WELL SUMMARY & SAMPLE DESCRIPTION

ARCO LOST HILL LAKE F-62

Atlantic Richfield Canada Ltd.
R. A. McIntosh & K. S. Raskin
Geologists
March, 1972

F. G. Rayer, P. Geol.
District Geologist

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SECTION I - SUMMARY OF WELL DATA

(a) WELL NAME AND NUMBER

ARCO Lost Hill Lake F-62

(b) PERMITTEE

Atlantic Richfield Canada Ltd.

(c) NAME OF OPERATOR

Atlantic Richfield Canada Ltd.
650 Guinness House, 727 - 7th Avenue S.W.,
Calgary, Alberta.

(d) LOCATION

Unit F, Section 62, Grid 65°50'N, 123°00'W
Latitude 65°41'23"N, Longitude 123°12'20"W
Unique Well Identifier 300F626550123000
Universal Well Location Reference - 65.68972°N, 123.20556°W

(e) PERMIT NUMBER

6377

(f) DRILLING CONTRACTOR

Tri-City Drilling (1968) Ltd., Rig. #2

(g) DRILLING AUTHORITY

No. 537

(h) CLASSIFICATION

Wildcat

(i) ELEVATION

Ground Elevation 867', Ground to KB 12.25, KB 879.25

(j) DATE SPUDDED

February 2, 1972 (7:00 p.m.)

(k) DATE COMPLETED DRILLING

February 28, 1972 (7:30 p.m.)

(l) TOTAL DEPTH AND PLUGGED BACK TOTAL DEPTH

TD 4566', PBTD Surface

(m) WELL STATUS

Dry and Abandoned

(n) DATE RIG RELEASED

March 7, 1972 (12:00 noon)

(o) HOLE SIZE

12 1/4" from 0 - 633'
8 3/4" from 633 - 4566'

(p) CASING

(Surface) 0 - 603' 9 5/8" 36 lb. J-55, ST&C 490 sacks

Permafrost cement and 100 sacks construction cement.

SECTION II - GEOLOGICAL SUMMARY

(a) Formation Tops

Formation	Sample	Mechanical Log	Subsea Elevation
Casing	603 (meas.)	596	+283
Cretaceous	100		+779
Cretaceous Basal Sandstone	1670	1670	-791
Devonian	1747	1747	-868
Siluro-Ordovician Ronning Group	1885	1898	-919
Cambrian			
Saline River Formation (?)	3510 (?)	3505 (?)	-2626
Salt	3696	3696	-2817
Mt. Cap Formation (?)	4210	4210	-3343
Total Depth	4566	4555 (11' fill)	-3687 (4566)

(b) Cored Intervals

Core No. 1 1765 - 1825' (Devonian?) Rec 60'

Sidewall Cores

670', 760', 800', 804', 1360', 1503', 1550', 1623', 1636', 1681', 1675', 1691', 1710', 1720', 1732', 1734', 1735', 1742', 1744', 3602'.

(c) Core Description

Core No. 1 - 1765' - 1825' 60/60 - Orientated

1765 - 1780' Shale - grey green, pyritic, laminae of silty dolomite - aphanic.

1780 - 1790' Dolomite - tan, microcrystalline, silty, mottled, blind vugs, thin interbeds of shale - grey-green, pyritic.

1790 - 1794' Shale - as above with large dolomite clasts and major load casts.

1794 - 1798' Shale - as above with laminae and small clasts of dolomite - cryptocrystalline. Shale - dark brown 1" - 4" bed at 1797'.

1798 - 1805' Shale - as above with laminae of dolomite as above.

1805 - 1809' Shale - as above, hairline fractures partially healed with dolomite and contained abundantly dispersed pyrite.

1809 - 1825' Shale - grey green dolomitic, pyritic, trace carbonaceous plant fragments, blind vugs lined with dolomite, load casts, and boundinage.

Depth	Min./Foot
1765 - 1766'	6
1766 - 1767'	7
1767 - 1768'	7
1768 - 1769'	7
1769 - 1770'	6

Depth	Min./Foot
1770 - 1771'	7
1771 - 1772'	6
1772 - 1773'	7
1773 - 1774'	4
1774 - 1775'	4
1775 - 1776'	4
1776 - 1777'	5
1777 - 1778'	4
1778 - 1779'	4
1779 - 1780'	4
1780 - 1781'	4
1781 - 1782'	4
1782 - 1783'	4
1783 - 1784'	4
1784 - 1785'	4
1785 - 1786'	4
1786 - 1787'	4
1787 - 1788'	4
1788 - 1789'	4
1789 - 1790'	4
1790 - 1791'	4
1791 - 1792'	4
1792 - 1793'	4
1793 - 1794'	4
1794 - 1795'	4
1795 - 1796'	5
1796 - 1797'	5
1797 - 1798'	4
1798 - 1799'	5
1799 - 1800'	4
1800 - 1801'	6
1801 - 1802'	5
1802 - 1803'	5
1803 - 1804'	5
1804 - 1805'	5
1805 - 1806'	5
1806 - 1807'	6
1807 - 1808'	5
1808 - 1809'	5
1809 - 1810'	5
1810 - 1811'	6
1811 - 1812'	5
1812 - 1813'	5
1813 - 1814'	5
1814 - 1815'	5
1815 - 1816'	5
1816 - 1817'	6
1817 - 1818'	5

Depth	Min./Foot
1818 - 1819'	6
1819 - 1820'	5
1820 - 1821'	6
1821 - 1822'	5
1822 - 1823'	5
1823 - 1824'	5
1824 - 1825'	5

Sidewall Cores

670' - Sandstone, friable - unconsolidated, quartz, clear, very fine grain, sub-angular to sub-round, moderate sorting, trace glauconite, scattered dark opaque minerals, trace carbonaceous material (dark laminae have slightly more glauconite than light laminae). Excellent porosity.

760' - Siltstone, quartz dark-grey, indurated, coarse grain, glauconitic, calcareously cemented. Interlaminae of sandstone as in 670'. Trace iron stain.

800' - Mudstone - medium grey, soft micro-micaceous, trace carbonaceous material, rare pyrite, blocky.

804' - Mudstone - as above with scattered pyrite lenses, and thin lenses of siltstone - white, friable.

1360' - Mudstone as above.

1503' - Sandstone - quartz, friable, clear, very fine grain, sub-round to sub-angular, scattered dark opaque minerals, trace carbonaceous material, loosely cement by calcite, trace (1-3%) glauconite grains. Dark and light laminae. Excellent porosity.

1550' - Sandstone - quartzose, clear, friable, very fine grain, sub-round to sub-angular, moderate sorting, abundant (10-15%) glauconite grains, trace carbonaceous material, trace pyrobitumen, scattered dark opaque minerals, loosely cemented by calcite. Good porosity.

1623' - Sandstone, quartzose, clear, friable, fine (.24mm) to medium grain, sub-round to sub-angular, poorly sorted, iron stained, trace pyrite, loosely cemented by powdery white calcite. Moderate porosity.

1636' - Sandstone - quartzose, clear, friable, fine-medium (.20 - .28) grain, sub-round, poor to moderate sorting, trace pyrobitumen, very rare glauconite, iron stained grains, good porosity.

1681' - Sandstone - quartzose, clear, friable, fine grain, sub-round to sub-angular, poor to moderate sorting, trace pyrite, trace carbonaceous material and opaque mineral grains, good porosity.

1675' - Sandstone - quartzose, clear, unconsolidated trimodal
(1) medium grain (.4) (up to coarse), rounded, moderate sorting.
(2) fine grain (50%), sub-round, poor-moderate sorting.
(3) silt - (20%)

1691' - Sandstone - quartzose, clear, unconsolidated, trimodal 1. medium grain (.4 mm), moderate sorting, 2. 10-15% very fine to fine grain, angular, poorly sorted, 3. 5% - 10% silt. Excellent porosity.

1710' - Sandstone - quartzose, clear, unconsolidated, fine grain to very fine, poorly sorted, sub-angular to round (larger grains are more rounded), 15% silt.

1720' - Sandstone - quartzose, clear, unconsolidated to partially consolidated (cemented with calcite), medium grain average .4 - .5mm but grains present up to .7mm, sub-round to round, moderate sorting, trace iron staining, very rare pyrobitumen. 10% very fine grain sand and silt.

1732' - Poor core - mainly filter cake. Abundant silt and sandstone - medium to coarse grain, unconsolidated, clear - observed.

1734' - Mudstone (?) - Filtercake (?)

1735' - Poor core - abundant filter cake: Sandstone - quartzose, friable, very fine grain, poor to moderate sorting, sub-round to sub-angular, slightly calcareous (cement), trace pyrite, and scattered carbonaceous matter.

1742' - Sandstone - quartzose, unconsolidated, clear medium grain (.28mm), (7-10%) coarse grain (.52), moderate sorting, sub-round to round (large grains tend to be better rounded, rare pyrobitumen and iron stained grains. Trace silt.

1744' - Sandstone - quartzose, unconsolidated, clear medium (.4), 10% coarse grain (.5 - .8), poor to moderate sorting sub-round to round). (30-40%) fine-to-silt-clear, sub-round to sub-angular.

3602' - Shale - maroon, hard, silty, dolomitic with a minor number of dolomite laminae.

(d) Sample Description

0 - 100'	Unconsolidated gravel consisting of predominantly igneous rocks with minor amount of sedimentary rocks - sandstone, shale, dolomite.
100 - 160'	Sandstone - quartzose, clear, unconsolidated, medium to coarse grain, moderate sorting, round to sub-round, with interbedded (25%) shale - medium grey, micro-micaceous, rare fossil fish fragments, abundant gravel cavings.
160 - 280'	Shale - medium grey, micro-micaceous, rare to scattered fossil fish fragments, pyrite, slightly silty.
280 - 300'	Shale - as above, with rare acicular calcite prisms.
300 - 380'	Shale - as above, with up to 5% fibrous calcite, also rare plant fossils, fibrous calcite has bituminous partings.
380 - 510'	Shale - medium grey micro-micaceous, trace fossil fish fragments, pyrite, rare fibrous calcite. Sample quality poor, abundant cavings. Tripped at 446' - sample contained a large amount of filter cake.
510 - 520'	Shale - as above, with a trace of soft yellow calcite.
530 - 570'	Shale as above minor interbeds (10%) of sandstone - quartzose, clear, very fine grained, moderate sorting, sub-round, trace porosity, scattered glauconite.
570 - 600'	Shale - as above, rare fish scales, minor interbeds (10%) of sandstone - quartzose, fine grain, moderate sorting, sub-round to sub-angular, calcareous cement, trace glauconite, trace to good porosity, pyrobitumen.
600 - 610'	Sandstone - unconsolidated, fine grain, moderate sorting, sub-round to sub-angular, sub-spherical. Abundant shale cavings.
610 - 630'	As above, poor samples.
630 - 690'	No samples, shale shaker screen mesh too large.
690 - 700'	Sandstone - unconsolidated, quartzose, clear, fine grain, moderate to well sorted, sub-round sub-angular, trace powdery white calcite (cement?), rare pyrite, rare pyrobitumen, trace iron stained quartz grains, minor interbeds of shale - dark grey, micro-micaceous. Sample was caught in bucket at end of flow line.

700 - 720' No samples - shale shaker screen mesh too large.

720 - 730' Sandstone - as above, with interbeds (20%) of marl - white, powdery, earthy, calcareous, rare pyrite and glauconite. Minor (3-5%) interbeds of shale - dark grey soft, micro-micaceous, 3-5% acicular calcite crystals (Inoceramus prisms?).

740 - 770' Marl - white, powdery, earthy, carbonaceous, calcareous-specks, silty-sandy with minor interbeds of (5%) shale as above.

770 - 790' Marl - as above, interbeds (30%) of shale - dark grey, soft, carbonaceous, pyritic, rare calcite prisms, minor (5-10%) dolomite concretions - grey, slightly anhydritic, trace pyrobitumen. Scattered glauconite.

800 - 810' Shale - dark grey, as above minor interbeds (10%) of siltstone - buff, glauconitic, pyritic, poor sample.

810 - 850' Shale - dark grey, soft, slightly silty, micro-micaceous, carbonaceous, trace carbonized and pyritized plant fragments, trace pyrite, very rare fossil fish fragments, scattered pelecypods fragments - calcite prisms, and irridescent calcite plates. Rare dolomite concretions from 810 - 830'. Rare interbeds of sandstone - fine grain, with intergranular pyrobitumen. Sample quality improves after 850'.

850 - 1030' Shale - dark grey, soft, slightly silty, micro-micaceous, trace carbonized plant fragments, trace pyritized plant and fossil bone fragments, scattered sand grains, rare to trace shell fragments - irridescent calcite plates. Very rare interbeds of reddish brown siltstone.

1030 - 1040' No sample.

1040 - 1500' Shale - dark grey, papery, slightly silty, micro-micaceous, trace carbonzied plant fragments, trace pyritized plant and bone fragments, pyrite, rare glauconite grains, rare to trace shell fragments - irridescent calcite plates, rare dolomitic concretions, rare to minor interbeds (up to 5%) siltstone - reddish-brown, hematitic. Shales are siltier from 1350 downwards.

1500 - 1510' Shale - as above, (percentage may be larger due to abundant cavings) interbeds (20%) of sandstone - salt and pepper colour, quartzose, very fine grain, sub-round to sub-angular, poor to moderate sorting,

calcareous cement, argillaceous, 1% - 5% glauconite, pores partially infilled with carbonaceous material of/pyrobitumen, trace porosity.

1520 - 1590' Shale and minor (5-15%) interbeds of sandstone as above. Sandstone pyritic at 1570 - 1580', and shale has trace glauconite grains 1580 - 1590'. Due to cavings samples 1590 - 1747' have been adjusted to Sonic Log.

1590 - 1610' Sandstone - quartzose, clear, fine grain, well sorted, subangular, calcareous cement, trace pyrobitumen infilling intergranular pores, fair to good intergranular porosity, minor interbeds of shale and sandstone (very fine grain) as above. Poor sample - abundant cavings.

1610 - 1630' Shale - as above with interbeds of sandstone (fine grain) as above, rare sideritic concretions.

1630 - 1640' Sandstone - unconsolidated, clear, medium to coarse (medium average), round, moderate sorting, minor interbeds of shale as above. Sample quality poor.

1640 - 1660' Sandstone and shale as above, interbeds of (5%) sandstone - unconsolidated, clear, medium grain, moderate sorting. Very poor sample.

1670 - 1747' Sandstone - unconsolidated, clear, medium grain. Minor shale interbeds. Sample quality is very poor through this interval due to the unconsolidated sandstone and abundant shale cavings. See description of sidewall cores through this interval.

1747 - 1765' Abundant cavings - lithology of formation not discernable.

1765 - 1825' Core #1.

1825 - 1900' Dolomitic shale - shaly dolomite - light grey-green, pyritic with very minor interbeds (5-10%) of dolomite - light grey, cryptocrystalline to finely crystalline, rare pyrite. Trace of interbedded shale - brown. Rare blind pin-point vugs observed in grey green shale at 1870 - 1880'. Samples are poor through this interval - abundant Cretaceous shale cavings.

1900 - 1930' Dolomite - light grey brown to white, cryptocrystalline to fine crystalline (predominant), pyritic, trace pyrobitumen. Rare-trace of interbedded shale - reddish brown, with dolomite infilling fractures at 1920 - 1930'.

1930 - 2120' Dolomite - light brown to offwhite, cryptocrystalline, rare to trace pyrobitumen with minor interbeds of dolomite - light brown to offwhite, fine crystalline, trace pyrobitumen stain and infilling of rare pin-point blind vugs. Oil staining observed in approximately ½% of cuttings at 2050 - 2060'. Trace powdery calcite and rare waxy non-crystalline anhydrite (cement? and vug filler?). Sample quality very good through this interval.

2120 - 2210' Dolomite - dark grey brown, cryptocrystalline (predominant) to finely crystalline, trace pyrobitumen stain, trace to 5% anhydrite (no vug filler) - microcrystalline. Rare to 1% chert - smoky to white.

2210 - 2330' Dolomite - dark grey brown, cryptocrystalline to finely crystalline, argillaceous, scattered pyrobitumen stain, rare to trace blind vugs, (2270 - 2300'). Minor interbeds (10-20%) dolomite - white - buff, finely crystalline, trace pyrite, trace pyrobitumen stain. Rare chert (nodules?) - smoky.

2330 - 2430' Dolomite - clear, greyish tinge, finely crystalline to fine crystalline (up to coarse crystalline), trace pyrite, trace anhydrite - white micro-crystalline, trace light green cement. Rare waxy green shale interbeds at (2410 - 2420'), trace.

2430 - 2500' Dolomite, white to buff, finely to fine crystalline minor interbeds (10%) of dolomite - greyish tinge, pyrite, trace interbeds of shale - grey-green, waxy, rare red, very fine grained siltstone hematitic stain, trace anhydrite, as above, very rare chert - brown to dark grey. Trace.

2500 - 2520' Dolomite - light to dark brown, aphanic, argillaceous, with interbeds of dolomite - white, finely crystalline, trace pin point porosity. Very minor interbeds of dolomite - grey, aphanic. Trace interbeds of grey, waxy shale, trace anhydrite (cement or vug filler) - white, earth, non-crystalline. Rare chert-white.

2520 - 2530' No sample.

2530 - 2570' Dolomite - white to light brown, finely crystalline, trace iron staining, with interbeds (10-20%) Dolomite - dark brown, aphanic, trace pyrite, trace anhydrite. Rare to trace chert, rare pyrobitumen staining.

2570 - 2580' Dolomite - dark brown, aphanic-fine crystalline, rare pin point porosity, with interbeds of (30%) dolomite - white to light brown finely crystalline. Rare chert white and trace anhydrite as above.

2580 - 2610' Dolomite - light brown to white as above, with minor interbeds of waxy green shale and dark brown dolomitic shale. Trace to rare chert - smoky and white. Trace (2%) anhydrite as above.

2610 - 2630' Dolomite - dark brown as above, trace pyrobitumen, minor interbeds (10-15%) dolomite - light brown to white as above. Trace chert - smoky, and rare anhydrite.

2630 - 2670' Dolomite - light brown as above trace pyrite, and styolites. Minor interbeds (10%) dolomite - dark brown as above. Rare anhydrite, rare chert and rare pyrobitumen stain. Rare interbeds of shale - green, waxy at 2650 - 2660'.

2670 - 2690' Dolomite - dark brown, as above, rare pin point porosity, trace anhydrite - white as vug filler. Interbeds dolomite - light brown to white as above. Trace chert - white.

2690 - 2710' Dolomite - light brown to white as above. Minor interbeds (10%) dolomite - dark brown, aphanic - finely crystalline, argillaceous. Rare anhydrite. Rare interbeds of shale - dark brown, dolomitic.

2710 - 2730' Dolomite - light brown to white and dolomite dark brown as above trace pyrobitumen. 10-15% chert - white, with brown oolites pseudo morphed in chert.

2730 - 2790' Dolomite - white to light brown, finely crystalline trace blind vuggy porosity and rare intercrystalline porosity. Minor interbeds (15%) of dolomite - dark brown, aphanic and very minor interbeds (5%) grey, cryptocrystalline, with finely dissiminated pyrite. Rare white chert and pyrobitumen staining. Trace powdery white calcite.

2790 - 2810' Dolomite - dark brown, cryptocrystalline, argillaceous pyrobitumen staining. Interbeds (28%) dolomite light brown to white, finely-fine crystalline rare blind vugs, white powdery calcite, trace pyrite.

2810 - 2840' Dolomite - white to light brown as above rare iron staining. Interbeds (25-30%) dolomite dark brown, cryptocrystalline, argillaceous, trace pyrite. Very minor interbeds (5%) dolomite - grey, cryptocrystalline.

2840 - 2860' Dolomite - dark brown to white (predominantly light brown) as above. Very minor interbeds of dolomite - grey as above. Trace chert - grey-brown and trace anhydrite - white.

2860 - 2870' Dolomite - light brown to white (predominantly white) aphanic.

2870 - 2880' Dolomite - dark brown as above minor interbeds dolomite light brown to white as above. Very rare white chert.

2880 - 2890' Dolomite - light brown to white as above. Trace pyrobitumen interbeds of dolomite dark brown as above.

2890 - 2910' Dolomite - dark brown as above, trace pyrite. Interbeds of dolomite - grey, cryptocrystalline trace pyrobitumen staining. Very minor interbeds of dolomite - light brown, finely crystalline, styolites. Rare shale - grey dolomitic. Very rare chert.

2910 - 2940' Dolomite - light brown to light grey, cryptocrystalline. Interbeds (25%) dolomite - white finely crystalline. Minor interbeds dolomite - dark brown as above.

2940 - 3050' Dolomite - light grey to white, aphanic, trace pyritic. Interbeds of dolomite - dark brown as above, trace pyrobitumen staining. Very minor to rare interbeds of shale - green, waxy. Rare anhydrite - white, cryptocrystalline. At 2980 - 2990' trace of dolomite - translucent fine to medium rhombs.

3050 - 3220' Dolomite - dark brown to grey, aphanic, argillaceous rare intercrystalline, and vuggy porosity, rare pyrobitumen and anhydrite infilling vugs. Rare oolites pseudomorphed by chert at 3100 - 3110, 3120 - 3130, 3170 - 3180. Also very rare chert at 3170 - 3180 and 3210 - 3220. Very rare chert laminae at 3120 - 3130. Interbeds of dolomite - light brown to white to grey, finely crystalline, trace laminations at 3160 - 3170'.

3220 - 3230' Dolomite, white to light grey brown, predominantly cryptocrystalline but up to finely crystalline, rare pyrite. Minor interbeds of dolomite - dark grey, with brown tinge, argillaceous, cryptocrystalline.

3230 - 3240' Dolomite - dark brown to brown, cryptocrystalline, argillaceous, rare relict oolites. Minor interbeds of dolomite - white, finely crystalline with trace dark laminae.

3240 - 3300' Dolomite - grey white to grey to white brown, cryptocrystalline to finely crystalline, mainly cryptocrystalline, trace pyrobitumen stain. Interbeds of dolomite - white, finely crystalline trace pyrite, rare pyrobitumen stain, laminae at 3260 - 3270'.

Minor interbeds of dolomite dark grey, aphanic, argillaceous, trace pyrobitumen. Rare interbeds of shale - reddish-brown, silty.

3300 - 3320' Dolomite - dark grey, cryptocrystalline, very argillaceous. Interbeds of dolomite - grey white - brown grey cryptocrystalline, slightly argillaceous, trace dark laminae. Minor interbeds dolomite - white finely crystalline, calcareous, trace intercrystalline porosity, trace iron stain.

3330 - 3360' Dolomite - dark grey to brown grey cryptocrystalline, dark grey is argillaceous, rare pyrite. Minor interbeds (5-10%) dolomite - white cryptocrystalline. Minor interbeds (10%) of dolomite - white, finely crystalline. Rare reddish silty dolomite and green shale at 3340 - 3350'.

3360 - 3400' Dolomite - dark brown - medium grey, aphanic, contains organic matter, argillaceous pyrobitumen stain. Minor interbeds of dolomite - light brown to white finely crystalline, trace pyrobitumen stain.

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3400 - 3450' Dolomite - dark brown to dark grey, cryptocrystalline, argillaceous. Minor interbeds of dolomite - white, finely crystalline, trace pyrite, trace anhydrite as cement and vug filling, very rare blind vugs. Dark and light laminae at 3440 - 3450'.

3450 - 3510' Dolomite - dark grey to dark brown, predominantly dark grey, cryptocrystalline minor interbeds (10%) of dolomite - white as above. Minor interbeds (10%) of shale - grey to dark grey green waxy, dolomitic, slightly pyritic. Very rare brown and dark amber chert 3490 - 3500'.

3510 - 3530' Dolomite as above rare styolites of 3220 - 3230' interbedded (up to 25%) shale - green, waxy, slightly dolomitic trace pyrite.

3530 - 3580' Dolomite as above. Interbedded shales - dark green, grey, green, and reddish brown (slightly silty), dolomitic, waxy.

3580 - 3690' Dolomite - interbeds of grey, pink, white, aphanic, dolomite. Interbeds of shale - (15%) green-lime green waxy, and shale - reddish-brown, slightly silty. Very minor interbeds of siltstone - purple, dolomitic. Trace anhydrite.

3690 - 3700' Dolomite as above. Interbedded shale - reds and green, with red silty shale blebs in green shale. Hairline fractures infilled with dolomite in silty red shale. Trace anhydrite. Drilling rate increase at 3698 and change in

salinity of mud system suggests salt from 3698 - 3702.

3700 - 3745' Salt - with interbeds of dolomite and shale as above but with salt casts of shales.

3745 - 3750' Dolomite and shale.

3750 - 3760' Dolomite - multicolored, vuggular, (dissolved salt) in orange, finely crystalline dolomite. Interbeds of grey, green, and reddish brown shales with salt casts. Trace hard vitreous pyrobitumen.

3760 - 3780' Predominantly salt. Contorted bedding in shales in 3770 - 3780' interval.

3780 - 3810' Dolomites and shales, varicolored, salt casts in shales, and salt interbeds. Rare orange quartz crystals, and very rare black vitreous pyrobitumen.

3810 - 3850' Predominantly salt.

3850 - 3870' Predominantly salt with minor interbeds of dolomite and shale as above.

3870 - 3910' Predominantly red and green waxy shales, shales exhibiting salt casts, and some pellet shadows. Minor interbeds of multicolored aphanic dolomite. Samples are poor due to abundant cavings.

3910 - 4010' Predominantly salt.

4010 - 4020' Dolomite - white to grey, finely crystalline, vuggy and intercrystalline porosity (likely infilled) previous with salt. Minor interbeds of shale - green, waxy, with red shale inclusions and streaks.

4020 - 4040' Salt with very minor dolomite and shale interbeds as above.

4040 - 4050' Salt with interbed of dolomite as above from 4047 - 4050'.

4050 - 4060' Dolomite - white, finely crystalline, vuggy (dissolved salt?) minor interbeds of red and green shales. Shales contain salt casts.

4060 - 4210' Salt with rare interbeds of dolomite and shale as above.

4210 - 4230' Dolomitic shale - shaly dolomite - dark grey to black. Interbeds (20%) of dolomite - white to light brown, finely crystalline. 2% quartz-clear crystalline (possibly from veins) trace red and green shales (cavings?).

4230 - 4340' Shaly dolomite - dark grey, cryptocrystalline minor interbeds of dolomite - brown-grey, cryptocrystalline and minor interbeds dolomite - white, finely crystalline. Minor interbeds of shale - dark grey, waxy. Trace clear quartz crystal fragments (veins?). Trace interbeds of silty brown dolomite and green shale with silty brown laminations.

4340 - 4350' No sample.

4350 - 4370' Dolomitic shale - shaly dolomite - dark grey. Interbeds (40%) shale - green, waxy. Minor interbeds of dolomite - white, aphanic and (5%) shale - maroon, silty, dolomitic. Trace clear quartz crystalline fragments (veins).

4370 - 4400' Dolomitic shale - shaly dolomite - dark grey - dark grey green. Interbeds of shale - green waxy dolomitic and maroon, silty, dolomitic. Minor interbeds of dolomite - varicolored (predominantly white) aphanic, trace clear quartz crystalline.

4400 - 4430' Shale - dark green, slightly dolomitic. Minor interbeds of dolomite - white to varicolored as above. Trace interbeds of shale - maroon, silty, dolomitic.

4430 - 4440' No sample.

4440 - 4450' Dolomite - dark grey to dark brown, cryptocrystalline, argillaceous. Very minor interbeds of dolomite - brownish-white, aphanic, up to fine crystalline. Very minor interbeds of (5%) shale - dark green, dolomitic and (5%) dolomitic shale - dark grey.

4450 - 4460' No sample.

4460 - 4470' Dolomite - dark grey, cryptocrystalline, very argillaceous. Interbedded (40%) dolomite - light brown, translucent, very fine to fine crystalline, pyrobitumen stain. Extremely rare dolomite - with glauconite grains (pellets?) and possible relict worm tubes (Scolithus?) in filled with glauconite.

4470 - 4490' Dolomite - dark grey as above. Interbedded (20%) dolomite - light brown as above. Very rare siltstone - whitish-grey, glauconitic. Interbedded (15%) shale - dark green, waxy, (1-5%) of shale has a yellow vitreous lustre (altered shale - chlorite?).

4490 - 4500' Shale - dark green, limy green, reddish-brown, (predominantly dark green). Minor interbeds (5-10%)

of siltstone - white-grey coarse, glauconitic, (also brown pellets).

4510 - 4566' Shale - dark green to dark green-grey, silty, micro-micaceous, scattered glauconite grains (pellets). Interbedded shale - grey-brown, slightly dolomitic, silty, micro-micaceous. Very minor interbeds of siltstone - white, glauconitic. Trace interbeds of dolomite - white, aphanic, trace pyrobitumen stain. Very rare earthy, pyritic, calcite.

(e) Paleontological Determinations:

None

SECTION III - ENGINEERING SUMMARY

(a) Drill Stem Tests:

Drill Stem Test No. 1: 2310 - 2650' Ronning Group Dolomite
Times: First Flow 5 minutes
ISI 30 minutes
Second Flow 60 minutes
FSI 90 minutes
Weak initial blow. Weak steady blow throughout flow period. Recovered 520' muddy water.
IHP 1142 ISIP 867 IFP 68
FHP 1149 FSIP 861 FFP 265
Well temperature 106°

Drill Stem Test No. 2: 2040 - 2082' Ronning Group Dolomite
Times: First Flow 5 minutes
ISI 30 minutes
Second Flow 30 minutes
FSI 30 minutes
Good initial blow, decreasing steadily to nil in 15 minutes. Recovered 420' watery drilling fluid and 1225 feet water.
IHP 992 ISIP 746 IFP 477
FHP 975 FSIP 746 FFP 745
Well temperature 85°F

Drill Stem Test No. 3: 1636 - 1690' Cretaceous Basal Sandstone
Misrun - could not get selective zone anchor to set.

Drill Stem Test No. 4: 1641 - 1690'
Times: First Flow 5 minutes
ISI 30 minutes
Second Flow 30 minutes
FSI 30 minutes
Strong initial blow, decreasing steadily to nil in 15 minutes. Recovered 180' muddy water and 1070' water.
IHP 806 ISIP 589 IFP 578
FHP 804 FSIP 589 FFP 588
Well temperature 84°

(b) Casing Record:

Surface Casing - 9 5/8" to 660' with 440 sacks permafrost cement.

Intermediate Casing - None

(c) Bit Record:

Number	Size	Make	Type	Depth Out	Footage	Hours	Condition
1A	12 1/4	Reed	YT3-J	50	50	8	6-1-I
2A	12 1/4	Reed	ST1A6-J	70	20	10 3/4	6-1-I
3A	12 1/4	Reed	ST1A6-J	100	30	6 1/2	6-1-I
4A	12 1/4	HW	OSC16	446	346	18	5-1-I
5A	12 1/4	Reed	YT3-J	633	187	11	5-1-I
1	8 3/4	HW	X1G	1765	1132	25	5-1-I
2	8 3/4	HW	X1G	1927	102	10 1/2	3-1-I
3	8 3/4	HW	X55R	2265	338	39	6-2-I
4	8 3/4	Reed	SCM5-J	2444	179	23	2-1-I
5	8 3/4	Reed	SCM5-J	2839	393	43 1/4	8-3-O
6	8 3/4	HW	X55R	3093	256	23 1/2	8-2-I
7	8 3/4	Reed	SC5G	3274	181	19 1/2	8-3-I
8	8 3/4	HW	RG7X	3888	614	53 3/4	3-1-I
RR4	8 3/4	Reed	SCM5-J	4442	554	41 3/4	3-1-I
9	8 3/4	HW	WD7	4566	124	12	3-4-I

(d) Mud Record

Date	Type	Amount	Weight	Viscosity	Water Loss	Ph	Filter Cake	Additives	
2/2/72	Super-Col	2500 lbs.		60					
3/2/72	Super-Col	3500 lbs.		60					
4/2/72	Super-Col	200 lbs.		75					
5/2/72	Super-Col	2750 lbs.		47					
6/2/72	Super-Col	1750 lbs.	9.5-9.2	43 - 100				Caustic	
7/2/72	Super-Col	1500 lbs.		75				Uni-Cal	
8/2/72	Super-Col	1300 lbs.		52 - 58					
10/2/72	Super-Col	500 lbs.	8.5	34					
11/2/72	Super-Col	1000 lbs.	9	33					
12/2/72	Super-Col	2500 lbs.	9.2	65	18.2		2/32		
13/2/72	Super-Col	500 lbs.	9.2	43				Caustic	- 150 lbs.
								Uni-Cal	- 150 lbs.
14/2/72	Super-Col	1000 lbs.	9.1	48	10	8.2	2/32	Caustic	- 100 lbs.
								Uni-Cal	- 100 lbs.
15/2/72	Super-Col	2500 lbs.	9.3	48	10.6	9.0	2/32	Uni-Cal	- 100 lbs.
								Caustic	- 100 lbs.
16/2/72	Super-Col	1650 lbs.	8.9	41	10.0	9.5	2/32	Caustic	- 150 lbs.
								Uni-Cal	- 150 lbs.
17/2/72	Super-Col	1900 lbs.	9.0	42	12.2	9.5	2/32	Caustic	- 50 lbs.
								Uni-Cal	- 100 lbs.
18/2/72	Super-Col	2000 lbs.	9.2	41	11	8	2/32	Caustic	- 100 lbs.
								Uni-Cal	- 50 lbs.
19/2/72	Super-Col	1550 lbs.	9.0	45	13.4	8.5	2/32	Caustic	- 50 lbs.
20/2/72	Super-Col	1250 lbs.	9.0	41	13.4	8.5	2/32		
21/2/72	Super-Col	1600 lbs.	9.0	44	16.0	9.5	2/32	Caustic	- 100 lbs.
								Uni-Cal	- 50 lbs.
22/2/72	Super-Col	2250 lbs.	9.0	42	12.0	9.0	2/32	Uni-Cal	- 200 lbs.
								Caustic	- 100 lbs.
23/2/72	Super-Col	2300 lbs.	9.0	42	14.0	9.0	2/32		
24/2/72	Super-Col	750 lbs.	9.1	48	26.0	8.0	2/32	Caustic	- 100 lbs.
								Uni-Cal	- 50 lbs.

Date	Type	Amount	Weight	Viscosity	Water Loss	Ph	Filter Cake	Additives	
	Salt Encounter at 3700'.								
25/2/72			9.2	50	75.0	9.0	14/32	Caustic	- 150 lbs.
								Uni-Cal	- 150 lbs.
26/2/72			9.1	46	80.0	10.5	7/32	Uni-Cal	- 200 lbs.
								Caustic	- 300 lbs.
27/2/72	Super-Col	1000 lbs.	9.5	43	80+	10.0	16/32	Uni-Cal	- 200 lbs.
								Caustic	- 150 lbs.
	At 4442' Mud System Changed - Still Mud Base 28/2/72.								
28/2/72	Super-Col	7600 lbs.	8.9	40				Uni-Cal	- 100 lbs.
								Caustic	- 250 lbs.
	4566' New Mud System - Polymer - At 5:00 A.M. 29/2/72.								
29/2/72	Gel	800 lbs.		38	13.5	10.0	1/32	Starch	- 500 lbs.
								Kalzan	- 250 lbs.
								Caustic	
1/3/72	Super-Col	2000 lbs.						Kalzan	- 250 lbs.
								Millstarch	- 500 lbs.
								Caustic	- 50 lbs.
								Preservatives	- 50 lbs.
								Paraformaldehyde	- 50 lbs.
2/3/72	Super-Col	1500 lbs.	9.0	35	9.5	10.0	1/32	Preservatives	- 100 lbs.
								Formaldehyde	- 125 lbs.
								Kalzan	- 550 lbs.
								Caustic	- 350 lbs.

(e) Deviation Record:

Depth	Deviation	Depth	Deviation
127	1/8	2265	1 1/4
241	1/2	2569	1
330	3/4	2820	1/8
478	1	3039	3/4
570	1 1/4	3260	3/4
1600	1	3539	1
1887	1 1/4	3884	1 1/2
2108	1 1/4	4336	2
		4566	1 1/4

(f) Abandonment Plugs:

Plug No. 1 - 4363 - 4464'

Plug No. 2 - 1650 - 1750'

Plug No. 3 - 550 - 670'

(g) Lost Circulation Zones:

Date	Depth	Amount Lost	Remarks
18/2/72	2515	approx. 100 bbls	Lost circulation going back in after trip.
24/2/72	3700 - 3710	approx. 20 bbls	
	3840 - 3850	approx. 20 bbls	

(h) Report of Blowouts:

None.

SECTION IV - LOGS

Logs - Schlumberger

1. Borehole Compensated Sonic - Gamma Ray - Caliper - 0-4553'
   2" and 5"

2. Dual Induction - Laterolog 8 - 596' - 4549'
   2" and 5"

3. Sidewall Neutron Porosity Log - Gamma Ray - Caliper - 1300' - 4554'
   2" and 5"

4. Compensated Formation Density - Gamma Ray - Caliper - 1500' - 4554'
   5"

5. Synergetic Dolomite - Limestone Lithology Plot - 1500' - 4554'
   5"

6. Four Arm Continuous Dipmeter - 596' - 4554'
   2" and 5"

7. Sidewall Core Gun
   20 sidewall cores cut.

8. Velocity Survey

SECTION V - ANALYSIS

(a) Core Analysis - Nil.

(b) Water Analysis - See attached analyses.

(c) Gas Analysis - Nil.

(d) Oil Analysis - Nil.

SECTION VI - COMPLETION SUMMARY

(a) Tubing Record:

None.

(b) Perforation Record:

None.

(c) Cementation Record:

Plug No. 1 - 4364 - 4464' (3-6-72)

with 82 sacks of construction cement, no feel.

Plug No. 2 - 1650 - 1760' (3-6-72)

with 100 sacks of construction cement and 3% $CaCl_2$, felt at 1628'.

Plug No. 3 - 550 - 670' (3-7-72)

with 135 sacks of construction cement, felt at 545'.

(d) Acidization and Fracturing Record:

None.

(e) Back Pressure and Production Tests:

None.

REVISED

DEPARTMENT OF INDIAN AFFAIRS & NORTHERN DEVELOPMENT
MINISTÈRE DES AFFAIRES INDIENNES ET DU NORD CANADIEN
OIL AND GAS DIVISION
DIVISION DU PÉTROLE ET DES MINÉRAUX

WELL COMPLETION DATA
RENSEIGNEMENTS SUR LES FORAGES

Drilling Authority No. — *N° de l'autorisation de forage*: 537
Date Issued — *Date de délivrance*: Sept. 24, 1971

To be submitted in duplicate within thirty days after the completion, rework, abandonment, recompletion or suspension of every well.
À présenter en double dans les trente jours suivant l'achèvement, le remaniement, l'abandon et le reconditionnement de chaque puits, ou après suspension.

Well Name & No — *Nom et n° du puits*	Permit No. — *N° de permis*	Lease No. — *N° de concession*
ARCO Lost Hill Lake F-62	6377	

(Permittee, License, Lessee) — *(Détenteur de permis ou de licence, du concessionnaire)*	Exploratory Licence No. — *N° de licence de sondage*
Atlantic Richfield Canada Ltd.	1821
(Operator) — *(Exécutant)*	Exploratory Licence No. — *N° de licence de sondage*
Atlantic Richfield Canada Ltd.	1821

LOCATION — *EMPLACEMENT*

Unit — *Unité*	Section	Grid — *Étendue quadrillée*	Latitude	Longitude
	62	65-50-123-00	65°41'23"	123 12'20"

Unique Well Identifier — *Code d'ordinateur*: 300A6550 123000 F62

Universal Well Location Reference — *Références universelles d'emplacement du puits*: [illegible] 65.68972° N. Lat. 123.20556° W. Lat.

	Date	Depth — *Profoneur*
Spudded — *Début des travaux*	2-2-72	--
Suspended — *Suspension des travaux*		
Resumed Operations — *Reprise des travaux*		
Finished Drilling — *Forage terminé*	2-28-72	4566'
Deepened — *Approfondissement*		
Complete (Gas/Oil) — *Achèvement (Gaz/Pétrole)*		
Abandoned — *Abandon*	3-7-72	4566
Rig Released — *Fin des travaux*	3-7-72	

Pool(s) — *Gisement(s)*: --
Interval(s) Open to Production — *Intervalle(s) de production*:
Elevation: Gr. — *Altitude du sol*: 867 K.B. — *du carré d'entraînement*: 879
Rig No. — *N° de la tour de forage*: 2 Drilling Contractor — *Entrepreneur en forage*: Tri-City Drilling
Contractor's Business Licence No. — *N° du permis de l'entrepreneur*:

CASING RECORD — *TUBAGE*

Casing Size (Inches) — *Diamètre (en pouces)*	Grade — *Qualité*	Weight — *Poids*	Amount — *Longeur*	Set at — *Fixation à*	Sacks of Cement and Additives — *Sacs de ciment et d'additifs*
1. 9 5/8	J-55	36#	592'	603' KB	450 sx + 3% CaCl2
2.					
3.					
4.					
5.					
6.					

Geological Tops — *Sommet des formations*	Elevation — *Profondeur* Depths — *Sous le niveau du sol*	Sub-Sea — *Sous le niveau de la mer*
Cretaceous		+ 779
Basal Sandstone	1670	- 791
Devonian	1747	-868
Siluro-Ordovician		
Ronning	1885	-1006
Cambrian		
Saline River	3585	-2706
Salt	3696	-2817
Mt. Cap	4210	?3343
TD	4566	-3687

Core Record — *Carottes*

From — *de*	To — *à*	Rec. — *Récupérés*	From — *de*	To — *à*	Rec. — *Récup.*
1765	1825	60			

Log Record — *Diagrammes*

Run — *Série*	Type of Log — *Genre de diagramme*	From — *De*	To — *À*
1	BHC-SGrC	0	4566
1	DILL	0	4566
1	SNP-GrC	0	4566
1	FDC-GrC	0	4566
1	Dipmeter	0	4566
1	Velocity Survey		

DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT
CONSERVATION ENGINEER
MAY 25 1972
YELLOWKNIFE, N.W.T.
NORTHERN OIL AND GAS DEVELOPMENT BRANCH

52-90-2 (7-71)

CEMENTING RECORD (Plug, Squeeze, etc.) / *CIMENTATION (Bouchon, sous pression, etc.)*

Date	From – *de*	To – *à*	Remarks – *Remarques*
3-6-72	4364	4464	Plug #1
3-6-72	1628	1760	Plug #2
3-7-72	545	670	Plug #3

PERFORATING RECORD (Bullet, Jet) / *PERFORATION (à balles, à jet)*

Date	From – *de*	To – *à*	Remarks – *Remarques*
			--

SERVICING RECORD (Acidizing, Fracing, etc.) / *ENTRETIEN (acidification, fracturation, etc.)*

Date	From – *de*	To – *à*	Remarks *Remarques*
			--

DRILL STEM TESTS – *ESSAIS AUX TIGES*

No. – *N°*	Date	Formation	From – *de*	To – *à*	V.O. Mins. *Vanne ouverte (minutes)*	I.S.I. Mins. *Première obturation (minutes)*	F.S.I. Mins. *Obturation définitive (minutes)*	I.S.I.B.H.P. *Pression de fond à la 1re obturation*	F.S.I.B.H.P. *Pression de fond à l'obturation définitive*	I.F.B.H.P. *Pression de fond au jaillissement*	F.F.B.H.P. *Pression de fond à l'écoulement définitif*	I.H.P. *Pression hydrostatique de début*	F.H.P. *Pression hydrostatique définitif*	Remarks – *Remarques*
1	3-4-72	Siluro-Ordovician (Ronning)	2310	2650	60	30	90	880	880	80	272	1168	1168	Rec 520' Watery Mud
2	3-5-72	"	2040	2082	30	30	30	763	763	471	763	1008	988	Rec 420' Muddy Water 1225' Fresh Water
3	3-5-72	Cretaceous	1641	1690	30	30	30	579	579	569	579	811	811	Rec 1070' Fresh Water 180' Muddy Water

Readings are Field Results

ANALYSIS – *ANALYSE*

Lab. No. *N° de laboratoire*	Sample *Échantillon*	From – *de*	To – *à*	Source	Remarks – *Remarques*
C724517-1	Water	Final Gel in Hole		Chem & Geol Labs	
E72-8110-3	Water	DST #1		" "	
E72-8111-4	Water	DST #2		" "	
E72-8112-4	Water	DST #3		" "	

PRESENT STATUS OF WELL / *ETAT ACTUEL DU PUITS*

Oil *Pétrole*			(Interval) *(Intervalle)*
Gas *Gaz*			(Interval) *(Intervalle)*
Dry *Sec*	X		
Susp. *Travaux sus.*			

Company *Société*: Atlantic Richfield Canada Ltd.

Signed by *Signé par*: (Original Signed) J. K. BIRRELL

Title *Titre*: Dist. Drilling & Production Supt.

Date: May 23, 1972

Forms to be prepared in duplicate and forwarded to the District Conservation Engineer.

Présenter les formules remplies à l'ingénieur en conservation du district.

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CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS

Lab No. E72-8111-4

Received: March 9,1972 Reported: March 17, 1972 Well: Location: ARCO Lost Hill Lake 7-62

Operator: ATLANTIC RICHFIELD CANADA LTD. Field or Area:

Elev.: K.B. Grd. Zone/Formation: Ronning Group Sample Interval: 2040' - 2082'

Method of Production: D.S.T. #2 Sampled from: Bottom Hole Sampler Sampled by: Johnston Testers Date: March 5, 1972

OTHER PERTINENT DATA

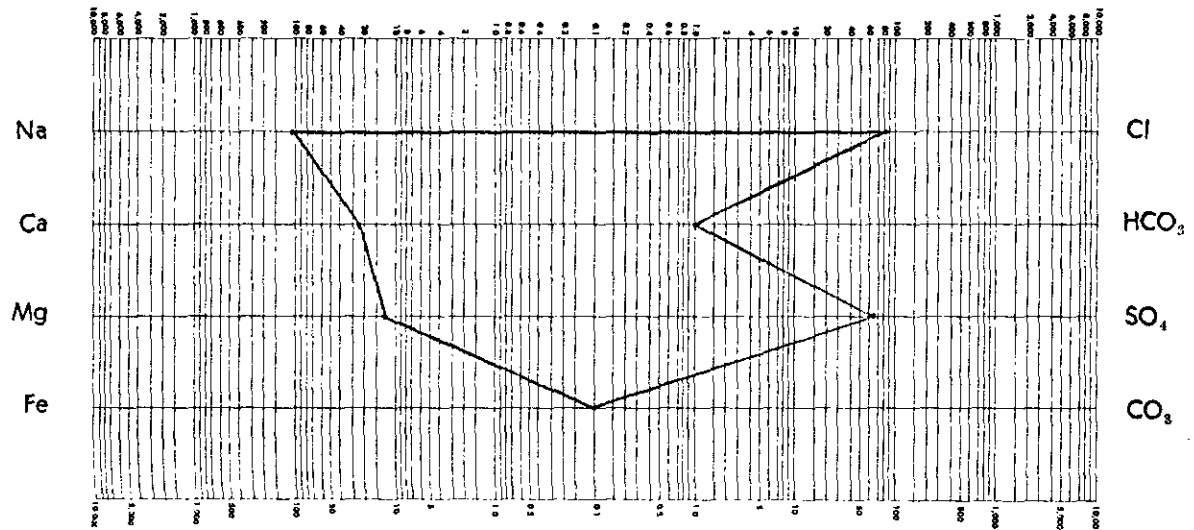
(Signed)

	Na & K	K	Ca	Mg					SO_4	Cl			CO_3	HCO_3	OH	
Mg./L	2612		484	157					3129	3000			Nil	61	---	
Meq./L	113.62		24.15	12.91					65.08	84.60			---	1.00	---	
Meq. %	37.70		8.01	4.28					21.60	28.07			---	0.33	---	

Total Solids Mg/L: By Evaporation 9,700 Fe Present Specific Gravity 1.012 @60°F Observed pH 6.9 @ 77 °F

Calculated 9,443 After Ignition 8,730 H_2S Nil Refractive Index 1.3345 @25°C Resistivity .870 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions

Johnston Testers bottom hole sampler #549 was received under a pressure of 38 psig. Liquid contained in the chamber consisted of 2385 mls. of water.

Continued . . .

CHEMICAL & GEOLOGICAL LABORATORIES LIMITED

OPERATOR: ATLANTIC RICHFIELD CANADA LTD. **REPORT NUMBER:** E72-8111-1/-4

DATE SAMPLED: March 5, 1972 DATE RECEIVED: March 9, 1972 DATE REPORTED: March 17, 1972

Well: ARCO Lost Hill Lake 7-62

LABORATORY NUMBER	SAMPLED FROM	RESISTIVITY (OHM-meters @ 68°F.)	REMARKS & CONCLUSIONS
E72-8111-1:	Top	0.199	Pale yellow water with some sediment
E72-8111-2:	Middle	0.568	Pale yellow water with some sediment
E72-8111-3:	Bottom	0.846	Pale yellow water with some sediment.

E72-8111-4: A Johnston Testers MFE Chamber No. 549 was received under a pressure of 38 psig. Contained in the chamber was 145 cc gas at ambient and 2385 mls water. Analysis of the Gas is:

AIR:	35.81%
NITROGEN:	64.11%
CARBON DIOXIDE:	0.08%

CHEMICAL & GEOLOGICAL LABORATORIES LIMITED

OPERATOR: ATLANTIC RICHFIELD CANADA LTD. **REPORT NUMBER:** E72-8111-1/-4

DATE SAMPLED: March 5, 1972 DATE RECEIVED: March 9, 1972 DATE REPORTED: March 17, 1972

LABORATORY NUMBER	BENZENE CONTENT	REMARKS
E72-8111-1:	No Trace of Benzene or Toluene Indicated.	Sample was received in a 1 quart metal container with a foil insert present in the screw cap. Container was full, water was clear, and appeared to be a good sample.
E72-8111-2:	No trace of Benzene or Toluene Indicated.	Sample was received in a 1 quart metal container with a foil insert present in the screw cap. Container was full, water was clear, and appeared to be a good sample.
E72-8111-3:	No trace of Benzene or Toluene Indicated.	Sample was received in a 1 quart metal container with a foil insert present in the screw cap. Container was full, water was clear, and appeared to be a good sample.
E72-8111-4:	No trace of Benzene or Toluene Indicated	Sample was received in a Bottom Hole Sampler. Water was clear, and appeared to be a good sample.

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CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS Lab No. E72-8110-3

Received: Mar. 9, 1972 Reported: Mar. 21, 1972 Well: Location: Arco Lost Hill Lake 7-62

Operator: ATLANTIC RICHFIELD CANADA LTD. Field or Area:

Elev.: K.B. Grd. Zone/Formation: Ronning Group Sample Interval: 2310' - 2650'

Method of Production: D.S.T. #1 Sampled from: Bottom Sampled by: Johnston Testers Date: Mar. 5, 1972

OTHER PERTINENT DATA

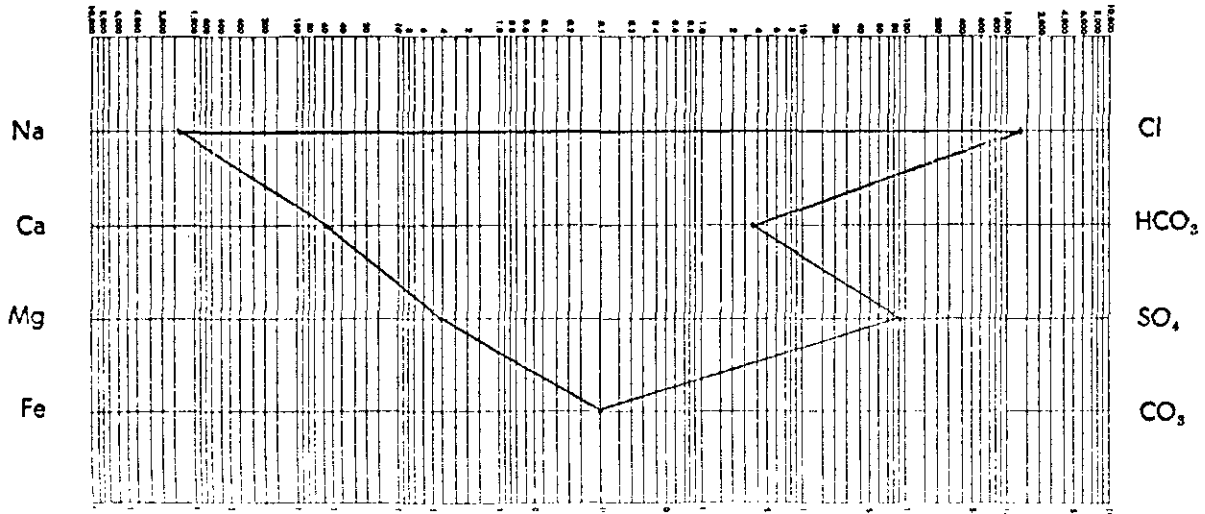
(Signed)

	Na & K	K	Ca	Mg					SO_4	Cl			CO_3	HCO_3	OH	
Mg./L	32,496		1,197	49					4,411	49,000			Nil	230	Nil	
Meq./L	1413.56		59.73	4.03					91.75	1381.80			---	3.77	---	
Meq. %	47.84		2.02	0.14					3.11	46.77			---	0.13	---	

Total Solids Mg/L: By Evaporation 90,460 Fe Present Specific Gravity 1.062 @60°F Observed pH 7.8 @ 76 °F

Calculated 87,383 After Ignition 85,580 H_2S Nil Refractive Index 1.3474 @25°C Resistivity 0.112 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions

Sample as received consisted of very muddy water. The filtered water was greenish yellow in color. Organic matter detected in dissolved solids.

E72-8110-1: Top.
RESISTIVITY: 0.111 OHM-Meters @ 68°F.
Sample consisted of very muddy water.

E72-8110-2: Middle.
RESISTIVITY: 0.113 OHM-Meters @ 68°F.
Sample consisted of very muddy water.

Continued.....

CHEMICAL & GEOLOGICAL LABORATORIES LIMITED

OPERATOR: ATLANTIC RICHFIELD CANADA LTD. REPORT NUMBER: E72-8110-1/-3

DATE SAMPLED: March 5, 1972 DATE RECEIVED: March 9, 1972 DATE REPORTED: March 21, 1972

LABORATORY NUMBER	BENZENE CONTENT	REMARKS
E72-8110-1	No trace of benzene or toluene indicated	Sample was received in a 1 quart metal container with a foil insert present in the screw cap. Container was full, water was very muddy, but had settled out upon standing leaving a layer of free water.
E72-8110-2	No trace of benzene or toluene indicated	Sample was received in a 1 quart metal container with a foil insert present in the screw cap. Container was full, water was very muddy, but had settled out upon standing leaving a layer of free water.
E72-8110-3	No trace of benzene or toluene indicated	Sample was received in a 1 quart metal container with a foil insert present in the screw cap. Container was full, water was very muddy, but had settled out upon standing leaving a layer of free water.

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CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS

Lab No. E72-8112-4

Received: Mar. 9, 1972 Reported: Mar. 17, 1972 Well: Location: ARCO Lost Hill Lake 7-62

Operator: ATLANTIC RICHFIELD CANADA LTD. Field or Area:

Elev.: K.B. Grd. Zone/Formation: Cretaceous Sample Interval: 1641' - 1690'

Method of Production: D.S.T. #3 Sampled from: Bottom Hole Sampler Sampled by: Johnston Testers Date: Mar. 6, 1972

OTHER PERTINENT DATA

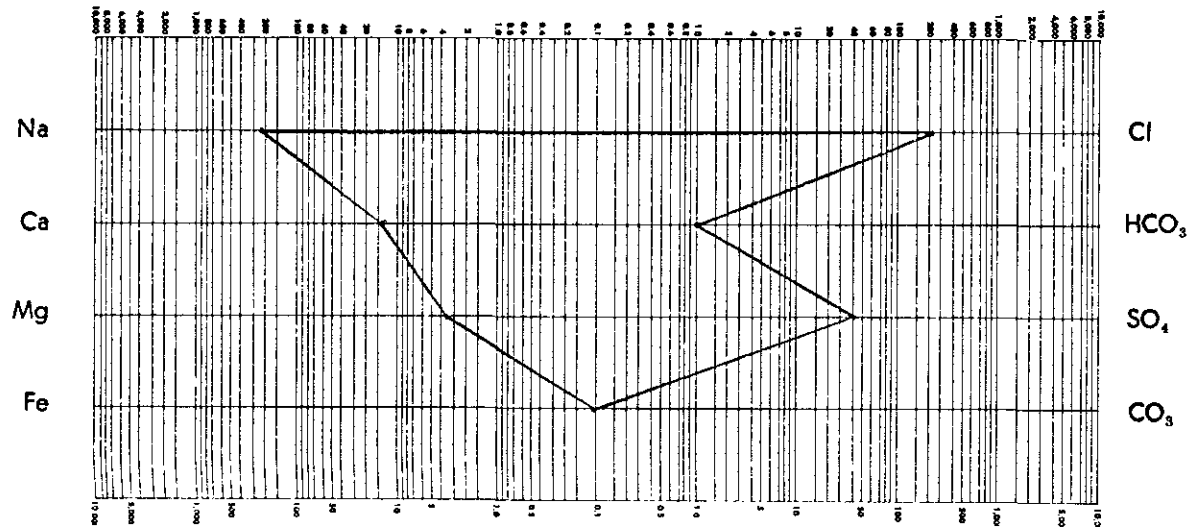
(Signed)

	Na & K	K	Ca	Mg					SO_4	Cl			CO_3	HCO_3	OH	
Mg./L	5,394		287	44					1,926	7,500			Nil	61	Nil	
Meq./L	234.62		14.32	3.62					40.06	211.50			---	1.00	---	
Meq. %	46.45		2.83	0.72					7.93	41.87			---	0.20	---	

Total Solids Mg/L: By Evaporation 15,580 Fe Present Specific Gravity 1.013 @60°F Observed pH 6.6 @ 75 °F

Calculated 15,212 After Ignition 14,390 H_2S Nil Refractive Index 1.3356 @25°C Resistivity 0.514 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions

Johnston Testers MFE Chamber #537 was received under a pressure of 30 psig. Liquid contained in the chamber consisted of 2440 mls. of water.

Continued.....

CHEMICAL & GEOLOGICAL LABORATORIES LIMITED

OPERATOR: ATLANTIC RICHFIELD CANADA LTD. **REPORT NUMBER:** E72-8112-1/-4

DATE SAMPLED: March 6, 1972 **DATE RECEIVED:** March 9, 1972 **DATE REPORTED:** March 17, 1972

LABORATORY NUMBER	SAMPLED FROM	RESISTIVITY (OHM-Meters @ 68°F.)	REMARKS
E72-8112-1	Top	0.125	Sample consisted of mud with a layer of clear water.
E72-8112-2	Middle	0.306	Sample consisted of water with some sediment.
E72-8112-3	Bottom	0.448	Sample consisted of water with some sediment.

E72-8112-4: A Johnston Testers MFE Chamber No. 531 was received under a pressure of 30 psig. Contained in the chamber was 200 cc. of gas at ambient and 2440 mls. water. Analysis of the gas is:

AIR:	91.29%
NITROGEN:	6.56%
CARBON DIOXIDE:	2.15%

C.G.L. 64

CHEMICAL & GEOLOGICAL LABORATORIES LIMITED

OPERATOR: ATLANTIC RICHFIELD CANADA LTD. **REPORT NUMBER:** E72-8112-1/-4

DATE SAMPLED: March 6, 1972 DATE RECEIVED: March 9, 1972 DATE REPORTED: March 17, 1972

LABORATORY NUMBER	BENZENE CONTENT (P.P.M.)	REMARKS
E72-8112-1	No trace of benzene or toluene indicated	Sample was received in a 1 quart metal container with a foil insert present in the screw cap. Container was full, water was clear, and appeared to be a good sample.
E72-8112-2	No trace of benzene or toluene indicated	Sample was received in a 1 quart metal container with a foil insert present in the screw cap. Container was full, water was clear and appeared to be a good sample.
E72-8112-3	No trace of benzene or toluene indicated	Sample was received in a 1 quart metal container with a foil insert present in the screw cap. Container was full, water was clear, and appeared to be a good sample.
E72-8112-4	No trace of benzene or toluene indicated	Sample was received in a Bottom Hole Sampler. Water was clear and appeared to be a good sample.

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WATER ANALYSIS

Lab No. C72-4517-1

Received: March 14,1972 Reported: April 10,1972

Well: Location: ARCO Lost Hill Lake F-62

Operator: ATLANTIC RICHFIELD CANADA LTD.

Field or Area: Lost Hill Lake

Elev.: K.B. Grd. Zone/Formation: Sample Interval:

Method of Production: Sampled from: Sampled by: Date:

OTHER PERTINENT DATA Final gel in hole

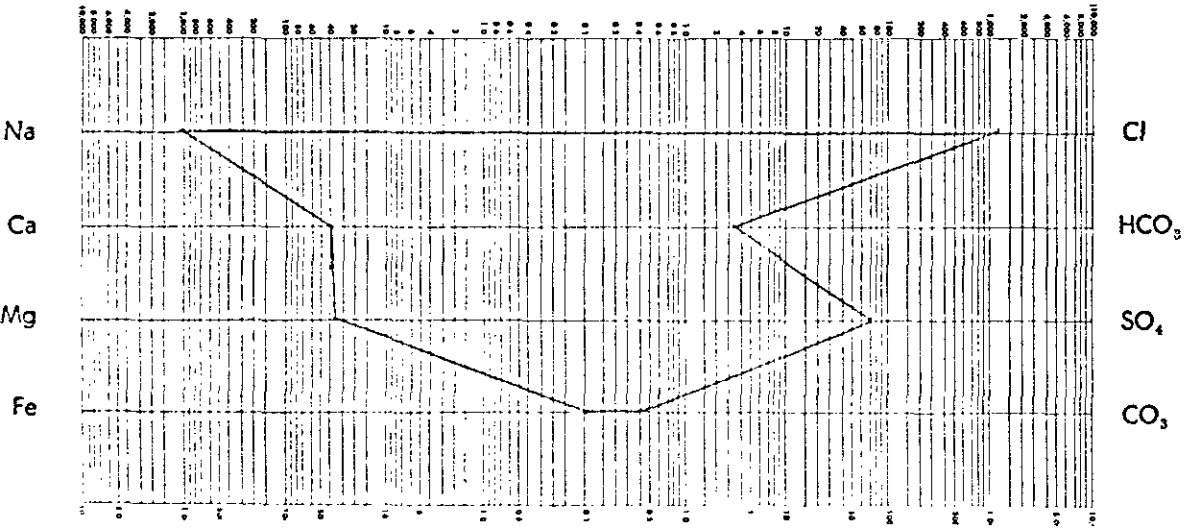
(Signed)

	Na & K		Ca	Mg					SO_4	Cl			CO_3	HCO_3		
Mg./L	25,243		785	457					3429	39,000			12	200		
Meq./L	1098.06		39.17	37.57					71.32	1099.80			0.40	3.28		
Meq. %	46.73		1.67	1.60					3.04	46.81			0.01	0.14		

Total Solids Mg/L: By Evaporation 71,250 Fe Nil Specific Gravity 1.054 @60°F Observed pH 8.4 @ 75 °F

Calculated 69,126 After Ignition 68,040 H_2S Nil Refractive Index 1.3446 @25°C Resistivity 0.114 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions

Analysis determined on pale yellow filtrate recovere from mud. Much organic matter detected in evaporated total dissolved solids.

CHEMICAL & GEOLOGICAL LABORATORIES LTD. WATER ANALYSIS Lab No. C72-4517-2

Received: March 14,1972 Reported: April 10,1972 Well: Location: ARCO Lost Hill Lake F-62

Operator: ATLANTIC RICHFIELD CANADA LTD. Field or Area: Lost Hill Lake

Elev.: K.B. Grd. Zone/Formation: Sample Interval:

Method of Production: Sampled from: Flow line Sampled by: Date:

OTHER PERTINENT DATA Polymer Mud

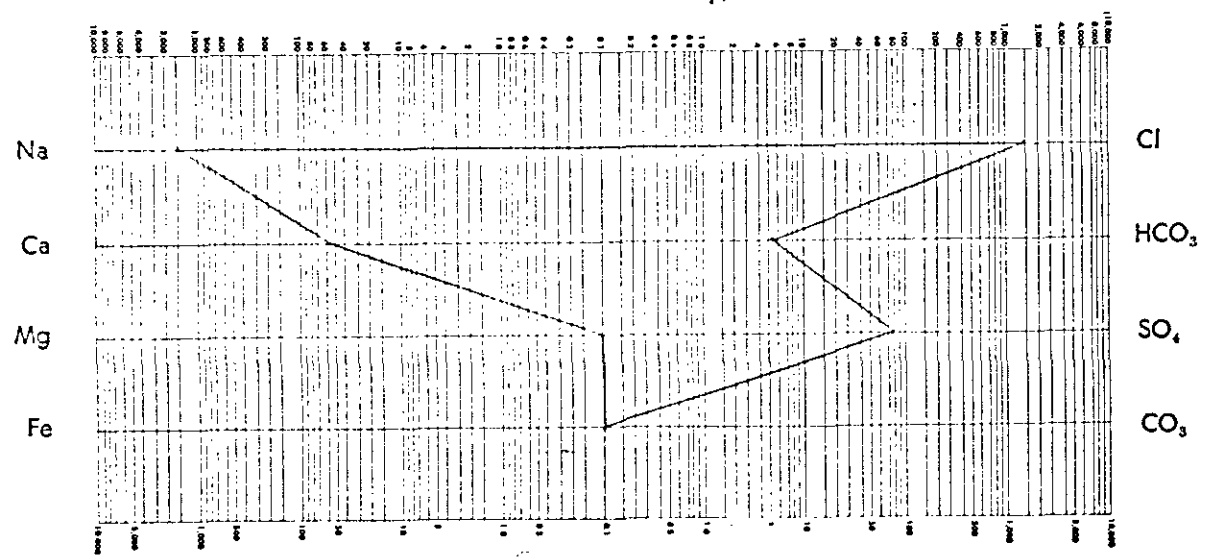
(Signed)

	Na & K		Ca	Mg					SO_4	Cl			CO_3	HCO_3		
Mg./L	33,446		1,101	Trace					3862	50,500				330		
Meq./L	1454.90		54.94	---					80.33	1424.10				5.41		
Meq. %	48.18		1.82	---					2.66	47.16				0.18		

Total Solids Mg/L: By Evaporation 91,100 Fe Nil Specific Gravity 1.067 @60°F Observed pH 7.5 @ 75 °F

Calculated 89,239 After Ignition 88,680 H_2S Nil Refractive Index 1.3476 @25°C Resistivity 0.092 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions

Analysis determined on a pale yellow filtrate recovered from mud. Much organic matter detected in evaporated total dissolved solids.

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

WATER ANALYSIS

Lab No. C72-4517-3

Received: March 14, 1972 Reported: April 10, 1972 Well: Location: ARCO Lost Hill Lake F-62

Operator: ATLANTIC RICHFIELD CANADA LTD. Field or Area: Lost Hill Lake

Elev.: K.B. Grd. Zone/Formation: Sample Interval:

Method of Production: Sampled from: Mud Tank Sampled by: Date:

OTHER PERTINENT DATA Polymer Mud

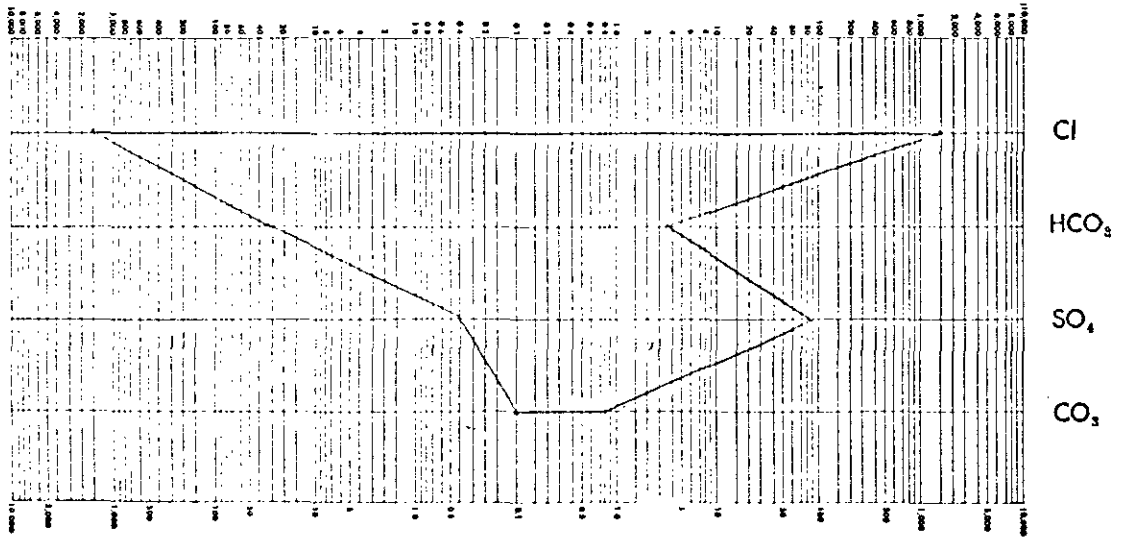
(Signed)

	Na & K		Ca	Mg					SO_4	Cl			CO_3	HCO_3		
Mg./L	34,621		633	5					3901	51,500			24	230		
Meq./L	1506.01		31.59	0.41					81.14	1452.30			0.80	3.77		
Meq. %	48.96		1.03	0.01					2.64	47.21			0.03	0.12		

Total Solids Mg/L: By Evaporation 91,500 Fe Nil Specific Gravity 1.067 @60°F Observed pH 8.5 @ 75 °F

Calculated 90,914 After Ignition 89,050 H_2S Nil Refractive Index 1.3478 @25°C Resistivity 0.092 ohm meters @ 68 °F

Pattern Unit Meq./L



Remarks and Conclusions

Analysis determined on pale yellow filtrate recovered from mud. Much organic matter detected in evaporated total dissolved solids.

Arco LOST HILL Lake
65°41'23"N 123°12'20"W

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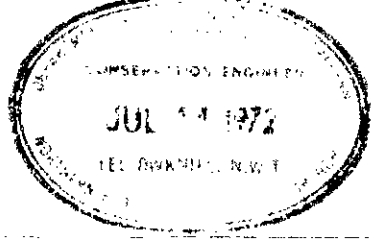

TEST DATA

Type of Test	Open hole, Straddle, Selective Zone.				
Time Started	2230	Hrs	Tool Opened	0055	Hrs
First Flow	5	Min	Initial Shut-in	30	Min.
Second Flow	30	Min	Second Shut-in		Min
Third Flow		Min	Final Shut-in	30	Min
Pulled Loose	0230	Hrs	Out of Hole	0430	Hrs
Weight Set Packer	20,000	#	Pulled Loose With	8,000	#

Strong initial blow, decreasing steadily to nil in 15 minutes.

FLUID RECOVERY

Total Fluid Recovered 1250

180' Muddy water.
1070' Water.

GAS BLOW MEASUREMENT

NIL

REMARKS: Test satisfactory. Pipe recovery samples given to engineer.

TOOL SEQUENCE

	Length	O.D
P.O. Sub	.75	
D.P. Sub	.90	
MFE Tool	9.10	
Bypass Tool	3.00	
Recorder	5.90	
Jars	6.75	
Safety Joint	1.70	
Safety Seal	4.90	
Packer	6.40	7 3/4"
T.C. & Packer	5.20	7 3/4"
Total	44.60	
Stub	1.10	
Perf	5.00	
Recorder	5.90	
Drill Collar	31.52	
Sub	1.55	
Travel Collar	3.60	
Total Interval	48.67	
Packer	2.80	7 3/4"
T.C. & Packer	6.40	7 3/4"
B.O. Sub	.80	
Recorder	5.90	
Perf	4.00	
Drill Pipe & Sub	96.35	
Selec. Zone Tool	1.70	
Total Below Intv.	117.95	
TOTAL DEPTH	211.22	

Elevation G.L. N/A K.B. N/A

Bottom Hole Choke Size 1/2"

Flow Control Type Nil

MUD AND HOLE DATA

Mud Type Polyner XC W 9.5

Filter Cake 1/32 V 50 W 9.1

Contractor Tri-City Drilling Rig No 2

Drill Pipe Size 4 1/2" XH

Drill Collar Size 2 7/8" ID

Drill Collar Length 323'

Mud Pit Size 8 3/4"

RECOVERY CONTENT

Recovery Water	9,620	ppm	
Mud Filtrate	71,400	ppm	

Mud Pit Sample From

Ticket No D06498 Date March 6, 1972 Test No 4 Safety No 4

Company Atlantic Richfield Canada Ltd. 650 Guinness House

Well ARCO Lost Hill Lake F-62 Calgary 2, Alberta

Location 65°41'20"N 123°12'30"W Wildcat Province Northwest Territories

Witness L. Bell

Interval 1641 - 1690 4566 L. Persson

Recorder No 9 - Calgary Attention: MR. F.G. Rayer

JOHNSTON TESTERS

D06498			PRESSURE DATA		FLUID SAMPLE REPORT
[illegible]		AK1-2526	AK1-3858	AK1-2593	537
[illegible]		3200	3700	3250	5"
[illegible]		1610	1647	1700	1607
[illegible]		Inside	Outside	Outside	2500 cc
[illegible]					
AT [illegible] 84					
INITIAL HYDROSTATIC	A		806#	833#	
FIRST FLOW	B		567#		
	C1		572#	A-1 911#	
INITIAL SHUT-IN	C		589#		
SECOND FLOW	D	CLOCK	578#	Ran Below	
	D1	STOPPED	588#	Straddle	
SECOND SHUT-IN	E				
THIRD FLOW	F			A-2 745#	
FINAL SHUT-IN	G		589#		
FINAL HYDROSTATIC	H		804#	829#	

REMARKS

MFE Sample sent to Core Labs,
Clock stopped on AK1-2526, no prints made.

PRESSURE INCREMENTS

POINT MINUTES	PRESSURE		POINT MINUTES	PRESSURE		POINT MINUTES	PRESSURE	

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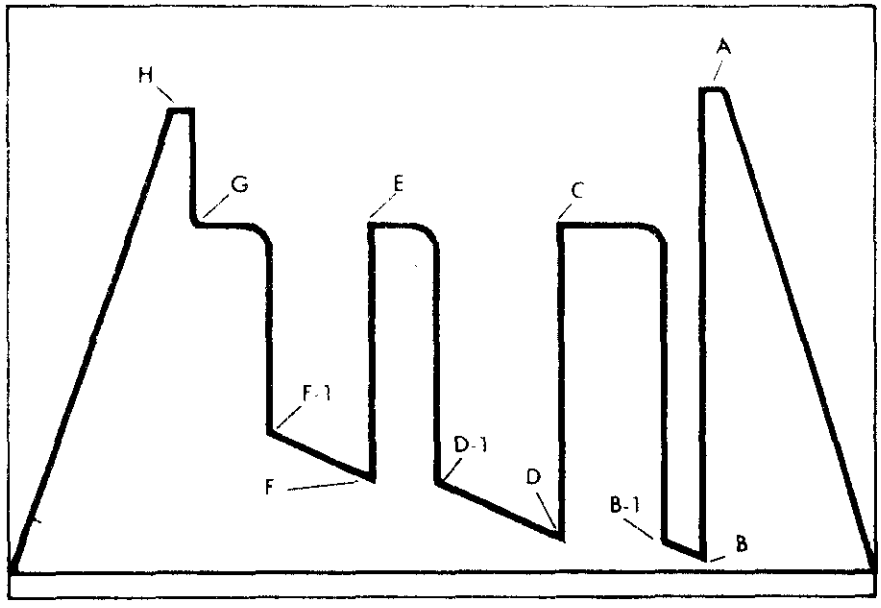
GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

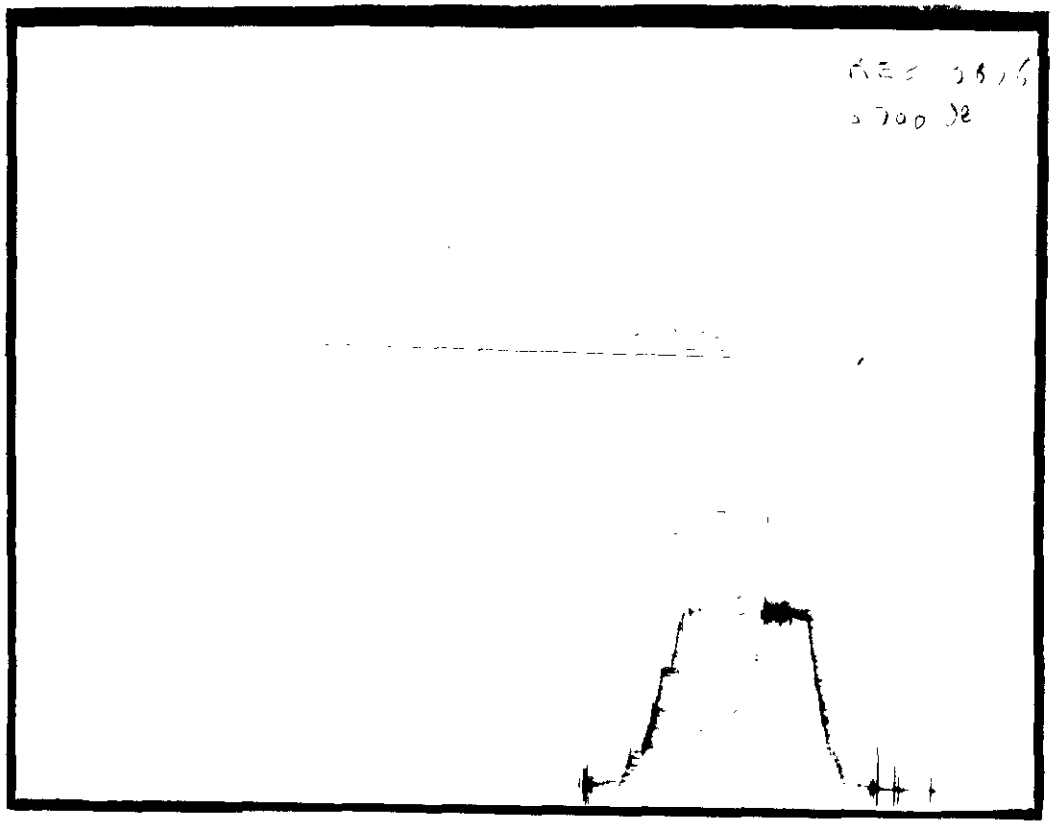
FIELD REPORT NO.	RECORDER NO.
D06498	AK1-3858



A. Initial Hyd. Mud
B. First Flow
C. Initial Shut-In
D. Second Flow
E. Second Shut-In
F. Third Flow
G. Final Shut-In
H. Final Hyd. Mud

The following points are either fluctuating pressures or points indicating other packer settings (testing different zones).

A-1, A-2, A-3, etc. Initial Hyd. Pressures
Z — Special pressure points such as pumping pressures recorded for formation breakdown.



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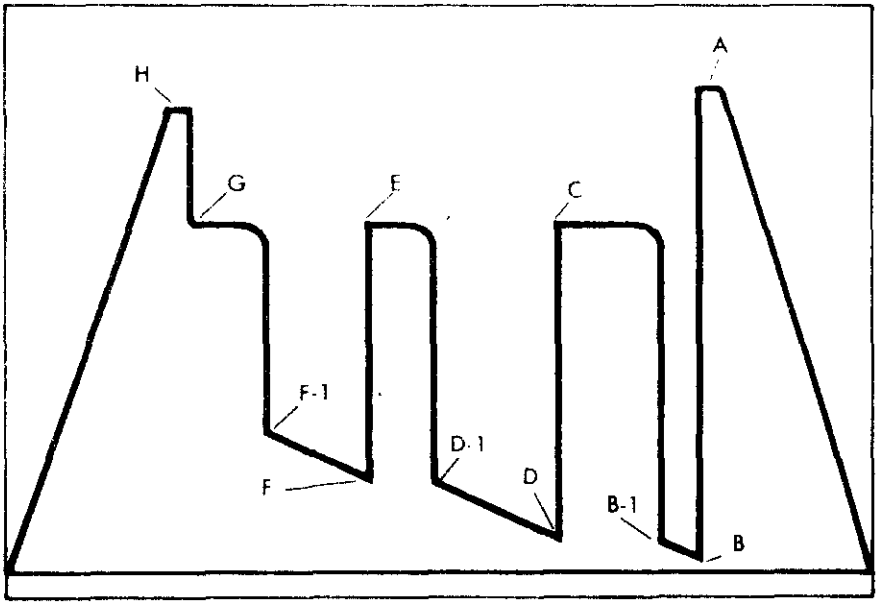
GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

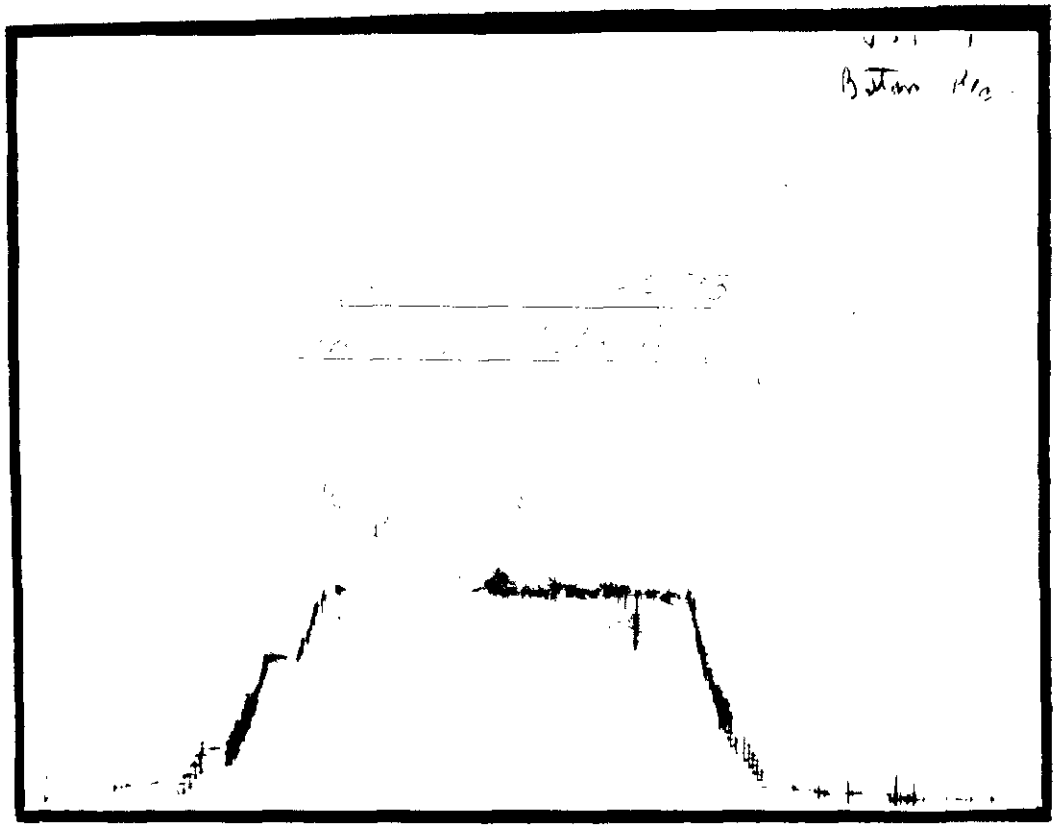
FIELD REPORT NO.	RECORDER NO.
D06498	AK1-2593



A. Initial Hyd. Mud
B. First Flow
C. Initial Shut-In
D. Second Flow
E. Second Shut-In
F. Third Flow
G. Final Shut-In
H Final Hyd. Mud

The following points are either fluctuating pressures or points indicating other packer settings (testing different zones).

A-1, A-2, A-3, etc. Initial Hyd. Pressures
Z — Special pressure points such as pumping pressures recorded for formation breakdown.



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TEST DATA

Type of Test	Open hole, Straddle, Selective Zone.				
Time Started in Hole	2000	Hrs	Tool Opened	2255	Hrs
First Flow	5	Min	Initial Shut-In	30	Min.
Second Flow	60	Min	Second Shut In		Min
Third Flow		Min	Final Shut-In	90	Min.
Pulled Loose @	0200	Hrs	Out of Hole	0345	Hrs
Wt Set on Packers	20,000	#	Pulled Loose Wt	8,000	#

Description of Blow During Test: Weak initial blow. Weak steady blow throughout flow period.

FLUID RECOVERY Was Test Reverse Circulated Yes No XX

Total Fluid Recovered 520 Ft

Description of Fluid Recovered

520' Muddy water.

GAS BLOW MEASUREMENT

Measured With I.D. Riser

Time	Stce. Choke	Reading psi inches	M Cubic Feet Day
		NIL	

REMARKS: Test satisfactory.
Samples given to engineer.

RESISTIVITY			SALT CONTENT
Recovery Water	@	°F	ppm.
Mud Pit sample filtrate	@	°F	ppm.

TOOL SEQUENCE

Tool	Length	O.D.
P.O. Sub	.75	
D.P. Sub	.90	
MFE Tool	9.10	
Bypass Tool	3.00	
Jars	6.75	
Safety Joint	1.70	
Safety Seal	4.90	
Packer	3.20	7 3/4"
Total	30.30	
Stub	1.10	
Perf	5.00	
Recorder	5.90	
Perf	4.00	
Recorder	5.90	
Sub	.75	
Drill Collars	313.69	
Sub	.80	
Travel Collar	3.60	
Total Interval	340.74	
Packer	2.80	7 3/4"
T.C. & Packer	6.40	7 3/4"
B.O. Sub	.85	
Recorder	5.90	
Selec. Zone Tool	1.60	
TOTAL LENGTH	388.59	

Elevation G.L. N/A K.B N/A

Bottom Hole Choke Size 1/2"

Fluid Cushion Type Nil Amt

MUD AND HOLE DATA

Mud Type Polyner XC W.L. 9.5

Filter Cake 1/32 Visc. 50 Wt. 9.1

Time Taken

Contractor Tri-City Drilling Rig No. 2

Drill Pipe Size 4 1/2" XH

Drill Collar Size 2 7/8" ID &

Drill Collar Length 323' &

Main Hole Size 8 3/4" Rat Hole

District Edmonton Ticket No. D06495 Date March 4, 1972 Test No. 1 J.T. No. 1

Company Atlantic Richfield Canada Ltd. Address 650 Guinness House, Calgary 2, Alberta

Well Name ARCO Lost Hill Lake

Number 65°41'20"N 123°12'30"W Field Wildcat Province Northwest Territories

Formation Thickness Co. Rep. Larry Bell

Interval 2310 - 2650 T.D. 4566 Tester(s) L. Persson

Distribution of Reports 9 - Calgary Attention: Mr. F.G. Rayer

JT-18E-58

JOHNSTON TESTERS 32 [illegible] AVENUE S.E. • CALGARY 24 ALBERTA • PH. 255-1151

A [illegible] COMPANY

D06495

PRESSURE DATA

INSTRUMENT No.		AK1-2526	AK1-3858	AK1-2593
CAPACITY psig		3200	3700	3050
INSTRUMENT DEPTH FT.		2316	2326	2660
INSTRUMENT OPENING		Outside	Outside	Outside
PRESSURE GRADIENT psi/FT.				
WELL TEMP °F 106				
INITIAL HYDROSTATIC	A	1142#	1150#	1312#
FIRST FLOW	B	28#	34#	
	B-1	61#	67#	A-1 1480#
INITIAL SHUT IN	C	867#	873#	
SECOND FLOW	D	68#	72#	Ran Below
	D-1	265#	270#	Straddle
SECOND SHUT IN	E			
THIRD FLOW	F			A-2 1258#
	F-1			
FINAL SHUT IN	G	861#	867#	
FINAL HYDROSTATIC	H	1149#	1139#	1319#

FLUID SAMPLE REPORT

Sample No 549
Type 5"
Depth 2290 ft.
Volume 2500 cc

Sample Pressure psig. at Surface
Gravity API @ °F
Gas Oil Ratio Cu.Ft. bbl.

Recovery.
Cu Ft. Gas
cc. Oil
cc. Water
cc Mud
Total Liquid cc

REMARKS:

PRESSURE INCREMENTS

POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$

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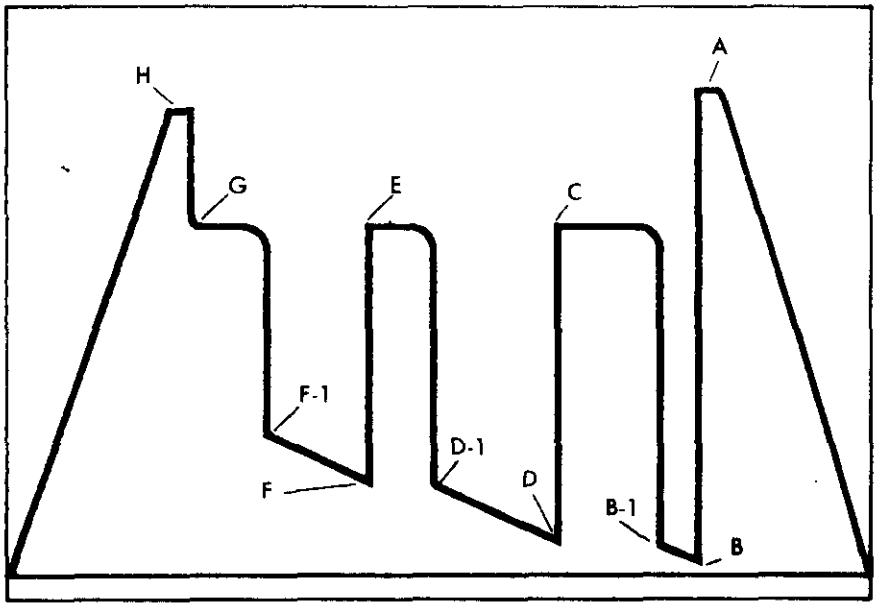
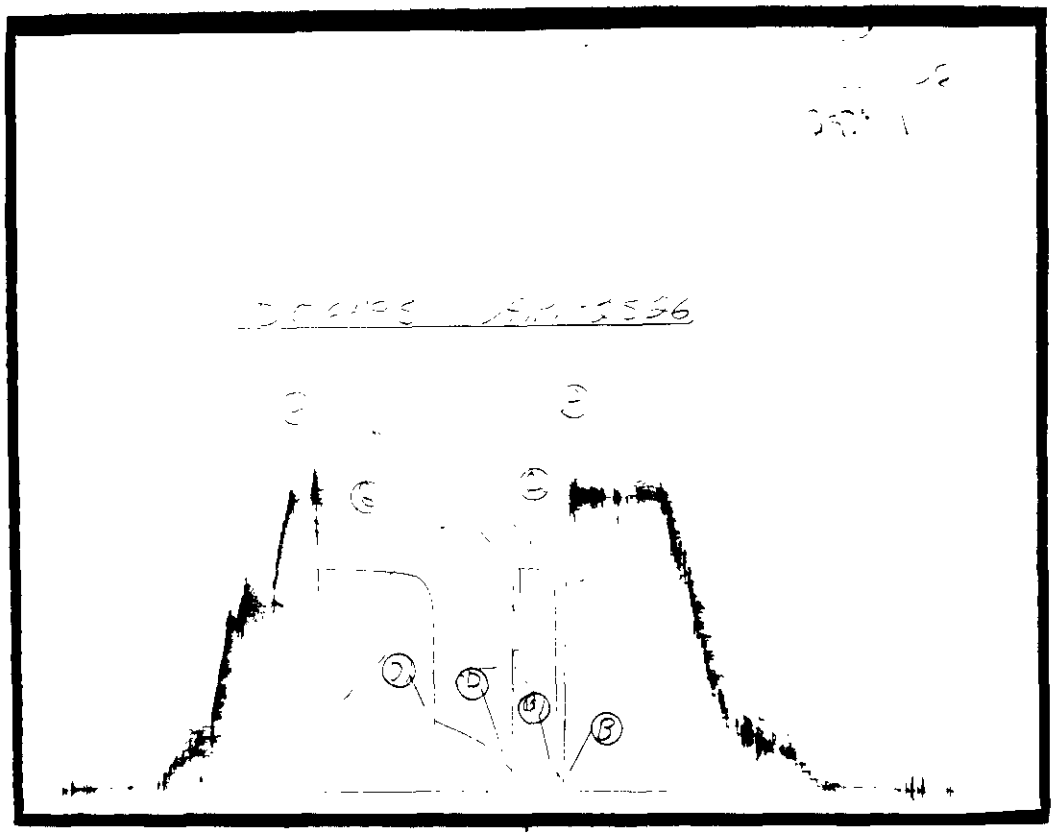
FIELD REPORT NO.	RECORDER NO.
D06495	AK1-2526



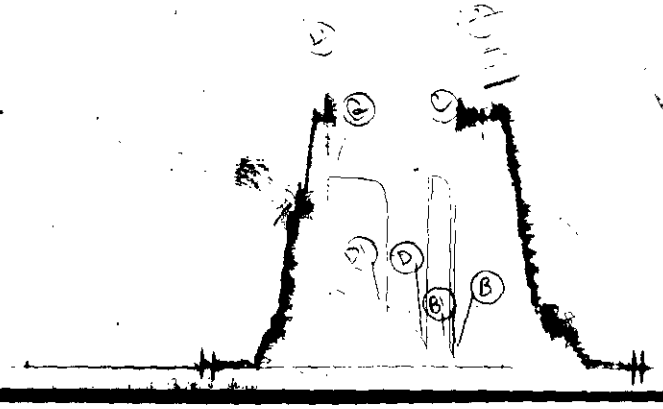
A. Initial Hyd. Mud
B. First Flow
C. Initial Shut-In
D. Second Flow
E. Second Shut-In
F. Third Flow
G. Final Shut-In
H. Final Hyd. Mud

The following points are either fluctuating pressures or points indicating other packer settings (testing different zones).

A-1, A-2, A-3, etc. Initial Hyd. Pressures
Z — Special pressure points such as pumping pressures recorded for formation breakdown.

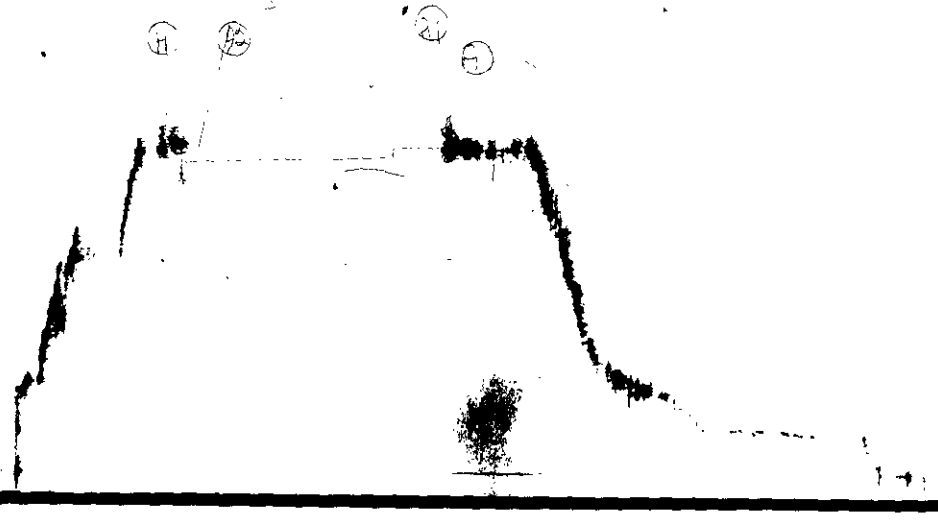


D06495 AR1-3853



D06495 AR1-2523

Sand below Strand 12



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JT-1&E-4B

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TEST DATA

Type of Test	Open Hole, Straddle, Selective zone				
Time Started in Hole	0630	Hrs	Tool Opened	0900	Hrs.
First Flow	5	Min.	Initial Shut-In	30	Min.
Second Flow	30	Min.	Second Shut In		Min.
Third Flow		Min.	Final Shut In	30	Min.
Pulled Loose @	1035	Hrs.	Out of Hole	1245	Hrs.
Wt. Set/on Packers	20,000	#	Pulled Loose Wt.		#

Description of Blow During Test

Good initial blow, decreasing steadily to nil in 15 minutes.

FLUID RECOVERY Was Test Reverse Circulated Yes ☐ No ☒

Total Fluid Recovered 1645 Ft.

Description of Fluid Recovered

420' watery drilling fluid.
1225' water.

GAS BLOW MEASUREMENT

Measured With I.D. Riser

Time	Sfce. Choke	Reading psi inches	M Cubic Feet/Day
			T.S.T.M.

REMARKS: Test satisfactory.
Pipe recovery samples given to engineer.

	RESISTIVITY		SALT CONTENT	
Recovery Water	@	°F.	under 2,000	ppm.
Mud Pit sample filtrate	@	°F.	71,400	ppm.

TOOL SEQUENCE

Tool	Length	O.D.
P.O. Sub	.75	
D.P. Sub	.90	
MFE Tool	9.10	
Bypass Tool	3.00	
Jars	6.75	
Recorder	5.90	
Recorder	5.90	
Safety Joint	1.70	
Safety Seal	4.90	
Packer	3.40	7 3/4"
Total	42.30	
Stub	1.10	
Perf	5.00	
Sub	.75	
Drill Collar	31.52	
Sub	.80	
Travel Collar	3.60	
Total Interval	42.77	
Packer	2.80	7 3/4"
T.C. & Packer	6.40	7 3/4"
Blank off sub	.85	
Recorder	5.90	
Selective Tool	1.60	
TOTAL LENGTH	102.62	

Elevation G.L. n/a K.B. n/a
Bottom Hole Choke Size 1/2"
Fluid Cushion Type Nil Amt.

MUD AND HOLE DATA

Mud Type Polyner XC W.L. 9.5
Filter Cake 1/32 Visc. 50 Wt. 9.1
Time Taken
Contractor Tri-City Drilling Rig No. 2
Drill Pipe Size 4½" XH
Drill Collar Size 2 7/8" ID &
Drill Collar Length 323' &
Main Hole Size 8 3/4" Rat Hole

District Edmonton Ticket No. D06496 Date March 5/72 Test No 2 J.T. No. 2
Company Atlantic Richfield Canada Ltd Address 650 Guinness House
Well Name ARCO Lost Hill Lake Calgary 2, Alberta
Number 65°41'20"N 123°12'30"W Field Wildcat Province N.W.T.
Formation Thickness Co. Rep Larry Bell
Interval 2040 - 2082 T.D. 4566 Technician Leonard Persson
Distribution of Reports 9- F.G. Rayer, Calgary

JT-1&E-5B

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		D06496 PRESSURE DATA			
INSTRUMENT No.		AK1-2593	AK1-3858	AK1-2526	
CAPACITY (psig)		3250	3700	3050	
INSTRUMENT DEPTH FT.		2018	2024	2092	
INSTRUMENT OPENING		Inside	Inside	Outside	
PRESSURE GRADIENT psi/FT.					
WELL TEMP. °F 85					
INITIAL HYDROSTATIC	A	992#	999#	1034#	
FIRST FLOW	B	107#	111#		
	B-1	439#	444#	A-1 1125#	
INITIAL SHUT-IN	C	746#	752#		
SECOND FLOW	D	477#	481#	Ran below	
	D-1	745#	751#	straddle	
SECOND SHUT-IN	E				
THIRD FLOW	F			A-2 953#	
	F-1				
FINAL SHUT-IN	G	746#	752#		
FINAL HYDROSTATIC	H	975#	981#	1015#	

FLUID SAMPLE REPORT

Sample No.	549
Type	5"
Depth	2008 ft.
Volume	2500 cc
Sample Pressure:	psig. at Surface
Gravity	API @ °F
Gas/Oil Ratio	Cu.Ft. bbl.
Recovery.	
Cu. Ft. Gas	
cc. Oil	
cc. Water	
cc. Mud	
Total Liquid cc.	

REMARKS: MFE sample sent to Core Lab.

PRESSURE INCREMENTS

POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$

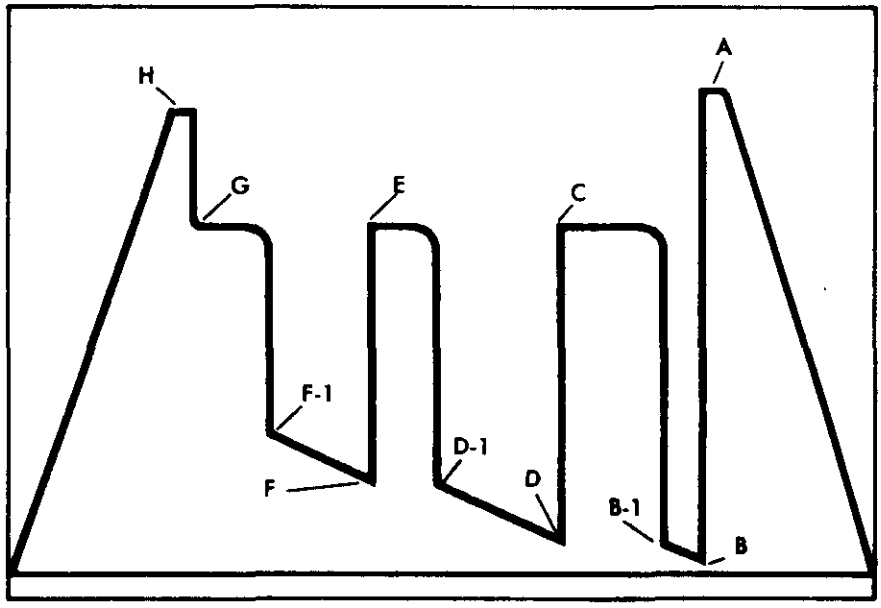
JOHNSTON Schlumberger

JOHNSTON TESTERS 321 · 50TH AVENUE S.E. · CALGARY 24, ALBERTA · PH. 255-1151

A DIVISION OF SCHLUMBERGER CANADA LIMITED

GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

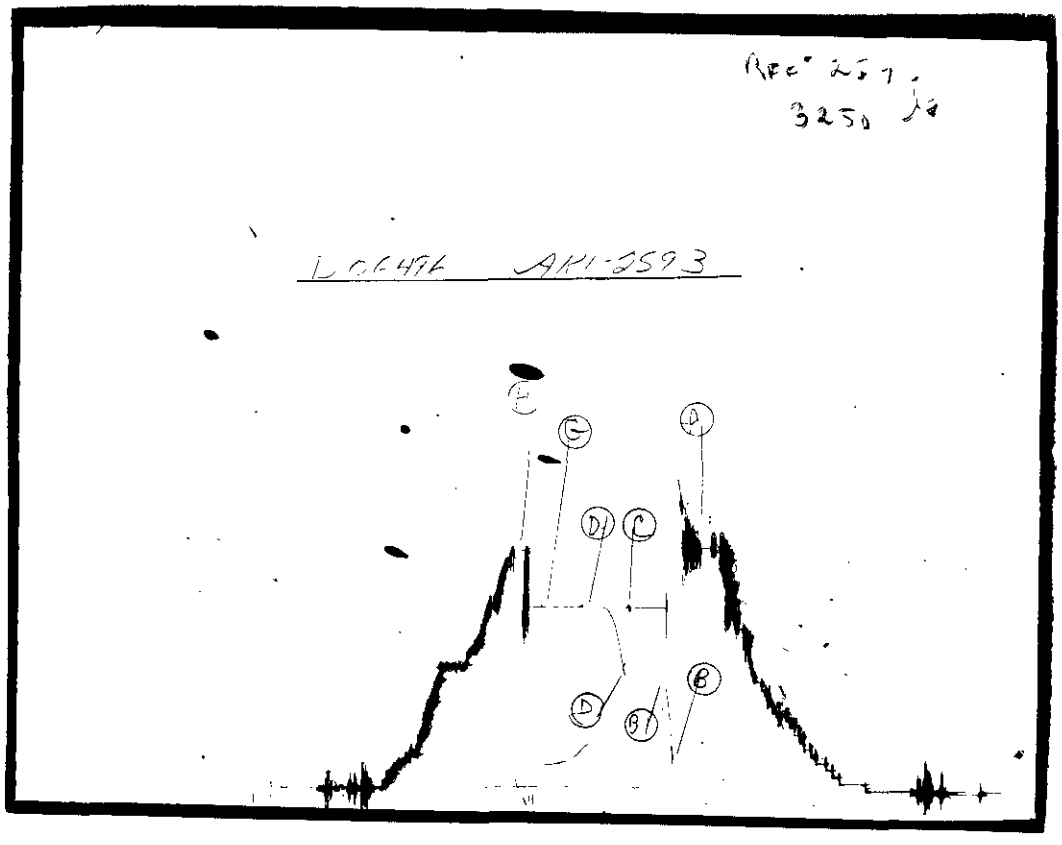
FIELD REPORT NO.	RECORDER NO.
D06496	AK1-2593



A. Initial Hyd. Mud
B. First Flow
C. Initial Shut-In
D. Second Flow
E. Second Shut-In
F. Third Flow
G. Final Shut-In
H. Final Hyd. Mud

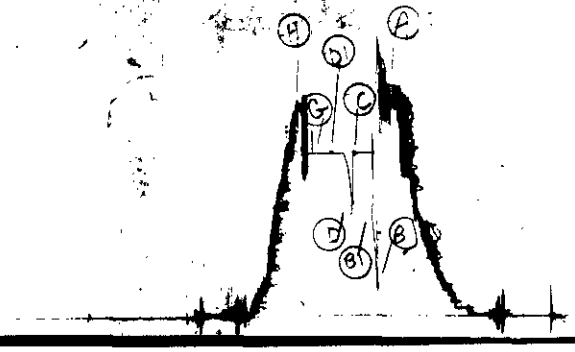
The following points are either fluctuating pressures or points indicating other packer settings (testing different zones).

A-1, A-2, A-3, etc. Initial Hyd. Pressures
Z — Special pressure points such as pumping pressures recorded for formation breakdown.



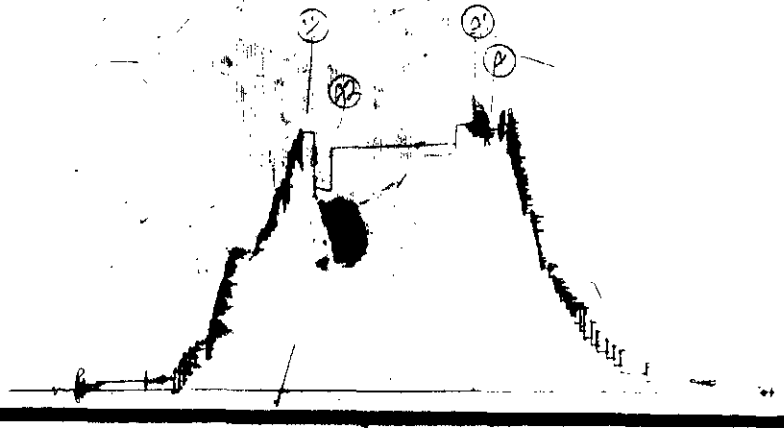
Rec* 3858
370. M.

DC6496 SKI-3858



Bottom Rec
#2526

DC6496 SKI-2525
Lake Nelson Trouble



JOHNSTON

Schlumberger

technical report

JT-1&E-48

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TEST DATA

Type of Test	Open Hole, Straddle, Selective zone			
Time Started in Hole	1445 Hrs.	Tool Opened		Hrs.
First Flow	Min.	Initial Shut-In		Min.
Second Flow	Min.	Second Shut In		Min.
Third Flow	Min.	Final Shut In		Min.
Pulled Loose @	Hrs.	Out of Hole	1945	Hrs.
Wt. Set/on Packers	#	Pulled Loose Wt.		#

Description of Blow During Test

NIL

FLUID RECOVERY Was Test Reverse Circulated Yes ☐ No ☐

Total Fluid Recovered Ft.

Description of Fluid Recovered

NIL

GAS BLOW MEASUREMENT

Measured With I.D. Riser

Time	Sfce. Choke	Reading psi inches	M Cubic Feet/Day
	NIL		

REMARKS: Misrun, could not get selective zone anchor to set.

RESISTIVITY			SALT CONTENT
Recovery Water	@	°F.	ppm.
Mud Pit sample filtrate	@	°F.	ppm.

TOOL SEQUENCE

Tool	Length	O.D.
P.O. Sub	.75	
D.P. Sub	.90	
MFE Tool	9.10	
Bypass Tool	3.00	
Sub	1.55	
Drill Collar	30.90	
Jars	6.75	
Safety Joint	1.70	
Safety Seal	4.90	
Packer	3.40	7 3/4"
Total	62.95	
Stub	1.10	
Perf	5.00	
Recorder	5.90	
Recorder	5.90	
Sub	.75	
Drill Collar	31.52	
Sub	.80	
Travel Collar	3.60	
Total Interval	54.57	
Packer	2.80	7 3/4"
T.C. & Packer	6.40	7 3/4"
Blank off sub	.80	
Recorder	5.90	
Selective zone tool	1.70	
TOTAL LENGTH	135.12	

Elevation G.L. n/a K.B. n/a

Bottom Hole Choke Size 1/2"

Fluid Cushion Type Nil Amt.

MUD AND HOLE DATA

Mud Type Polymer XC W.L. 9.5

Filter Cake 1/32 Visc. 50 Wt. 9.1

Time Taken

Contractor Tri-City Drilling Rig No. 2

Drill Pipe Size 4½" XH

Drill Collar Size 2 7/8" ID &

Drill Collar Length 293' &

Main Hole Size 8 3/4" Rat Hole

District Edmonton Ticket No. D06497 Date March 5/72 Test No 3 J.T. No 3

Company Atlantic Richfield Canada Ltd. Address 650 Guinness House

Well Name ARCO Lost Hill Lake Calgary 2, Alberta

Number 65°41'20"N 123°12'30"W Field Wildcat Province Northwest Territories

Formation Thickness Co. Rep Larry Bell

Interval 1636 - 1690 T.D. 4566 Technician Leonard Persson

Distribution of Reports 9-F.G. Rayer, Calgary

JT-I&E-5B

JOHNSTON TESTERS 321 - 50TH AVENUE S.E. • CALGARY 24, ALBERTA • PH. 255-1151

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D06497

PRESSURE DATA

INSTRUMENT No.		AK1-2593	AK1-2526	AK1-3858	
CAPACITY (psig)		3250	3200	3700	
INSTRUMENT DEPTH FT.		1642	1648	1700	
INSTRUMENT OPENING		Outside	Outside	Outside	
PRESSURE GRADIENT psi/FT.					
WELL TEMP. °F.					
INITIAL HYDROSTATIC	A				
FIRST FLOW	B				
	B-1				
INITIAL SHUT-IN	C	MISRUN, NO PRESSURES AVAILABLE			
SECOND FLOW	D				
	D-1				
SECOND SHUT-IN	E				
THIRD FLOW	F				
	F-1				
FINAL SHUT-IN	G				
FINAL HYDROSTATIC	H				

FLUID SAMPLE REPORT

Sample No. 537

Type 5"

Depth 1584 ft.

Volume 2500

Sample Pressure: psig. at Surface

Gravity API @ °F

Gas Oil Ratio Cu.Ft., bbl.

Recovery:

Cu. Ft. Gas

cc. Oil

cc. Water

cc. Mud

Total Liquid cc.

REMARKS: No prints made on AK1-2526 or AK1-3858.

PRESSURE INCREMENTS

POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$	POINT MINUTES	PRESSURE	$\frac{T + \Delta t}{\Delta t}$

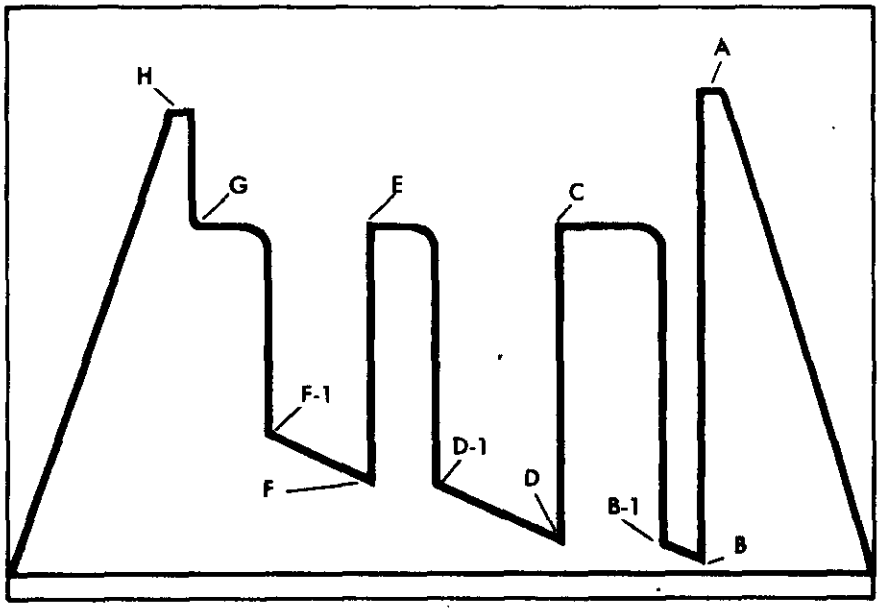
JOHNSTON Schlumberger

JOHNSTON TESTERS 321 - 50TH AVENUE S.E. • CALGARY 24, ALBERTA • PH. 255-1151

A DIVISION OF SCHLUMBERGER CANADA LIMITED

GUIDE TO IDENTIFICATION OF DRILL STEM TEST PRESSURE CHARTS

FIELD REPORT NO.	RECORDER NO.
D06497	AK1-2593



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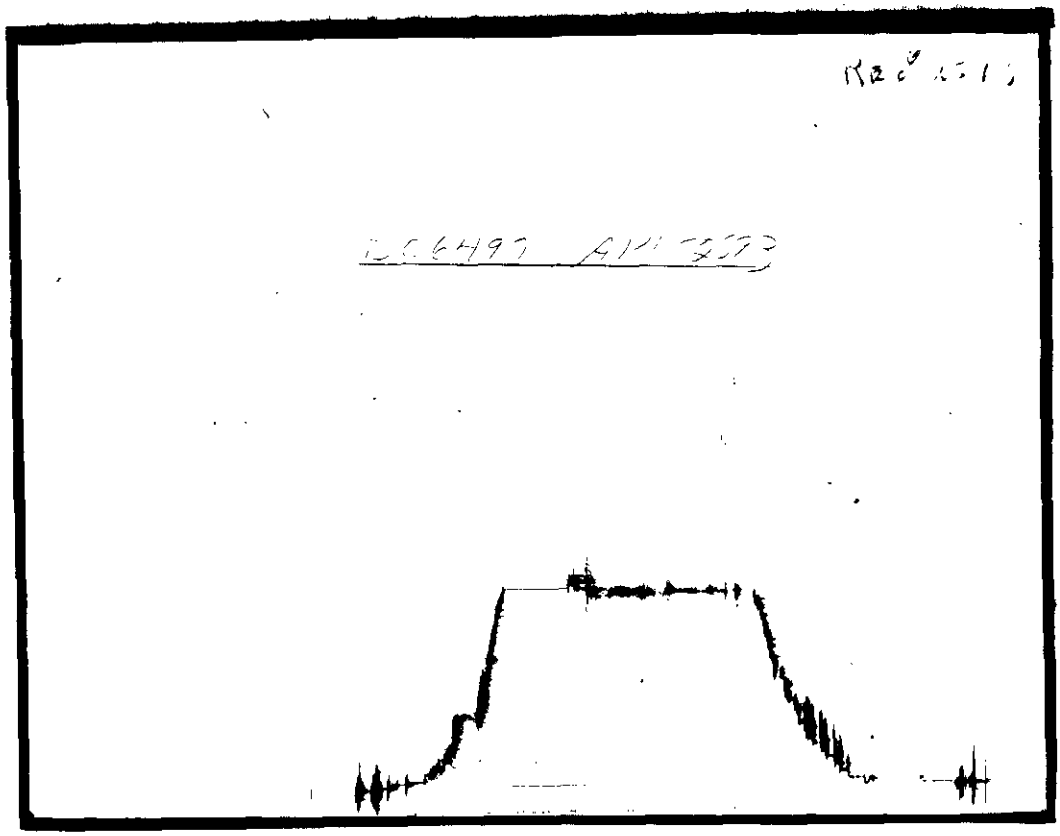

CHRISTENSEN DIAMOND PRODUCTS

CONFIDENTIAL

CORE ORIENTING LOG

Date Feb. 21/72

Page 1 of 2

WELL INFORMATION

Company ATLANTIC RICHFIELD CANADA LTD.
Contractor Tri-City Rig #2
Well Name & No. ARCO Lost Hill Lke F-62
Area Lost Hill Lake Prov. N.W.T.
Hole Size 8-3/4"
Formation Name Tight Hole
Formation Description -

PERFORMANCE

Interval Cored: Finish 1825
Start 1765
Footage Cored 60 - rec. 60
Remarks Circ.Clean 35' Fill - 1.5 Hrs.
Visc.48 Wt.910- W.L.12 PH 7.6, Good
4:00 PM - Visc.515 Wt.9X 9.6 WL 12.2 PH 9.5
Seribe, Normal Bit Wear

MULTISHOT INSTRUMENT

Serial No. 2150 Clock ..... Solenoid 44CD
Magazine 274 Angle Unit 619-20 Deg.
Clock Interval 2 Min.
Station Record by: J. Wercholuk
Film Read by:

CORRECTIONS

Declination 38 Degrees [X] East [ ] West

Azimuth Correction for Declination
East Declination [X] Add to Azimuth
West Declination [ ] Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is 120 Degrees [ ] Right [X] Left of Orientation Lug.
[ ] Right Add to Lug Azimuth
[X] Left Subtract from Lug Azimuth

STATION				DRIFT			ORIENTATION							DIP STRIKE			REMARKS
No.	Time	Picture No.	Depth	Angle	Direction Magnetic	Direction True	Orienting Lug, Magnetic Direction	Orienting Lug, Magnetic Azimuth	Declin. Corr.	Or. Lug Az. True	Reference Groove Corr.	Reference Groove Az. True	Reference Groove Direction True	Dip Dir.	Dip Angle	Strike	
1	3:52	38	1766	1	N-17-E	N-55-E	S-40-E	140	+38	178	-120	058	N-58-E				
2	4:02	40	1767		NOT	READABLE											
3	4:10	41	1768		NOT	READABLE											
4	4:18	43	1769	1-1/4	N-20-E	N-58-E	S-22-E	153	+38	196	-120	076	N-76-E				
5	4:24	44	1770		NOT	READABLE											
6	4:40	46	1772	1-1/4	N-24-E	N-62-E	S-10-E	170	+38	208	-120	088	N-88-E				
7	4:54	49	1774		NOT	READABLE											
8	5:06	51	1776		NOT	READABLE											
9	5:16	52	1778		NOT	READABLE											
10	5:26	54	1780	1-1/4	N-15-E	N-53-E	S-78-W	258	+38	296	-120	176	S-04-E				
11	5:40	56	1782		NOT	READABLE											
12	5:50	58	1784		NOT	READABLE											
13	5:58	59	1786	1-1/4	N-15-E	N-53-E	N-88-W	280	+38	318	-120	198	S-18-W				CONN.
14	6:22	63	1788	"	N-15-E	N-53-E	S-07-W	187	"	225	"	105	S-75-E				
15	6:34	65	1790	"	N-20-E	N-58-E	S-14-W	194	"	232	"	112	S-68-E				
16	6:46	67	1792	"	N-15-E	N-53-E	S-20-W	200	"	238	"	118	S-62-E				
17	6:58	69	1794		NOT	READABLE											
18	7:10	71	1796	1-1/4	N-15-E	N-53-E	S-28-W	208	+38	246	-120	126	S-54-E				
19	7:22	73	1798	"	N-20-E	N-58-E	S-32-W	212	"	250	"	130	S-50-E				
20	7:35	75	1800	"	N-20-E	N-58-E	S-37-W	217	"	255	"	135	S-45-E				
21	7:58	77	1802		NOT	READABLE											
22	8:12	79	1804		NOT	READABLE											
23	8:24	82	1806	1-1/4	N-15-E	N-53-E	S-48-W	223	+38	266	-120	146	S-34-E				
24	8:38	84	1808		NOT	READABLE											
25	8:52	86	1810	1-1/4	N-15-E	N-53-E	S-53-W	233	+38	271	-120	151	S-29-E				
26	9:03	88	1812	"	N-15-E	N-53-E	S-55-W	235	"	273	"	153	S-27-E				
27	9:06	91	1814		NOT	READABLE											
28	9:20	93	1816		NOT	READABLE											
29	9:30	95	1818	1-1/4	N-15-E	N-53-E	S-63-W	243	+38	281	-120	161	S-19-E				CONN.
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18

DEPARTMENT OF INDIAN AFFAIRS AND NORTHERN DEVELOPMENT
CONSERVATION ENGINEER
JUL 14 1972
YELLOWKNIFE, N.W.T.
NORTHERN ECONOMIC DEVELOPMENT BRANCH

CHRISTENSEN DIAMOND PRODUCTS

CORE ORIENTING LOG

Date: Feb. 21/72

Page 2 of 2

WELL INFORMATION

Company: ATLANTIC RICHFIELD CANADA LTD.
Contractor: Tri-City Rig #2
Well Name & No.: Lost Hill Lke. F-62
Area: Lost Hill Lake Prov.: N.W.T.
Hole Size: 8-3/4"
Formation Name: Tight Hole
Formation Description:

PERFORMANCE

Interval Cored: Finish: 1825
Start: 1765
Footage Cored: 60 Rec. 60
Remarks:

MULTISHOT INSTRUMENT

Serial No. ..... Clock ..... Solenoid .....
Magazine ..... Angle Unit .....
Clock Interval ..... Min.
Station Record by: J. Wercholuk
Film Read by:

CORRECTIONS

Declination: 38 Degrees [X] East [ ] West

Azimuth Correction for Declination
East Declination [X] Add to Azimuth
West Declination [ ] Subtract from Azimuth

Reference Groove Correction:
From Above, Groove is: 120 Degrees [ ] Right [X] Left
of Orientation Lug.
[ ] Right Add to Lug Azimuth
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STATION				DRIFT			ORIENTATION							DIP STRIKE			REMARKS
No.	Time	Picture No.	Depth	Angle	Direction Magnetic	Direction True	Orienting Lug, Magnetic Direction	Orienting Lug, Magnetic Azimuth	Declin. Corr.	Or. Lug Az. True	Reference Groove Corr.	Reference Groove Az. True	Reference Groove Direction True	Dip Dir.	Dip Angle	Strike	
30	10:02	100	1820	1-1/4	N-12-E	N-50-E	S-55-E	125	+38	163	-120	043	N-43-E				
31	10:16	102	1822	"	N-15-E	N-53-E	S-50-E	130	"	168	"	048	N-48-E				
32	10:30	105	1824	"	N-15-E	N-53-E	S-45-E	135	"	176	"	056	N-56-E				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	