

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

Edmonton — Fort St John — Calgary

WATER ANALYSIS REPORT

Field (Wildcat), Yukon. Well No. S.O.B.C. Shell Beavercrow YT K-2
 Operator The California Standard Company Date Received January 30, 1963
 Formation Ronning Depths 12,830' - 13,045'
 Other pertinent data D.S.T. #8. Recovered 2800 feet drilling mud, 500' drilling mud.
 Duration of test = 90 minutes. Sample obtained from drillpipe at 90 feet above
 tool. Location: Unit K Section 2 Grid area 60°10'N 125°00'W. Elevation: 3720.3' KB.,
 3705' Grd. Date Sampled: January 4, 1963 Lab. No. E20997

PARTS PER MILLION (MILLIGRAMS PER LITER)

Na & K	Ca	Mg	Fe	SO ₄	Cl	CO ₃	HCO ₃	OH	H ₂ S
6644	820	35	Present	8222	4940		1370		

MILLIGRAM EQUIVALENTS

289.00	40.92	2.88		171.02	139.31		22.47		
--------	-------	------	--	--------	--------	--	-------	--	--

MILLIGRAM EQUIVALENTS IN PERCENT

43.42	6.15	0.43		25.69	20.93		3.38		
-------	------	------	--	-------	-------	--	------	--	--

Total Solids in Parts per Million

By evaporation 32,736
 After ignition 18,828
 Calculated 21,336
 Specific Gravity 1.021
 Observed pH 8.0
 Resistivity 0.631 ohm meters @ 68° F.

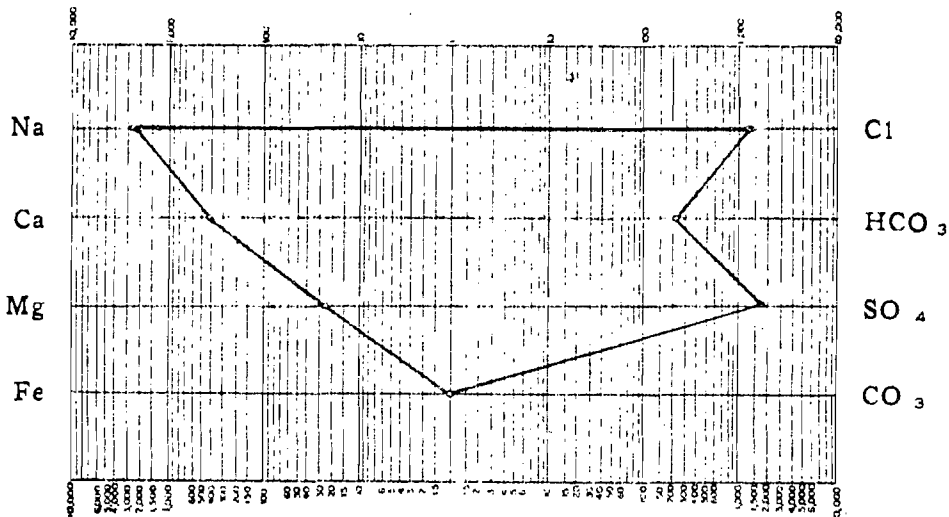
Properties of Reaction in Percent

Primary salinity 86.84
 Secondary salinity 6.40
 Primary alkalinity ---
 Secondary alkalinity 6.76
 Chloride salinity 44.89
 Sulfate salinity 55.11

Remarks and conclusions Very large amount of organic matter present in total solids.
 The sample appears to be a filtrate water. The unusually high sulfate content could
 be due to the additives in the sample. Refractive Index: 1.3400

Milligram Equivalents Multiplied by 10. On the Pattern.

LOGARITHMIC PATTERN
MEQ per unit



OIL AND GAS CONSERVATION BOARD (PROVINCE OF ALBERTA)

STANDARD SAMPLE INFORMATION SHEET

INFORMATION TO BE FORWARDED WITH EACH SAMPLE OF WATER, OIL OR GAS (Please supply as much of the following information as possible. Please Print Clearly.)

Kind of sample (water, oil or gas):

Marks on sample container: 90' above tool.

Sample obtained by: Operator

Date: Jan 4/63

Operator: The California Standard Co.

Mailing address for results: 14605 - 118th Ave.

Well name and No. SOBC Shell Beavercrow YT K-2 Field or Area: Wildcat Yukon

Located in: L.S.D. Sec. Twp. Rge. W Mer. Elev: K.B. 3720.3
 Unit K Section 2 Grid Area 60°10' N 125°00' W. Grd. 3705

Sample obtained from (line, tubing, separator, etc.): drill pipe

Pressure: (a) at point of sampling 0 psig. (b) Gas Bomb pressure NA psig.

Temperature: (a) at point of sampling - 30 °F (b) Separator NA °F

Name of Zone and Formation: Ronning

Method of Production: D.S.T. Pump, Flowing, Swabbing,

Other (specify)

If D.S.T. sample, D.S.T. results: D.S.T. #8

Interval 12,830 - 13045

Recovery 2800' water cushion & 500' drilling mud

Well production at sampling time: Oil NA Bpd; Gas NA MCFD; Water NA Bpd.

Perforations or open hole interval: 12830 - 13045

Pressures: Reservoir 3705? , Tubing , Casing , Separator

REMARKS:

P. Malohamy

(Signed)

The California Standard Company

(Company)



CHEMICAL & GEOLOGICAL LABORATORIES LTD.

Edmonton — Fort St. John — Calgary

WATER ANALYSIS REPORT

Field (Wildcat), N.W.T. Well No. SOBC Shell Beavercrow VI_K-2
 Operator The California Standard Company Date Received June 26, 1962.
 Formation Fort Creek Depths 1480' - 1573'
 Other pertinent data D.S.T. #1. Sampled from drill pipe at bottom of fluid column on May 11, 1962. Recovery 580' drilling mud and water. Pressure and temperature at sampling point 0 psig. and 40°F.. Location: Unit K Section 2 Grid area 60°10' - 125°00'.
 Elevation: 3720.3' KB.; 3705' Grd.. Date Sampled: May 11, 1962. Lab. No. E19705

PARTS PER MILLION (MILLIGRAMS PER LITER)

Na & K	Ca	Mg	Fe	SO ₄	Cl	CO ₃	HCO ₃	OH	H ₂ S
2174	514	21	Present	5045	172		740		

MILLIGRAM EQUIVALENTS

94.55	25.65	1.73		104.94	4.85		12.14		
-------	-------	------	--	--------	------	--	-------	--	--

MILLIGRAM EQUIVALENTS IN PERCENT

38.77	10.52	0.71		43.03	1.99		4.98		
-------	-------	------	--	-------	------	--	------	--	--

Total Solids in Parts per Million

By evaporation	9,950
After ignition	6,620
Calculated	8,291
Specific Gravity	1.005
Observed pH	8.1
Resistivity	1.25 ohm meters @ 68° F.

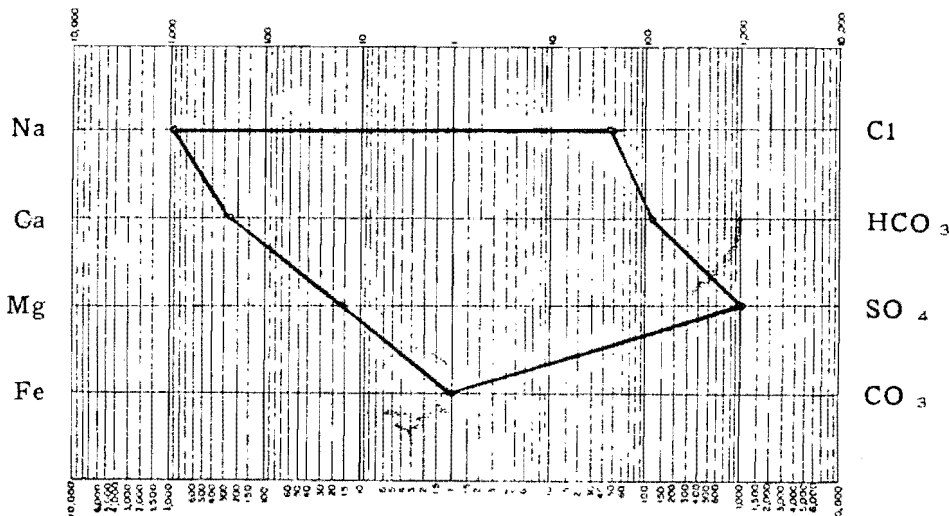
Properties of Reaction in Percent

Primary salinity	77.54
Secondary salinity	12.50
Primary alkalinity	---
Secondary alkalinity	9.96
Chloride salinity	4.42
Sulfate salinity	95.58

Remarks and conclusions Organic matter present in total solids. This sample appears to be a filtrate water.

Milligram Equivalents Multiplied by 10 On Pattern.

LOGARITHMIC PATTERN
MEQ per unit



OIL AND GAS CONSERVATION BOARD

STANDARD SAMPLE INFORMATION SHEET

INFORMATION TO BE FORWARDED WITH EACH SAMPLE OF WATER, OIL OR GAS (Please supply as much of the following information as possible. Please Print Clearly.)

Kind of sample (water, oil or gas): Water

Marks on sample container: Bottom of fluid column.

Sample obtained by: Operator

Date: May 11, 1962.:

Operator: The California Standard Company

Mailing address for results: 14605 - 118th Avenue, Edmonton, Alberta.

Well name and No. SOBC Shell Beavercrow Field or Area: (Wildcat)
VT K-2

Located in: I.S.D.

Unit K Section 2 Grid Area 60°10' - 125°00'

Elev:

K.B. 3720.3'
Grd. 3705'

Sample obtained from (line, tubing, separator, etc.): Drill pipe

Pressure: (a) at point of sampling 0 psig. (b) Gas Bomb pressure NA psig.

Temperature: (a) at point of sampling 40 °F (b) Separator NA °F

Name of Zone and Formation: Fort Creek

Method of Production: D.S.T., Pump, Flowing, Swabbing,

Other (specify) D.S.T. #1

If D.S.T. sample, D.S.T. results:

Interval 1480' - 1573'

Recovery 580' drilling mud and water.

Well production at sampling time: Oil NA Bpd; Gas NA MCFD; Water NA Bpd.

Perforations or open hole interval: NA

Pressures: Reservoir 384 , Tubing NA , Casing NA , Separator NA

REMARKS:

L. J. Homer.

(Signed)

The California Standard Company

(Company)

OIL AND GAS CONSERVATION BOARD (PROVINCE OF ALBERTA)

STANDARD SAMPLE INFORMATION SHEET

INFORMATION TO BE FORWARDED WITH EACH SAMPLE OF WATER, OIL OR GAS (Please supply as much of the following information as possible. Please Print Clearly.)

Kind of sample (water, oil or gas): Water

Marks on sample container: 90° above tool

Sample obtained by: Operator

Date: September 22, 1962

Operator: The California Standard Company

Mailing address for results: 14605 - 118th Avenue

Well name and No. S.O.B.C. Shell Beavercrow Field or Area: Wildcat

YT K-2

Located in: L.S.D. Sec. Twp. Rge. W Mer. Elev: K.B. 3720.3
Unit K Section 2 Grid Area 60° 10' N 125° 00' W Grd. 3705

Sample obtained from (line, tubing, separator, etc.): Drill Pipe

Pressure: (a) at point of sampling 0 psig. (b) Gas Bomb pressure NA psig.

Temperature: (a) at point of sampling 45 °F (b) Separator NA °F

Name of Zone and Formation: Silurian

Method of Production: D.S.T., Pump, Flowing, Swabbing,

Other (specify) D.S.T.#4

If D.S.T. sample, D.S.T. results:

Interval 7612 - 7635

Recovery 1350° formation water

Well production at sampling time: Oil NA Bpd; Gas NA MCFD; Water NA Bpd.

Perforations or open hole interval: 7612 - 7635

Pressures: Reservoir 2856 , Tubing NA , Casing NA , Separator NA

REMARKS:

P. Malorony

(Signed)

The California Standard Company
(Company)

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

Edmonton — Fort St. John — Calgary

WATER ANALYSIS REPORT

Field Wildcat Well No. S.O.B.C. Shell Beavercrow YT#1
 Operator The California Standard Company Date Received October 15, 1962
 Formation Ronning - Silurian Depths 7612' - 7635'
 Other pertinent data D.S.T. #4. Sampled 90 feet above tool, from drill pipe on
September 22, 1962. Recovered 1350 feet formation water. Elevation: 3720.3' KB.;
3705' Grd. Location: Unit K Sec. 2 60" 02' N, 125 01' W..

Date Sampled: Sept. 22 1962 Lab. No. E20254

PARTS PER MILLION (MILLIGRAMS PER LITER)

Na & K	Ca	Mg	Fe	SO ₄	Cl	CO ₃	HCO ₃	OH	H ₂ S
547	433	83	Present	900	950		410		

MILLIGRAM EQUIVALENTS

23.80	21.61	6.82		18.72	26.79		6.72		
-------	-------	------	--	-------	-------	--	------	--	--

MILLIGRAM EQUIVALENTS IN PERCENT

22.78	20.69	6.53		17.92	25.65		6.43		
-------	-------	------	--	-------	-------	--	------	--	--

Total Solids in Parts per Million

By evaporation 3,400
 After ignition 2,470
 Calculated 3,115
 Specific Gravity 1.003
 Observed pH 7.0
 Resistivity . 2.41 ohm meters @ 68° F.

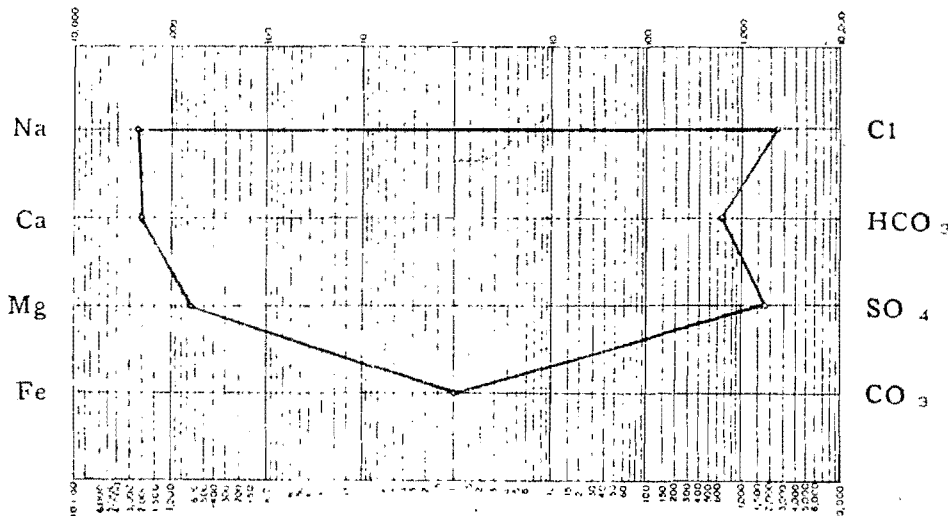
Properties of Reaction in Percent

Primary salinity 45.56
 Secondary salinity 41.58
 Primary alkalinity ---
 Secondary alkalinity 12.86
 Chloride salinity 58.87
 Sulfate salinity 41.13

Remarks and conclusions Refractive Index: 1.3365. We have nothing on file with which
to correlate this sample.

Milligram Equivalents Multiplied by 100 on the pattern.

LOGARITHMIC PATTERN
MEQ per unit



CHEMICAL & GEOLOGICAL LABORATORIES LTD.

Edmonton

Fort St. John

Calgary

WATER ANALYSIS REPORT

Field **Wildcat, Y.T.** Well No. **S.O.B.C. Shell Beavercrow YT #1**
 Operator **The California Standard Company** Date Received **September 20, 1962**
 Formation **Nahanni** Depths **4603° - 4690° DST #2**
 Other pertinent data **Location: Unit K Section 2 Grid Area 60° 10' - 125° 00'**
 See information sheet

Date Sampled: **August 13, 1962**

Lab No. **E20126-1**

PARTS PER MILLION				MILLIGRAMS PER LITER					
Na & K	Ca	Mg	Fe	SO ₄	Cl	CO ₃	HCO ₃	OH	H ₂ S
361	490	72	Present	1379	349		460		

MILLIGRAM EQUIVALENTS

15.69	24.45	5.92		28.68	9.84		7.54		
-------	-------	------	--	-------	------	--	------	--	--

MILLIGRAM EQUIVALENTS IN PERCENT

17.03	26.54	6.43		31.13	10.68		8.19		
-------	-------	------	--	-------	-------	--	------	--	--

Total Solids in Parts per Million

By evaporation	3055
After ignition	2355
Calculated	2877
Specific Gravity	1.002
Observed pH	8.2
Resistivity	3.16 ohm meters @ 68° F

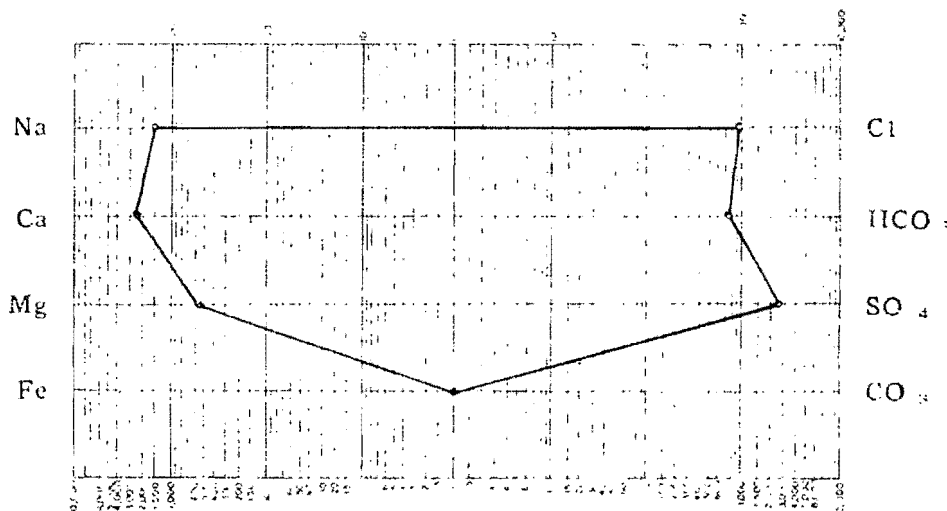
Properties of Reaction in Percent

Primary salinity	34.06
Secondary salinity	49.56
Primary alkalinity	---
Secondary alkalinity	16.38
Chloride salinity	25.54
Sulfate salinity	74.46

Remarks and conclusions **Refractive Index: 1.3360 We have nothing on file from this same area with which to correlate this water. The sample appears to be a filtrate water.**

Milligram Equivalents Multiplied by 100 on the pattern.

LOGARITHMIC PATTERN
MEQ per unit



OIL AND GAS CONSERVATION BOARD (PROVINCE OF ALBERTA)

STANDARD SAMPLE INFORMATION SHEET

INFORMATION TO BE FORWARDED WITH EACH SAMPLE OF WATER, OIL OR GAS (Please supply as much of the following information as possible. Please Print Clearly.)

Kind of sample (water, oil or gas): Water

Marks on sample container: 100' above tool

Sample obtained by: Operator Date: August 13, 1962

Operator: The California Standard Company

Mailing address for results: 14605 - 118th Avenue

Well name and No. SOBC Shell Beavercrow K-2 Field or Area: Wildcat, Y.T.

Located in: L.S.D. Sec. Twp. Rge. W Mer. Elev: K.B. 3720.3
Unit K Section 2 Grid Area 60³ 10⁹ - 125⁰ 00⁹ Grd. 3705.

Sample obtained from (line, tubing, separator, etc.): Drill pipe

Pressure: (a) at point of sampling 0 psig. (b) Gas Bomb pressure NA psig.

Temperature: (a) at point of sampling 50 °F (b) Separator NA °F

Name of Zone and Formation: Nahanni

Method of Production: D.S.T., Pump, Flowing, Swabbing,

Other (specify) D.S.T. #2

If D.S.T. sample, D.S.T. results: Interval 4603 - 4690

Recovery 470⁹ water mud and 3000⁹ fresh water.

Well production at sampling time: Oil NA Bpd; Gas NA MCFD; Water NA Bpd.

Perforations or open hole interval: NA

Pressures: Reservoir 1542 , Tubing , Casing , Separator

REMARKS:

I.S.I.P. 1547 comp. in 5 mins.

G. Johnson

(Signed)

The California Standard Company
(Company)

CHEMICAL & GEOLOGICAL LABORATORIES LTD.

Edmonton

Fort. St. John

Calgary

WATER ANALYSIS REPORT

Field Wildcat, Y.T. Well No. S.O.B.C. Shell Beavercrow YT #1

Operator The California Standard Company Date Received September 20, 1962

Formation Nahanni Depths 4784' - 4808' DST#3

Other pertinent data Location: Unit K Section 2 Grid Area 60° 10' - 125° 00'

See Information Sheet

Date Sampled: August 24, 1962 Lab. No. E20126-2

PARTS PER MILLION (MILLIGRAMS PER LITER)

Na & K	Ca	Mg	Fe	SO ₄	Cl	CO ₃	HCO	OH	H ₂ S
951	628	114	Present	866	1970		520		

MILLIGRAM EQUIVALENTS

41.38	31.34	9.37		18.01	55.55		8.53		
-------	-------	------	--	-------	-------	--	------	--	--

MILLIGRAM EQUIVALENTS IN PERCENT

25.20	19.09	5.71		10.97	33.83		5.20		
-------	-------	------	--	-------	-------	--	------	--	--

Total Solids in Parts per Million

By evaporation	5,545
After ignition	4,110
Calculated	4,785
Specific Gravity	1.002
Observed pH	8.2
Resistivity	1.45 ohm meters @ 68° F.

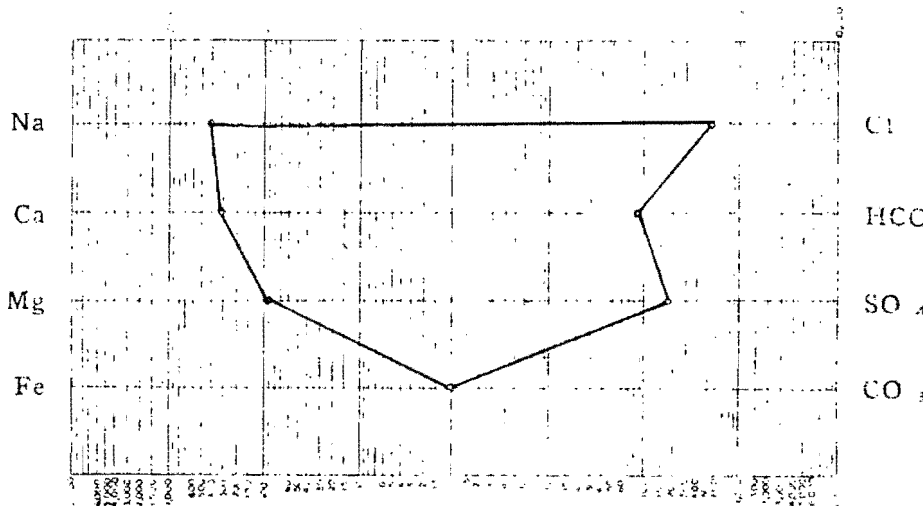
Properties of Reaction in Percent

Primary salinity	50.40
Secondary salinity	39.20
Primary alkalinity	---
Secondary alkalinity	10.40
Chloride salinity	75.51
Sulfate salinity	24.49

Remarks and conclusions Refractive Index: 1.3360. We have nothing on file from this same area with which to correlate this water. The sample appears to be a filtrate water.

Milligram Equivalents Multiplied by 10 on the pattern.

LOGARITHMIC PATTERN
MEQ per unit



OIL AND GAS CONSERVATION BOARD (PROVINCE OF ALBERTA)

STANDARD SAMPLE INFORMATION SHEET

INFORMATION TO BE FORWARDED WITH EACH SAMPLE OF WATER, OIL OR GAS (Please supply as much of the following information as possible. Please Print Clearly.)

Kind of sample (water, oil or gas): Water

Marks on sample container: Caught 100' above tool

Sample obtained by: Operator Date: August 24, 1962

Operator: The California Standard Company

Mailing address for results: 14605 - 118th Avenue

Well name and No. SOBC Shell beavercrow YF Field or Area: Wildcat
K-2

Located in: L.S.D.	Sec.	Twp.	Rge.	W	Mer.	Elev:	K.B.	3720.3
Unit K	Section 2	Grid Area	60° 10'	-	125° 00'		Grd.	3705

Sample obtained from (line, tubing, separator, etc.): Drill pipe

Pressure: (a) at point of sampling 10 psig. (b) Gas Bomb pressure NA psig.

Temperature: (a) at point of sampling 50 °F (b) Separator NA °F

Name of Zone and Formation: Nahanni

Method of Production: D.S.T., Pump, Flowing, Swabbing.

Other (specify) D.S.T. #3

If D.S.T. sample, D.S.T. results: Interval 4784 - 4808

Recovery 3050' fresh water

Well production at sampling time: Oil NA Bpd; Gas NA MCFD; Water NA Bpd.

Perforations or open hole interval: NA

Pressures: Reservoir 1680, Tubing NA, Casing NA, Separator NA

REMARKS: I.S.I.P. 1680 comp in 10 mins.

G. Johnson

(Signed)

The California Standard Company
(Company)