIC IMP ET AL ROLAND BAY YT L-41

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1. SUMMARY OF WELL DATA:

a) Well Name: Pacific Imp et al Roland Bay YT L-41

b) Permittee: Imperial Oil Enterprises Ltd.

c) Operator: Pacific Petroleum Ltd.
P. O. Box 6666,
Calgary, Alberta T2P 6T6

d) Location: Unit L Section 41
Grid 69° - 30' - 138-45"
Lat 69°20' 30.693 N
Long 138°56' 55.092 W

e) Co-ordinates: Not applicable

f) Permit Number: 3773

g) Drilling Contractor: Nabors Drilling Limited
Rig #25 Licence #524

h) Drilling Authority: #627 issued November 15, 1972

i) Classification: Exploratory Wildcat

j) Elevations: Ground: 41'
K.B.: 65.60'
KB to ground: 24.60'

k) Date Spudded: December 22, 1972

l) Completed Drilling: April 15, 1973

m) Total Depth: 9030'
PBSD: 5940'

n) Status: Dry and Abandoned

o) Date Drilling Rig Released: April 20, 1973

p) Hole Sizes to T.D.: 26" 0 - 465
17½" 456 - 1952
12¼" 1947 - 5970
8½" 5970 - 9030

Pacific Imp et al Roland Bay YT L-411. SUMMARY OF WELL DATA - Cont'd.(q) Casing:

Multiwall Freeze Pipe: 28" OD - 32" OD - 36" OD
Insulated between 28" - 32" with Zonolite,
circulating baffles between 32" - 36".
Length of freeze pipes 60' with 10' extension
on 28" OD, set in 44" hole and c/w 528 sax 135
Perma Frost #1.

Conductor: Ran 11 jts. 20" H-40 94#
Buttress R-3 casing. Landed at 456', cemented
with 1000 sax Cold Set. Plug down 7:15
A.M. January 10. Cemented down annulus
with 2 3/8" tubing using 660 sax Cold Set.

Surface: Ran 61 jts. 13 3/8" 61# K-55
ST&C Mann. casing. Landed at 1956', cemented
with 1500 sax Cold Set. Good returns. Plug
down 10:45 P.M. January 28, 1973.

Intermediate: Ran 161 jts. 9 5/8" 43.5 and
40.0# N-80 K-55 LT&C casing. Landed at
5965'. Cemented with 650 sax Oilwell type
G-15. Plug down at 6:00 A.M. Did not displace
plug to bottom, cutoff 2 barrels short because
of wing type plug. Necessary to go through
stage collar at 1695' K.B. Opened stage collar
with 550 psi, and displaced annulus with 150
barrels water and 150 barrels diesel, followed
by 100 sax Cold Set. Closed stage collar and
pressure tested to 2500#. Collar held okay.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY:(a) Formation Tops:

	<u>Depth</u>	<u>Sample</u>	<u>Subsea</u>
Lower Cretaceous	400'		- 334'
Husky? (L. Cretaceous)	3310'		-3244'
Husky (Upper-Middle Jurassic)	4200'		-4134'
Bug Creek (Middle-Lower Jurassic)	6900'		-6834'

(b) Cored Intervals:

Core #1	2198'-2221'	Rec'd. 23'	
Core #2	2221'-2258'	Rec'd. 20'	
Core #3	3200'-3235'	Rec'd. 35'	
Core #4	4200'-4230'	Rec'd. 30'	Ja
Core #5	5202'-5232'	Rec'd. 30'	
Core #6	6203'-6223'	Rec'd. 20'	
Core #7	7224'-7254'	Rec'd. 30'	Ja
Core #8	8448'-8478'	Rec'd. 30'	Ja

(c) Core Descriptions:

Core #1 2198' to 2221' Recovered 23'

2198.0-2210.0	12.0'	Shale: black, fissile, slightly micromicaceous, horizontal silica veining at 1 - 2 feet, slightly kaolinitic, vertical silica veining at 7 - 8 feet, slightly kaolinitic, pyrite blebs at 8 - 10 feet. Horizontal pyrite veining at 10 feet, siliceous and when Shale is fractured without veining, it is slickensided.
2210.0-2218.0	8.0'	Shale: as above; occasional kaolinitic blebs and kaolinitic veining (fractures); trace pyrite blebs.
2218.0-2221.0	3.0'	Shale: as above, occasionally kaolinitic, occasional thin kaolinitic stringers and veining, slightly fractured.

CORING TIMES: 15,15,14,14,14 13,14,14,13,15 15,13,13,13,14
15,12,13,14,14 13,15,31.

Core #2 2221' to 2258' Recovered 20'

2221.0-2227.0	6.0'	Shale: black, fissile, slightly micromicaceous, occasional silica blebs and veining, occasionally fractured.
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Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(c) Core Descriptions, cont'd.Core #2, cont'd.

2227.0-2241.0 14.0' Shale: black to occasionally dark grey, slightly micromicaceous to occasionally micaceous, trace silica veining, slightly fractured.

Core #3 3200' to 3235' Recovered 35'

3200.0-3235.0 35.0' Shale: blackish dark grey, fissile, micromicaceous to occasionally micaceous, very slightly silty, very slightly pyritic, pyrite blebs at 3 - 4 feet. At 3224 to 3228', thin silica veining indicating very slight fracturing.

CORING TIMES: 16,21,14,14,16 22,17,17,18,18 15,16,18,17,17
 17,16,14,15,15 14,14,14,14,14 14,17,17,18,15
 13,14,18,15,13.

Core #4 4200' to 4230' Recovered 30'

4200.0-4230.0 30.0' Shale: dark grey, fissile, micromicaceous to micaceous, very slightly pyritic, trace small pyrite blebs.

CORING TIMES: 8,10,15,10,12 10,11,14,11,12 13,12,12,12,12
 13,12,16,21,6 13,10,35,10,10 10,11,11,10,10.

Core #5 5202' to 5232' Recovered 30'

5202.0-5217.0 15.0' Shale: blackish dark grey, blocky, micromicaceous to micaceous, slightly pyritic, thin mica stringers at 5205.3'; trace Ironstone nodules.

5217.0-5225.0 8.0' Shale: blackish dark grey, blocky, micromicaceous to slightly micaceous, slightly pyritic, slightly phosphatic in part, occasional Ironstone nodules.

5225.0-5225.3 0.3' Shale: dark grey, micromicaceous to slightly micaceous in part, blocky, very slightly pyritic, abundant mica veining; trace Ironstone nodules, slightly siliceous in part.

5225.3-5231.5 6.2' Shale: blackish dark grey, blocky, micromicaceous to slightly micaceous, slightly pyritic, slightly phosphatic, occasional Ironstone nodules.

5231.5-5231.7 0.2' Shale: dark grey, micromicaceous, blocky, very slightly pyritic, trace silica.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(c) Core Descriptions, cont'd.Core #5, cont'd.

5231.7-5232.0 0.3' Shale: blackish dark grey, blocky, micromicaceous to slightly micaceous, slightly pyritic, slightly phosphatic, occasional Ironstone nodules, trace silica.

CORING TIMES: 15,13,15,18,14 16,16,16,15,15 16,14,15,15,14
 14,15,13,15,15 15,17,14,18,15 15,16,16,17,15.

Core #6 6203' to 6223' Recovered 20'

6203.0-6211.5 8.5' Shale: dark grey to black, fissile, micromicaceous to occasionally micaceous, pyritic, slightly silty, occasionally arenaceous, soft; pyritized fossil remains.

6211.5-6214.0 2.5' Shale: dark grey, blocky, micromicaceous, silty and arenaceous, subrounded to rounded, medium to coarse grained quartz grains; blebs of light grey gypsiferous Shale; pyritized fossil remains.

6214.0-6223.0 9.0' Shale: dark grey to black, fissile, micromicaceous to occasionally micaceous, arenaceous, pyritic, slightly silty, soft; pyritized fossil remains.

At 6221.6' there are casts of two pelecypods
 ?LAEPTENA

CORING TIMES: 13,13,15,12,13 13,13,13,13,12 13,13,13,12,11
 13,11,13,13,13.

Core #7 7224.to 7254' Recovered 30'

7224.0-7254.0 30.0' Shale: dark grey, blocky, micromicaceous to micaceous in part, slightly pyritic, silty, sandy in part, tough; no apparent bedding planes but it shears off at 30°.

CORING TIMES: 8,9,10,8,8 7,6,8,8,8 9,9,10,8,11 10,10,7,10,9
 8,8,9,8,10 8,9,10,8,6.

Core #8 8448' to 8478' Recovered 30'

8448.0-8455.9 7.9' Shale: dark grey to black, micromicaceous to micaceous, fissile to blocky, pyritic, silty and siliceous and gypsiferous in part; pyritized fossil remains (?crinoids and brachiopods). Shale cleaves along hackly fracture planes. Blebs and

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(c) Core Descriptions, cont'd.Core #8, cont'd.

		minor stringers of a medium grey, carbonaceous, silty Shale.
8455.9-8457.5	1.6'	Shale: as above, with gypsum and minor calcite on fracture planes.
8457.5-8458.0	0.5'	Shale: as above, becoming softer; biotite on fracture planes; minor gypsum stringers and veining, pyritized fossil remains.
8458.0-8461.0	3.0'	Shale: as above, with blebs of a brownish grey, silty Shale; biotite on fracture planes.
8461.0-8462.3	1.3'	Shale: black, micaceous, fissile, carbonaceous, soft.
8462.3-8468.4	6.1'	Shale: dark grey and black, micromicaceous to micaceous, blocky, pyritic, silty and gypsiferous, pyritized and silicified fossil remains (crinoids and brachiopods), hackly fracture planes with biotite on fracture planes. Blebs of brownish grey, silty Shale.
8468.4-8478.0	9.6'	Shale: black, micromicaceous to micaceous, fissile pyritic, carbonaceous, silty, siliceous in part, occasional quartz veinlets, pyritized fossil remains; blebs of brownish grey Shale: as above.

Small brachiopod cast between 8473 and 8476'.
 Small cephalopod cast between 8475 and 8476'.
 Bedding is horizontal.

CORING TIMES: 9, 14,14,16,15 14,13,14,14,13 14,13,13,13,13
 13,13,13,11,13 13,14,14,13,13 13,13,14,15,13.

(d) Sample Descriptions:

0- 350	Glacial till.
350- 390	Shale: grey, fissile to blocky, micromicaceous, slightly pyritic, occasional trace Pyrite.
390- 530	Shale: as above, but micromicaceous to micaceous; occasional trace Pyrite.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 530- 620 Shale: as above, but slightly silty; slight trace Pyrite.
- 620- 670 Shale: grey, fissile to blocky, micromicaceous, slightly silty.
- 670- 680 Shale: grey, as above, silty and arenaceous.
- 680- 690 Shale: as above with stringers of Sandstone: salt and pepper, very fine grained, argillaceous, silty, tight.
- 690- 700 Shale: as above, occasionally slightly arenaceous.
- 700- 710 Shale: as above, with stringers of Sandstone: salt and pepper, fine grained, fair sorting, siliceous, quartzose, argillaceous, silty, micaceous, occasionally feldspathic, tight.
- 710- 740 As above, with occasional quartz veinlets in the Shale; trace of free quartz crystals, slightly pyritic.
- 740- 750 Shale: as above; Siltstone: brown to light grey, argillaceous, micaceous, trace quartz veinlets and quartz crystals; trace Sandstone: as above, tight.
- 750- 760 Shale: as above, interbedded with Sandstone: as above; trace quartz crystals.
- 760- 770 Shale: as above, interbedded with Siltstone: brown to light grey, as above.
- 770- 780 Sandstone: salt and pepper, very fine to fine grained, subrounded to subangular, fair sorting, quartzose, siliceous, argillaceous in part, very slightly glauconitic, slightly bituminous, slightly cherty, trace quartz crystals, tight; occasional stringers Shale: as above.
- 780- 800 Sandstone: as above.
- 800- 820 Sandstone: as above; trace Chert fragments.
- 820- 830 Sandstone: salt and pepper, medium to occasionally fine grained, subangular to angular, poor to fair sorting, quartzose, siliceous, kaolinitic in part, slightly silty, very slightly glauconitic, slight trace Chert, tight; trace quartz crystals.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 830- 840 Sandstone: as above; trace green Chert fragments.
- 840- 860 Sandstone: as above, abundant quartz crystals; Chert fragments; slight trace Pyrite.
- 860- 870 Sandstone: as above, with interbedded Chert; abundant quartz crystals.
- 870- 880 Sandstone: as above, abundant Chert fragments; occasional quartz crystals.
- 880- 900 Sandstone: salt and pepper, fine to medium grained, sub-rounded to subangular, fair sorting, quartzose, slightly silty, argillaceous in part, slightly kaolinitic, tight; trace quartz crystals.
- 900- 910 Shale: as above; Sandstone: salt and pepper, fine to medium grained, subrounded to subangular, fair to well sorted, quartzose, siliceous, slightly kaolinitic, slightly cherty, tight; trace quartz crystals.
- 910- 920 Sandstone: as above.
- 920- 970 Sandstone: salt and pepper, fine to medium grained, sub-rounded to subangular, fair to well sorted, quartzose, siliceous, kaolinitic in part, slightly cherty in part, slightly siltier; Chert fragments; trace quartz crystals.
- 970- 980 Sandstone: salt and pepper, fine to medium grained, sub-rounded to subangular, fair to well sorted, quartzose, siliceous, interbedded quartz crystals; trace quartz crystals; slight trace Pyrite.
- 980-1030 Sandstone: as above; trace Chert fragments; trace quartz crystals.
- 1030-1050 Sandstone: as above, kaolinitic in part; trace quartz crystals.
- 1050-1120 Sandstone: as above.
- 1120-1130 Sandstone: as above; Shale: grey, blocky, fissile, micromicaceous, silty.
- 1130-1140 Shale: grey, blocky, fissile, micromicaceous, silty in part.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 1140-1160 Sandstone: as above; stringers Shale: as above.
- 1160-1200 Sandstone: interbedded with Shale: as above.
- 1200-1270 Shale: grey, blocky to occasionally fissile, occasionally silty; trace Pyrite.
- 1270-1290 Shale: as above; trace sandy (quartzitic).
- 1290-1330 Shale: as above, occasionally sandy (quartzitic); trace cherty.
- 1330-1380 Shale: dark grey, fissile to blocky, micromicaceous to micaceous in part, sandy in part, slight trace quartz veinlets; trace cherty; slight trace Pyrite.
- 1380-1390 Shale: as above, occasionally sandy; trace Pyrite; small stringers Shale: dark brown, fissile to blocky, micromicaceous, sandy in part.
- 1390-1410 Shale: dark grey, fissile to blocky, micromicaceous to occasionally micaceous, slightly sandy to cherty; slight trace Pyrite and Chert nodules.
- 1410-1420 Shale: dark to occasional medium grey, fissile to blocky, micromicaceous to occasionally micaceous, slightly arenaceous; stringers argillaceous Sandstone: as above; slight trace Pyrite.
- 1420-1430 Shale: dark grey, fissile to blocky, micromicaceous, occasionally micaceous, slightly arenaceous, stringers Sandstone: salt and pepper, fine to medium grained, fair sorting, siliceous, quartzose, argillaceous in part, slightly silty, tight.
- 1430-1440 Shale: as above, interbedded Sandstone: as above.
- 1440-1460 Shale: as above; stringers Sandstone: as above; trace Chert and Pyrite nodules and fragments.
- 1460-1490 Shale: dark grey, blocky to fissile, micromicaceous to slightly micaceous, arenaceous in part, slight trace Chert, very slightly pyritic.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 1490-1500 Shale: dark grey, blocky to fissile, micromicaceous, arenaceous in part, cherty in part, slightly pyritic in part; trace Pyrite fragments and nodules; slight trace Chert nodules.
- 1500-1580 Shale: dark grey, blocky to fissile, micromicaceous, micaceous in part, pyritic in small part, very slightly silty, slightly arenaceous in part, slight trace Pyrite nodules and fragments.
- 1580-2000 Shale: as above.
- 2000-2010 Shale: as above; slight trace Pyrite and quartz crystals.
- 2010-2020 Shale: dark grey, fissile to blocky, micromicaceous to slightly micaceous, very slightly silty in part; very slight trace Pyrite fragments.
- 2020-2050 Shale: black, fissile, slightly micromicaceous, pyritic; trace Pyrite nodules; occasional Pyrite fragments.
- 2050-2060 Shale: medium to dark grey, fissile, micromicaceous; occasional Shale: as above; slight trace Pyrite.
- 2060-2080 Shale: black, fissile, slightly micromicaceous, pyritic in part, slight trace silica veining; stringers Shale: as above; trace Pyrite fragments.
- 2080-2090 Shale: black, fissile, slightly micromicaceous; slightly pyritic, trace Pyrite fragments.
- 2090-2110 Shale: as above, pyritic in part; trace Pyrite nodules, slightly trace Ironstone nodules; trace Pyrite fragments.
- 2110-2140 Shale: as above, slightly pyritic, trace silica veining, slight trace Pyrite nodules; trace Pyrite fragments; slight trace quartz crystals.
- 2140-2200 As above, only slight trace Pyrite fragments.
- 2198-2221 Core #1 - See Core Description
- 2221-2258 Core #2 - See Core Description
- 2258-2340 Shale: black to dark grey, fissile, slightly micromicaceous, slightly pyritic in part, very slight trace silica veining; slight trace Pyrite.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 2340-2350 Shale: as above; occasional Pyrite fragments.
- 2350-2360 Shale: dark grey to black, blocky to fissile, micromicaceous to slightly micaceous, slightly pyritic in part, very slight trace silica veining, slightly silty in part; slight trace Pyrite fragments, slight trace quartz crystals.
- 2360-2390 Shale: dark grey, blocky to fissile, micromicaceous, silty in part, very slightly pyritic, trace quartz crystals; slight trace Pyrite fragments.
- 2390-2430 Shale: as above; trace Pyrite.
- 2430-2440 shale: as above; occasional Pyrite; slight trace quartz crystals.
- 2440-2460 Shale: as above; trace Pyrite; slight trace quartz crystals.
- 2460-2490 Shale: as above; slight trace Pyrite; trace quartz crystals.
- 2490-2500 Shale: as above; very slight trace quartz crystals and Pyrite fragments.
- 2500-2560 Shale: dark grey, fissile to occasionally blocky, micromicaceous, slightly silty; trace Pyrite fragments and nodules; slight trace silica.
- 2560-2580 Shale: dark grey, fissile, micromicaceous; trace Pyrite nodules and fragments; slight trace silica.
- 2580-2600 Shale: dark grey to black, fissile, micromicaceous, slightly pyritic in part; trace Pyrite nodules and fragments; trace quartz crystals.
- 2600-2640 Shale: dark grey, fissile, micromicaceous, slightly silty; trace Pyrite.
- 2640-2790 Shale: dark grey, fissile to occasionally blocky, micromicaceous, very slightly silty; trace Pyrite nodules and fragments.
- 2790-2830 Shale: as above, slightly silty in part; trace Pyrite nodules and fragments, very slight trace quartz crystals.
- 2830-2840 Shale: as above; trace Pyrite.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 2840-2870 Shale: dark grey, fissile to occasionally blocky, micromicaceous, very slightly silty, occasionally pyritic; occasional Pyrite nodules and fragments, slight trace silica.
- 2870-2940 Shale: as above, slightly pyritic; trace Pyrite; very slight trace silica.
- 2940-3120 Shale: dark grey to blackish dark grey, blocky to occasionally fissile, micromicaceous, slightly pyritic, trace silica veining, slightly fractured; trace Pyrite fragments and nodules; trace quartz crystals.
- 3120-3160 Shale: as above; slight trace Pyrite and quartz crystals.
- 3160-3200 Shale: as above; trace Pyrite and quartz.
- 3200-3235 Core #3 - See Core Description
- 3235-3240 Shale: dark grey, blocky to fissile, micromicaceous, slightly pyritic, very slightly silty, slight trace silica veining, slight trace Pyrite.
- 3240-3270 Shale: as above; trace Pyrite.
- 3270-3280 Shale: as above; slight trace Pyrite.
- 3280-3300 Shale: as above; trace Pyrite.
- 3300-3360 Shale: as above; trace Pyrite; slight trace silica.
- 3360-3380 Shale: dark grey, blocky to fissile, micromicaceous, slightly pyritic, occasional silica veining, fractured; occasional Pyrite nodules and fragments; trace silica.
- 3380-3400 Shale: as above; occasional silica; trace Pyrite.
- 3400-3410 Shale: as above; trace silica; trace Pyrite.
- 3410-3420 Shale: as above; occasional silica; trace Pyrite.
- 3420-3440 Shale: as above; trace silica; trace Pyrite.
- 3440-3460 Shale: as above; occasional silica; occasional pyrite.
- 3460-3480 Shale: as above; occasional Pyrite; trace silica.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 3480-3490 Shale: as above; trace silica; trace Pyrite.
- 3490-3520 Shale: dark grey, blocky to fissile, micromicaceous, pyritic, trace silica veining, slightly arenaceous in part, slightly fractured; occasional Pyrite fragments, and nodules; trace silica.
- 3520-3530 Shale: as above; trace Pyrite; trace silica.
- 3530-3540 Shale: as above; occasional Pyrite; trace silica.
- 3540-3560 Shale: dark grey, blocky to fissile, micromicaceous, slightly pyritic, trace silica veining, trace arenaceous, very slightly fractured; trace Pyrite nodules and fragments; slight trace silica.
- 3560-3570 Shale: as above; occasional Pyrite; slight trace silica.
- 3570-3640 Shale: as above; trace Pyrite; slight trace silica.
- 3640-3660 Shale: dark grey, blocky to fissile, micromicaceous, slightly pyritic, slightly silty in part, slight trace silica veining; trace Pyrite nodules and fragments.
- 3660-3670 Shale: dark grey, blocky to fissile, micromicaceous, slightly pyritic, slightly silty, slight trace silica veining, trace Pyrite fragments and nodules.
- 3670-3680 Shale: as above; trace Pyrite.
- 3680-3690 Shale: dark grey, blocky to fissile, micromicaceous, slightly pyritic, slightly silty, trace silica veining, slightly fractured; trace Pyrite nodules and fragments; trace silica.
- 3690-3720 Shale: dark grey, blocky to occasionally fissile, micromicaceous, very slightly pyritic, silty to arenaceous in part, slight trace silica veining, slightly calcareous in part, very slightly fractured; trace Pyrite nodules and fragments.
- 3720-3790 Shale: dark grey, blocky, micromicaceous, silty to very silty, arenaceous in part, slightly calcareous, slightly pyritic to very slightly pyritic, grading in part to Siltstone: dark grey, argillaceous, quartzitic, arenaceous, to arenaceous in part, trace Sandstone: clear, very fine

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- grained, subrounded, fair to well sorted, quartzose, silty, slightly argillaceous to argillaceous, tight; trace Pyrite nodules and fragments.
- 3790-3800 Shale: dark grey, blocky to occasionally fissile, micromicaceous, silty, very slightly calcareous, very slightly pyritic, occasional Siltstone: as above; trace Sandstone: as above; trace Pyrite nodules and fragments.
- 3800-3810 Shale: as above; occasional Siltstone: as above, slight trace Sandstone: as above; trace Pyrite.
- 3810-3820 Shale: as above; occasional Siltstone: as above; trace Pyrite; trace silica.
- 3820-3830 Shale: dark grey, blocky to occasionally fissile, micromicaceous, silty in part, to occasionally silty, very slightly calcareous, very slightly pyritic, occasionally Siltstone: dark grey, argillaceous, slightly calcareous, slightly arenaceous; trace Pyrite; slight trace silica.
- 3830-3840 Shale: dark grey, blocky to occasionally fissile, micromicaceous, slightly silty in part, slightly pyritic in part; occasional Pyrite nodules and fragments.
- 3840-3850 Shale: as above; trace Pyrite.
- 3850-3910 Shale: dark grey, blocky to occasionally fissile, micromicaceous to occasionally micaceous, silty in part, pyritic to slightly pyritic; trace Pyrite nodules and fragments.
- 3910-3980 Shale: dark grey, blocky to occasionally fissile, micromicaceous to occasionally micaceous, slightly pyritic, slightly silty in part; trace Pyrite nodules and fragments.
- 3980-4000 Shale: dark grey, blocky to occasionally fissile, micromicaceous, slightly pyritic, slightly silty in part; trace Pyrite nodules and fragments.
- 4000-4030 Shale: dark grey, blocky to occasionally fissile, micromicaceous to micaceous, pyritic in part, slightly silty to silty in part, trace Pyrite nodules and fragments.
- 4030-4040 Shale: dark grey, blocky to fissile, micromicaceous to occasionally micaceous, pyritic in part, to slightly pyritic, silty in part; trace Pyrite nodules and fragments.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 4040-4050 Shale: dark grey, blocky to occasionally fissile, micromicaceous to occasionally micaceous, pyritic in part to slightly pyritic, silty to silty in part, slight trace Pyrite.
- 4050-4080 Shale: dark grey, blocky, micromicaceous to occasionally micaceous, slightly pyritic, silty; slight trace Pyrite.
- 4080-4090 Shale: dark grey, blocky, micromicaceous to occasionally micaceous, very slightly pyritic, silty; slight trace Pyrite.
- 4090-4160 Shale: dark grey, blocky, micromicaceous to occasionally micaceous, silty, slightly arenaceous in part, slightly silty, slightly pyritic; slight trace Pyrite.
- 4160-4190 Shale: dark grey, blocky, micromicaceous to occasionally micaceous, slightly silty to silty in part, slightly pyritic; slight trace Pyrite.
- 4190-4200 Shale: dark grey, blocky, micromicaceous to occasionally micaceous, slightly silty, slightly pyritic, very slightly calcareous; trace Pyrite.
- 4200-4230 Core #4 - See Core Description.
- 4230-4240 Shale: dark grey, blocky to occasionally fissile, micromicaceous to micaceous in part, very slightly pyritic; slight trace Pyrite; very slight trace silica.
- 4240-4250 Shale: as above; trace Pyrite.
- 4250-4260 Shale: as above; slight trace Pyrite.
- 4260-4270 Shale: as above; very slightly silty; slight trace Pyrite.
- 4270-4300 Shale: as above, partly silty; trace Pyrite.
- 4300-4330 Shale: as above; slight trace Pyrite.
- 4330-4350 Shale: as above; trace Pyrite.
- 4350-4360 Shale, as above; slight trace Pyrite.

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- 4360-4390 Shale: as above; trace Pyrite.
- 4390-4420 Shale: as above; slight trace Pyrite.
- 4420-4440 Shale: as above; trace Pyrite.
- 4440-4490 Shale: as above, slightly micaceous in part; slight trace Pyrite.
- 4490-4510 Shale: as above, slightly micaceous in small part; trace Pyrite.
- 4510-4530 As above; slight trace silica.
- 4530-4620 Shale: as above; trace Pyrite; trace silica.
- 4620-4650 Shale: as above; trace Pyrite; slight trace silica.
- 4650-4680 Shale: as above; trace Pyrite; slight trace silica.
- 4680-4695 Shale: as above, slightly arenaceous in part; occasional Sandstone: salt and pepper, medium to occasional fine grained, subrounded to subangular, well sorted, argillaceous, siliceous, quartzose, tight; occasional loose quartz grains; trace Pyrite.
- 4695-4710 Sandstone: clear, medium to occasionally fine to trace coarse grained, subangular to subrounded, well sorted, siliceous, quartzose, very slightly pyritic, tight; slight trace Pyrite; occasional free angular to subrounded coarse quartz grains; trace quartz crystals; slight trace white rounded to subrounded, coarse Chert pebbles.
- 4710-4720 Sandstone: clear to salt and pepper, medium to fine grained, subrounded to subangular, well to occasional fair sorting, siliceous, quartzose, slightly calcareous in small part, tight; trace quartz grains; trace Chert pebbles.
- 4720-4730 Sandstone: as above, argillaceous in part, slight trace Pyrite; trace quartz and Chert.
- 4730-4750 Shale: dark grey, blocky to occasionally fissile, micaceous to slightly micaceous in small part, slightly arenaceous in part, very slight trace silica veining, very slightly pyritic; interbedded with Sandstone: as above; trace Pyrite; trace quartz; slight trace Chert.

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- 4750-4770 Shale: dark grey to trace black, blocky to occasionally fissile, micromicaceous to slightly micaceous in small part, very slightly pyritic, trace arenaceous; interbedded with stringers Sandstone: salt and pepper to occasional clear, fine to occasional medium grained, subrounded to subangular, fair sorting, siliceous, quartzose, argillaceous, slightly calcareous in small part, tight; trace Pyrite; trace quartz; trace Chert.
- 4770-4780 Shale: as above; arenaceous in small part; small stringers Sandstone: as above; trace Pyrite; occasional Chert and quartz.
- 4780-4800 Shale: dark grey to occasional black, blocky to fissile, micromicaceous to slightly micaceous in small part, slightly pyritic in part, trace arenaceous; trace Pyrite; trace Chert; slight trace quartz.
- 4800-4810 Shale: as above; trace Pyrite; abundant Chert; trace quartz.
- 4810-4820 Shale: as above; occasional Chert; trace Sandstone: salt and pepper, fine grained, subrounded to subangular, fair to well sorted, siliceous, quartzose, very slightly calcareous, argillaceous in part, tight; trace Pyrite; slight trace quartz.
- 4820-4830 Shale: as above; small stringers Sandstone: as above; trace Pyrite; occasional Chert; slight trace quartz.
- 4830-4840 Shale: as above; stringers Sandstone: as above; trace Pyrite; trace Chert; slight trace quartz.
- 4840-4850 Sandstone: clear to salt and pepper, very fine to fine grained, subrounded to subangular, fair to well sorted, siliceous, quartzose, slightly argillaceous in part, very slightly calcareous, very, very slightly pyritic, tight; interbedded with minor Shale: dark grey to occasional black, blocky to occasional fissile, micromicaceous to slightly micaceous in small part, slightly pyritic, occasional arenaceous; trace Pyrite, occasional Chert.
- 4850-4860 Sandstone: as above, argillaceous in part; trace Pyrite; trace Chert.
- 4860-4890 Sandstone: as above; trace Pyrite; slight trace Chert; slight trace silica.

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- 4890-4900 Interbedded Sandstone: as above and Shale: dark grey to blackish dark grey, fissile to occasional blocky, micromicaceous to slightly micaceous in part, arenaceous in part, very slightly pyritic, trace silica veining, slightly fractured; trace silica; trace Pyrite.
- 4900-4910 Shale: as above; interbedded with minor Sandstone: as above, argillaceous; trace Pyrite; trace silica.
- 4910-4920 Shale: dark grey to occasional blackish, fissile to occasional blocky, micromicaceous to very slightly micaceous in part, arenaceous in small part, very slightly pyritic, slight trace silica veining, very slightly fractured; stringers Sandstone: as above; trace Pyrite; trace silica.
- 4920-4930 Shale: as above; small stringers Sandstone: as above; trace Pyrite; trace silica.
- 4930-4940 Shale: dark grey to occasional blackish, blocky to occasional fissile, micromicaceous to slightly micaceous in small part, slightly arenaceous in small part, very slightly pyritic, trace silica veining, very slightly fractured; slight trace Pyrite.
- 4940-4950 Shale: dark grey to blackish, occasional silica, fractured; slight trace Pyrite.
- 4950-4960 Shale: as above; slightly fractured, small stringers Sandstone: as above; trace silica; slight trace Pyrite.
- 4960-4970 Shale: as above; trace silica; slight trace Pyrite.
- 4970-5010 Shale: blackish dark grey, blocky, micromicaceous to slightly micaceous in part, slightly arenaceous in part, very slightly pyritic, slightly silicified in part; trace silica veining, slightly fractured; trace Pyrite; trace silica.
- 5010-5040 Shale: as above; slight trace Pyrite; trace silica.
- 5040-5080 Shale: as above; trace silica veining, slightly fractured in part, slight trace silica; slight trace Pyrite.
- 5080-5090 Shale: dark grey to occasional blackish, fissile to occasional blocky, micromicaceous to slightly micaceous in small part, very slightly pyritic, slight trace Pyrite.

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- 5090-5100 Shale: as above, slight trace silica veining, very slightly fractured in part, slight trace silica, slight trace Pyrite.
- 5100-5140 Shale: dark grey to blackish, blocky to fissile, micromicaceous to slightly micaceous in part, very slightly pyritic, very slight to slight trace silica veining, very slightly fractured, slight trace Pyrite, slight trace silica.
- 5140-5150 Shale: as above; trace silica veining; slightly fractured in part, trace silica; slight trace Pyrite.
- 5150-5200 Shale: as above, no silica; slight trace Pyrite.
- 5202-5232 Core #5 - See Core Description.
- 5232-5250 Shale: blackish dark grey, blocky, micromicaceous to slightly micaceous, slightly phosphatic, very slightly pyritic, slight trace Pyrite; trace Ironstone nodules, trace micaceous veining.
- 5250-5270 Shale: blackish dark grey to black, trace arenaceous; trace Chert: abundant medium to coarse rounded white quartz grains, occasional Pyrite fragments and nodules.
- 5270-5280 Shale: blackish dark grey to black, blocky to occasional fissile, micromicaceous to slightly micaceous in part, slightly phosphatic in part, slightly pyritic, slight trace Ironstone nodules; interbedded with loose quartz grains, occasional Pyrite.
- 5280-5300 Shale: as above, abundant quartz grains, occasional Pyrite.
- 5300-5310 Shale: as above, occasional Pyrite; trace quartz grains.
- 5310-5320 Shale: as above; occasional Pyrite; trace quartz.
- 5320-5340 Shale, as above, abundant quartz grains; occasional Pyrite.
- 5340-5350 Shale: dark grey to blackish dark grey, blocky, micromicaceous, slightly phosphatic in small part, slightly pyritic in part, slightly siliceous in part; occasional Pyrite.
- 5350-5380 Shale: as above; trace Pyrite.

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- 5380-5400 Shale: blackish dark grey to black, blocky to fissile, micromicaceous to very slightly micaceous in part, slightly phosphatic in part, slightly pyritic, slight trace Ironstone, slightly bituminous in part, slightly arenaceous in part; minor quartz grains; occasional Pyrite.
- 5400-5420 Shale: as above; trace quartz; trace Pyrite.
- 5420-5430 Shale: as above; abundant quartz grains.
- 5430-5440 Shale: as above.
- 5440-5450 Shale: as above; minor quartz grains.
- 5450-5460 Shale: as above; abundant loose fine to medium grained quartz grains.
- 5460-5490 Interbedded Shale and quartz, as above.
- 5490-5510 Shale: as above; minor quartz grains.
- 5510-5520 Shale: dark grey to black, micromicaceous to micaceous, pyritic in part, bituminous in part; trace Pyrite and pyritized plant remains, scattered fine to medium grained quartz grains.
- 5520-5530 Shale: dark grey, blocky, micromicaceous to micaceous, pyritic in part; minor quartz veinlets; occasional free quartz grains.
- 5530-5540 Shale: as above, becoming slightly arenaceous in part; quartz veinlets and free subrounded to well developed quartz crystals.
- 5540-5550 Shale: as above, with scattered free quartz: as above; Siltstone stringers: brown, quartzitic, quartz veining and blebs, occasional Ironstone.
- 5550-5560 Shale: dark grey, micromicaceous to occasionally micaceous, blocky, pyritic in part, very slightly arenaceous in part, scattered quartz veinlets, trace Pyrite and pyritized plant fragments.
- 5560-5570 Shale; as above; occasionally becoming slightly calcareous.

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- 5570-5580 Shale: dark grey to black, blocky, micromicaceous, scattered quartz veinlets, pyritic in part, occasionally becoming silicified, scattered Pyrite and free sub-rounded to well developed quartz crystals.
- 5580-5590 Shale: as above, becoming calcareous in part, with scattered quartz and Pyrite: as above.
- 5590-5600 Shale: dark grey to black, micromicaceous to micaceous, arenaceous, pyritic and silty in part; occasionally becoming silicified, occasionally gypsiferous; trace Pyrite and quartz: as above.
- 5600-5610 Shale: as above, with quartz and Pyrite: as above; rare grey to greenish grey, amorphous Chert.
- 5610-5620 Shale: light to dark grey, micromicaceous to micaceous, blocky, pyritic, silty and arenaceous in part, occasionally becoming silicified, scattered Pyrite and subrounded to well developed free quartz crystals.
- 5620-5630 Shale: light to medium grey, micromicaceous to partly micaceous, blocky, pyritic, gypsiferous and arenaceous in part, occasionally becoming silicified, scattered Pyrite and subrounded to well developed quartz crystals.
- 5630-5640 Shale: as above, becoming slightly calcareous; Siltstone stringers: greyish brown, argillaceous, calcareous, arenaceous in part; Pyrite and quartz: as above.
- 5640-5650 Shale: as above; trace Pyrite and free quartz grains.
- 5650-5670 Shale: as above; scattered Pyrite and free quartz grains; Siltstone stringers: as above, with limy cement.
- 5670-5680 Shale: medium grey to black, micromicaceous to occasionally micaceous, fissile, silty, arenaceous and gypsiferous in part, occasionally becoming silicified, trace free well developed quartz crystals with scattered subrounded to rounded, medium to coarse grained quartz grains.
- 5680-5690 Shale: as above, with quartz: as above.
- 5690-5700 Shale: as above, becoming pyritic in part with trace Pyrite nodules and pyritized plant remains; Siltstone: stringers, medium grey, argillaceous, quartzitic, slightly calcareous.

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- 5700-5710 Shale: medium to dark grey, micromicaceous to occasionally micaceous, blocky, calcareous and pyritic and silicified in part, very slightly gypsiferous in part; scattered well developed quartz crystals.
- 5710-5720 Shale: as above, with quartz crystals; Siltstone stringers: brownish grey, slightly calcareous, argillaceous.
- 5720-5730 Shale: as above, with minor quartz veining, well developed quartz crystals; trace Pyrite nodules.
- 5730-5740 Shale: as above, with quartz crystals, as above; Sandstone interbeds: salt and pepper to light grey, fine to medium grained, subrounded, well sorted, slightly calcareous, slightly glauconitic, tight; grading to an arenaceous, slightly calcareous Siltstone.
- 5740-5760 Shale: as above, with increasing quartz veining and blebs, arenaceous in part, scattered well developed free quartz crystals, scattered Pyrite; Siltstone interbeds: brownish grey, quartzitic, arenaceous in part, occasionally grading to Sandstone: grey, very fine grained, subangular, well sorted, quartzitic, slightly calcareous, siliceous, tight.
- 5760-5770 Shale: dark grey to black, micromicaceous to micaceous, fissile, quartz veining, silty, pyritic and arenaceous in part, scattered pyrite and quartz crystals, as above, with subrounded, medium to coarse grained quartz grains, minor Sandstone interbeds: as above.
- 5770-5780 Shale: as above, quartz crystals and grains: as above; trace Pyrite; Sandstone interbeds: medium grey, very fine grained, subrounded, well sorted, micaceous, argillaceous, calcareous, tight; grading to a brownish grey, argillaceous Siltstone.
- 5780-5790 Shale: as above, with increasing quartz crystals and grains, as above; trace Pyrite; Siltstone: interbeds, brownish grey, argillaceous, very slightly calcareous.
- 5790-5800 Shale: as above, occasionally becoming silicified, quartz crystals and grains: as above; trace Pyrite; Siltstone interbeds: as above.
- 5800-5810 Shale: as above, becoming bituminous in part, quartz; as above; trace Pyrite.

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- 5810-5820 Shale: as above; quartz crystals and grains: as above; trace Pyrite nodules and fragments; Sandstone interbeds: brownish grey, very fine to fine grained, subrounded, well sorted, argillaceous, calcareous, glauconitic and micaceous in part, tight.
- 5820-5830 Shale: dark to medium grey, micromicaceous to occasionally micaceous, fissile, slightly silty, occasional quartz veining, well developed quartz crystals on fracture planes with free, well developed quartz crystals and subrounded, medium to coarse grained quartz grains.
- 5830-5840 Shale: as above, becoming pyritized and gypsiferous in part, occasionally arenaceous; with quartz; as above.
- 5840-5850 Shale: as above, quartz: as above; Siltstone stringers: medium grey, argillaceous, very slightly calcareous, quartzitic and siliceous in part, occasionally grading to a fine grained, calcareous, argillaceous, quartzitic, tight Sandstone.
- 5850-5860 Shale: as above, with pyritized plant remains; quartz crystals and grains: as above; Sandstone interbeds: light to medium grey, very fine to medium grained, subrounded, medium sorted, quartzitic, slightly calcareous, siliceous, argillaceous in part, tight.
- 5860-5870 Shale: medium to dark grey, micromicaceous to micaceous, fissile, silty, arenaceous and gypsiferous in part, pyritic in part, quartz crystals and grains: as above; Sandstone: interbeds, as above.
- 5870-5880 Shale: as above, occasionally becoming silicified, with decreasing quartz: as above; Sandstone stringers: as above; trace grey, amorphous Chert.
- 5880-5890 Shale: as above, quartz: as above; trace Pyrite fragments; Sandstone stringers: as above; occasionally grading to a brownish grey, argillaceous, calcareous Siltstone.
- 5890-5900 Shale: as above, with increasing quartz crystals and grains: as above; trace Pyrite fragments and nodules, Siltstone stringers: brownish grey, argillaceous, calcareous, arenaceous in part; trace grey, amorphous Chert.

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- 5900-5910 Shale: medium grey to black, micromicaceous to occasionally micaceous, fissile, arenaceous and pyritic and silty in part, occasionally silicified, occasionally bituminous, well developed quartz crystals on fracture planes, with free well developed quartz crystals and subrounded to rounded, free quartz grains; scattered Pyrite fragments and nodules; Siltstone stringers: as above.
- 5910-5920 Shale: as above; quartz crystals and grains: as above; trace Pyrite; Siltstone stringers: as above; trace Chert.
- 5920-5930 Shale: medium to dark grey, micromicaceous to occasionally micaceous, fissile, arenaceous and pyritic and phosphatic in part; Siltstone stringers: medium grey, argillaceous, calcareous, arenaceous in part; scattered well developed free quartz crystals and subrounded to rounded, medium grained to coarse grained quartz grains.
- 5930-5940 Shale: as above; quartz grains and crystals: as above; trace Pyrite; minor Siltstone stringers: as above.
- 5940-5950 Shale: as above; quartz: as above; trace grey, amorphous Chert.
- 5950-5960 Shale: as above; occasionally becoming silicified; quartz: as above; minor Sandstone stringers: brownish grey, very fine to fine grained, subrounded, well sorted, slightly argillaceous, calcareous, quartzitic, siliceous, tight.
- 5960-5970 Shale: as above; quartz: as above; trace Pyrite and pyritized plant remains; minor Sandstone stringers: as above.
- 5970-5980 Shale: medium to dark grey, fissile, micromicaceous to occasionally micaceous, silty, arenaceous and pyritic in part; trace subrounded to rounded medium to coarse grained quartz grains with well developed free quartz crystals; minor Sandstone stringers: light grey, fine to medium grained, subangular, well sorted, quartzitic, slightly argillaceous, siliceous, tight; abundant cement from casing shoe and aluminum from stage collar.
- 5980-5990 Shale, dark grey to black, as above; trace Pyrite nodules and fragments; trace quartz: as above; rare brownish grey, amorphous Chert; minor Sandstone stringers: as above, becoming fine grained.

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- 5990-6000 Shale: as above.
- 6000-6010 Shale: as above, with quartz: as above; scattered Chert pebbles and Pyrite nodules and fragments; Sandstone interbeds: as above, becoming fine to medium grained, slightly calcareous.
- 6010-6020 Shale: as above, with Pyrite and quartz: as above; Sandstone interbeds: as above.
- 6020-6040 Shale: as above, with Pyrite and quartz: as above.
- 6040-6050 Shale: black, fissile, micromicaceous to micaceous, silty, arenaceous; scattered black to grey amorphous Chert; trace quartz: as above; Sandstone interbeds: medium grey, fine to medium grained, subangular, well sorted, quartzitic, siliceous, tight, slightly calcareous.
- 6050-6060 Shale: as above; trace quartz and Pyrite: as above; Sandstone stringers: as above, scattered Chert: as above.
- 6060-6080 Shale: as above, with quartz: as above; Shale becoming platy and soft.
- 6080-6090 Shale: black to dark grey, fissile, micromicaceous to occasionally micaceous, slightly silty, pyritic in part, soft.
- 6090-6100 Shale: as above.
- 6100-6110 Shale: as above, occasionally arenaceous, scattered sub-rounded to rounded, medium grained quartz grains; trace Pyrite nodules and grey amorphous Chert.
- 6110-6120 Shale: as above, rare brownish grey Chert; Sandstone stringers: dark grey, fine grained, subangular, well sorted, quartzitic, argillaceous, slightly calcareous, siliceous, tight.
- 6120-6130 Shale: as above, with scattered well developed quartz crystals; Shale: becoming slightly gypsiferous in part, with minor quartz veinlets.
- 6130-6140 Shale: as above, with scattered quartz crystals: as above.

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- 6140-6150 Shale: as above, with quartz crystals and grains: as above; Sandstone stringers: light grey, fine to medium grained, subrounded, well sorted, very slightly calcareous, argillaceous, tight.
- 6150-6170 Shale: becoming medium to dark grey, as above, with quartz crystals and grains: as above; trace Pyrite and greenish grey Chert.
- 6170-6180 Shale: medium to dark grey, fissile, micromicaceous to micaceous, pyritic and silty and arenaceous in part trace grey and brownish black Chert; scattered, well developed, free quartz grains.
- 6180-6190 Shale: as above, occasionally grading to a light grey micromicaceous, carbonaceous Shale; scattered quartz crystals: as above.
- 6190-6203 Shale: as above, with occasional quartz veinlets; quartz: as above; trace grey black Chert.
- 6203-6223 Core #6 - See Core Description.
- 6223-6230 Shale; dark grey to black, fissile, micromicaceous to micaceous, pyritic, silty, arenaceous in part; subrounded to rounded, medium to coarse grained quartz grains, Pyrite nodules and fragments; trace grey to black Chert.
- 6230-6240 Shale: as above, becoming arenaceous and occasionally silicified; Pyrite and Chert: as above.
- 6240-6250 Shale: as above; trace Pyrite as above with scattered red to grey to black Chert.
- 6250-6260 Shale: as above; trace Pyrite and pyritized fossil remains.
- 6260-6280 Shale: as above; trace Pyrite and quartz grains: as above; scattered black to grey Chert. Sandstone stringers: brownish grey, very fine grained, subrounded, well sorted, very slightly calcareous, argillaceous, tight.
- 6280-6290 Shale: as above and quartz and Pyrite: as above; scattered black Chert; minor Sandstone stringers: as above.
- 6290-6300 Shale with Pyrite, quartz grains and black Chert: as above.

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- 6300-6310 Shale: dark grey to black, fissile, micromicaceous to micaceous, slightly silty, arenaceous, pyritic, sub rounded to rounded, medium to coarse grained quartz grains; trace Pyrite nodules and fragments.
- 6310-6330 Shale: as above, occasionally becoming silicified; trace quartz grains and Pyrite: as above; scattered greyish black Chert.
- 6330-6340 Shale: as above, with quartz, Pyrite and Chert: as above.
- 6340-6350 Shale: as above, occasionally grading to a light greenish grey, very slightly calcareous, hard, blocky Shale; Pyrite nodules, quartz grains and black Chert: as above.
- 6350-6370 Shale: dark grey to black with light greenish grey Shale: as above, occasionally with quartz veining; trace Pyrite, quartz and Chert: as above.
- 6370-6380 Shale: as above, Pyrite, quartz and white grey black Chert: as above.
- 6380-6390 Shale: dark grey to black, fissile, slightly micromicaceous to micaceous, silty, arenaceous, occasionally gypsiferous, pyritic, siliceous in part; subrounded to rounded, medium to coarse grained quartz grains; trace greyish black Chert and Pyrite nodules and pyritized fossil remains.
- 6390-6400 Shale: as above and quartz and Pyrite.
- 6400-6410 Shale; as above, and quartz and Pyrite, rare greyish black Chert.
- 6410-6430 Shale: as above, occasionally grading to a greenish grey, very slightly calcareous Mudstone; quartz pyrite and Chert: as above.
- 6430-6440 Shale: as above with Mudstone: as above; trace quartz and Pyrite.
- 6440-6450 Shale: as above, with quartz and Pyrite: as above.
- 6450-6460 Shale: as above, quartz and Pyrite: as above.
- 6460-6470 Shale: dark grey to black, fissile, micromicaceous to occasionally micaceous, pyritic, silty, arenaceous in part, subrounded to rounded, medium to coarse grained quartz grains; trace Pyrite nodules and black Chert.

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- 6470-6480 Shale: as above, occasionally becoming silicified; Pyrite quartz and rare Chert: as above.
- 6480-6490 Shale: as above, occasionally grading to a medium grey, very slightly calcareous Mudstone; quartz, Pyrite and Chert: as above.
- 6490-6500 Shale: as above, occasionally becoming very arenaceous; minor Mudstone: as above; Pyrite, quartz.
- 6500-6510 Shale: as above, with quartz veining; occasional well developed quartz crystals; quartz grains and Pyrite nodules and fragments: as above; Sandstone stringers: light to brownish grey, very fine grained, subangular, well sorted, quartzitic, siliceous, tight.
- 6510-6520 Shale: black to blackish dark grey, fissile, micromicaceous to occasionally micaceous, pyritic, arenaceous in part, silty in part, quartz veining, slightly fractured, slightly gypsiferous in part, embedded subrounded to rounded, medium quartz grains; trace Pyrite nodules and fragments; slight trace coarse quartz grains.
- 6520-6540 Shale: black to dark grey, fissile, micromicaceous to occasional micaceous, pyritic in part, silty in part, arenaceous in part, slightly gypsiferous in part, embedded subrounded to rounded, medium to occasional coarse quartz grains; trace Pyrite nodules and fragments; trace medium to coarse quartz grains.
- 6540-6550 Shale: as above, slight trace Pyrite and quartz grains.
- 6550-6570 Shale: as above, slight trace Pyrite nodules and fragments.
- 6570-6630 Shale: as above; trace Pyrite nodules and fragments.
- 6630-6640 Shale: as above, slight trace Pyrite.
- 6640-6670 Shale: as above.
- 6670-6700 Shale; as above; trace Pyrite fragments and nodules.
- 6700-6730 Shale: black to dark grey, fissile to blocky, micromicaceous to occasional micaceous in part, pyritic, silty, arenaceous in part, slightly gypsiferous in part, occasional embedded subrounded to rounded, medium quartz grains; trace Pyrite nodules and fragments; slight trace medium to coarse quartz grains.

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- 6730-6740 Shale: black to blackish dark grey, fissile to blocky, micromicaceous to slightly micaceous, pyritic, slightly silty to silty in part, slightly arenaceous, slightly gypsiferous in part, embedded, subrounded to rounded, medium quartz grains; trace Pyrite nodules and fragments, and coarse quartz grains.
- 6740-6750 Shale: as above, with occasional quartz veining, slightly fractured, very pyritic; trace Pyrite and quartz grains.
- 6750-6760 Shale: black to blackish dark grey, fissile to blocky, micromicaceous to slightly micaceous, pyritic, slightly silty, slightly arenaceous, embedded subrounded to rounded medium quartz grains in part; trace Pyrite fragments and nodules.
- 6760-6770 Shale: black to dark grey, fissile to blocky, micromicaceous to slightly micaceous, pyritic in part, silty, slightly arenaceous, embedded grains quartz in part, as above; trace Pyrite and quartz grains.
- 6770-6780 Shale: black to blackish dark grey, fissile to blocky, micromicaceous to slightly micaceous, pyritic in part, slightly silty, slightly arenaceous, embedded subrounded to rounded, medium quartz grains, slightly gypsiferous in part; trace Pyrite.
- 6780-6800 Shale; dark grey to black, blocky, micromicaceous to occasionally micaceous, silty in part, sandy in part; embedded quartz in part, as above, pyritic in part.
- 6800-6820 Shale: as above; trace Pyrite.
- 6820-6830 Shale: as above, silty.
- 6830-6840 Shale: black to blackish dark grey, blocky, micromicaceous to slightly micaceous, slightly silty to silty in part, slightly sandy, embedded subrounded to rounded, medium quartz grains, pyritic, trace Pyrite and coarse quartz grains.
- 6840-6890 Shale: as above; trace Pyrite.
- 6890-6920 Shale: black to dark grey, blocky, micromicaceous to micaceous in part, slightly silty in part, slightly sandy to sandy, embedded quartz as above, slightly pyritic, trace pyrite, trace quartz.

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- 6920-6930 Shale: as above, gypsiferous, occasional Shale, grey fissile, micromicaceous to slightly micaceous, pyritic, silty; slight trace Pyrite; slight trace quartz.
- 6930-6940 Shale: black to blackish dark grey, micromicaceous to micaceous in part, blocky, pyritic in part, slightly silty in part, sandy in part, gypsiferous in part, embedded quartz grains, as above; slight trace Pyrite and quartz grains; slight trace pelecypods.
- 6940-6970 Shale: blackish to black dark grey; blocky, micromicaceous to micaceous in part, slightly silty, slightly pyritic, embedded quartz grains in part, as above; trace Pyrite and quartz.
- 6970-6980 Shale; as above; pyritic in part; trace Pyrite.
- 6980-6990 Shale: black to dark grey, blocky, micromicaceous to micaceous in part, slightly silty to occasional silty in part, slightly arenaceous, slightly pyritic, embedded quartz, as above; trace quartz veining, slight trace gypsiferous; slight trace quartz and Pyrite.
- 6990-7000 Shale: as above; trace Pyrite.
- 7000-7010 Shale: as above; interbedded with Sandstone: salt and pepper, very fine grained, subrounded to subangular, well sorted, silty, slightly argillaceous to argillaceous, shaly matrix, slightly pyritic, soft, tight; slight trace Pyrite.
- 7010-7020 Shale: black to dark grey, blocky, micromicaceous to micaceous in part, slightly silty to silty in part, slightly arenaceous to arenaceous in small part, slightly pyritic, embedded quartz: as above; interbedded with Sandstone: salt and pepper, very fine grained, well sorted, subrounded to subangular, slightly silty, argillaceous, trace embedded fine to medium quartz grains, tight.
- 7020-7030 Shale: black to dark grey, blocky, micromicaceous to slightly micaceous, silty in part, slightly arenaceous, pyritic, embedded quartz as above; trace Pyrite.
- 7030-7040 Shale: black to dark grey, blocky, micromicaceous to slightly micaceous, silty in part, to slightly silty, slightly arenaceous to arenaceous in part, slightly pyritic, embedded quartz: as above, occasional Sandstone, grey, very fine grained, subrounded to subangular, fair sorting, argillaceous, slightly silty, tight; trace Pyrite.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 7040-7070 Shale: black to blackish dark grey, blocky, micromicaceous to slightly micaceous, slightly silty, slightly arenaceous, slightly pyritic, embedded quartz as above; trace Pyrite.
- 7070-7090 Shale: black to dark grey, blocky, micromicaceous to micaceous in part, silty in part, slightly arenaceous to arenaceous in part, slightly pyritic, embedded quartz, as above; trace Pyrite.
- 7090-7110 Shale: black to blackish dark grey, blocky, micromicaceous to slightly micaceous, slightly silty, slightly arenaceous, pyritic, embedded quartz: as above; trace Pyrite; slight trace coarse quartz grains.
- 7110-7130 Shale: black to dark grey, blocky, micromicaceous to slightly micaceous, silty in part, slightly arenaceous, slightly pyritic, embedded quartz: as above; trace Pyrite; slight trace quartz.
- 7130-7140 Shale: black to blackish dark grey, blocky, micromicaceous to slightly micaceous, slightly silty, slightly arenaceous, pyritic, embedded quartz: as above; trace Pyrite; slight trace quartz.
- 7140-7150 Shale, black to blackish dark grey, blocky, micromicaceous to slightly micaceous, slightly silty to silty in part, slightly arenaceous, slightly pyritic, embedded quartz: as above gypsiferous in part; slight trace Pyrite; slight trace quartz.
- 7150-7160 Shale: black to dark grey, blocky, micromicaceous to slightly micaceous, slightly silty to silty in part, slightly arenaceous to arenaceous, gypsiferous in small part, embedded quartz: as above; slightly pyritic; occasional Sandstone: grey, very fine grained, fair sorting, subrounded to sub-angular, argillaceous, slightly silty, tight; trace Pyrite; slight trace quartz.
- 7160-7170 Sandstone: grey, clear, very fine grained, rounded to sub-rounded, well sorted, argillaceous, slightly silty, slightly pyritic, tight; interbedded with Siltstone: grey, white argillaceous, slightly arenaceous; occasional Shale: dark grey, fissile, micromicaceous to slightly micaceous, slightly pyritic, arenaceous to slightly arenaceous, slightly silty, occasional embedded, fine to medium quartz grains.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 7170-7180 Sandstone: grey clear to grey, very fine grained, rounded to subrounded, well sorted, argillaceous to very argillaceous in part, slightly silty, slightly pyritic, tight; interbedded with Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly pyritic, sandy, slightly silty, occasional embedded fine to medium quartz grains, stringers Siltstone: as above.
- 7180-7190 Sandstone: grey to minor grey clear, very fine grained, fair sorting, subrounded to rounded, argillaceous to very argillaceous, slightly silty, slightly pyritic, tight; interbedded with Shale: as above; small stringers Siltstone: as above.
- 7190-7220 Shale; dark grey, blocky, micromicaceous to slightly micaceous in part, sandy to very sandy, slightly pyritic, slightly silty, occasional embedded fine to medium quartz grains; interbedded with minor Sandstone: grey to occasional grey clear, very fine grained, fair sorting, subrounded to rounded, very argillaceous to argillaceous, slightly silty, slightly pyritic, tight; small stringers Siltstone: as above; trace Pyrite.
- 7220-7224 Shale: as above, interbedded with minor Sandstone: as above; occasional Siltstone: as above; trace Pyrite.
- 7224-7254 Core #7 - See Core Description.
- 7254-7280 Shale; dark grey, blocky, micromicaceous to micaceous in part, slightly silty, slightly pyritic, sandy in part.
- 7280-7320 Shale: dark grey, blocky, micromicaceous to micaceous in part, slightly pyritic, silty, slightly sandy; slight trace Pyrite.
- 7320-7330 Shale, dark grey, blocky, micromicaceous to micaceous, slightly pyritic, silty, slightly sandy.
- 7330-7340 Shale: dark grey, blocky, micromicaceous to micaceous, slightly pyritic, silty, slightly sandy to sandy in part, trace Pyrite.
- 7340-7350 Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly pyritic, silty, slightly sandy to sandy.
- 7350-7360 Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly pyritic, silty, slightly sandy to sandy in part.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 7360-7370 Shale: dark grey, blocky, micromicaceous to micaceous, slightly pyritic, silty, slightly sandy to sandy in part.
- 7370-7380 Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly pyritic, silty, slightly sandy.
- 7380-7390 Shale: dark grey, blocky, micromicaceous to micaceous in part, slightly pyritic, silty, slightly sandy to sandy, slightly dolomitic, very slight trace dolomitic, sandy Shale.
- 7390-7400 Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly pyritic, silty, sandy in part, fractured, quartz veining, slightly dolomitic to dolomitic in part; occasional Sandstone: clear, very fine to occasionally fine grained, subrounded to subangular, fair sorting, quartzose, dolomitic, argillaceous, tight to slight trace poor porosity; trace quartz crystals.
- 7400-7410 As above, with slight trace (3 chips) Dolomite: clear, grey, very fine crystalline, euhedral, argillaceous in part, fair to good intercrystalline and vuggy porosity.
- 7410-7420 Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly pyritic, silty, slightly sandy to sandy in part, slightly dolomitic in part, fractured quartz veining, occasional Shaly Sandstone: as above, tight; trace quartz.
- 7420-7440 Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly pyritic, silty, slightly sandy, slightly fractured, trace quartz veining, trace shaly Sandstone: as above.
- 7440-7450 Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly pyritic, silty, slightly sandy in part, very slightly fractured, trace shaly Sandstone: as above.
- 7450-7460 Shale: dark grey, blocky, micromicaceous, slightly micaceous, slightly pyritic, slightly silty to silty in part, slightly sandy in part, slight trace Chert.
- 7460-7470 Shale: dark grey, blocky, micromicaceous to micaceous slightly pyritic, silty, sandy in small part to slightly sandy, slightly dolomitic in part to dolomitic in small part, slightly fractured, trace quartz veining, trace quartz crystals; trace Pyrite.

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- 7470-7480 Shale: dark grey, blocky, micromicaceous to slightly micaceous in part, slightly silty to silty in part, slightly pyritic, slightly sandy in part, slight trace quartz veining; trace quartz.
- 7480-7490 Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly silty to silty, slightly sandy in small part, pyritic; slight trace quartz; trace Pyrite.
- 7490-7500 Shale: dark grey, blocky, micromicaceous to slightly micaceous in part, slightly silty, slightly pyritic, slight trace quartz and Pyrite.
- 7500-7550 Shale: as above; trace Pyrite.
- 7550-7580 Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly silty, slightly pyritic in part, slightly sandy in part; slight trace Pyrite.
- 7580-7600 Shale: dark grey, blocky, micromicaceous to slightly micaceous in part, slightly silty, slightly pyritic in part; slight trace Pyrite.
- 7600-7640 Shale: as above; trace Pyrite.
- 7640-7650 Shale: dark grey to minor black, blocky, micromicaceous to slightly micaceous, slightly silty, slightly sandy in part, slightly pyritic in part; trace Pyrite.
- 7650-7660 Shale: dark grey, blocky, micromicaceous to micaceous in part, slightly silty; slight trace Pyrite.
- 7660-7670 Shale: slightly sandy in part; slight trace Pyrite.
- 7670-7680 Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly silty, slightly sandy in part to sandy in small part; slight trace Pyrite.
- 7680-7700 Shale: dark grey, blocky, micromicaceous to slightly micaceous in part, slightly silty, slightly pyritic; trace Pyrite.
- 7700-7720 Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly silty, slightly sandy in part, slightly gypsiferous in part, slightly pyritic in part, trace quartz veining; trace quartz; trace Pyrite.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 7720-7730 Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly silty, slightly sandy in part, to sandy in small part, slightly fractured, slightly gypsiferous in part, slightly pyritic in part, trace quartz veining; trace quartz; trace Pyrite.
- 7730-7770 Shale: dark grey, blocky, micromicaceous to slightly micaceous, slightly silty, slightly sandy in part to sandy in small part, slightly pyritic in part, slight trace quartz veining, slight trace Pyrite; trace quartz; slight trace Sandstone: clear, very fine to fine grained, subrounded to subangular, quartzose, argillaceous in part, slightly dolomitic, tight.
- 7770-7790 Shale: dark grey, blocky, micromicaceous to slightly micaceous in part, slightly silty, slightly pyritic, sandy in small part, slight trace quartz veining, trace Pyrite; trace quartz.
- 7790-7800 Shale: dark grey, blocky to occasionally fissile, micromicaceous to slightly micaceous in part, silty in part slightly pyritic; trace Pyrite.
- 7800-7860 Shale: dark grey, blocky to occasionally fissile, micromicaceous to slightly micaceous, slightly silty, slightly pyritic in part; trace Pyrite.
- 7860-7880 Shale; dark grey to occasionally black, blocky to occasional fissile, micromicaceous to slightly micaceous, slightly silty, slightly pyritic in part, slight trace Pyrite.
- 7880-7890 Shale: dark grey to black, blocky to occasionally fissile, micromicaceous to slightly micaceous, slightly silty, sandy in part to slightly sandy, slightly pyritic, quartz veining, fractured, slightly dolomitic in part to dolomitic in part, trace quartz; trace Pyrite.
- 7890-7900 Shale: dark grey to black to occasionally fissile, micromicaceous to slightly micaceous, slightly silty, sandy in part to slightly sandy, slightly pyritic, quartz veining, fractured, slightly dolomitic in part to dolomitic in part, trace quartz; slight trace Pyrite.
- 7900-7970 Shale: black, micromicaceous to slightly micaceous, sandy to very sandy in part, pyritic, slightly silty, fossiliferous slightly carbonaceous, embedded fine to medium to occasional coarse subrounded to subangular quartz grains, slight trace quartz crystals.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 7970-7980 Shale: grey to black, micromicaceous to micaceous, blocky, pyritic, gypsiferous, trace quartz veining and well developed quartz crystals; pyritized fossil remains.
- 7980-7990 Shale: as above, becoming slightly silty, carbonaceous and arenaceous in part, with increasing well developed quartz crystals; pyritized fossil remains.
- 7990-8000 Shale, as above, silty, becoming siliceous in part, scattered quartz crystals, pyritic fossil remains.
- 8000-8010 Shale: dark grey to black, micromicaceous to micaceous blocky, pyritic, siliceous, silty, gypsiferous and arenaceous and carbonaceous in part; pyritized fossil remains.
- 8010-8020 Shale: as above, with quartz veinlets, trace pyritized fossil remains.
- 8020-8030 Shale: as above, occasionally becoming calcareous; trace pyritized fossil remains; scattered, well developed quartz crystals.
- 8030-8040 Shale: dark grey to black, micromicaceous to occasionally micaceous, fissile, pyritic, silty, gypsiferous and arenaceous and carbonaceous in part, occasionally silicified; trace pyritized fossil remains and clear quartz grains.
- 8040-8050 Shale: as above, with pyritized fossil remains.
- 8050-8060 Shale, as above, becoming calcareous with occasional calcite veining, pyritized fossil remains with well developed, free quartz crystals; quartz crystals on fracture planes.
- 8060-8070 Shale: as above; scattered quartz crystals; trace pyritized fossil remains.
- 8070-8080 Shale: as above, occasional quartz veining, occasionally calcareous, scattered free, well developed quartz crystals, angular to subrounded free quartz grains, pyritized fossil remains; Sandstone: stringers, salt and pepper, to light grey, very fine grained, subangular, well sorted, argillaceous, carbonaceous, tight.
- 8080-8090 Shale: as above, becoming silicified in part; Sandstone interbeds: as above, becoming salt and pepper to light brown, very fine to medium grained, medium sorted, slightly calcareous, tight.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 8090-8100 Shale: dark grey to black, micromicaceous to occasionally black, fissile, pyritic, silty, gypsiferous and carbonaceous and siliceous in part, quartz veining, with free quartz crystals and quartz crystals on fracture planes; pyritized fossil remains. Sandstone stringers: dark brown, fine to medium grained, subangular, well sorted, quartzitic, calcareous, siliceous, tight.
- 8100-8110 Shale: as above, with quartz crystals and pyritized fossil remains; as above; Sandstone: stringers, as above.
- 8110-8120 Shale: as above, with quartz crystals and pyritized fossil remains; as above; Sandstone stringers: salt and pepper, to light grey, very fine grained, subrounded, well sorted, argillaceous, carbonaceous, tight.
- 8120-8130 Shale: as above, becoming calcareous in part, quartz veining, with well developed quartz crystals, occasional coarse grained quartz grains; pyritized fossil remains.
- 8130-8140 Shale: dark grey, micromicaceous to occasionally micaceous, fissile, pyritic, slightly silty and calcareous in part, silicified in part, quartz veining, trace well developed quartz crystals on fracture planes, pyritized fossil remains.
- 8140-8150 Shale: as above, occasionally becoming very silicified, trace free subrounded, coarse grained quartz grains, quartz crystals and pyritized fossil remains; as above.
- 8150-8160 Shale: as above, with quartz crystals, grains and pyritized fossil remains: as above.
- 8160-8170 Shale: as above, with decreasing quartz veining; pyritized fossil remains.
- 8170-8180 Shale: black to dark grey, micromicaceous to micaceous, pyritic, carbonaceous and silty in part, occasionally silicified; rare quartz crystals, as above; pyritized fossil remains.
- 8190-8200 Shale: as above, with pyritized and silicified fossil remains.
- 8200-8220 Shale: dark grey to black, with pyritized fossil remains; Sandstone stringers: dark brownish grey, very fine to fine grained, subrounded, well sorted, argillaceous, carbonaceous, slightly calcareous, tight.

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- 8220-8230 Shale: as above, with well developed quartz crystals, pyritized and silicified fossil remains; Sandstone stringers: as above.
- 8230-8240 Shale: as above, becoming gypsiferous and slightly calcareous in part, scattered free calcite crystals, sub-rounded, coarse grained quartz grains, pyritized fossil remains.
- 8240-8250 Shale: black to dark grey, micromicaceous to micaceous pyritic, siliceous in part, slightly calcareous, quartz veining, pyritized fossil remains.
- 8250-8260 Shale: as above, with rare black Chert; pyritized and silicified fossil remains.
- 8260-8270 Shale: as above, becoming more calcite and carbonaceous, occasionally grading to a black, carbonaceous, slightly calcareous, argillaceous Siltstone; pyritized fossil remains; scattered, subrounded, coarse grained quartz grains.
- 8270-8280 Shale: black to dark grey, micromicaceous to micaceous, fissile, pyritic, silty calcareous, white specks, occasionally silicified, quartz veining with quartz crystals on fracture planes, pyritized fossil remains.
- 8280-8290 Shale: as above, becoming slightly calcareous, scattered clear quartz crystals, trace pyritized fossil remains.
- 8290-8300 Shale: as above, becoming silty, pyritized and silicified fossil remains; trace quartz crystals; Siltstone stringer: light grey calcareous, argillaceous, carbonaceous.
- 8300-8310 Shale: as above, scattered quartz crystals, pyritized fossil remains.
- 8310-8320 Shale: dark grey to black, micromicaceous, fissile, pyritic, slightly silty, occasionally silicified, pyritized fossil remains.
- 8320-8330 Shale: as above, becoming more siliceous, occasionally slightly calcareous, pyritized fossil remains, with Pyrite fragments; scattered clear quartz crystals.
- 8330-8340 Shale: as above, clear quartz crystals, pyritized fossil remains with Pyrite fragments.

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- 8340-8350 Shale: as above, quartz crystals and pyritized fossil remains: as above.
- 8350-8380 Shale: as above, with pyritized fossil remains and quartz crystals.
- NOTE: From 8330-8380 a slight oil scum was noted in wash water and acid. No oil stain was noted on samples, chloroethene test was negative, and fluoroscope test was also negative.
- 8380-8390 Shale: dark grey to black, micromicaceous to micaceous, fissile, pyritic, gypsiferous and siliceous and carbonaceous in part, slightly silty, scattered clear quartz crystals and coarse grained quartz grains, pyritized fossil remains.
- 8390-8400 Shale: as above, with quartz veining, trace quartz crystals, pyritized fossil remains.
- 8400-8410 Shale: as above, rare quartz crystals, pyritized fossil remains.
- 8410-8420 Shale: as above, with pyritized fossil remains.
- 8420-8430 Shale: as above, with quartz veining, pyritized fossil remains.
- 8430-8448 Shale: as above, with pyritized fossil remains.
- 8448-8478 Core #8 - See Core Description
- 8478-8490 Shale: as above, becoming siliceous and very slightly calcareous in part; pyritized fossil remains.
- 8490-8500 Shale: as above, becoming slightly calcareous, gypsum on fracture planes, pyritized fossil remains.
- 8500-8510 Shale: as above, with quartz veining, scattered free well developed quartz crystals, quartz crystals on fracture planes; pyritized fossil remains.
- 8510-8540 Shale: as above, occasionally grading to a black, fissile carbonaceous, bituminous, silty Shale; pyritized fossil remains; trace gypsum and silica on fracture planes.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 8540-8550 Shale: dark grey, micromicaceous to micaceous, pyritic, gypsiferous and siliceous in part, slightly calcareous, quartz veinlets; occasionally grading to a black, fissile, carbonaceous, bituminous slightly silty Shale; pyritized fossil remains.
- 8550-8570 Shale: as above, with pyritized fossil remains, occasional well developed quartz crystals on fracture planes.
- 8570-8580 Shale: light grey and black: as above; pyritized fossil remains.
- 8580-8590 Shale: light grey and black: as above; scattered quartz crystals; trace subangular, coarse grained, quartz grains: pyritized fossil remains.
- 8590-8600 Shale: dark grey and black, as above; scattered quartz crystals and pyritized fossil remains.
- 8600-8610 Shale: dark grey, as above; becoming silicified, gypsum and silica on fracture planes, pyritized fossil remains.
- 8610-8620 Shale: medium to dark grey, micromicaceous to occasionally micaceous, blocky, pyritic, silty and siliceous and gypsiferous in part, occasionally carbonaceous; minor quartz veining; trace pyritized and silicified fossil remains.
- 8620-8630 Shale: as above, occasionally becoming silicified, pyritized fossil remains; minor Sandstone stringers: brown, very fine grained, subangular, well sorted, quartzitic, carbonaceous, siliceous, tight.
- 8630-8640 Shale: as above, with quartz veining, pyritized fossil remains; minor Sandstone stringers: light grey to salt and pepper, fine to medium grained, subrounded, well sorted, quartzitic, argillaceous, very slightly calcareous, tight.
- 8640-8650 Shale: as above, with scattered well developed quartz crystals on fracture planes; trace free quartz crystals and subrounded, coarse grained quartz grains; pyritized fossil remains.

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- 8650-8660 Shale: dark grey to black, micromicaceous to occasionally micaceous, pyritic, slightly silty, gypsiferous and carbonaceous in part, occasionally silicified, quartz veining, pyritized fossil remains.
- 8660-8670 Shale: as above, with occasional calcareous white specks, pyritized and silicified fossil remains; scattered quartz crystals.
- 8670-8680 Shale: as above, becoming arenaceous; grading to a black argillaceous, arenaceous, carbonaceous Siltstone; scattered quartz crystals, pyritized and silicified fossil remains.
- 8680-8690 Shale: as above, becoming very arenaceous in part, occasionally becoming silicified, scattered quartz crystals.
- 8690-8700 Shale: as above, becoming slightly calcareous in part with occasional calcite veining.
- 8700-8710 Shale: medium to dark grey, micromicaceous to occasionally micaceous, slightly calcareous & siliceous in part grading to a black, carbonaceous, arenaceous to very arenaceous Shale with occasional quartz veining, scattered quartz crystals; trace pyritized fossil remains.
- 8710-8720 Shale: medium to dark grey, as above, becoming gypsiferous in part grading to a black, arenaceous Shale: as above, trace quartz crystals on fracture planes.
- 8720-8730 Shale: medium to dark grey, silicified in part, with quartz veinlets: as above; Shale: black, slightly arenaceous as above; trace pyritized fossil fragments, quartz crystals, as above; rare brown grey Chert.
- 8730-8740 Shale: medium to dark grey, as above; Shale: black and arenaceous: as above; trace Pyrite fragments and quartz crystals, as above.
- 8740-8750 Shale: medium to dark grey, grading to black Shale: as above; trace pyritized fossil remains.
- 8750-8760 Shale: black, as above, becoming very arenaceous, pyritic and silicified in part; grading to medium dark grey Shale: as above; pyritized fossil remains.

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

- 8760-8770 Shale: medium grey to black, fissile, micromicaceous to occasionally micaceous, arenaceous to very arenaceous, silty, occasionally silicified, pyritic, quartz veining, quartz crystals on fracture planes, scattered free quartz crystals.
- 8770-8780 Shale: as above, becoming very siliceous in part, grading to a dark grey, very argillaceous coarse grained, carbonaceous Siltstone: in part; trace Pyrite fragments and quartz crystals: as above.
- 8780-8810 Shale: as above, arenaceous to very arenaceous, quartz crystals, as above; trace Pyrite fragments.
- 8810-8820 Shale: dark grey to black, micromicaceous to occasionally micaceous, fissile to blocky, carbonaceous, silicified and silty and pyritic in part, quartz veinlets; quartz crystals, on fracture planes.
- 8820-8830 Shale: as above, becoming slightly gypsiferous in part, quartz crystals, as above.
- 8830-8840 Shale: as above, with quartz crystals, as above.
- 8840-8850 Shale: as above, becoming arenaceous in part; quartz crystals, as above; trace pyritized fossil remains.
- 8850-8860 Shale: as above, grading to a black, very arenaceous, silty, carbonaceous Shale, quartz crystals, as above; trace pyritized fossil remains.
- 8860-8870 Shale: medium to dark grey grading to black Shale: as above; Sandstone stringers: brownish grey, fine to medium grained, subangular, medium sorted, argillaceous, slightly calcareous, tight, well developed quartz crystals on fracture planes; free well developed quartz crystals; trace pyritized fossil remains.
- 8870-8880 Shale: as above, becoming very siliceous in part, quartz crystals; as above; trace Pyrite fragments.
- 8880-8890 Shale: as above, quartz crystals, as above; trace pyritized fossil remains.
- 8890-8900 Shale: dark grey to black, micromicaceous to micaceous, arenaceous to very arenaceous, pyritic, gypsiferous and silty, carbonaceous in part, quartz veinlets, occasionally

Pacific Imp et al Roland Bay YT L-412. GEOLOGICAL SUMMARY, Cont'd.(d) Sample Descriptions, cont'd.

silicified, trace pyritized fossil remains; Sandstone stringer: light grey to salt and pepper, fine to medium grained, subangular, medium sorted, argillaceous, kaolinitic, slightly calcareous, tight.

- 8900-8910 Shale: as above, becoming slightly calcareous with occasional calcareous white specks, quartz crystals on fracture planes with scattered free well developed crystals; trace pyritized and silicified fossil remains.
- 8910-8920 Shale: as above, with quartz crystals and pyritized fossil remains; as above.
- 8920-8930 Shale: as above, with a trace quartz crystals and pyritized fossil remains, as above.
- 8930-8940 Shale: as above, with a trace quartz crystals and pyritized fossil remains, as above; rare brownish grey Chert and subrounded, coarse grained quartz grains; Siltstone stringer: light grey, argillaceous, calcareous, carbonaceous.
- 8940-8950 Shale: as above, with quartz grains and Pyrite: as above.
- 8950-8960 Shale: as above with black biotite on fracture planes, occasionally becoming very siliceous, quartz grains and crystals, as above; pyritized fossil remains, trace bluish grey Chert.
- 8960-8980 Shale: with black biotite, as above; trace quartz crystals and greyish black Chert.
- 8980-8990 Shale: with black biotite and occasional gypsum on fracture planes; trace quartz crystals, as above; occasional pyritized fossil remains.
- 8990-9010 Shale: medium grey to black, micromicaceous to micaceous, blocky, pyritic, silty to very arenaceous, occasionally silicified, quartz veining, very slightly calcareous, well developed quartz crystals on fracture planes with free well developed quartz crystals; pyritized fossil remains.
- 9010-9020 Shale: as above, with trace of pyritized fossil remains and quartz crystals, as above.
- 9020-9030 Shale: as above, with trace of pyritized fossil remains and quartz crystals, as above.

Pacific Imperial Roland Bay YT L-413. ENGINEERING SUMMARY

- (a) Drill Stem Tests: No tests run.
- (b) Casing Records: See Page (2).
- (c) Bit Record: See Pages (50-51).
- (d) Mud Record: See Pages (52-54).
- (e) Deviation Record: See Pages (55-59).
- (f) Abandonment Plugs: April 18, 1973
 PLUG #1: 9030-8900 (130') - 60 sax.
 Plug down 2:45 P.M.
 PLUG #2: 6015-5915 (100') - 80 sax.
 Plug down 6:00 P.M. - Felt at 5940'.
April 19, 1973
 PLUG #3: Surface - ~~105~~sax.
- (g) Lost Circulation Zones: January 16, 1973
 920-935'. Lost 98 BBLs. Partially stopped with sawdust.
- (h) Report of Blowouts: Nil.

4. LOGGING SUMMARY

- (a) Logs: BOREHOLE COMPENSATED SONIC
 Run #1: 1993-460 - January 22, 1973
 Run #2: 5928-1946 - March 3, 1973
 Run #3: 8990-5947 - April 16, 1973

FORMATION DENSITY LOG
 1994-460 - January 22, 1973

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4. LOGGING SUMMARY - Cont'd.

(a) Logs: DUAL INDUCTION LATEROLOG
 Run #1: 1990-460 - January 21, 1973
 Run #2: 5936-1946 - March 3, 1973
 Run #3: 8987-5947 - April 17, 1973

FOUR ARM CONTINUOUS DIPMETER
 8984-5945 - April 17, 1973

(b) Surveys: VELOCITY SURVEY - April 17, 1973
IMPERIAL CRYSTAL CABLE - January 26, 1973

5. ANALYSIS

(a) Core Analysis: Nil.
 (b) Gas Analysis: Nil.
 (c) Oil Analysis: Nil.
 (d) Water Analysis: Nil.

6. COMPLETION SUMMARY

(a) Tubing Record: Nil.
 (b) Perforation Record: Nil.
 (c) Cementation Record: See Page (44 - Section 3f)
 (d) Acidization Record: Nil.
 (e) Back Pressure and Production Tests: Nil.

7. DAILY DRILLING SUMMARY

<u>Date - 1972</u>	<u>Depth</u>	<u>Footage</u>	<u>Remarks</u>
December 23	195	195	Drilling, spud 4:00 P.M. December 22, 1972.
December 24	435	240	Drilling - 12 1/4" hole. Drilling in gravel.
December 25	628	193	Working stuck pipe, stuck at 568'.
December 26	628		Circulating and working 2 3/8" tubing around stuck pipe.
December 27	628		Rigging up jars and bumper sub to work pipe.
December 28	628		Working stuck pipe, bumped fish down 2', regained partial circulation.

Pacific Imp et al Roland Bay YT L-417. DAILY DRILLING SUMMARY - Cont'd.

<u>Date - 1972</u>	<u>Depth</u>	<u>Footage</u>	<u>Remarks</u>
December 29	628		Working stuck pipe, ran 1 1/2" tubing outside of drill string, circulate through 1 1/2".
December 30	628		Repairing swivel and both mud pumps. Bump fish.
December 31	628		Run free point and attempt back-off. Shot pipe at 428 and 398, 3 times - no back-off.
<u>Date - 1973</u>	<u>Depth</u>	<u>Footage</u>	<u>Remarks</u>
January 1	628		Pulling out with pipe, ran free point indicator, shot and backed off drill pipe.
January 2	628		Circulating pea gravel out of hole. Top of fish at 309'. Attempt to screw in.
January 3	628		Running in to clean bridges. Attempted to screw into fish. Weight mud.
January 4	628		Attempting to screw into fish. Clean hole.
January 5	628		Cleaning out to 432' on outside of fish. Get past fish.
January 6	628		Cleaning out from 432-560. Past fish.
January 7	628		Working on air compressors. Ran in with over shot and grapple. Pull out fish.
January 8	628		Reaming 12 1/4" hole to 26". Circulated from 250-300', cleaned out from 300-335', reaming 12 1/4" to 26".
January 9	628		Twist off at bumper sub. Run in with 8 1/2" overshot. Recover fish. Clean hole with reamer. Rig to run 20".
January 10	628		Waiting on cement. Ran 20" conductor pipe. Land at 456' K.B.
January 11	628		Waiting on cement. Cut off pipe, welded on 20" casing flange. Cement down annulus to 185' K.B.
January 12	628		Waiting on wind to die down, cannot haul water for mud tanks. Shovel out snow.
January 13	628		Drilling out, top of cement at 438', shoe at 454'. Clean to 570' - hit iron. Fish iron.
January 14	628		Picking up teledrift, cleaned out junk from hole.
January 15	825	197	Drilling 12 1/4" hole, ran magnet to clean out hole.
January 16	1050	225	Drilling lost circulation from 920-935'. Regained circulation with sawdust.
January 17	1238	188	Drilling 12 1/4" hole.
January 18	1419	171	Drilling.
January 19	1606	187	Drilling, 3 - 12" collars, 9 - 7 3/4" collars.
January 20	1828	222	Drilling.
January 21	2198	172	Preparing to log.
January 22	2198		Logging.
January 23	2198		Reaming 12 1/4" hole to 17 1/2", 3 - 12" collars, 9 - 7 3/4" collars.
January 24	2198		Reaming at 1392.
January 25	2198		Reaming at 1642.
January 26	2198		Reaming at 1817, run Crystal Cable.

Pacific Imp et al Roland Bay YT L-417. DAILY DRILLING SUMMARY - Cont'd.

<u>Date - 1973</u>	<u>Depth</u>	<u>Footage</u>	<u>Remarks</u>
January 27	2198		Reaming at 1965'.
January 28	2198		Running 13 3/8" casing. Landed at 1956' K.B. Cement with 1500 sax B.J. Cold Set #1, plug down 10:45 P.M.
January 29	2198		Waiting on cement.
January 30	2198		Heading up.
January 31	2198		Heading up.
February 1	2198		Heading up.
February 2	2198		Heading up.
February 3	2198		Drilling out 12 1/4", pressure tested casing, BOP's, all manifold and flare lines to 1500#.
February 4	2198		Picking up core barrel.
February 5	2221	21	Repairing BOP's. Cut Core #1: 2198-2221.
February 6	2258	37	Preparing to drill ahead. Cut Core #2: 2221- 2258.
February 7	2563	305	Drilling 12 1/4" hole.
February 8	2854	291	Repairing BOP's. Ream bridges.
February 9	2980	126	Drilling.
February 10	3200	220	Conditioning hole prior to cutting Core #3.
February 11	3235	35	Preparing to drill ahead. Cut Core #3: 3200- 3235.
February 12	3455	220	Ream rat hole, drill 12 1/4" hole.
February 13	3715	260	Drilling.
February 14	3796	81	Drilling.
February 15	4094	298	Drilling.
February 16	4200	206	Cutting Core #4.
February 17	4245	45	Drilling. Cut Core #4: 4200-4230.
February 18	4534	289	Drilling.
February 19	4730	196	Drilling.
February 20	4800	70	Drilling.
February 21	4895	95	Drilling.
February 22	4940	45	Drilling.
February 23	5032	92	Drilling.
February 24	5202	170	Recovering Core #5: 5202-5232. Ream rat hole.
February 25	5296	94	Drilling.
February 26	5419	123	Drilling.
February 27	5525	106	Drilling.
February 28	5630	105	Drilling.
March 1	5724	94	Drilling.
March 2	5835	111	Drilling.
March 3	5925	90	Drilling.
March 4	5965	40	Pulling out to log. Run logs.
March 5	5965		Preparing to run 9 5/8" casing.
March 6	5965		Running 9 5/8" casing.

Pacific Imp et al Roland Bay YT L-417. DAILY DRILLING SUMMARY - Cont'd.

<u>Date - 1973</u>	<u>Depth</u>	<u>Footage</u>	<u>Remarks</u>
March 7	5965		Waiting on cement. Ran 9 5/8" casing and installed secondary seal. Land casing at 5965' K.B. Cement with 100 sax B. J. Cold Set and 650 sax OW-G, 15.50#. Plug down 3:50 A.M.
March 8	5965		Preparing to pick up casing with spear. Casing slips set in wrong.
March 9	5965		Working on casing slips.
March 10	5965		Nippling up BOP's.
March 11	5965		Preparing to drill out. Displace mud from 9 5/8" annulus with diesel fuel, through stage collar at 1695' K.B.
March 12	5965		Drilling out with 8 1/2" bit.
March 13	6093	128	Drilling.
March 14	6142	49	Drilling.
March 15	6203	61	Preparing to cut Core #6.
March 16	6270	67	Drilling. Cut Core #6: 6203-6223, ream rat hole.
March 17	6384	114	Drilling with reamer at 60', stabilizes at 90'.
March 18	6445	61	Tripping for new bit (#23).
March 19	6464	19	Tripping for new bit (#24).
March 20	6521	57	Drilling.
March 21	6561	40	Drilling with Dyna Drill.
March 22	6650	91	Drilling with Dyna Drill, twist off, run in, pick up fish.
March 23	6689	39	Running in with survey. Lay down Dyna Drill.
March 24	6798	109	Drilling.
March 25	6898	100	Pulling out to replace high chain.
March 26	6956	58	Drilling.
March 27	7026	70	Drilling.
March 28	7181	155	Drilling, strap out. Run core barrel.
March 29	7254	73	Recovering Core #7: 7224-7254. Ream rat hole.
March 30	7354	100	Drilling 8 1/2" hole.
March 31	7465	111	Drilling.
April 1	7698	233	Drilling.
April 2	7803	105	Finish tripping in with new bit (#28).
April 3	7864	61	Drilling.
April 4	7910	46	Drilling.
April 5	7978	68	Drilling.
April 6	8023	45	Drilling.
April 7	8147	124	Drilling.
April 8	8300	153	Drilling. Pull out ultrasonic collars.
April 9	8448	148	Preparing to cut Core #8.
April 10	8478	30	Reaming out rat hole, cut Core #8: 8448-8478.
April 11	8582	104	Drilling 8 1/2" hole.
April 12	8663	81	Drilling.
April 13	8754	91	Tripping in with bit #31.
April 14	8855	101	Drilling.

Pacific Imp et al Roland Bay YT L-417. DAILY DRILLING SUMMARY - Cont'd.

<u>Date - 1973</u>	<u>Depth</u>	<u>Footage</u>	<u>Remarks</u>
April 15	9025	170	Drilling. Trip out, work tight spots with key seat wiper.
April 16	9030 TD	5	Conditioning hole to log.
April 17			Running Velocity Survey.
April 18			Running in open ended, preparing to run plugs.
April 19			Displacing water in hole with diesel fuel. Ran plugs #1 and #2. Plug #1: 9030-8900 with 60 sax. Plug #2: 6015-5915 with 80 sax.
April 20			Tearing out rig. Capped 9 5/8" casing with 5 sax plug. RIG RELEASED 4:00 P.M.

Pacific Imp et al Roland Bay YT L-413. ENGINEERING SUMMARY - Cont'd.(c) Bit Record:

Date 1972	Bit No.	Type	Size	Depth		Footage	Hours on BTM	Weight	RPM	Remarks
				In	Out					
Dec. 22	1A	DSJ	12 1/4	0	195	195	5	5	80	
Dec. 23	2A	OSC35	12 1/4	195	440	245	13 1/2	5	80	
Dec. 24	3A	DSJ	12 1/4	440	628	188	14 1/4	10	85	Stuck in hole at 530'.
Jan. 4	4A	S3SJ	7 7/8	628			18	8-10	60	Cleaning out bridges.
Jan. 5	5A	S3SJ	7 7/8	628			24 3/4	8-10	60	Cleaning out at 432' on outside of fish.
Jan. 7	6A	Smith	26	0	465	465	34 3/4	5-15	80	Ream 12 1/4-26".
Jan. 13	3A	DSJ	12 1/4	438				10	60	Drill out and clean to bottom. Ran 20" cond. pipe.
Jan. 14	7A	XIGJ	12 1/4	628	975	347	18 1/4	10-20	90	
Jan. 15	8A	XIG	12 1/4	975	1050	75	5 1/4	10	85	
Jan. 16	9A	DSJ	12 1/4	1050	1270	220	23 1/2	10-15-30	90	
Jan. 17	10A	DMN	12 1/4	1270	1606	336	34 1/4	15-50	90-60	
Jan. 19	11A	DMNJ	12 1/4	1606	1947	341	31	50-30	60-90	
Jan. 20	8A	XIG	12 1/4	1947	2000	53	3 3/4	25-20	90	Condition hole and log.
Jan. 22	12A	P&R	17 1/2	456	1444			30-40	80	Ream 12 1/4 - 17 1/2.
Jan. 24	13A	Smith	17 1/2	1444	1886			30-40	80	Ream 12 1/4 - 17 1/2.
Jan. 26	12A	P&R	17 1/2	1886	1952			30-40	80	Ream 12 1/4 - 17 1/2.
Jan. 28										Ran 13 3/8" casing at 1956'.
Feb. 3	1	DSJ	12 1/4	2000	2198	198	15 3/4	15	45-40	
Feb. 4		◇100-285	8 23/32	2198	2258	60	20	14-18	71	Core #1 (2198-2221), Core #2 (2221-2258).
Feb. 6	2	J33	12 1/4	2198	3200	1002	67 1/4	35	60	
Feb. 10		◇100-285	8 23/32	3200	3235	35	9 1/2	18	72	Core #3 (3200-3235).
Feb. 11	3	XIG	12 1/4	3200	3796	596	42	30	75-85	
Feb. 13	4	XIG	12 1/4	3796	4200	404	26	40	75-80	
Feb. 16		◇100-285	8 23/32	4200	4230	30	6 1/4	17	78	Core #4 (4200-4230)
Feb. 17	5	J33	12 1/4	4200	4736	536	50	10-30-45	60	
Feb. 19	6	DMN	12 1/4	4736	4817	81	17 1/4	50	45	
Feb. 20	7	S88	12 1/4	4817	4932	115	25 1/4	45	42-30	

Pacific Imp et al Roland Bay YT L-413. ENGINEERING SUMMARY - Cont'd.(c) Bit Record - Cont'd:

Date 1973	Bit		Size	Depth		Footage	Hours		Weight	RPM	Remarks
	No.	Type		In	Out		on	BTM			
Feb. 22	8	H88	12 1/4	4932	4968	36	13 3/4		45	42-45	
Feb. 22	9	M44	12 1/4	4968	5202	234	21 1/4		45	60	
Feb. 24		◇100-285	8 23/32	5202	5232	30	7 1/2		20	75	Core #5 (5202-5232).
Feb. 24	10	M4N	12 1/4	5202	5409	207	22 1/2		10-45	69	
Feb. 26	11	M44	12 1/4	5409	5515	106	16 1/2		50-48	65-70	
Feb. 27	12	DMNJ	12 1/4	5515	5677	162	31 3/4		50-45	45-60	
Mar. 1	13	DSJ	12 1/4	5677	5828	151	22 3/4	50-45-50	45-60		
Mar. 2	14	DMN	12 1/4	5828	5950	122	30 1/4	45-50	60		
Mar. 3	8	H88	12 1/4	5950	5965	15	7	50	45		Condition hole to log.
Mar. 4	10	M4N	12 1/4	5965							Preparing to run 9 5/8" casing.
Mar. 11	15	ODV	8 1/2	5795				10	60		Drill out, top of cement 1700.
Mar. 11	16	M44	8 1/2	5965	6128	163	35 3/4	30-10-17	90-		Drill out.
Mar. 14	17	M44	8 1/2	6128	6203	75	19 1/2	10	100		
Mar. 15		◇100-449	6 7/32	6203	6223	20	4	10	54		Core #6 (6203-6223).
Mar. 15	18	DMJ	8 1/2	6203	6300	97	9	50	50		
Mar. 16	19	DMJ	8 1/2	6300	6400	100	15 1/2	50-25	50-80		
Mar. 17	20	DMJ	8 1/2	6400	6445	45	4 3/4	50	50		
Mar. 18	21	M44N	8 1/2	6445	6464	19	12	5-6	100		
Mar. 19	22	M44N	8 1/2	6464	6548	84	25 1/4	6-8	60		
Mar. 21		◇	8 15/32	6548	6683	135	32 1/2	10-12	24-27		
Mar. 23	23	XDG	8 1/2	6683	6898	215	31	20-30-	60-53-		
								20-10-8	55-60-		
									80		
Mar. 25	24	XDV	8 1/2	6898	7026	128	28	18	70		
Mar. 27	25	XDV	8 1/2	7026	7230	204	22 1/2	18-25-			
								20-24	70		
Mar. 28		◇100-449	6 7/32	7224	7254	30	4 1/2	12	86		Core #7 (7224-7254).
Mar. 29	26	XDV	8 1/2	7224	7449	225	21 1/2	35	60		
Mar. 31	27	J44	8 1/2	7449	7803	354	37 1/2	35-40	45-47		
Apr. 2	28	XDV	8 1/2	7803	7892	89	31	8	70		
Apr. 4	29	XDV	8 1/2	7892	8023	131	37 3/4	16-20	70		
Apr. 5	27	J44	8 1/2	8023	8448	425	57 1/4	40-45	45		
Apr. 9		◇100-449	6 7/32	8448	8478	30	5 1/2	12	60		Core #8 (8448-8478)
Apr. 10	30	J44	8 1/2	8448	8754	306	54	45-40-			
								30-40	45		
Apr. 13	31	J33	8 1/2	8754	9030	276	38	35	50		
Apr. 15	21	M44N	8 1/2								Conditioning hole to log.

Pacific Imp et al Roland Bay YT L-413. ENGINEERING SUMMARY - Cont'd.(d) Mud Record:

1972 Date	Depth	Viscosity	Weight	W/Loss	FC	pH	Remarks
Dec. 22							Spud 4:00 P.M. December 22.
Dec. 23	195	150					Drilling.
Dec. 24	435	270	8.6				
Dec. 25	628	295	8.9				Hole condition tight.
Dec. 26	628	400	8.9				Stuck in hole trying to work pipe free.
Dec. 27	628	325	8.9				
Dec. 28	628	400	8.9				
Dec. 29	628	400	8.9				
Dec. 30	628	325	8.9				
Dec. 31	628	420	9.0				
Jan. 1	628	410	8.9				
Jan. 2	628	1200	8.9				
Jan. 3	628		8.9				
Jan. 4	628	550	11.7				
Jan. 5	628	450	11.4				
Jan. 6	628	600	11.6				
Jan. 7	628	800	11.6				
Jan. 8	628	500	10.3				
Jan. 9	628	600	10.3				
Jan. 10	628	600	10.3				Ran 20" conductor casing. Waiting on cement.
Jan. 11	628						
Jan. 12	628						
Jan. 13	628	45					
Jan. 14	628	200	8.7				
Jan. 15	825	58	9.3				Drilling 12 1/4" hole.
Jan. 16	1050	73	9.8				
Jan. 17	1072	63	9.4				
Jan. 18	1238	57	9.4				
Jan. 19	1606	65	9.5				
Jan. 20	1828	55	9.5				
Jan. 21	2000	105	9.5				
Jan. 22	2000	118	9.5				Logging.
Jan. 23	2000	70	9.6				Reaming 12 1/4" hole to 17 1/2" hole.
Jan. 24	2000	105	9.7				Reaming.
Jan. 25	2000	85	9.6				Reaming.
Jan. 26	2000	120	9.7				Reaming.
Jan. 27	2000	135	9.6				Reaming.
Jan. 28	2000	180	9.7				Reaming.
Jan. 29	2000						Ran 13 3/8" casing.

Pacific Imp et al Roland Bay YT L-413. ENGINEERING SUMMARY - Cont'd.(d) Mud Record - Cont'd:

1973 Date	Depth	Viscosity	Weight	W/Loss	FC	pH	Remarks
Jan. 30	2000						Waiting on cement.
Jan. 31	2000						Installing BOP's.
Feb. 1	2000						Rigging up blowdown manifold and lines.
Feb. 2	2000						Rigging up blowdown manifold and work on BOP's.
Feb. 3	2000						Pressure test hydril & 5" rams.
Feb. 4	2200	58	9.1	8.6	3/32	8.5	
Feb. 5	2221	60	9.3	12.0	2/32	9.5	Drilling 12 1/4" hole.
Feb. 6	2258	68	9.3	7.2	2/32	9.0	
Feb. 7	2563	58	9.3	7.2	2/32	8.8	
Feb. 8	2854	45	9.3	7.4	2/32	8.5	
Feb. 9	2980	42	9.7	8.0	2/32	8.5	
Feb. 10	3200	50	9.5	7.4	2/32	8.3	
Feb. 11	3235	53	9.4	7.2	2/32	8.0	
Feb. 12	3455	52	9.4	8.0	2/32	9.2	
Feb. 13	3715	58	9.4	8.0	2/32	9.2	
Feb. 14	3796	57	9.4	8.0	2/32	9.2	
Feb. 15	4094	58	9.5	8.0	2/32	8.5	
Feb. 16	4201	61	9.4	6.8	2/32	9.0	
Feb. 17	4245	77	9.4	6.8	2/32	9.0	
Feb. 18	4534	63	9.3	6.8	2/32	9.5	
Feb. 19	4730	60	9.2	6.4	2/32	9.5	
Feb. 20	4800	67	9.1	7.2	2/32	9.5	
Feb. 21	4895	81	9.0	7.6	2/32	9.0	
Feb. 22	4942	85	9.0	7.4	2/32	9.0	
Feb. 23	5032	86	9.0	5.6	2/32	9.0	
Feb. 24	5202	84	9.1	6.0	2/32	9.0	
Feb. 25	5296	84	9.1	5.4	2/32	9.0	
Feb. 26	5419	75	9.1	5.2	2/32	9.0	
Feb. 27	5525	79	9.2	5.4	2/32	9.0	
Feb. 28	5630	78	8.9	5.4	2/32	9.0	
Mar. 1	5724	70	9.1	5.4	2/32	9.0	
Mar. 2	5835	72	9.1	5.0	2/32	9.0	
Mar. 3	5925	72	9.1	5.4	2/32	9.0	
Mar. 4	5965	73	9.0	5.0	2/32	9.0	Preparing to log.
Mar. 5	5965	88	9.1	5.0	2/32	9.0	Logging.
Mar. 6	5965	88	9.1	5.0	2/32	9.0	Running 9 5/8" casing.
Mar. 7	5965						Waiting on cement.
Mar. 8	5965						Waiting on cement.
Mar. 9	5965						Waiting on cement and head up BOP.

Pacific Imp et al Roland Bay YT L-413. ENGINEERING SUMMARY - Cont'd.(c) Deviation Record:

<u>Survey At</u>	<u>Deviation</u>
125'	3/4°
195	1/2°
224	2/3°
284	1/4°
370	3/4°
445	1 1/2°
475	1 1/4°
525	1/2°
825	3/4°
857	1 1/2°
880	1 1/2°
918	1 1/2°
950	1 1/2°
975	1 3/4°
1014	2°
1035	3°
1050	2°
1065	2°
1095	2 3/4°
1130	2 1/2°
1160	2 1/8°
1192	2°
1222	2 1/2°
1253	2 3/4°
1284	2 3/4°
1315	2 1/2°
1346	2 1/8°
1377	2 1/8°
1409	1 1/2°
1440	1 1/4°
1470	3/4°
1500	1 1/4°
1530	7/8°
1560	1°
1600	1 3/4°
1635	2°
1666	2 1/2°
1698	3°
1725	3 1/2°
1754	3°
1785	3°
1815	3°
1854	2 3/4°
1885	2 1/4°
1916	2 1/8°
1947	1 1/4°

Pacific Imp et al Roland Bay YT L-413. ENGINEERING SUMMARY - Cont'd.(e) Deviation Record:

<u>Survey At</u>	<u>Deviation</u>
1968'	2°
2013	1 1/2°
2034	1 1/2°
2065	1/2°
2097	1°
2117	1°
2160	1/2°
2189	1/2°
2200	1/2°
2280	1°
2310	1/2°
2343	1°
2374	1°
2437	1/2°
2469	1/2°
2500	1/2°
2532	1/2°
2563	1/2°
2593	1/2°
2623	1/2°
2652	1/2°
2686	1/2°
2717	1°
2780	1/2°
2810	1/2°
2840	1/2°
2897	1/2°
2928	1°
2959	1°
3021	1°
3051	1/2°
3082	1 1/2°
3112	1 1/2°
3238	2 1/2°
3268	2 3/4°
3300	2 1/2°
3330	2°
3360	2°
3425	2°
3486	2°
3518	2°
3580	2°
3610	2°
3675	2°
3736	1 3/4°
3796	1 3/4°

Pacific Imp et al Roland Bay YT L-413. ENGINEERING SUMMARY - Cont'd.(e) Deviation Record:

<u>Survey At</u>	<u>Deviation</u>
3890'	1 1/2°
3984	1 3/4°
4076	1 3/4°
4200	1°
4548	3/4°
4642	1°
4672	2°
4736	3°
4762	2 3/4°
4817	2 1/4°
4855	2 1/8°
4907	3/4°
4968	1°
5203	3°
5220	2 1/2°
5233	2°
5409	3°
5515	3 1/2°
5542	2 1/2°
5481	2 1/2°
5549	2°
5607	3°
5637	3 1/2°
5666	2 1/2°
5677	3°
5700	2 1/2°
5731	2 1/2°
5762	3°
5826	2 1/2°
5858	2 1/2°
5889	2 1/2°
5921	2 1/2°
5950	2 1/2°
6024	5°
6044	4°
6070	6°
6111	5 1/2°
6128	7°
6131	7°
6142	7°
6172	6 1/2°
6203	7°
6231	7°
6260	7°
6267	7 1/2°
6306	7 1/2°
6338	7 1/2°
6365	9 3/4°
6388	11 3/4°

Pacific Imp et al Roland Bay YT L-413. ENGINEERING SUMMARY - Cont'd.(e) Deviation Record:

<u>Survey At</u>	<u>Deviation</u>
6436'	15 1/4°
6464	15 3/4°
6483	15 3/4°
6517	15°
6548	14°
6610	13 3/4°
6634	12°
6698	13°
6730	12°
6762	12°
6793	13°
6813	14°
6843	15°
6873	14 1/2°
6904	13 3/4°
6935	12 3/4°
6965	12°
6996	11 1/2°
7041	10 1/2°
7070	10 1/2°
7104	11°
7135	10 3/4°
7166	9 3/4°
7197	9 1/4°
7293	6 1/2°
7350	5 1/2°
7383	5 1/4°
7449	5°
7481	4 1/2°
7515	4 1/2°
7600	3 1/2°
7692	5 1/2°
7704	5 1/2°
7734	5 1/2°
7763	5 1/2°
7790	9 1/2°
7821	9 3/4°
7853	9 1/2°
7882	9°
7910	8 1/2°
7921	9°
7961	8°
7980	8 1/2°
8023	8 1/2°

Pacific Imp et al Roland Bay YT L-413. ENGINEERING SUMMARY - Cont'd.(e) Deviation Record:

<u>Survey At</u>	<u>Deviation</u>
8082'	7 1/2°
8107	8°
8170	6 1/2°
8265	5 3/4°
8325	5 3/4°
8389	5 3/4°
8448	5°
8509	5 1/2°
8550	5 1/2°
8582	6°
8614	6°
8650	6 1/2°
8667	6 1/2°
8708	5 3/4°
8729	6°
8750	5 3/4°
8754	6°
8770	6°
8802	6 1/2°
8834	6 1/2°
8864	6 1/2°
8895	6 1/2°
8927	6 1/2°
8959	6 1/2°
8990	6 1/2°
9030 TOTAL DEPTH	11°