NATIONAL PETROLEUM RESERVE IN ALASKA

HISTORY
OF
DRILLING OPERATIONS

DREW POINT TEST WELL NO. 1

HUSKY OIL NPR OPERATIONS, INC.
Prepared by: S. L. Hewitt
Edited by: R. G. Brockway

For the

U. S. GEOLOGICAL SURVEY
Office of the National Petroleum Reserve in Alaska
Department of the Interior
JUNE 1983

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DREW POINT TEST WELL NO. 1

INTRODUCTION

Drew Point Test Well No. 1 is located in the National Petroleum Reserve in Alaska (Figure 1). The well is located 890 feet from the south line and 1940 feet from the east line of protracted Section 26, Township 18 North, Range 8 West, Umiat Meridian (Latitude: 70°52'47.141" North; Longitude: 153°53'59.931" West). The Alaska State Plane Coordinates are X = 512,000.40 and Y = 6,171,499.88, Zone 5. Elevations are derrick floor 38 feet, pad 15 feet, ground 10 feet. Drilling related operations started with rig-up on January 1, 1978, and terminated on March 13, 1978.

The well was drilled to a total depth of 7,946 feet. The primary objectives of the well were the Sadlerochit Group and the Lisburne Group, with secondary interest in the possible presence of the Kuparuk River Sandstone. At the conclusion of the drilling evaluation operations, the well was abandoned with cement and mechanical plugs set at selected intervals.

Husky Oil NPR Operations, Inc. supervised and directed the drilling and support operations as prime contractor to the U. S. Geological Survey, Department of the Interior. Nabors Alaska Drilling, Inc. was the drilling contractor and Nabors Rig 25, a National 110, was used to drill the well.

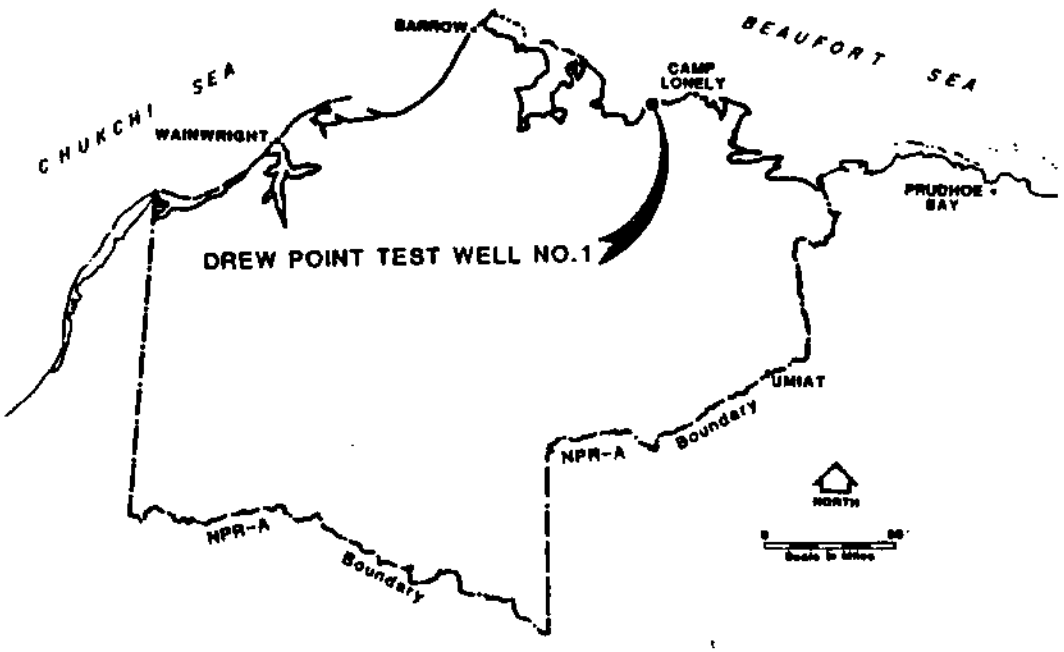

FIGURE 1 - WELL LOCATION MAP - DREW POINT NO. 1

DRILLING SUMMARY

Field operations at the Drew Point Test Well No. 1 location began on December 1, 1977, with the mobilization of construction crews and equipment required to build the drilling pad and an ice airstrip to accommodate C-130 Hercules aircraft. Construction work was completed on January 5, 1978, and the crews and equipment moved to another location.

The rig move from W. T. Foran No. 1 was scheduled to be done by air transportation. Due to a combination of ice conditions, bad weather flying conditions, and aircraft scheduling problems, the rig move was done totally by Rolligon. Rig move-in operations began on December 20, 1977, and were completed on January 1, 1978. Rig-up operations began January 1, 1978, and were completed in 12 days. The well was spudded January 13, 1978, at 4:00 p.m.

During rig-up, a 20" conductor was set at 80' and cemented with 150 sacks of ArcticSet cement. A 17-1/2" hole was drilled out below the 20" conductor to 2668". The hole was logged from 2666' to the bottom of the conductor with the DIL/SP and the BHC-Sonic/GR. A bridge was encountered at 1205' while running the logs, which required a second conditioning trip to get the logging tools to bottom. After logging, 13-3/8" casing was run and landed at 2661'. The casing was then cemented with 3,800 sacks of ArcticSet cement. Returns weighed 14.5 ppg. A National 13-5/8" split unihead and a 13-5/8", 5,000 psi blowout-preventer stack (SRRA arrangement) were installed. A 5,000 psi choke manifold and kill line were also installed. The 13-3/8" casing was tested to 2,500 psi and the shoe was drilled out with a 12-1/4" bit. The formation was tested to a 0.58 psi/ft. gradient.

A 12-1/4" hole was drilled from 2668' to 5923'. Three stratigraphic cores were cut in this interval as follows: Core No. 1, 4130' to 4140', recovered 10'; Core No. 2, 5530' to 5540', recovered 2.5'; Core No. 3, 5900' to 5923', recovered 18'.

After cutting the first core from 4130' to 4140', and while making up the bottom-hole assembly, a pick-up sub on a 7-3/4" drill collar parted, dropping a 12-1/4" bit, shock sub, one 7-3/4" drill collar, a 12-1/4" stabilizer, two 7-3/4" drill collars, and half a pick-up sub into the hole. Fishing operations began and required a day and half to complete. Just prior to running the first drill-stem test, the bore protector in the wellhead became stuck. This required the setting of a retrievable packer before picking up the blowout-preventer stack and removing the bore protector. Open hole Drill-Stem Test No. 1 was conducted in the interval 5850' to 5922' with 4,300 feet of water cushion. The results are summarized as follows:

> Initial Flow Period: (30 minutes) Opened with a weak blow, well dead in 20 minutes. Initial shut-in: 45 minutes. Pressures at 5918' were IHP 3,252 psi, IFP 1,998 psi, ISIP 2,152 psi.

Final Flow Period: (60 minutes) Opened with no blow, faint blow after 6 minutes, for total of 2 minutes, well dead remainder of test. Final Shut-in: 122 minutes. Pressures were FFP 1,998 psi; FSIP 2,218 psi; FHP 3,229 pai. (Temperature at 5913' was 125°F.) Recovered 4300' water cushion and 63 feet rat-hole fluid (500 ppm chlorides). Nothing in sample chamber.

Drilling continued to 6895' and the hole was logged with the DIL/SP, BHC-Sonic/GR, FDC/CNL/GR/CAL, HDT-Dipmeter and a Velocity Survey. Eighty-four sidewall cores were attempted and 82 recovered. A multishot directional survey was then run.

The 9-5/8" casing was run to 6834'. Two FO cementers were run in the string and landed at 2442' and 2354' for use if Arctic Pack procedures became necessary. The 9-5/8" casing was cemented with 1,000 sacks of Class "G" cement containing friction reducer and retarder. It was determined later that the plug was underdisplaced by 112 barrels due to error by the cementer and mechanical problems with the cementing unit. In attempting to set the 9-5/8" casing pack-off assembly, the lower ring jammed and broke off. After checking the tolerance between the mandrel hanger and casing spool, it was found that the pack-off unit was .006" too large, preventing it from fitting properly. The casing was then set using the emergency slips per the wellhead running procedures instructions. When the emergency pack-off assembly was tested, the top ring on the packing assembly blew up into the upper spool. A 9-5/8" casing spear was used to pick up the casing. The pack-off assembly was reset with a larger 9-5/8" stub to hold the top ring in place. The 9-5/8" casing was landed again and the pack-off assembly tested. The 9-5/8" casing was then squeeze cemented with 300 sacks of ArcticSet cement through the lower FO at 2442'. Upon running an 8-1/2" bit and bottom-hole assembly down the 9-5/8" casing, cement was encountered and drilled from 5169' to 6855'. No cement was found between the float collar and shoe. A CBL/VDL/CCL/GR log was run. The log showed no cement behind the casing, and a retainer was set at 6800' for a squeeze job. The retainer was stabbed into and 200 sacks of Class "G" cement with friction reducer and retarder was squeezed around the shoe of the 9-5/8" casing. A second CBL/VDL/CCL/GR was run, and showed good cement behind the casing. The 9-5/8" casing was then cleaned out and tested to 3,000 psi.

An 8-1/2" hole was drilled to 6895' and the formation tested to a 0.59 psi/ft. gradient. An 8-1/2" hole was drilled to 7946' total depth. During the drilling of this interval, minor hole-caving problems were encountered just below the shoe of the 9-5/8" casing. Twelve stratigraphic cores were cut as follows: Core No. 4, 6905' to 6906.5' (junk basket), recovered 1.5'; Core No. 5, 6917' to 6947', recovered 26'; Core No. 6, 6947' to 6957', recovered 10'; Core No. 7, 6977' to 7009', recovered 32'; Core No. 8, 7093' to 7103', recovered 10'; Core No. 9, 7350' to 7380', recovered 29'; Core No. 10, 7544' to 7572', recovered 28'; Core No. 11, 7572' to 7602', recovered 29'; Core No. 12, 7602' to 7629', recovered 27'; Core No. 13, 7704' to 7733', recovered 23'; Core No. 14, 7793' to 7821', recovered 22'; Core No. 15, 7882' to 7901', recovered 18.5'.

Open-hole Drill-Stem Test No. 2 was conducted in the interval 7472' to 7572' with a water cushion of 6000'. It is summarized as follows:

Initial Flow Period: Open 30 minutes, very weak blow decreasing to dead. Initial shut-in: 46 minutes; pressures at 7568' were IHP 4,212 psi, IFP 2,965 psi, ISIP 3,827 psi.

Final Flow Period: Open 63 minutes, well dead throughout; Final shut-in 117 minutes; pressures at 7568' were FFP 2,965 psi, FSIP 3,796 psi, FHP 4,212 psi, temperature at 7568' was 170°F.

Recovery: 110' of rat-hole fluid.

Open-hole Drill-Stem Test No. 3 was conducted from 7765' to 7821' with a 6000' water cushion. It is summarized as follows:

Initial Flow Period: Open 31 minutes, well dead throughout. Initial shut-in: 46 minutes; pressures at 7817' were IHP 4,404 psi, IFP 2,708 pis, ISIP 3,859 psi.

Final Flow Period: Open 60 minutes for final flow, well dead throughout. Final shut-in: 160 minutes; pressures at 7817' were FFP 2,708 psi, FSIP 3,891 psi, FHP 4,404 psi. Temperature at 7810' was 184°F.

Recovery: 240 cc rat-hole fluid in sample chamber, none in test string.

The 8-1/2" hole was logged from 7938' to 6834' with Temperature Log, DIL/SP, FDC/CNL/CAL/GR, BHC-Sonic/GR, HDT-Dipmeter, a second Temperature Log and a Velocity Survey. Seventy-five sidewall cores were attempted, and 69 were recovered. All logs were recorded on magnetic tape and computer-log interpretations were prepared using Schlumberger's Saraband and Synergetic Log System. A multishot deviation survey was conducted from surface to total depth along with a directional survey in the 12-1/4" and 8-1/2" holes. The hole remained nearly straight with the maximum deviation being 1° 30' at 7350'. Based on the directional survey conducted from 2660' to total depth, the bottom-hole location is 40.6 feet north and 38.5 feet west of the surface-hole location.

At the conclusion of the log evaluation, a decision was made to plug and abandon the well. Cement plugs were placed across selected intervals in the 8-1/2" open hole as follows: Plug No. 1 from 7700' to 7350' with 135 sacks of Class "G"; Plug No. 2 from 7150' to 6784' with 250 sacks of Class "G". A cement retainer was set at 6525' in the 9-5/8" casing and 25 sacks of Class "G" cement was placed on top of the retainer from 6525' to 6454'. The 9-5/8" casing was cut at 2265' and recovered to surface. A 13-3/8" cement retainer was set above the 9-5/8" stub at 2210'. Fifty sacks of Class "G" cement were spotted on top of the retainer. The mud was then reversed out to water then water to diesel at 2100' in order that the well could be re-entered to obtain future temperature measurements for the

U. S. Geological Survey's North Slope permafrost program. The abandonment marker was set and the rig released March 13, 1978, at 2:00 p.m. The rig was rigged down and airlifted to the Inigok drill site.

Detailed drilling information, in the form of bit records, mud summary, time analysis, and casing and cementing reports, is included in the body of the history.

Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NOTICE OF INTENT TO DRILL, DEEPEN, OR PLUG BACK

5. LEASE DESIGNATION AND SERIAL NO.: N/A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A

1a. TYPE OF WORK: DRILL [X] DEEPEN [ ] PLUG BACK [ ]

7. UNIT AGREEMENT NAME: N/A

b. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] OTHER — SINGLE ZONE [ ] MULTIPLE ZONE [ ]

8. FARM OR LEASE NAME: National Petroleum Reserve in AK

2. NAME OF OPERATOR: National Petroleum Reserve in Alaska (through Husky Oil NPR Operations, Inc.)

9. WELL NO.: Drew Point Test Well No. 1

3. ADDRESS OF OPERATOR: 2525 C Street, Suite 400, Anchorage, AK 99503

10. FIELD AND POOL, OR WILDCAT: Wildcat

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 890' FSL and 1940' FEL
At proposed prod. zone: Same (straight hole)

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec 26, T18N, R8W, UM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 72 miles ESE of Barrow, Alaska

12. COUNTY OR PARISH: North Slope Borough, 13. STATE: AK

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any)	16. NO. OF ACRES IN LEASE	17. NO. OF ACRES ASSIGNED TO THIS WELL
2700'	23,680,000	N/A
18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.	**19. PROPOSED DEPTH**	**20. ROTARY OR CABLE TOOLS**
137,280'	8,400'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): Ground = 10'; Pad = 15'; KB = 35'

22. APPROX. DATE WORK WILL START*: January 1, 1978

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20" (conductor)	133# (K-55)	± 100' KB	To surface
17 1/2"	13 3/8"	72# (S-95)	± 2600'	± 1900 Sx ArcticSet to Surface
12 1/4"	9 5/8"	53.5# (S-95)	± 7130'	± 250 Sx Class "G", 500' Fill. Second stage: ± 300 sx Arctic Set. Down Squeeze through FO @ ± 2350'.
8 1/2"	7"	32# (N-80)	Liner ± 6800 to TD	± 270 Sx Class "G" as required to cement entire liner.

Blowout Preventer Program–

From ± 100' KB to ± 2600':
20", 2000 psi, SA Diverter Assembly

From ± 2600' to TD:
13 5/8", 5000 psi, SRRA BOP Assembly
w/5000 psi Choke Manifold and Kill Line.

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ANCHORAGE, ALASKA

See Drilling Program for details.

IN ABOVE SPACE DESCRIBE PROPOSED PROGRAM: If proposal is to deepen or plug back, give data on present productive zone and proposed new productive zone. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blowout preventer program, if any.

24.

SIGNED: Max Brewer — TITLE: Chief of Operations — DATE: December 15, 1977

(This space for Federal or State office use)

CONFORMS WITH PERTINENT PROVISIONS 30 CFR 221.

TITLE: OIL AND GAS SUPERVISOR — DATE: 9 JAN 1978

CONDITIONS OF CONCURRENCE ATTACHED

*See Instructions On Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9–331–C for such proposals.)

1. oil well ☒ gas well ☐ other (Wildcat)

2. NAME OF OPERATOR National Petroleum Reserve in Alaska (through Husky Oil NPR Operations, Inc.)

3. ADDRESS OF OPERATOR
2525 C Street, Suite 400, Anchorage, AK 99503

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 890' FSL, 1940' FEL
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
N/A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
N/A

7. UNIT AGREEMENT NAME
N/A

8. FARM OR LEASE NAME National Petroleum Reserve in Alaska

9. WELL NO.
Drew Point Test Well No. 1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 26, T18N, R8W, UM

12. COUNTY OR PARISH North Slope. 13. STATE Alaska

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
15' Pad Level, 35' KB(est.)

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

	NOTICE OF INTENT TO:	SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF	☐	☐
FRACTURE TREAT	☐	☐
SHOOT OR ACIDIZE	☐	☐
REPAIR WELL	☐	☐
PULL OR ALTER CASING	☐	☐
MULTIPLE COMPLETE	☐	☐
CHANGE ZONES	☐	☐
ABANDON*	☐	☐

(other) Subsequent report of spud.

(NOTE: Report results of multiple completion or zone change on Form 9–330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

This well was spudded at 4:00 p.m., January 13, 1978.

Hole size at spud is 17 1/2".

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OIL & GAS SUPERVISOR

JAN 19 1978

CONSERVATION DIVISION
U.S. GEOLOGICAL SURVEY
ANCHORAGE, ALASKA

Subsurface Safety Valve: Manu. and Type ______ Set @ ______ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED Max Brewer TITLE Chief of Operations DATE 18 January 78

(This space for Federal or State office use)

Conforms with pertinent (Sgd) RODNEY A. SMITH TITLE Oil & Gas Supervisor DATE January 23, 1978

*See Instructions on Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9–331–C for such proposals.)

1. oil well ☒ gas well ☐ other Wildcat
2. NAME OF OPERATOR National Petroleum Reserve in Alaska (through Husky Oil NPR Operations, Inc.)
3. ADDRESS OF OPERATOR 2525 C Street, Suite 400, Anchorage, AK 99503
4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
   AT SURFACE: 890' FSL, 1940' FEL
   AT TOP PROD. INTERVAL:
   AT TOTAL DEPTH:
5. LEASE N/A
6. IF INDIAN, ALLOTTEE OR TRIBE NAME N/A
7. UNIT AGREEMENT NAME N/A
8. FARM OR LEASE NAME National Petroleum Reserve in Alaska
9. WELL NO. Drew Point Test Well No. 1
10. FIELD OR WILDCAT NAME Wildcat
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec 26, T18N, R8W, UM
12. COUNTY OR PARISH North Slope
13. STATE Alaska
14. API NO.
15. ELEVATIONS (SHOW DF, KDB AND WD) 38' DF

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐

(NOTE: Report results of multiple completion or zone change on Form 9–330.)

(other) Subsequent report of running and cementing 13 3/8" casing.

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

See attached.

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ANCHORAGE, ALASKA

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED Max C Brewer TITLE Chief of Operations DATE January 26, 1978

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 222.

APPROVED BY _____ TITLE OIL AND GAS SUPERVISOR DATE 2 FEB 1978

*See Instructions on Reverse Side

Drilled 17 1/2" hole to 2668' and logged hole with DIL and BHC Sonic. Conditioned hole and ran 68 joints of 13 3/8", 72#/ft, S-95, Buttress casing with centralizers 10' above shoe and one on the following collars (bottom up): 1, 2, 3, 5, 7, 9, 11, and 13. Float shoe at 2661' KB and duplex float collar at 2580' KB. Ran duplex stringer on drill pipe and stabbed in. Conditioned mud, pumped 20 barrel water spacer, 3800 sacks Dowell Arcticset cement at 15 ppg slurry weight, 2 barrel water spacer, and displaced with 43 barrels of mud. Cement in place at 4:45 p.m., 1/18/78. Full returns throughout job with cement in returns after pumping 1900 sacks. Final slurry weight in returns was 14.5 ppg. Floats held o.k. Land casing and set slips. Nipple up wellhead and SRRA BOP stack. Tested 20" flange and 13 3/8" packoff to 2000 psi. Tested blind rams, pipe rams, choke manifold, and kelly cocks to 5000 psi. Tested Hydril to 2500 psi. Tested 13 3/8" casing to 2500 psi. Drill out float collar and shoe and to 2688'. Tested shoe and formation to the equivalent gradient of 0.58 psi/foot and no leak-off was observed. Total WOC time: 79 1/4" hours.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9–331–C for such proposals.)

1. oil well [X] gas well [ ] other Wildcat
2. NAME OF OPERATOR National Petroleum Reserve in Alaska (through Husky Oil NPR Operations, Inc.)
3. ADDRESS OF OPERATOR 2525 C Street, Suite 400, Anchorage, AK 99503
4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
   AT SURFACE: 890' FSL, 1940' FEL
   AT TOP PROD. INTERVAL:
   AT TOTAL DEPTH:

5. LEASE N/A
6. IF INDIAN, ALLOTTEE OR TRIBE NAME N/A
7. UNIT AGREEMENT NAME N/A
8. FARM OR LEASE NAME National Petroleum Reserve in Alaska
9. WELL NO. Drew Point Test Well No. 1
10. FIELD OR WILDCAT NAME Wildcat
11. SEC., T., R., M. OR BLK. AND SURVEY OR AREA Sec 26, T18N, R8W, UM
12. COUNTY OR PARISH North Slope
13. STATE Alaska
14. API NO.
15. ELEVATIONS (SHOW DF, KDB, AND WD) 38' DF

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	[ ]		[ ]
FRACTURE TREAT	[ ]		[ ]
SHOOT OR ACIDIZE	[ ]		[ ]
REPAIR WELL	[ ]		[ ]
PULL OR ALTER CASING	[ ]		[ ]
MULTIPLE COMPLETE	[ ]		[ ]
CHANGE ZONES	[ ]		[ ]
ABANDON*	[ ]		[ ]
(other) Notice of change of BOP style.			

(NOTE: Report results of multiple completion or zone change on Form 9–330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

The original Notice of Intent to Drill for this well did not make the distinction as to the type of locking mechanism used on the ram type blow-out preventers. The type of ram preventers in use are Rucker-Shaffer LWS with the modern "POSLOCK" feature which do not require the manual handwheel mechanical locking system. This is a variance to the "Conditions of Concurrence."

JAN 30 [illegible]
U.S. GEOLOGICAL SURVEY
ANCHORAGE, ALASKA

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct
SIGNED O Max Brewer TITLE Chief of Operations DATE 27 Jan 78

(This space for Federal or State office use)
Conforms with pertinent provisions of 30 CFR 222.
TITLE OIL AND GAS SUPERVISOR DATE 6 FEB 1978

*See Instructions on Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well ☒ gas well ☐ other Wildcat
2. NAME OF OPERATOR National Petroleum Reserve in Alaska (through Husky Oil NPR Operations, Inc.)
3. ADDRESS OF OPERATOR 2525 C Street, Suite 400, Anchorage, AK 99503
4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
   AT SURFACE: 890' FSL, 1940' FEL
   AT TOP PROD. INTERVAL:
   AT TOTAL DEPTH:

5. LEASE N/A
6. IF INDIAN, ALLOTTEE OR TRIBE NAME N/A
7. UNIT AGREEMENT NAME N/A
8. FARM OR LEASE NAME National Petroleum Reserve in Alaska
9. WELL NO. Drew Point Test Well No. 1
10. FIELD OR WILDCAT NAME Wildcat
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec 26, T18N, R8W, UM
12. COUNTY OR PARISH North Slope
13. STATE Alaska
14. API NO.
15. ELEVATIONS (SHOW DF, KDB, AND WD) 38' DF

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☐
(other) Notice of change - wellhead testing.			

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U.S. GEOLOGICAL SURVEY
ANCHORAGE, ALASKA

NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

The original well plan called for testing the pack-off on the 9 5/8" casing hanger in the well head to 5000 psi. The first attempt to test the pack-off failed at 4800 psi. The secondary packing support ring deformed and moved up slightly allowing the secondary packing material to flow and leak. The support ring was built up by welding in the areas that deformed. The second test attempt also failed at 4800 psi. Part of the failure was due to not having enough of a casing stub above the packing element. A 9 5/8" casing spear was run and the casing pulled up an additional 3". New packing and support rings were installed and tested to 4500 psi. The operator requests concurrence of a lower test pressure on the pack-off than originally planned. The lower test pressure is at least 1000 psi greater than the maximum anticipated pressure to which the wellhead packoff would ever be exposed.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ FL

18. I hereby certify that the foregoing is true and correct

SIGNED Max C Brewer TITLE Chief of Operations DATE 15 February 78

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 222.

TITLE DISTRICT SUPERVISOR DATE 23 FEB 1978

*See Instructions on Reverse Side

AREA

Revised 6/10/83

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9-331-C for such proposals.)

1. oil well ☒ gas well ☐ other Wildcat
2. NAME OF OPERATOR National Petroleum Reserve in Alaska (through Husky Oil NPR Operations, Inc.)
3. ADDRESS OF OPERATOR 2525 C Street, Suite 400, Anchorage, AK 99503
4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
   AT SURFACE: 890' FSL, 1940' FEL
   AT TOP PROD. INTERVAL:
   AT TOTAL DEPTH:
5. LEASE N/A
6. IF INDIAN, ALLOTTEE OR TRIBE NAME N/A
7. UNIT AGREEMENT NAME N/A
8. FARM OR LEASE NAME National Petroleum Reserve in Alaska
9. WELL NO. Drew Point Test Well No. 1
10. FIELD OR WILDCAT NAME Wildcat
11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec. 26, T18N, R8W, UM
12. COUNTY OR PARISH North Slope
13. STATE Alaska
14. API NO.
15. ELEVATIONS (SHOW DF, KDB, AND WD) 38' DF
16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT TO:	SUBSEQUENT REPORT OF:
TEST WATER SHUT-OFF ☐	☐
FRACTURE TREAT ☐	☐
SHOOT OR ACIDIZE ☐	☐
REPAIR WELL ☐	☐
PULL OR ALTER CASING ☐	☐
MULTIPLE COMPLETE ☐	☐
CHANGE ZONES ☐	☐
ABANDON* ☐	☐

(other) Subsequent report on running and cementing 9-5/8" casing.

(NOTE: Report results of multiple completion or zone change on Form 9-330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

A 12-1/4" hole was drilled to 6895' KB and logged. Ran 168 joints of 9-5/8", 53.5 lb./ft., S-95, Buttress casing and landed with float shoe at 6834' and float collar at 6754'. FO cementing sleeves were located at 2442' and 2354'. Centralizers were run as per the well plan. Mixed and pumped 1,000 sacks of Class "G" cement. Cement contained 0.75% D65 and 0.2% D13R. Could only get slurry weight up to about 14.8 ppg. Dropped top plug but did not bump. Determined later that plug was underdisplaced by 112 barrels due to error by cementer and mechanical problems with cementing unit. Full returns during cement job. Cement in place at 9:05 p.m., 2/9/78. Attempted to install 9-5/8" mandrel pack-off but would not fit. Picked up on 9-5/8" mandrel hanger and installed emergency slips and pack-off. First testing failed on emergency pack-off at 4,800 psi. Repaired and tested to 4,500 psi. Tested casing to 3,000 psi. Checked FOs for operation. Down-squeezed 300 sacks of ArcticSet cement through the FO at 2442' (Continued)

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED _____ TITLE Chief of Operations DATE _____

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

_____ TITLE _____ DATE _____

*See Instructions on Reverse Side

Tested FOs to 3,000 psi. Tested BOPE. Trip in and found cement from primary job at 5169'. Drilled out cement to shoe and ran VDL-CBL and determined that no cement bond existed. Drilled out shoe and set cement retainer at 6800'. Cement squeezed with 200 sacks of Class "G" containing 0.75% D65 and 0.2% D13R at 15.8 ppg slurry weight. Cleaned out and ran VDL-CBL and found good bond with the cement top at 6295'. Drilled out cement retainer and tested shoe bond to 0.59 psi/ft. equivalent gradient with no indication of leak off.

ONSHORE DIST. OFFICE

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use Form 9–331–C for such proposals.)

1. oil well ☒ gas well ☐ other Wildcat

2. NAME OF OPERATOR National Petroleum Reserve in Alaska (through Husky Oil NPR Operations, Inc.)

3. ADDRESS OF OPERATOR
2525 C Street, Suite 400, Anchorage, AK 99503

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 890' FSL, 1940' FEL
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH:

5. LEASE
N/A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME
N/A

7. UNIT AGREEMENT NAME
N/A

8. FARM OR LEASE NAME National Petroleum Reserve in Alaska

9. WELL NO.
Drew Point Test Well No. 1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 26, T18N, R8W, UM

12. COUNTY OR PARISH: North Slope
13. STATE: Alaska

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
38' DF

MAR 28 1978
CONSERVATION DIVISION
U.S. GEOLOGICAL SURVEY
ANCHORAGE, ALASKA

16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA

NOTICE OF INTENT TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	☐		☐
FRACTURE TREAT	☐		☐
SHOOT OR ACIDIZE	☐		☐
REPAIR WELL	☐		☐
PULL OR ALTER CASING	☐		☐
MULTIPLE COMPLETE	☐		☐
CHANGE ZONES	☐		☐
ABANDON*	☐		☒
(other)			

(NOTE: Report results of multiple completion or zone change on Form 9–330.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

This well has been plugged and abandoned. The well was drilled to a total depth of 7946' KB and logged. After logs were evaluated, the well was plugged and abandoned as follows: Conditioned mud at 7700' through open-ended drill pipe. Spotted 135 sacks of Class "G" cement (15.8 ppg) with 0.75% D65 and 0.2% DBR from 7700' to 7350' in open hole. Cement in place at 8:45 AM, 3/10/78. Picked up to 7150' and circulated for 4 hours. Spotted Plug No. 2 from 7150' to 6784' (50' inside the 9 5/8" casing shoe) with 250 sacks of Class "G" cement (15.8 ppg) with 0.75% D65 and 0.2% D13R. Cement in place at 1:45 PM, 3/10/78. Picked up to 6600' and circulated. Ran cement retainer on drill pipe and set in 9 5/8" casing at 6525'. Spotted 25 sacks of Class "G" cement on top of the retainer from 6525' to 6454'. Plug in place at 8:20 PM, 3/10/78. Cut 9 5/8" casing at 2265' and pulled. Ran 13 3/8" cement retainer and set at 2210'. Spotted 50 sacks of Arctic Set cement on top of retainer from 2210' to 2153'. Picked up to 2100' and reversed out mud with water. Reversed out water with diesel. Nipple down BOPE and part of the wellhead. Installed abandonment marker.

Subsurface Safety Valve: Manu. and Type _____ Set @ _____ Ft.

18. I hereby certify that the foregoing is true and correct

SIGNED May Brewer TITLE Chief of Operations DATE 24 March 78

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 222.

TITLE DISTRICT SUPERVISOR DATE 3/28/78

RECEIVED
ONSHORE DIST. OFFICE
MAR 28 1978
CONSERVATION DIVISION
U.S. GEOLOGICAL SURVEY
ANCHORAGE, ALASKA

AREA FILE

*See Instructions on Reverse Side

Form 9-330
(Rev. 5-63)

Revised 6/10/83
Form approved.
Budget Bureau No. 42-R355.6.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN DUPLICATE* (See other instructions on reverse side)

WELL COMPLETION OR RECOMPLETION REPORT AND LOG*

1a. TYPE OF WELL: OIL WELL ☐ GAS WELL ☐ DRY ☒ Other Wildcat

b. TYPE OF COMPLETION: NEW WELL ☐ WORK OVER ☐ DEEP-EN ☐ PLUG BACK ☐ DIFF. RESVR. ☐ Other Abandonment

5. LEASE DESIGNATION AND SERIAL NO.: N/A

6. IF INDIAN, ALLOTTEE OR TRIBE NAME: N/A

7. UNIT AGREEMENT NAME: N/A

8. FARM OR LEASE NAME: National Petroleum Reserve in Alaska

2. NAME OF OPERATOR: National Petroleum Reserve in Alaska (through Husky Oil NPR Operations, Inc.)

9. WELL NO.: Drew Point Test Well No. 1

3. ADDRESS OF OPERATOR: 2525 C Street, Suite 400, Anchorage, Alaska 99503

10. FIELD AND POOL, OR WILDCAT: Wildcat

4. LOCATION OF WELL (*Report location clearly and in accordance with any State requirements*)*
At surface 890' FSL; 1940' FEL
At top prod. interval reported below
At total depth Same (Straight Hole)

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec. 26, T18N, R8W, UM

14. PERMIT NO.	DATE ISSUED	12. COUNTY OR PARISH	13. STATE
N/A	N/A	North Slope	Alaska

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
1/13/78	3/8/78	N/A	38' DF	15.5'

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
7946'	2153' MD	N/A	→	All	None

24. PRODUCING INTERVAL(S), OF THIS COMPLETION—TOP, BOTTOM, NAME (MD AND TVD)*: N/A

25. WAS DIRECTIONAL SURVEY MADE: Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN: DIL/SP, BHC-Sonic/GR, FDC/CNL/GR, HRD, Velocity Survey, Temperature Survey

27. WAS WELL CORED: Yes

28. CASING RECORD (*Report all strings set in well*)

CASING SIZE	WEIGHT, LB./FT.	DEPTH SET (MD)	HOLE SIZE	CEMENTING RECORD	AMOUNT PULLED
13-3/8"	72	2661'	17-1/2"	3800 sx ArcticSet 15 ppg	N/A
9-5/8"	53.5	6834'	12-1/4"	1000 sx Class "G" 14.8 ppg	2244.75'
				Squeeze w/200 sx Class "G" @ 15.8 ppg w/0.75% D65, 0.2% D13R	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)
N/A				

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)
N/A		

31. PERFORATION RECORD (*Interval, size and number*): N/A

32. ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
N/A	

33.* PRODUCTION

DATE FIRST PRODUCTION	PRODUCTION METHOD (*Flowing, gas lift, pumping—size and type of pump*)	WELL STATUS (*Producing or shut-in*)
N/A		Plugged & Abandoned

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*): N/A

TEST WITNESSED BY:

35. LIST OF ATTACHMENTS: DST Reports for DST Nos. 1, 2, and 3

36. I hereby certify that the foregoing and attached information is complete and correct as determined from all available records

SIGNED _____ TITLE Chief of Operations, ONPRA DATE _____

*(See Instructions and Spaces for Additional Data on Reverse Side)

Revised 6/10/83

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.
If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.
Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.
Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.
Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.
Item 29: "Sacks Cement": Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.
Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

37. SUMMARY OF POROUS ZONES: SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
Sag River SS	6957'	7070'	SS: light brn, slightly oil stained, dull yellow fluor, light yell-white cut, poor-fair streaky porosity top 16 feet very poor porosity in remainder of zone.
Sadlerochit	7626'	7840'	SS: light brown to gray, very fine grained patchy dull yellow fluor, fair cut, very poor porosity.
Cores			
No. 1 - Torok	4130'	4140'	Sh: brown, firm, silty. Recovered 10'.
No. 2 - Torok	5530'	5540'	Sh: recovered 2-1/2 feet; dark gray brown w/sandstone and siltstone interbeds.
No. 3 - Torok	5900'	5923'	Sh & SS: recovered 18 feet; 6 feet SS, 12 feet of shale, and 3 feet lost.
No. 4 - "Pebble Shale"	6905'	6906.5'	Sh: dark gray to gray-black. Recovered 1.5 feet.
No. 5 - "Pebble Shale"	6917'	6947'	Sh: recovered 26 feet Sh: gray to gray-black and 4 feet lost. (Continued)

38. GEOLOGIC MARKERS

NAME	TOP: MEAS. DEPTH	TOP: TRUE VERT. DEPTH
T/Torok	2955'	-
T/"Pebble Shale"	6702'	-
T/Sag River	6957'	-
T/Shublik Ls	7464'	-
T/Sadlerochit	7626'	-
T/Argillite	7838'	

Revised 6/10/83

Well Completion Report
National Petroleum Reserve in Alaska
Drew Point Test Well No. 1
Continuation of Item 37

Formation	Top	Bottom	Recovery	Description, Contents, Etc.
No. 6 - "Pebble Shale"	6947'	6957'	10'	Sh: as above.
No. 7 - Sag River	6977'	7009'	32'	Siltstone, SS, & Sh: interbedded Sandstone, Siltstone, and Shale: bioturbated, fossiliferous.
No. 8 - Shublik	7093'	7103'	10'	Shale: dark gray to gray-black w/scattered thin interbeds of siltstone.
No. 9 - Shublik	7350'	7380'	30'	Shale: dark gray, very hard, calcareous, very silty, abundant megafossils.
No. 10- Shublik	7544'	7572'	28'	Sandstone: light to dark gray, very fine grained, hard, well cemented with calcite, light oil stained, spotty dull yellow fluorescence, very poor porosity.
No. 11-Shublik	7572'	7602'	29'	Sandstone: mostly as in Core No. 10 but with conglomerate in top 1 foot and conglomerate and shale in bottom 2 feet; no shows; bottom 1 foot not recovered.
No. 12- Shublik/ Sadlerochit	7602'	7629'	27'	Interbedded Shale, Siltstone, and Sandstone: light gray to dark gray, very hard, cemented with silica.
No. 13- Sadle-rochit	7704'	7733'	23'	Sandstone: red and light gray, silica cement, silty, very poor porosity; bottom 6 feet cobble conglomerate in clay matrix; bottom 6 feet not recovered.
No. 14- Sadle-rochit	7793'	7821'	22'	Sandstone: light brownish-gray, oil stained throughout, very fine grained, very well indurated, very poor porosity; bottom 6 feet not recovered.
No. 15- Argil-lite	7882'	7901'	18.5'	Slate: gray-black, very hard, slaty cleavage.

HUSKY OIL NPR OPERATIONS, INC.
U.S. GEOLOGICAL SURVEY/ONPRA

HUSKY

DRILL STEM TEST REPORT FORM

WELL NAME Drew Point Test Well No. 1

Test Number 1 Hole Size 12 1/4"

Date February 1, 1978 Drill Pipe (Size & Lgth) 5", 5813.11 feet

Test Interval 5850 - 5922' Drill Collars (Size & Lgth) 6 1/4", 301 feet

Total Depth 5922' Type of Cushion Fluid Water

Amount of Cushion 4300'

TEST DATA

1. Tool open at 6:51 PM hours.
2. Initial open period 30 mins.
3. Initial shut-in period 45 mins.
4. Final flow period 60 mins.
5. Final shut-in period 122 mins.
6. Description of blow on initial open period Moderate to light blow when tool opened, steady decrease to dead 20 minutes into initial flow.
7. Description of blow during test Dead for first 6 minutes, faint blow for 2 minutes, dead remainder of test.
8. G.T.S. _____ mins: O.T.S. _____ mins; Bottom hole choke size 3/4"
   Surface choke size _____
9. Flow Rate: Gas _____ C.F.P.D. Oil _____ B.P.H. G.O.R. _____
10. Gravity of Gas _____ Gravity of Oil _____
11. Total fluid recovery: 63 feet of muddy water (rat hole fluid).
12. Resistivity of H_2O No test Chlorides of H_2O 500 P.P.M.
13. Depth of top press bomb Inside: 5830' Outside: 5914' Bottom Bomb Inside: 5834' Outside: 5918'

PRESSURE DATE

	Top Bomb: Inside	Top Bomb: Inside	Bottom Bomb: Outside	Bottom Bomb: Outside
I.H.P.	3193	3212	3252	3261
I.S.I.P.	2102	2111	2152	2150
I.F.P.	1952	1954	1998	1998
F.F.P.	1952	1954	1998	1998
F.S.I.P.	2183	2178	2218	2226
F.H.H.	3170	3189	3229	3217
Temp.	128°F	-		

SAMPLE CHAMBER DATA

1. Gas _____ C.F.
2. Oil _____ C.C.
3. H_2O _____ C.C.
4. Mud _____ C.C.
5. B.O.R. _____ B.S. & W. _____ %

"0" pressure in sample chamber; no fluid or gas.

REMARKS:

Tested tight formation (chlorides of mud prior to testing 500 ppm).

A. Scouler
Prepared By

HUSKY OIL NPR OPERATIONS, INC.
U.S. GEOLOGICAL SURVEY/ONPRA

HUSKY

DRILL STEM TEST REPORT FORM

WELL NAME Drew Point Test Well No. 1

Test Number 2 — Hole Size 8 1/2"

Date March 1, 1978 — Drill Pipe (Size & Lgth) 5" at 7124'

Test Interval 7472 - 7572' — Drill Collars (Size & Lgth) 329' of 6" DC

Total Depth 7572' — Type of Cushion Fluid Water (750 ppm Cl⁻)

Amount of Cushion 6000 feet

TEST DATA

1. Tool open at 6:52 PM hours.
2. Initial open period 30 mins.
3. Initial shut-in period 46 mins.
4. Final flow period 63 mins.
5. Final shut-in period 117 mins.
6. Description of blow on initial open period Very weak blow; decreasing.
7. Description of blow during test No blow.
8. G.T.S. _____ mins: O.T.S. _____ mins; Bottom hole choke size _____ Surface choke size _____
9. Flow Rate: Gas _____ C.F.P.D. Oil _____ B.P.H. G.O.R. _____
10. Gravity of Gas _____ Gravity of Oil _____
11. Total fluid recovery: 110 feet of rat hole mud.
12. Resistivity of H_2O _____ Chlorides of H_2O _____ P.P.M.
13. Depth of top press bomb 7453' Bottom Bomb 7568'

PRESSURE DATE

	Inside	Inside		Outside	Outside
Top Bomb:	7453'	7457'	Bottom Bomb:	7563	7568
I.H.P.	4145	4147	I.H.P.	4233	4212
I.S.I.P.	3795	3764	I.S.I.P.	3809	3827
I.F.P.	2900	2908	I.F.P.	2961	2965
F.F.P.	2900	2908	F.F.P.	2961	2965
F.S.I.P.	3763	3764	F.S.I.P.	3776	3796
F.H.H.	4145	4157	F.H.H.	4233	4212
Temp.			Temp.		170°F

SAMPLE CHAMBER DATA

1. Gas _____ C.F.
2. Oil _____ C.C.
3. H_2O _____ C.C.
4. Mud _____ C.C.
5. B.O.R. _____ B.S. & W. _____

REMARKS:

Test was mechanically good. Charts indicated same.

A. Scouler
Prepared By

HUSKY OIL NPR OPERATIONS, INC.
U.S. GEOLOGICAL SURVEY/ONPRA

HUSKY

DRILL STEM TEST REPORT FORM

WELL NAME Drew Point Test Well No. 1

Test Number 3 — Hole Size 8 1/2"

Date March 5, 1978 — Drill Pipe (Size & Lgth) 5" - 7516 feet

Test Interval 7765 - 7821' — Drill Collars (Size & Lgth) 6 1/4" - 210 feet

Total Depth 7821' — Type of Cushion Fluid Fresh Water

Amount of Cushion 6000'

TEST DATA

1. Tool open at 5:28 PM hours.
2. Initial open period 31 mins.
3. Initial shut-in period 46 mins.
4. Final flow period 60 mins.
5. Final shut-in period 160 mins.
6. Description of blow on initial open period None
7. Description of blow during test None
8. G.T.S. ____ mins: O.T.S. - mins; Bottom hole choke size ____ Surface choke size ____
9. Flow Rate: Gas ____ C.F.P.D. Oil ____ B.P.H. G.O.R. ____
10. Gravity of Gas ____ Gravity of Oil ____
11. Total fluid recovery: 240 cc rat hole fluid from sample chamber. No recovery in test string.
12. Resistivity of H_2O - Chlorides of H_2O - P.P.M.
13. Depth of top press bomb 7810' Bottom Bomb 7817'

PRESSURE DATE

	Top Bomb: Outside	Bottom Bomb: Outside
I.H.P.	4398	4404
I.S.I.P.	3859	3859
I.F.P.	2686	2708
F.F.P.	2686	2708
F.S.I.P.	3891	3891
F.H.H.	4398	4404
Temp.		

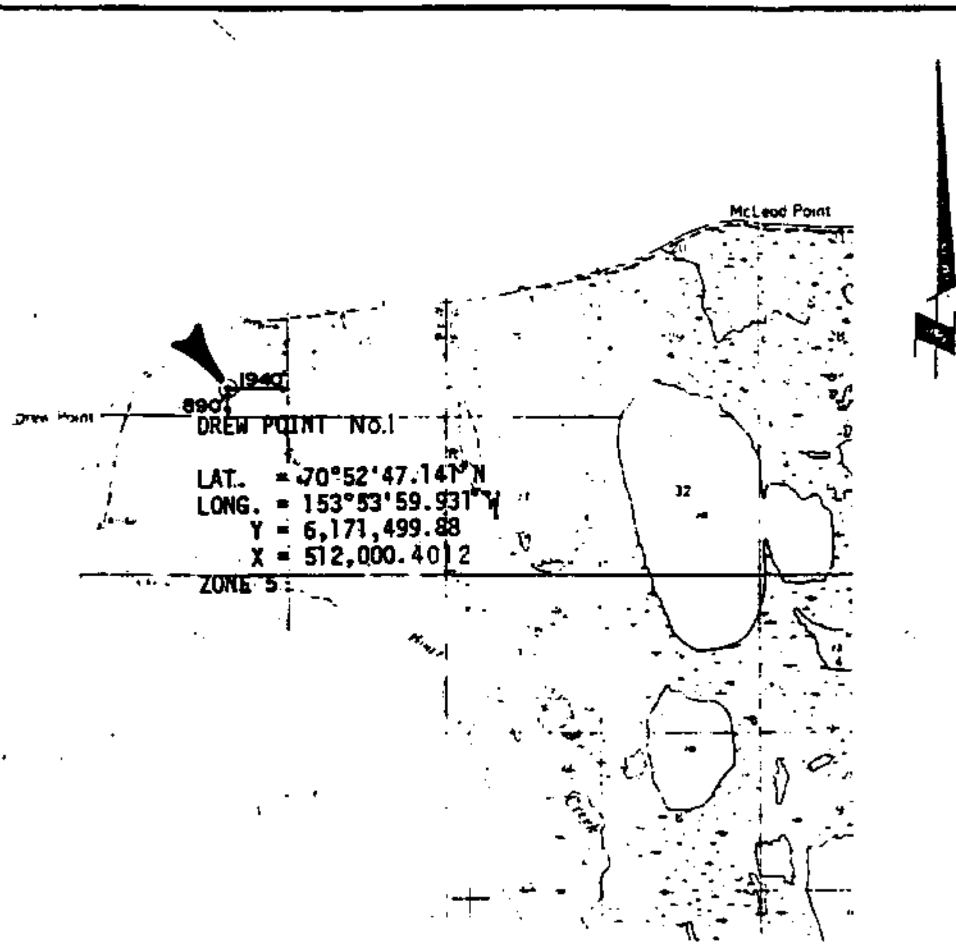
SAMPLE CHAMBER DATA

1. Gas - C.F.
2. Oil - C.C.
3. H_2O - C.C.
4. Mud 240 C.C.
5. B.O.R. - B.S. & W. - %

REMARKS:

Charts indicate valid test.

A. Scouler
Prepared By



CERTIFICATE OF SURVEYOR

I hereby certify that I am properly registered and licensed to practice land surveying in the State of Alaska and that this plat represents a location survey made by me or under my supervision, and that all dimensions and other details are correct.

August 17, 1977

STATE OF ALASKA
49TH
REGISTERED PROFESSIONAL LAND SURVEYOR

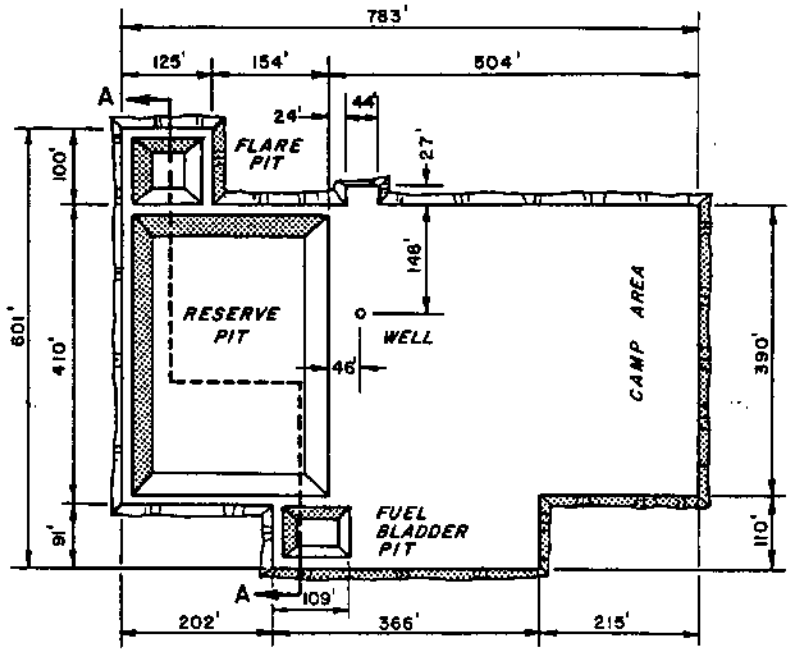
0 1/2 1 2
SCALE IN MILES

AS STAKED
DREW POINT No. 1
LOCATED IN
SE1/4 PROTRACTED SEC. 26 T 18 N, R 6 W, UMIAT MERIDIAN, AK

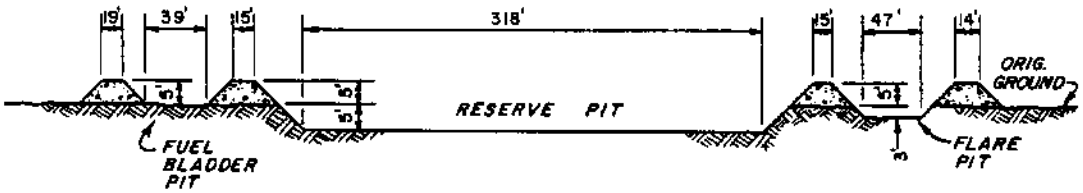
Surveyed for
HUSKY OIL
N.P.R. OPERATIONS INC.

Surveyed by
Bell, Herring and Associates
ENGINEERS AND LAND SURVEYORS
801 West Fireweed, Suite 102
ANCHORAGE, ALASKA 99503

DREW POINT DRILLSITE



PLAN VIEW



SECTION A-A

DRILL PAD DRAWING

OPERATIONS HISTORY

DATE AND FOOTAGE DRILLED AS OF 6:00 A.M.	ACTIVITY
1/1/78	Began rig-up operations. Set matting boards and worked on elevator.
1/2/78	Sub assembled and set. Fuel pit liner in. Camp fuel tank in. Derrick assembled.
1/3/78	Pumps and two mud tanks set. Cleaned out mud tanks. Set draw works on floor. Set rig water tank. Building water shack.
1/4/78	Rig set except for two boilers and mud tank. Derrick on floor.
1/5/78	Hooked up compound chains. Bolted down draw works. Worked on mud tanks.
1/6/78	Raised derrick. Set boiler. Worked on steam lines. Putting up windwalls. Assembling pumps. Received logging unit.
1/7/78	Worked on boiler steam lines and water lines. Set catwalk ramp and finished windwalls. Started rigging up Dowell tanks.
1/8/78	Winterized mud tanks. Fired boiler and worked on steam system. Picked up swivel and rigged up floor. Built slide for shakers. Installed Quadco equipment. Rigged up Dowell tanks.
1/9/78	Worked on mud tanks and water lines. Started putting liners and heads in pumps. Rigged up floor and derrick lights. Started welding 20" flange. Drilled to 103'. Set 20" conductor at 80' and cemented with 150 sacks of ArcticSet. Began rigging up ATCO shop.
1/10/78	Worked on mud pits and shakers. Rigged up Koomey lines. Insulated substructure. Welded on 20" casing head. Worked on boiler.
1/11/78	Worked on mud tanks and pumps. Reheated and welded 20" casing flange. Pressure tested weld to 300 psi. Tested OK. Started nipple up. Mixed mud. Rigged up Tuboscope.

1/12/78	Repaired leaks in mud tanks, air lines, and steam lines. Hooked up flow nipple and Hydril lines. Set in rat hole and mouse hole. Picked up and magnafluxed kelly, swivel, hook, bails, and miscellaneous subs.
1/13/78	Picked up drill collars. Attempted to pressure up Hydril. Seals leaking. Worked on Hydril.
	Spudded well January 13, 1978, at 4:00 p.m.
1/14/78 418'	Total Depth: 521'; Mud Weight: 8.9; Viscosity: 33. Worked pumps and desander. Repaired Hydril and and pumps. Drilled ahead.
1/15/78 1487'	TD: 2008'; MW: 9.5; Vis: 33. Circulated at 1215'. Circulated out 120 units of gas.
1/16/78 655'	TD: 2663'; MW: 9.8; Vis: 36. Drilled ahead.
1/17/78 5'	TD: 2668'; MW: 10.2; Vis: 41. Tripped in to circulate and condition hole. Pulled out of hole, chain out. Rigged up to log. Ran DIL and BHC.
1/18/78 0'	TD: 2668'; MW: 10.2; Vis: 41. Ran 68 joints of 13-3/8", 72# Buttress casing. Landed at 2661'. Casing in hole at 5:00 a.m. Preparing to run 5" drill pipe with duplex stinger.
1/19/78 0'	TD: 2668'. Cemented with 3,800 sacks ArcticSet cement. Return weight: 14.5 ppg. Cement going in at 15 lb./ppg.
1/20/78 0'	TD: 2668'. Installed primary and secondary packing in wellhead. Mixed mud. Changed rams in blowout preventer. Installed blowout preventer. Tested pack off on 13-3/8" to 2,000 psi. Tested OK.
1/21/78 0'	TD: 2668'. Changed pipe rams. Mixed mud. Tested blowout preventer and choke manifold to 5,000 psi. Tested OK. Tested Hydril to 2,500 psi. Tested OK. Thawed kelly loose from rat hole.
1/22/78 143'	TD: 2811'; MW: 8.6; Vis: 37. Tested kelly cock and floor valves. Tested OK. Reinstalled rat hole and mouse hole. Picked up bottom-hole assembly; laid down extra pipe. Ran in hole. Worked on Weatherford stripper. Circulated. Tested to 2,500 psi. Tested OK. Drilled float shoe. Good cement to guide shoe. Drilled guide shoe. Drilled to 2688'. Tested formation to 0.58 gradient. Tested OK. No leak off.

1/23/78 1132'	TD: 3943'; MW: 9.7' Vis: 32. Drilled ahead.
1/24/78 197'	TD: 4140'; MW: 9.7; Vis: 35. Tripped out with Bit No. 3. Picked up core barrel. Cut Core No. 1 from 4130' to 4140'. Full recovery. Picked up bottom-hole assembly. Picked up sub; sub parted; dropped 12-1/4" bit, shock sub, one 7-3/4" drill collar, 12-1/4" stabilizer, two 7-3/4" drill collars, and part of pick-up sub. Made up fishing tools and ran in hole.
1/25/78 0'	TD: 4140'; MW: 9.4; Vis: 33. Tripped in with overshot to fish at 2785'. Thawed mud line. Pushed fish to 2800'; could not latch on. Tripped out; waited on Tri-State tools. Tripped in with overshot and extension. Tagged fish at 2800'; pushed to 2865' and set grapple. Tripped out with fish and laid down same. Picked up new bottom-hole assembly. Tripped in with Bit No. 5.
1/26/78 480'	TD: 4620'; MW: 9.5; Vis: 33. Finished trip in with Bit No. 5. Reamed tight spot at 3320'. Circulated and drilled. Repaired compound chain and drill. Plugged bit. Attempted to clear. Tripped out to change bits. Tripped in with Bit No. 6. Circulated; drilled ahead.
1/27/78 880'	TD: 5500'; MW: 10.2; Vis: 32. Drilled from 4620' to 5430'. Circulated samples at 5430'. Drilled from 5430' to 5500'. Drilled ahead.
1/28/78 183'	TD: 5683'; MW: 10.3; Vis: 32. Drilled and circulated samples to 5530'. Tripped out for core barrel. Cut drilling line. Repaired compound. Circulated and cut Core No. 2 from 5530' to 5540'. Tested choke manifold to 5,000 psi. Tested OK.
1/29/78 240'	TD: 5923'; MW: 10; Vis: 37. Drilled from 5683' to 5898'. Tripped for core barrel. Cut Core No. 3 from 5900' to 5923'. Recovered 18 feet. Serviced the core barrel. Prepared to test blowout preventer.
1/30/78 0'	TD: 5923'; MW: 9.9; Vis: 32. Attempted to pull wear bushing. Would not come loose. Tripped in with bit and reamed 5898' to 5921'. Circulated and tripped out. Tripped in with Baker retrievable bridge plug and set at 2556'. Tested plug and casing to 2,400 psi. Picked up blowout-preventer stack and removed wear bushing.

1/31/78 0'	TD: 5923'; MW: 9.9; Vis: 35. Tested rams to 5,000 psi; tested Hydril to 2,500 psi. Upper kelly cock leaked at 2,000 psi. Installed new wear bushing. Tripped in with retrieving tool and retrieved bridge plug at 2556'. Tripped in with drilling assembly and reamed and washed 5850' to 5921'. Conditioned mud and tripped out steel-line measure. Picked up drill-stem test assembly and tripped in for Drill-Stem Test No. 1.
2/1/78 0'	TD: 5923'; MW: 10.1; Vis: 41. Tripped in with drill-stem test tools and 4,300-foot water cushion. Hit bridge at 5600'. Dropped bar and circulated water cushion out. Tripped out with tools. Tripped in with drilling assembly. Hit bridge at 5621'. Washed to bottom, circulated and conditioned mud. Made short trip to shoe; no fill. Circulated and conditioned at total depth. Made short trip to shoe; circulated and conditioned mud.
2/2/78 0'	TD: 5923'; MW: 10; Vis: 38. Tripped in with drill-stem test assembly. Ran 4,300 foot water cushion. Drill-Stem Test No. 1 interval: 5850' to 5922'. Initial flow: 30 minutes; initial shut-in: 45 minutes; final flow: 60 minutes; final shut-in: 122 minutes. Light blow when tool opened, decreasing to dead 20 minutes into initial flow. On final flow, dead for six minutes, faint blow for two minutes, dead remainder of test. Recovered 63 feet of mud-cut water. Test good; charts good.
2/3/78 419'	TD: 6342'; MW: 10.2; Vis: 42. Finished trip in hole with Bit No. 8. Drilled from 5921' to 6342'. Drilled ahead.
2/4/78 189'	TD: 6531'; MW: 10.3; Vis: 49. Drilled from 6342' to 6343'. Circulated and tripped for bit. Drilled from 6343' to 6531'. Circulated samples.
2/5/78 309'	TD: 6840'; MW: 10.4; Vis: 45. Drilled from 6531' to 6704'. Tripped for bit. Drilled from 6704' to 6840'. Drilled ahead.
2/6/78 55'	TD: 6895'; MW: 10.4; Vis: 45. Drilled from 6840' to 6895'. Conditioned hole for logging. Tested blowout-preventer rams to 5,000 psi; tested Hydril to 2,500 psi. Tested OK. Tested choke manifold to 5,000 psi. Tested OK. Rigged up to log. Logging.
2/7/78 0'	TD: 6895'; MW: 10.4; Vis: 48. Ran DIL/SP from 6872'. Ran BHC-Sonic/GR, CNL/FDC/GR/CAL, and HDT-Dipmeter. Shot 84 sidewall cores. Recovered 45 in Gun No. 1. Tripped out with Gun No. 2.

2/8/78 0'	TD: 6895'; MW: 10.2; Vis: 48. Finished trip out with sidewall core Gun No. 2. Recovered 37 from this gun. Ran Velocity Survey. Tripped in with drill pipe to 6340'. Washed and reamed to 6895'. Circulated and conditioned mud. Made short trip. Circulated and conditioned. Tripped out with drill pipe, running multishot survey on trip out.
2/9/78 0'	TD: 6895'; MW: 10.2; Vis: 48. Pulled wear bushing. Changed pipe rams; installed 9-5/8" pipe rams. Rigged up and ran 9-5/8" casing. Damaged threads on 9-5/8" float collar; replaced same.
2/10/78 0'	TD: 6895'; MW: 10.2; Vis: 43. Ran 168 joints of 9-5/8", 53.5#/ft., S-95 Buttress casing. Landed with float shoe at 6834' and float collar at 6752'. FO cementers at 2354' and 2442' and centralizers 10' above shoe on the first three collars and on every other collar through the 25th collar. Ran two centralizers above and below each FO and every fifth collar to surface. Landed casing with 295,000 pounds. Rigged up Dowell and cemented with 1,000 sacks Class "G" with 0.75% D-65 and 0.2% D13R. Pumped 50 barrels of water ahead, dropped top plug, and displaced with 480 barrels of mud. Did not bump plug. Cement in place at 9:05 p.m. Attempted to set mandrel pack-off. Broke lower packing ring.
2/11/78 0'	TD: 6895'; MW: 10.2; Vis: 43. Waited on new 9-5/8" mandrel pack-off. New pack-off unit is .006" too large in lower pack-off area around mandrel hanger. Pulled casing up three feet and installed emergency slips and pack-off. Attempted to pressure test. Upper pack-off retaining ring moved upward relieving the pressure. Nippled down to repair pack-off.
2/12/78 0'	TD: 6895'; MW: 10.2; Vis: 43. Circulated 9-5/8" x 13-3/8" annulus through FO at 2354'. Nippled down and changed pack-off and built up support ring. Installed same and pressured up. Pack-off failed again at 4,800 psi. Ran 9-5/8" spear and set in top of casing. Pulled casing up three inches at 330,000 pounds pull. Reset hanger slips and installed pack-off. Tested OK. to 4,500 psi. Picked up Howco RTTS and FO shifting arms. Tested casing to 3,000 psi. Tested OK. Opened FO at 2354' and circulated 9-5/8" x 13-3/8" annulus.
2/13/78 0'	TD: 6895'; MW: 10.2; Vis: 43. Circulated and conditioned mud through FO at 2354'. Closed FO and tested to 3,000 psi. Tested OK. Opened lower FO at

2442' and circulated. Broke down formation at 350 psi at 5 BPM. Down-squeezed 300 sacks of Dowell's ArcticSet cement. Closed FO at 2442' and tested to 3,000 psi. Tested OK. Tripped out and laid down Howco tools. Tested blowout-preventer equipment to 5,000 psi and Hydril to 2,500 psi. Tested OK.

2/14/78
0'

TD: 6895'; MW: 9.6; Vis: 38. Tripped in; tagged cement at 5169'. Circulated and conditioned mud. Drilled cement to 6855'. No cement under float collar to shoe. Circulated and conditioned mud. Tripped out. Rigged up Schlumberger and ran CBL log.

2/15/78
0'

TD: 6895'; MW: 10.2; Vis: 38. Tripped in with bit. Circulated and conditioned mud. Raised weight to 10.2 ppg. Made steel-line measure check on shoe; 9-5/8" shoe at 6834', corrected depth. Drilled shoe. Tripped out and picked up 9-5/8" casing scraper. Ran scraper and tripped out. Made steel-line measure.

2/16/78
0'

TD: 6895'; MW: 10.2; Vis: 35. Picked up Howco cement retainer on drill pipe and set at 6800'. Rigged up and tested packer and drill pipe to 3,000 psi. Tested OK. Stabbed in and established injection rate of 6.4 BPM at 800 psi. ISIP: 400 psi. Mixed and pumped 200 sacks of Class "G" cement with 0.75% D-65 and 0.2% D13R at 15.8 ppg. Displaced to retainer and stabbed in. Squeezed at 4 BPM and 200 psi, increasing to 900 psi. ISIP: 400 psi. Cement in place at 2:30 p.m., 2/15/78. Reversed out 2 barrels excess cement. Tripped in with bit and scraper and tagged cement at 6790'. Waited on cement 12 hours. Ran VDL-CBL. Good cement to 6295' behind pipe.

2/17/78
0'

TD: 6895'; MW: 10.1; Vis: 44. Tripped in with bit and junk basket. Tested casing to 3,000 psi. Tested OK. Drilled cement retainer. Cleaned out 15 feet of rat hole to 6848'. Hole caved in. Reamed to 6880'. Tripped out. Tripped in; hit bridge at 6870'. Drilled and reamed through bridge.

2/18/78
10'

TD: 6905'; MW: 10.2; Vis: 60. Cleaned out caved-in hole from shoe to 6895'. Drilled from 6895' to 6905'. Hole caved in. Cleaned out hole and conditioned mud with short trips to shoe.

2/19/78
10'

TD: 6915'; MW: 10.6; Vis: 52. Circulated and pumped pill and tripped out. Ran globe basket. Cut drilling line. Ran shoe-bond test. Tested to equivalent gradient of 0.59 psi/ft. with no leak-off.

	Cut Core No. 4; 1-1/2' with globe basket. Full recovery in globe basket with no iron recovered. Ran bit and junk basket. Built mud weight. Drilled to 6915'; tripped out and picked up 30' core barrel and 8-15/32" head.
2/20/78 32'	TD: 6947'; MW: 10.6; Vis: 52. Tripped in with core barrel. Thawed out frozen mud line. Broke circulation, dropped ball. Cored Core No. 5 from 6917' to 6947'. Tripped out with core barrel, recovered 26 feet. Tripped in with bit.
2/21/78 9'	TD: 6957'; MW: 10.6; Vis: 53. Reamed core hole to 8-1/2". Tripped out. Tested blowout-preventer equipment; rams to 5,000 psi and Hydril to 2,500 psi. Tripped in with core barrel, 8-15/32" core head. Cut Core No. 6 from 6947' to 6957'; core barrel jammed. Recovered 10-foot core. Tripped in with bit. Reamed core hole to 8-1/2".
2/22/78 51'	TD: 7007'; MW: 10.6; Vis: 55. Reamed core hole with Bit No. 14RR. Circulated bottoms up. Tripped out and picked up core barrel. Cut Core No. 7 from 6977' to 7009'. Tripped out. Recovered a 30-foot core. Tripped in with 8-1/2" bit. Stabilizer hung at 100'. Laid down stabilizer. Tripped in to ream core hole with Bit No. 14RR to 8-1/2".
2/23/78 86'	TD: 7093'; MW: 10.5; Vis: 56. Reamed core hole with Bit No. 14RR. Drilled 7007' to 7048'. Lost circulation. Built volume with lost-circulation material. Drilled 7048' to 7093'. Circulated and pulled out of hole. Picked up core barrel with 8-15/32" core head and ran in hole.
2/24/78 86'	TD: 7179'; MW: 10.6; Vis: 55. Ran in hole with core barrel; washed 50 feet to bottom. Circulated and cut Core No. 8 from 7093' to 7103'. Pulled out; well starting flowing back. Circulated mud around; no gas. Well stabilized. Continued pulling out of hole. Recovered 10-foot core. Cut drilling line. Ran in hole with Bit No. 15. Reamed core hole and continued drilling.
2/25/78 158'	TD: 7337'; MW: 10.6; Vis: 53. Controlled drilling, circulating samples at 20-foot intervals.
2/26/78 43'	TD: 7380'; MW: 10.6; Vis: 51. Circulated and drilled to 7350'. Tripped out and picked up core barrel. Tripped in and cut Core No. 9 from 7350' to 7380'; full recovery. Tripped in hole with bit.

2/27/78 164'	TD: 7544'; MW: 10.6; Vis: 49. Drilled and circulated samples to 7544'. Tripped out for core barrel.
2/28/78 28'	TD: 7572'; MW: 10.6; Vis: 51. Tripped out to core at 7544'. Pulled wear bushing and tested blowout-preventer equipment; rams to 5,000 psi and Hydril to 2,500 psi. Tested OK. Tripped in with core barrel. Cut Core No. 10 from 7544' to 7572'; full recovery. Tripped in with bit and reamed rat hole and conditioned mud.
3/1/78 0'	TD: 7572'; MW: 10.6; Vis: 50. Picked up test tools and tripped in with 6,000-foot water cushion. Ran Drill-Stem Test No. 2: 7472' to 7572'. Initial flow: 30 minutes; initial shut-in: 46 minutes; final flow: 63 minutes; final shut-in: 117 minutes. Weak blow; decreased steadily during initial flow; dead throughout final flow period. Recovered 110 feet of rat-hole fluid in test string.
3/2/78 30'	TD: 7602'; MW: 10.6; Vis: 45. Finished laying down drill-stem test tools. Picked up core barrel and tripped in. Cut Core No. 11: 7572' to 7602'. Recovered 29 feet. Tripped in with bit and reamed rat hole. Tripped for core barrel.
3/3/78 101'	TD: 7703'; MW: 10.6; Vis: 4. Cut Core No. 12: 7602' to 7629'. Recovered 27 feet. Tripped in with bit. Drilled 7689' to 7703' and circulated samples. Drilled ahead.
3/4/78 60'	TD: 7763'; MW: 10.6; Vis: 49. Tripped out to pick up core barrel. Tripped in and cut Core No. 13 from 7704' to 7733'. Recovered 23 feet. Tripped in with bit. Reamed rat hole. Drilled 7733' to 7763'.
3/5/78 62'	TD: 7825'; MW: 10.6; Vis: 55. Drilled to 7793'; circulated. Tripped for core barrel. Cut Core No. 14 from 7793' to 7821'; recovered 22 feet. Tripped in and reamed rat hole. Drilled to 7825'.
3/6/78 0'	TD: 7825'; MW: 10.6; Vis: 55. Conditioned hole and tripped for Drill-Stem Test No. 3. Tripped in with test tools and 6,000-foot water cushion. Test interval: 7765' to 7821'. Initial open: 31 minutes; no blow. Initial shut-in: 46 minutes. Final open: 60 minutes; no blow. Final shut-in: 160 minutes. Pulled packers loose and tripped out to water cushion. Reversed out water cushion with maximum pressure of 500 psi. Tripped out. Test appeared good. Bottom-hole temperature: 185°F.

3/7/78 67'	TD: 7882'; MW: 10.6; Vis: 48. Tested blowout-preventer equipment; rams to 5,000 psi and Hydril to 2,500 psi. Tested OK. Tripped in. Cut drilling line. Finished trip in and drilled to 7882'. Tripped for core barrel.
3/8/78 54'	TD: 7946'; MW: 10.6; Vis: 58. Cut Core No. 15 from 7882' to 7901'. Recovered 18-1/2' of core. Tripped in with bit. Reamed 7882' to 7901'. Drilled 7901' to 7946'. Conditioned hole for logs.
3/9/78 0'	TD: 7946'; MW: 10.6; Vis: 68. Tripped out to log. Rigged up and ran Temperature Survey, DIL/SP, CNL/FDC/GR/CAL, BHC/GR/TTI, and HDT-Dipmeter.
3/10/78 0'	TD: 7946'; MW: 10.4; Vis: 44. Attempted 75 sidewall cores, recovered 69. Ran Velocity Survey and Temperature Survey. Laid down monel and drill collars. Tripped in with drill pipe. Broke circulation at 5000'. Tripped in to 7700'. Conditioned mud.
3/11/78 0'	TD: 7946'; PBTD: 6454'; MW: 10.5; Vis: 50. Conditioned mud at 7700'. Spotted Plug No. 1 from 7700' to 7350' with 135 sacks of Class "G" cement at 15.8 ppg. Plug in place at 8:45 a.m., 3/10/78. Conditioned mud 4 hours at 7150'. Spotted Plug No. 2 from 7150' to 6784' with 250 sacks of Class "G" cement at 15.8 ppg. Plug in place at 1:45 p.m., 3/10/78. Tripped for retainer. Set Halliburton 9-5/8", 53.5#, EZ drill retainer at 6525'. Spotted Plug No. 3 from 6525' to 6454' with 25 sacks Class "G" cement at 15.8 ppg. Plug in place at 8:20 p.m., 3/10/78. Tripped out 5 stands and reversed out. Tripped out laying down drill pipe and drill collars. Tripped in with Tri-State 9-5/8" casing cutters. Cut casing at 2265'. Tripped out with casing cutters.
3/12/78 0'	TD: 7946'; PBTD: 2153'; MW: 10.4; Vis: 58. Picked up and hung off blowout preventer. Picked up 9-5/8" spear. Pulled casing free of slips. Cut off pack-off rings. Nippled up blowout preventer and installed 9-5/8" rams. Laid down 54 joints of 9-5/8" casing and 2 stubs. Tripped in with 12-1/4" bit to 2220' and conditioned mud. Tripped in with 13-3/8", 72#, Halliburton retainer and set at 2210'.
3/13/78 0'	TD: 7946'; PBTD: 2153'. Set No. 4 plug at 2210'. Spotted 50 sacks ArcticSet on top of 13-3/8" retainer.

Preceded with 14 barrels of water. Displaced with 36 barrels of mud and 10 barrels of 15.2 ppg ArcticSet slurry. Displaced mud to water and water to diesel at 2100'. Reversed, using 357 barrels of diesel. Laid down drill pipe; pulled rat hole and mouse hole. Laid down kelly. Stripped floor and started nippling down. Installed dry-hole marker.

Rig released at 2:00 p.m., March 13, 1978.

3/14/78 TD: 7946'; PBTD: 2153'. Rigged down. Cleaned mud tanks, pumps, and mud system. Rigged down floor. Set out Dowell unit and Schlumberger unit. Preparing to move rig to Inigok wellsite location.

DRILLING TIME ANALYSIS

DREW POINT TEST WELL NO. 1

NABORS ALASKA DRILLING, INC., RIG 25

Spudded 1/13/78, Rig released 3/13/78

Total Depth: 7,946 Feet

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. DREW POINT TEST WELL NO. 1 Page 1 of 6

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
1978 1-1	12																							Rigging Up	Began Rigging Up
1-2	12																							Rigging Up	
1-3	24																							Rigging Up	
1-4	24																							Rigging Up	
1-5	24																							Rigging Up	
1-6	24																							Rigging Up	
1-7	24																							Rigging Up	
1-8	24																							Rigging Up	
1-9	24																							Rigging Up	Set 20" Casing at 80'
1-10	24																							Rigging Up	
1-11	24																							Rigging Up	
1-12	24																							Rigging Up	
1-13		8		¾		¼	8					2											5	Repairing Hydril	Spudded Well at 4:00 p.m.
1-14		17			2		1	¾															3½	Picking Up Drill Collar	
1-15		14¼		5½	1½	½	¾	1															½	Surveying	

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. DREW POINT TEST WELL NO. 1 Page 2 of 6

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
1-16		4		10½				7½	2															Drilling	
1-17				7				1½	6	9													½	Logging	Ran Schlumberger Wireline Logs
1-18				6				2½		5		9½											1	Running In Hole	Set 13 3/8" Casing at 2661'
1-19				2								22												Nipple Up BOP	
1-20								2				8	10										4	Changing Pipe and Blind Rams	
1-21				6			3	1½					8										5½	Thawing Kelly	
1-22		20½			1½			1															1	Drilling	
1-23		12¼		5	¾			3⅓									2¼						¼	Drilling	Core No. 1: 4130' - 4140'
1-24				1½												19							3½	Fishing	
1-25		8		6	½		1	2¼								3							3¼	Tripping	
1-26		21½		½	½			1½																Drilling	
1-27		5½	1	10¼			½	3¾									2½						½	Drilling	Core No. 2: 5530' - 5540'
1-28		11½		4½	¼			3¾									4							Drilling	Core No. 3: 5900' - 5923'
1-29			1	11½				2½				1					1						7	Testing BOP	
1-30			½	8				2					2½										11	Testing BOP	

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. DREW POINT TEST WELL NO. 1 Page 3 of 6

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
1-31			3¾	12¼				5										3						Tripping	
2-1				12¼				3½										8½						Circulating	DST No. 1
2-2		14½		5¾			1																3	Cutting Drilling Line	
2-3		8¾		9½	3½	¼		1½															½	Drilling	
2-4		16½		5¾	¾	¼		1																Drilling	
2-5		9		6½	¼	¼		5½					1½										1	Drilling	
2-6				2					22															Logging	Ran Schlumberger Wireline Logs
2-7			6½	4¾		½		2	9½														1	Logging	
2-8				5				3½		11½			½									3½		Tripping	Set 9 5/8" Casing at 6834'
2-9								2		22														Running Casing	
2-10												8										6	10	Working on Packoff	
2-11										1½		3½										9	10	Working On Packoff	
2-12				8½				1				1½	9							4				Testing FO	
2-13				5				2½					3										13½	Tripping	
2-14				8½				7½	3½														4½	Logging	

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. DREW POINT TEST WELL NO. 1 Page 4 of 6

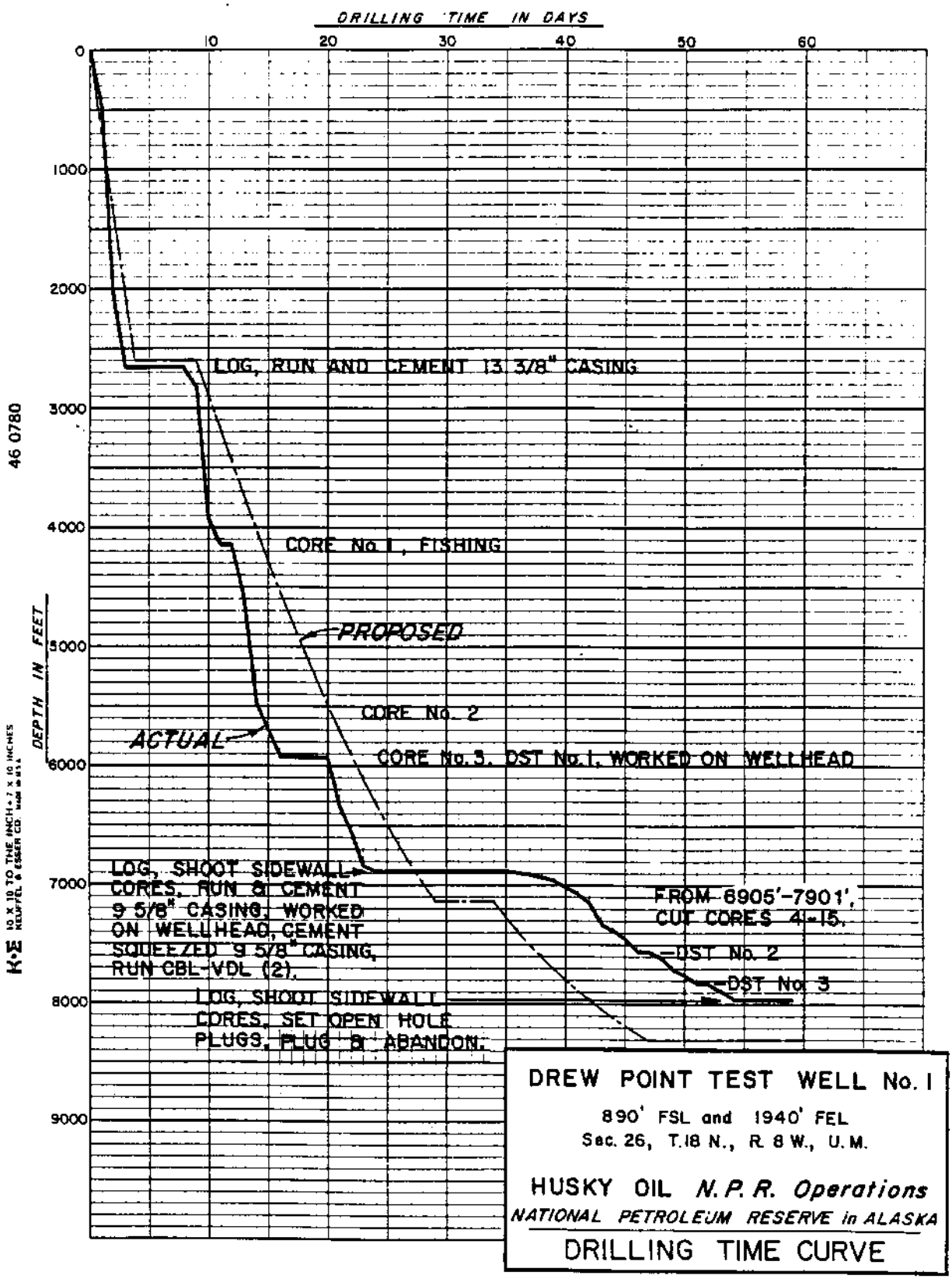
DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
2-15				16				3												1			4	Tripping	
2-16				5¼		½		1	4½														12¾	Logging	
2-17		1	16	4																			3	Cleaning Out Hole	
2-18		2½		10				1¼															10½	Cleaning Out Hole	
2-19				9½				1								11½							2	Tripping	Core No. 4: 6905' - 6906.5'
2-20			2½	10				1					3½			4½							2½	Tripping	Core No. 5: 6917' - 6947'
2-21		1½	1	11		¼		3								7½								Reaming	Core No. 6: 6947' - 6957'
2-22		6¼	¼	7½				7¾								2								Tripping	Core No. 7: 6977' - 7009'
2-23		2	1½	11				2								3½							4¼	Tripping	Core No. 8: 7093' - 7103'
2-24		18						6																Drilling	
2-25		5½		5½	½			3½								9								Circulating	Core No. 9: 7350' - 7380'
2-26		16½	½	6¼		¼		½																Tripping	
2-27		2¾		10¾				1					4			4							1½	Tripping	Core No. 10: 7544' - 7572'
2-28			½	4				5									14						½	Circulating	DST No. 2
3-1				9¼			2¾									7	3						2	Laying Down DST Tools	Core No. 11: 7572' - 7602'

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. DREW POINT TEST WELL NO. 1 Page 5 of 6

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
3-2		2½	1½	11		½		2									6						1	Tripping	Core No. 12: 7602' - 7629'
3-3		4¾		6¾			1½	3¼									8							Circulating	Core No. 13: 7704' - 7733'
3-4		4½	1	8¾	½	¼		1¾									7½							Drilling	Core No. 14: 7793' - 7821'
3-5			½	6½		½		2½									1½	12½						Reaming	DST No. 3
3-6		5¼		9½				1½					4					2½					1¼	Laying Down DST Tools	
3-7		4¾	½	5¼				4									8½						1	Coring	Core No. 15: 7882' - 7901'
3-8		1		2				5½	15½															Conditioning Mud	Ran Schlumberger Wireline Logs
3-9				2					22															Logging	
3-10				7¾					12¾										3½					Circulating	
3-11				6																			18	Retrieving 9 5/8" Casing	
3-12	13																		11					Cementing	
3-13	24																							Rigging Down	Released Rig at 2:00 p.m.
3-14	24																							Rigging Down	
3-15	24																							Rigging Down	
3-16	24																							Rigging Down	

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. DREW POINT TEST WELL NO. 1 Page 6 of 6

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
3-17	24																							Rigging Down	
3-18	24																							Rigging Down	
3-19																							24	Building Herc Loads	
3-20																							24	Building Herc Loads	
3-21																							24	Building Herc Loads	
3-22																							24	Building Herc Loads	
3-23																							24	Building Herc Loads	
3-24																							12	Setting Out Camp Units	
3-25																							12	Loading Out	
3-26																							12	Cleaning Location	
3-27																							12	Cleaning Location	
	421		38¼		12½		19¼		97¾		-0-		46		-0-		90¼		14½		-0-		322		
TOTAL HOURS		248½		356¼		4		128½		49		55½		-0-		22		43¼		5		18½			


DRILLING TIME IN DAYS
0
10
20
30
40
50
60
1000
2000
3000
4000
5000
6000
7000
8000
9000
DEPTH IN FEET
46 0780
K+E 10 X 10 TO THE INCH • 7 X 10 INCHES
LOG, RUN AND CEMENT 13 3/8" CASING
CORE No. 1, FISHING
PROPOSED
CORE No. 2
ACTUAL
CORE No. 3, DST No. 1, WORKED ON WELLHEAD
LOG, SHOOT SIDEWALL CORES, RUN & CEMENT 9 5/8" CASING, WORKED ON WELLHEAD, CEMENT SQUEEZED 9 5/8" CASING, RUN CBL-VDL (2).
FROM 6905'-7901', CUT CORES 4-15.
DST No. 2
DST No. 3
LOG, SHOOT SIDEWALL CORES, SET OPEN HOLE PLUGS, PLUG & ABANDON.
DREW POINT TEST WELL No. 1
890' FSL and 1940' FEL
Sec. 26, T.18 N., R. 8 W., U. M.
HUSKY OIL N.P.R. Operations
NATIONAL PETROLEUM RESERVE in ALASKA
DRILLING TIME CURVE

DRILLING MUD RECORD

ARCTIC DRILLING SERVICES

COMPANY Husky Oil NPR Operations, Inc. STATE Alaska CASING PROGRAM: 20 inch at 80 ft.

WELL Drew Point Test Well No. 1 COUNTY North Slope Borough 13 3/8 inch at 2661 ft.

CONTRACTOR Nabors Alaska Drilling Company LOCATION NPRA SEC 26 TWP 18N RNG 8W 9 5/8 inch at 6834 ft.

STOCKPOINT Lonely DATE Jan 13, 1978 ENGINEER Douville/Monroe TOTAL DEPTH 7946 ft.

DATE	DEPTH	WEIGHT	VISCOSITY		Yp	GELS	pH	FILTRATION			FILTRATE ANALYSIS				SAND	RETORT			CEC	REMARKS AND TREATMENT
1978	feet	lb/gal	Sec API @ °F	PV @ °F		10 sec / 10 min	Strip □ Meter □	ml API	HTHP @ °F	Cake 32nds	Pm	Pf/Mf	Cl ppm	Ca ppm	%	Solids %	Oil %	Water %	Mud, me/ml	
1/11		8.6	32	7	3	3/5	7.0			2			500	Tr						Mixed spud mud.
1/12	80	8.6	32	8	2	2/7	7.0			1			450	Tr						
1/12	80	8.6	31	8	2	2/6	7.0			1			450	Tr						
1/13	275	9.0	33	10	5	4/8	7.0			2			900	32	1	8		92		Drilling surface hole.
1/13	470	8.9	33	7	11	9/19	7.0			2			1000	32	½	8		92		
1/14	1130	9.0	33	7	8	7/15	7.0			2			800	32	½	10		90		
1/14	1520	9.1	32	7	6	5/11	7.0			2			900	25	½	10		90		
1/14	1920	9.5	33	8	7	7/16	7.0			2			800	25	½	10		90		
1/15	2130	9.7	33	8	9	6/15	7.0			2			1100	32	½	12		88		
1/15	2600	9.8	36	11	11	10/23	7.0			2			1100	25	½	13		87		
1/16	2668	10.1	42	11	13	16/33	7.0			2			1100	25	½	13		87		Ran "E" logs
1/16	2668	10.2	41	12	16	17/35	7.0			2			1100	25	½	14		86		Ran "E" logs
1/17	2668	10.2	41	12	16	11/28	7.0			2			1100	25	½	14		86		Ran "E" logs & 13 3/8" casing
1/20	2668	8.6	32	8	2	2/7	7.0			2			500	16	Tr	-		-		Nipple up. Mixed mud.
1/20	2668	8.6	34	6	6	2/8	7.0			2			450	12	Tr	-		-		
1/21	2668	8.6	35	10	6	2/6	7.0			2			450	12	Tr	-		-		
1/21	2680	8.9	37	10	6	4/10	8.5			2			2050	200	½	-		-		Drilled out cement and shoe.
1/22	3103	9.3	36	9	9	12/36	8.5			2			1000	1380	Tr	17		83		
1/22	3465	9.5	35	8	4	10/6	8.5			2			900	400	Tr	15		85		
1/22	3940	9.7	32	6	3	2/8	8.5			2			740	260	Tr	14		86		
1/23	4161	9.7	30	6	3	1/4	8.5			2			720	240	Tr	14		86		Cut Core No. 1. Dropped one
1/23	4165	9.8	35	8	4	2/8	8.5			2			720	200	Tr	14		86		stand DCs in hole.
1/24	4140	10.0	34	10	4	2/8	8.0			2			740	360	Tr	17		83		
1/24	4140	9.7	35	10	4	2/10	8.0			2			740	360	Tr	16		84		Retrieved fish. 31' depth
1/24	4140	9.8	33	10	4	2/6	8.0			2			740	320	Tr	14		86		correction.
1/25	4225	9.7	31	4	2	0/7	8.5			2			640	180	½	17		83		
1/25	4505	9.7	36	11	7	0/12	8.5			2			580	240	Tr	15		85		
1/25	4630	9.5	33	9	3	1/10	8.5			2			580	100	Tr	14		86		
1/26	4979	10.3	31	7	5	1/8	8.5			2			560	160	Tr	17		83		
1/26	5130	10.2	30	7	2	0/4	8.5			2			520	80	Tr	15		85		
1/26	5490	10.2	32	7	9	1/13	8.5			2			520	80	Tr	15		85		
1/27	5539	10.2	31	8	6	1/11	8.5			2			520	80	Tr	18		82		Cut Core No. 2.
1/27	5655	10.3	32	7	8	1/14	8.3			2			520	80	Tr	22		78		
1/28	5901	10.0	34	8	6	2/14	8.3			2			520	76	Tr	20		80		Cut Core No. 3.
1/28	5911	10.0	37	8	6	2/16	8.3			2			520	80	Tr	20		80		

DRILLING MUD RECORD

ARCTIC DRILLING SERVICES

COMPANY Husky Oil NPR Operations, Inc. STATE Alaska CASING PROGRAM: 20 inch at 80 ft.

WELL Drew Point Test Well No. 1 COUNTY North Slope Borough 13-3/8 inch at 2661 ft.

CONTRACTOR Nabors Alaska Drilling Company LOCATION NPRA SEC 26 TWP 18N RNG 8W 9-5/8 inch at 6834 ft.

STOCKPOINT Lonely DATE Jan 13, 1978 ENGINEER Douville/Monroe TOTAL DEPTH 7946 ft.

DATE	DEPTH	WEIGHT	VISCOSITY		Yp	GELS	pH	FILTRATION			FILTRATE ANALYSIS				SAND	RETORT			CEC	REMARKS AND TREATMENT
	feet	lb/gal	Sec API @ °F	PV @ °F		10 sec/10 min	Strip □ Meter □	ml API	HTHP @ °F	Cake 32nds	Pm	Pf/Mf	Cl ppm	Ca ppm	%	Solids %	Oil %	Water %	Mud, me/ml	
1/29	5921	9.9	32	7	6	1/7	8.5			2			480	96	Tr	20		80		Pulled wear ring.
1/30	5921	9.9	35	9	7	2/12	8.0			2			500	80	Tr	18		82		Nippled up BOPs. Pulled BP.
1/31	5921	10.0	39	12	8	3/14	9.0			2			550	60	Tr	19		81		Mixed mud for DST No. 1. Tight
1/31	5921	10.1	41	13	9	4/15	9.0			2			550	66	Tr	19		81		hole at 5700'. POH w/DST tools.
2/1	5921	10.1	41	15	10	6/17	9.0			2			550	60	Tr	19		81		Ran DST No. 2
2/1	5921	10.0	38	12	8	4/22	9.0			2			500	60	Tr	19		81		
2/2	6000	10.1	40	15	10	3/18	9.5			2			550	50	Tr	17		83		Finished DST No. 2. RIH w/BHA.
2/2	6200	10.2	43	14	12	6/26	9.5			2			550	50	Tr	18		82		
2/2	6300	10.2	41	16	8	4/21	9.5			2			600	50	Tr	18		82		
2/3	6380	10.2	42	17	11	2/7	9.0			2			600	40	Tr	14		86		Dispersing and reducing water
2/3	6500	10.3	39	13	7	2/4	9.0			2			600	40	Tr	13		87		loss.
2/4	6670	10.4	40	15	10	2/5	9.5			2			600	40	Tr	14		86		
2/4	6735	10.4	43	16	8	2/5	9.5			2			600	40	Tr	15		85		
2/4	6810	10.4	45	18	9	3/5	9.5			2			600	40	Tr	15		85		
2/5	6895	10.4	45	18	12	3/6	9.0			2			600	40	Tr	14		86		Conditioned mud and hole to run
2/5	6895	10.4	48	25	15	4/9	9.0			2			600	40	Tr	14		86		"E" logs.
2/7	6895	10.4	43	16	8	3/5	9.0			2			600	40	Tr	14		86		Ran "E" lots & sidewall cores.
2/7	6895	10.2	49	23	14	4/12	9.0			2			600	40	Tr	12		88		Conditioned mud & hole for
2/7	6895	10.2	47	25	15	3/10	8.7			2			600	40	Tr	12		88		9 5/8" casing.
2/9	6895	10.2	43	17	11	2/7	8.5			2			600	40	Tr	12		88		Ran 9 5/8" casing.
2/14	6895	9.6	38	11	7	4/17	10.5			2			720	950	Tr	9		91		Repaired casing pack off. Found
2/14	6895	9.5	33	8	2	2/12	10.5			2			720	2500	Tr	11		89		1800' of cement inside casing.
2/15	6858	10.0	35	9	8	2/26	10.5			2			700	2500	Tr	9		91		Drilled out shoe. Prepared for
2/15	6858	10.2	38	10	11	14/30	10.5			2			720	3000	Tr	10		90		cement squeeze job.
2/16	6858	10.1	35	19	14	10/14	11.0			2			1400	2400	Tr	9		91		Squeeze job around shoe.
2/17	6895	10.1	37	10	14	12/14	11.0			3			2500	1500	Tr	9		91		Drilled out cement retainer.
2/17	6895	10.1	32	9	10	0/0	11.0			3			2500	1800	Tr	9		91		Reducing water loss. Hole
2/17	6895	10.1	44	16	10	6/23	11.0			2			2200	1800	Tr	10		90		sloughing.
2/17	6905	10.2	65	26	14	8/38	11.5			2			1900	2500	1	11		89		Hole caving. Raising viscosity;
2/17	6905	10.2	78	35	25	6/54	11.5			2			1900	2500	1	11		89		reducing water loss.
2/17	6905	10.2	60	28	14	3/16	11.5			2			1900	2400	1	11		89		
2/18	6906	10.2	55	23	14	3/12	11.5			1			1700	2500	1½	11		89		Conditioned hole. Cut core with
2/18	6917	10.6	52	25	15	3/10	11.5			1			1600	2500	1½	13		87		globe basket. Raised weight
2/19	6925	10.6	52	24	13	3/10	11.5			1			1500	2400	½	12		88		to 10.6 #/gal. Cut core No.4.
2/19	6946	10.6	50	21	13	2/9	11.5			1			1400	2400	½	12		88		

DRILLING MUD RECORD

ARCTIC DRILLING SERVICES

COMPANY Husky Oil NPR Operations, Inc. STATE Alaska CASING PROGRAM: 20 inch at 80 ft.

WELL Drew Point Test Well No. 1 COUNTY North Slope Borough 13-3/8 inch at 2661 ft.

CONTRACTOR Nabors Alaska Drilling Company LOCATION NPRA SEC 26 TWP 18N RNG 8W 9-5/8 inch at 6834 ft.

STOCKPOINT Lonely DATE Jan. 13, 1978 ENGINEER Douville/Monroe TOTAL DEPTH 7946 ft.

DATE	DEPTH	WEIGHT	VISCOSITY		Yp	GELS	pH	FILTRATION			FILTRATE ANALYSIS				SAND	RETORT			CEC	REMARKS AND TREATMENT
	feet	lb/gal	Sec API @ °F	PV @ °F		10 sec/ 10 min	Strip Ω Meter Ω	ml API	HTHP °F	Cake 32nds	Pm	Pf/Mf	Cl ppm	Ca ppm	%	Solids %	Oil %	Water %	Mud, me/ml	
2/20	6946	10.6	50	22	11	2/9	11.5	6.3		1			1400	2400	½	12		88		Cut Core No. 5.
2/20	6956	10.6	53	21	13	2/12	11.0	6.0		1			1100	2200	½	12		88		
2/21	6977	10.6	60	31	18	3/15	11.0	5.7		1			1000	2300	½	12		88		
2/21	6985	10.6	56	30	15	3/14	11.0	5.4		1			900	2200	½	12		88		Cut Core No. 6.
2/21	7007	10.6	55	30	14	2/12	11.0	5.5		1			800	2200	½	12		88		
2/22	7030	10.6	55	29	13	2/10	11.0	5.5		1			850	2200	½	12		88		Lost circulation; mixed LCM.
2/22	7080	10.6	56	24	12	2/9	10.5	5.8		1			750	1800	½	12		88		Spotted on bottom; regained
2/23	7100	10.6	48	21	8	2/6	10.0	5.2		1			700	1700	1	12		88		circulation. Hole not taking
2/23	7110	10.6	52	23	14	2/12	10.0	5.1		1			700	1550	1	12		88		fluid. Checked for flow. OK.
2/23	7170	10.6	55	25	15	2/11	10.0	4.8		1			700	1550	1	12		88		Built mud volume. Losing mud
2/24	7210	10.6	50	24	12	2/12	10.0	5.1		1			750	1200	1	12		88		on shakers due to LCM. Built
2/24	7270	10.6	48	22	11	2/13	9.5	5.4		1			700	700	1	12		88		volume in pre-mix tank. Added
2/24	7325	10.6	53	23	14	3/15	9.5	5.5		1			750	250	1	12		88		to system to replace mud lost
2/25	7355	10.6	52	25	15	3/13	9.5	5.1		1			750	400	1	12		88		over shakers.
2/25	7380	10.6	51	20	14	2/12	9.5	5.2		1			750	320	1	12		88		Cut Core No. 9.
2/26	7400	10.6	51	26	13	3/13	9.0	4.8		1			800	320	1	13		87		
2/26	7544	10.6	49	20	15	3/16	9.0	5.2		1			800	320	1	13		87		
2/27	7565	10.6	50	22	11	3/14	9.0	5.2		1			800	320	1	12		88		Cut Core No. 10.
2/27	7572	10.6	51	25	10	3/14	9.0	5.4		1			800	280	1	12		88		Conditioned mud & hole for DST.
2/28	7572	10.6	50	22	10	3/12	8.5	5.5		1			800	280	1	11		89		Ran DST.
3/1	7602	10.6	45	20	5	2/7	8.5	6.1		1			900	210	1	12		88		Cut Core No. 11.
3/1	7602	10.6	48	22	8	2/8	9.0	5.8		1			900	200	1	12		88		
3/2	7630	10.6	47	20	8	2/6	9.0	6.1		1			900	180	½	12		88		Cut Core No. 12.
3/2	7672	10.6	47	21	11	2/6	9.0	5.9		1			900	180	½	12		88		
3/3	7716	10.6	47	24	11	2/6	9.0	6.4		1			900	180	½	13		87		Cut Core No. 13.
3/3	7748	10.6	49	27	16	2/7	9.0	5.9		2			950	170	½	13		87		
3/4	7748	10.6	53	23	12	2/7	8.5	6.0		2			900	100	½	13		87		Cut Core No. 14.
3/4	7825	10.6	55	27	15	2/6	9.0	5.4		2			900	90	½	13		87		
3/5	7825	10.6	55	27	16	2/7	9.0	5.4		2			900	60	½	13		87		Ran DST.
3/6	7860	10.5	56	29	15	3/6	8.5	4.8		2			1000	80	½	12		88		
3/6	7891	10.6	48	27	16	1/4	9.0	4.4		2			1000	64	½	13		87		Cut Core No. 15.
3/7	7901	10.7	56	28	15	4/6	8.8	4.6		2			1000	66	½	13		87		
3/7	7938	10.6	95	54	37	7/25	8.0	4.4		2			900	48	½	13		87		Ran "E" logs.
3/7	7946	10.5	64	40	20	5/12	10.5	4.8		2			900	44	½	13		87		
3/8	7946	10.4	44	18	11	1/4	9.5	6.4		2			900	48	½	12		88		Plug and abandon.

BIT RECORD

Husky Oil NPR Operations, Inc.
Drew Point Test Well No. 1
SE1/4, Section 26, T18N, R8W, U.M.

BIT NO.	BIT SIZE	BIT MFGR.	BIT TYPE	SER. NO. OF BIT	JET SIZE 1	2	3	DEPTH OUT	FTGE.	HRS. RUN	FT. HR.	ACC. HRS.	WEIGHT 1000 LBS	ROTARY R.P.M.	VERT DEV.	PUMP PRESS	PUMPS LINER	SPM	MUD WT.	VIS	DULL CODE T	B	G
1	17 1/2	Reed	Y11J	618244	24	24	16	2071	1968	29 1/2	66.71	29 1/2	20	120	0	1000		100	9.8	36	3	5	G
2	17 1/2	Reed	Y11J	617877	24	24	16	2668	597	11 3/4	50.81	41 1/4	22	125	0	1000		100	10.2	41	1	1	G
	Ran 63 joints of 13 3/8" 72# Buttress. Landed at 2661'. Cemented with 3900 sacks of Arctic Set No. 2.																						
3	12 1/4	Reed	S11J	61124	12	12	12	4130	1467	29	50.59	70 1/4			1/2°	1250		120	9.7	32	6	6	0
4	12 1/4	Reed	S11J	622114	12	12	12	Bit was dropped when pickup sub parted. No visible damage.															
5	12 1/4	Reed	S11J	337228	12	12	12	4510	370	5 1/4	70.48	75 1/2	40	150	1°	1900							
6	12 1/4	Reed	Y11J	337229	12	12	12	5530	1020	27	37.78	102 1/2	40	150	1°	2100		120	10.3	32	2	5	0
7	12 1/4	Reed	Y11J	337228	11	12	12	5598	348	11 1/2	30.26	114	40	120	1 1/4°	2000		120	10	37	2	2	0
8	12 1/4	Reed	Y11J	614443	12	12	12	6343	421	20 3/4	20.29	134 3/4	40	120	3/4°	2000		112	10.3	39	6	8	0
9	12 1/4	Reed	Y11J	614452	12	12	12	6704	362	17 1/4	20.99	152	40	120	1/4°	1900		118	10.4	45	6	8	0
10	12 1/4	HTC	OSC1G	HE-796	12	12	12	6895	188	11	17.09	163	45	120		1900		118	10.4	48	2	2	0
	Ran 168 joints of 9 5/8" S-95, 53.5# casing shoe at 5858'. Cemented with approximately 500 sacks. Left cement in pipe.																						
11	8 1/2	Reed	S11J	303522	12	12	12	Drilled out 1600' of cement, float collar and shoe. Squeezed through shoe 200 sacks of cement back to 6295'															
12	8 1/2	HTC	OSC1B	DX184	12	12	12	Drilled cement retainer. Cleaned out caving hole to 6880'															
13	8 1/2	Reed	S11J	303519	12	12	12	Drilling on junk. Cleaned out caving hole to 6895'. Drilled to 6905'															
13 RR	8 1/2	Reed	S11J	303519	12	12	12	6915	10	2 1/4	4.44	165 1/4							10.6	52			
14	8 1/2	HTC	XDV	AJ599	Reamed 30' core hole.																		
14 RR	8 1/2	HTC	XDV	AJ599	9	9	9	6977	20	1 1/4	16.00	181 1/2	40	85		2700		102	10.6	55	1	1	G
14 RR	8 1/2	HTC	XDV	AJ599	9	9	9	7093	86	6 1/4	13.76	193 3/4	38	80		1900		102	10.5	36	3	3	0
15	8 1/2	Smith	F-2	090EF	12	12	12	7350	247	25 1/2	9.69	222 3/4	45	50		1450		110	10.6	51	1	1	0
15 RR	8 1/2	STC	F-2	090EF	12	12	12	7544	164	20	8.20	250 3/4	45	50		1450		110	10.6	49			
16	8 1/2	STC	F-2	UF540	10	10	10	7572	Reamed core hole. Pulled out of hole for DST No. 2														
RR 16	8 1/2	STC	F-2	UF540	10	10	10	7602	Reamed core hole.														
RR 16	8 1/2	STC	F-2	UF540	10	10	10	7704	75	7	10.57	272 3/4	40	50		1850		104	10.6	47			
17	8 1/2	Smith	F-2	VS120	10	10	10	7797	64	4 1/4	15.06	284	40	50		1900		104	10.6	55	1	1	0
RR 17	8 1/2	Smith	F-2	VS120	10	10	10	7825	Reamed 28' core hole.														
RR 17	8 1/2	Smith	F-2	VS120	10	10	10	7882	61	5 1/4	11.62	296 1/4	40	50		1900		104	10.6	48	2	2	0
RR 17	8 1/2	Smith	F-2	VS120	12	12	12	7946	45	4 3/4	9.47	309 1/2	40	45/60		1500		106	10.6	58	4	4	0

INTRODUCTION

After the 1976 drilling season, casing requirements were reviewed and design of casing strings standardized. Every effort was made to minimize weight and grade changes for simplicity, cost effectiveness, and to reduce chances of error during handling and running operations. Casing sizes were selected to accommodate designs for wells from 2,000' to 20,000'. Steel grade selection was the controlling factor on design with low hardness (Rockwell C24-28) steel being selected for Arctic application and possible H_2S environment. Below is listed casing sizes and design criteria required by Husky:

		YIELD STRENGTH (PSI)		MINIMUM PRESSURE REQUIREMENT (PSI)		
SIZE[1]	WEIGHT	MIN.	MAX.	COLLAPSE	BURST	CONNECTION
20"	133#/ft.	55,000	80,000	1,500	3,050	STC
13-3/8"[2]	72#/ft.	95,000	110,000	3,450	5,350	BTC
9-5/8"[3]	53.5#/ft.	95,000	110,000	8,850	7,900	BTC
9-3/4"[3]	59.2#/ft.	95,000	110,000	9,750	8,540	BTC
7"	38#/ft.	95,000	110,000	12,600	9,200	BTC

(1) OD tolerance to be within API requirements unless adjustment absolutely necessary to meet ID requirements.

(2) Special drift to 12.25".

(3) Special drift to 8.50".

The following are additional requirements primarily to assure that the steel exhibits the metallurgical properties for Arctic applications and resistance to hydrogen embrittlement.

1. All pipe that is 13-3/8" OD and smaller to be quenched and tempered.

2. Run Charpy "V" notch tests on two random samples per 50 tons per heat. Minimum acceptance of 15 ft.-lb.@-50°F. Furnish test reports with order.

3. Perform all testing normally required for API approved pipe.

4. Furnish test reports for ladle analysis, quantitative analysis, and all check tests as per API requirements.

In addition, the following handling requirements were made:

1. Collars must be of same steel grade as pipe body.

2. Apply an API modified thread compound on mill-installed collar before bucking on.

3. Inspect at mill using Tuboscope's Amalog IV or equivalent on 9-3/4" and smaller, and at least magnetic particle on 13-3/8" and 20". All pipe to have special and area inspection together with full length API drifting. (Note special drifting requirements.)

4. Apply Arctic grade grease on all connections before installing thread protectors.

5. Install closed-end type thread protectors. Plastic plugs can be used to secure wrench openings in protectors.

6. Buck up thread protectors with impact wrench. Both mill and third party inspection personnel should observe the installation of thread protectors.

7. Palletize or containerize the tubulars, if possible, prior to shipment from mill. Do not haul pipe like cordwood in gondola railroad cars.

8. All pipe to be Range 3.

9. No "V" notching or metal stenciling on pipe body or collars.

The casing programmed for Drew Point No. 1 was as follows: 20" conductor at ±100'; 13-3/8" at ±2600'; 9-5/8" at ±7130'; and a 7" liner to a total depth of 8400' if needed for evaluation purposes. Casing actually run was 20" at 80'; 13-3/8" at 2661'; 9-5/8" at 6834'. The 7" liner was not required.

When abandoning the well, the 9-5/8" casing was cut off at 2265' and recovered back to the surface. The mud was reversed to diesel from 2100' (top of uppermost plug) to the surface in the 13-3/8" annulus to allow future temperature measurements by U. S. Geological Survey personnel.

CASING TALLY
SUMMARY SHEET

DATE: January 18, 1978

FIELD National Petroleum Reserve in AK LEASE & WELL NO. Drew Point Test Well No. 1 TALLY FOR 13 3/8" CASING

SUMMARY OF PAGE MEASUREMENTS			
	NO. OF JOINTS	FEET	.00'S
PAGE 1	50	1954	27
PAGE 2	20	778	92
PAGE 3			
PAGE 4			
PAGE 5			
PAGE 6			
PAGE 7			
PAGE 8			
PAGE 9			
TOTAL		2733	19

SUMMARY OF DEPTH CALCULATIONS				
		NO. OF JOINTS	FOOTAGE FEET	.00'S
1	TOTAL CASING ON RACKS	70	2733	19
2	LESS CASING OUT (JTS NOS.	2	71	65
3	TOTAL (1 - 2)		2661	54
4	SHOE LENGTH		2	--
5	FLOAT LENGTH		2	42
6	MISCELLANEOUS EQUIPMENT LENGTH			
7	TOTAL CASING AND EQUIPMENT FROM CEMENT HEAD (3 + 4 + 5 + 6)		2665	96
8	LESS WELL DEPTH (KB REFERENCE)		2668	
9	"UP" ON LANDING JOINT		3	96

Weight indicator before cementing: 162,000 ; after slack-off: 150,000 ; inches slacked off 3 (approx).

SUMMARY OF STRING AS RUN								
WEIGHT	GRADE	THREAD	MANUFACTURER	CONDITION NEW-USED	LOCATION IN STRING	NO. OF JOINTS	FOOTAGE	INTERVAL
72	S-95	Buttress	Lone Star	New	JT NO. 1 THRU NO. 68	68	2661.54	'_ '
					JT NO. THRU NO.			'_ '
					JT NO. THRU NO.			'_ '
					JT NO. THRU NO.			'_ '
					JT NO. THRU NO.			'_ '
					JT NO. THRU NO.			'_ '
					JT NO. THRU NO.			'_ '

PAGE 1 OF 2

CASING TALLY

DATE: January 16, 1978

FIELD NPRA LEASE & WELL NO. Drew Point TW No. 1 TALLY FOR 13 3/8 " CASING

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	40	53			72#
2	41	30			S-95
3	37	20			
4	41	60			
5	42	53			
6	39	02			
7	41	85			
8	39	00			
9	36	52			
0	36	96			
TOTAL A	396	51			

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
31	42	08			
2	35	50			
3	39	40			
4	35	82			
5	40	53			
6	38	42			
7	41	93			
8	36	18			
9	35	00			
0	40	40			
TOTAL D	385	26			

11	42	60			
2	38	78			
3	37	60			
4	35	80			
5	40	78			
6	38	45			
7	35	75			
8	38	92			
9	35	05			
20	41	57			
TOTAL B	385	30			

1	36	43			
2	41	30			
3	36	82			
4	40	04			
5	39	28			
6	37	12			
7	38	45			
8	39	78			
9	39	84			
50	41	33			
TOTAL E	390	39			

21	41	75			
2	40	57			
3	43	58			
4	40	70			
5	41	87			
6	39	32			
7	37	00			
8	37	12			
9	36	17			
30	43	73			
TOTAL C	401	81			

TOTAL A	396	51		
TOTAL B	385	30		
TOTAL C	401	81		
TOTAL D	385	26		
TOTAL E	390	39		
TOTAL PAGE	1959	27		

PAGE 2 OF 2

CASING TALLY

DATE: January 16, 1978

FIELD NPRA LEASE & WELL NO. Drew Point TW No. 1 TALLY FOR 13 3/8 " CASING

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
51	37	60			72# S-95
2	42	53			
3	38	95			
4	36	86			
5	38	70			
6	40	22			
7	41	82			
8	41	35			
9	37	54			
0	37	92			
TOTAL A	397	45			

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1					
2					
3					
4					
5					
6					
7					
8					
9					
0					
TOTAL D					

61	35	85			
2	36	28			
3	41	50			
4	37	65			
5	41	80			
6	39	05			
7	41	13			
8	34	72			
9	35	35			
70	36	30			
TOTAL B	376	47			

1					
2					
3					
4					
5					
6					
7					
8					
9					
0					
TOTAL E					

1					
2					
3					
4					
5					
6					
7					
8					
9					
0					
TOTAL C					

TOTAL A	397	45		
TOTAL B	376	47		
TOTAL C				
TOTAL D				
TOTAL E				
TOTAL PAGE	775	92		

CASING OR LINER CEMENT JOB

Lease National Petroleum Reserve in Alaska Well Drew Point Test Well No. I Date January 18, 1978

Size Casing 13 3/8" Setting Depth 2661.54 Top (liner hanger) -

Hole Size 17 1/2 " Mud Gradient 0.515 psi/ft Viscosity 42

Casing Equipment

Dowell float shoe, Dowell stab-in float located 81.53 feet

above shoe, - (DV, FO) collars located at - feet

and - feet.

Nine Dowell centralizers located 10' above shoe and on 1, 2, 3, 5, 7, 9, 11, and 13th casing collars

_____ scratchers located _____

Liner hanger and pack off (describe) _____

Miscellaneous (baskets, etc.) _____

Cement (around shoe)

	No. Sacks	Brand	Type	Additives	Slurry Weight	Slurry Volume
(1)	3800	Dowell	ArcticSet		15.0	3534 cu ft
(2)						

Cement through (DV, FO) Collar at _____ feet

	No. Sacks	Brand	Type	Additives	Slurry Weight	Slurry Volume
(3)						
(4)						

Cementing Procedure (around shoe) (cross out where necessary)

Circulated 500 bbls @ 5 BPM, pumped in 20 ~~(cu. ft.)~~, (barrels) water

_____ prewash, used bottom plug (yes, no), mixed cement (1) above 120

minutes, cement (2) above - minutes, top plug ~~(yes,~~ no) displaced with 2 water
43 mud ~~(cu. ft.)~~, (barrels) in 10 minutes at rate of 5 BPM, ~~CFM,~~

(Bumped plug) (Did not bump plug). Final Pressure 670. Reciprocated

pipe - feet while (mixing) and (displacing) cement. Displacing time 10

minutes. Had full circulation (full, partial,

none, etc.). Completed job at 4:45 ~~a.m.~~, p.m.

Cementing Procedure (through (DV, FO) at _____ feet) (cross out where necessary)

Opened (DV, FO) at _____ a.m., p.m., circulated _____ bbls @ _____ BPM, pumped in

_____ (cu. ft.), (barrels) _____ prewash, mixed cement (3) above

_____ minutes, cement (4) above _____ minutes, dropped closing plug, dis-

placed with _____ (cu. ft.), (barrels) in _____ minutes at rate of _____

_____ BPM, CFM. (Bumped plug) (Did not bump plug). Final Pressure _____

Displacing time _____ minutes. Had _____ circulation

(full, partial, none, etc.)

Remarks (Third Stage Job, etc.)

Had cement to surface @ 3:40 PM @ approximately 1900 sacks away. Cement weighed 14.6
coming out at end of job.

Jim Brown
Foreman

CASING TALLY
SUMMARY SHEET

DATE: February 9, 1978

FIELD National Petroleum Reserve in AK LEASE & WELL NO. Drew Point Test Well No. 1 TALLY FOR 9 5/8" CASING

SUMMARY OF PAGE MEASUREMENTS			
	NO. OF JOINTS	FEET	.00'S
PAGE 1	50	1932	25
PAGE 2	50	2037	67
PAGE 3	50	1974	64
PAGE 4	22	887	74
PAGE 5			
PAGE 6			
PAGE 7			
PAGE 8			
PAGE 9			
TOTAL			

SUMMARY OF DEPTH CALCULATIONS				
		NO. OF JOINTS	FOOTAGE	
			FEET	.00'S
1	TOTAL CASING ON RACKS	187	7608	06
2	LESS CASING OUT (JTS NOS.	19	786	98
3	TOTAL (1 – 2)	168	6821	08
4	SHOE LENGTH	1	1	75
5	FLOAT LENGTH	1	1	81
6	MISCELLANEOUS EQUIPMENT LENGTH (Two FOs)	2	7	64
7	TOTAL CASING AND EQUIPMENT FROM CEMENT HEAD (3 + 4 + 5 + 6)		6832	30
8	PLUS WELL DEPTH (KB REFERENCE)		25	50
9	LANDING DEPTH		6857	80

Weight indicator before cementing: _____; after slack-off: _____; inches slacked off _____.

SUMMARY OF STRING AS RUN								
WEIGHT	GRADE	THREAD	MANUFACTURER	CONDITION NEW-USED	LOCATION IN STRING	NO. OF JOINTS	FOOTAGE	INTERVAL
53.50	S-95	BTC		New	JT NO. 1 THRU NO. 168	168	6821.08	6858.30 ' - 0 '
					JT NO. THRU NO.			' - '
					JT NO. THRU NO.			' - '
					JT NO. THRU NO.			' - '
					JT NO. THRU NO.			' - '
					JT NO. THRU NO.			' - '
					JT NO. THRU NO.			' - '

PAGE 1 OF 4

CASING TALLY

DATE: February 9, 1978

FIELD NPRA LEASE & WELL NO. Drew Point TW No. 1 TALLY FOR 9 5/8 " CASING

JOINT NO.	FIRST MEASUREMENT FEET	.00'S	CHECK MEASUREMENT FEET	.00'S	WT GR.
1	1	75			53.5 S-95
2	42	42			
3	39	75			
4	1	83			
5	40	07			
6	39	07			
7	42	50			
8	39	73			
9	39	55			
10	36	82			
TOTAL A	323	49			

JOINT NO.	FIRST MEASUREMENT FEET	.00'S	CHECK MEASUREMENT FEET	.00'S	WT GR.
31	41	06			53.5
2	39	23			
3	40	77			
4	42	05			
5	39	90			
6	41	85			
7	40	12			
8	37	61			
9	40	70			
40	36	64			
TOTAL D	399	93			

11	41	74			
2	40	27			
3	39	21			
4	35	26			
5	38	75			
6	42	04			
7	43	15			
8	38	85			
9	40	80			
20	39	93			
TOTAL B	400	00			

41	38	20			
2	42	66			
3	38	60			
4	41	74			
5	38	97			
6	40	72			
7	39	20			
8	41	60			
9	41	66			
50	41	67			
TOTAL E	405	02			

21	43	17			
2	38	52			
3	39	32			
4	40	40			
5	36	46			
6	42	57			
7	38	40			
8	39	95			
9	42	45			
30	42	57			
TOTAL C	403	81			

TOTAL A	323	49		
TOTAL B	400	00		
TOTAL C	403	81		
TOTAL D	399	93		
TOTAL E	405	02		
TOTAL PAGE	1932	25		

PAGE 2 OF 4

CASING TALLY

DATE: February 9, 1978

FIELD NFRA LEASE & WELL NO. Drew Point TW No. 1 TALLY FOR 9 5/8 " CASING

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
51	41	54			53.5 S-95
2	37	60			
3	40	10			
4	39	92			
5	42	25			
6	40	70			
7	40	15			
8	39	85			
9	39	78			
60	39	37			
TOTAL A	401	26			

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
81	38	65			
2	42	54			
3	44	58			
4	43	59			
5	41	20			
6	36	55			
7	42	06			
8	39	84			
9	38	88			
90	42	56			
TOTAL D	410	45			

1	40	86			
2	40	43			
3	41	52			
4	37	56			
5	41	52			
6	33	58			
7	42	73			
8	36	33			
9	40	90			
70	41	43			
TOTAL B	396	86			

1	38	56			
2	38	84			
3	39	23			
4	41	90			
5	42	28			
6	41	80			
7	41	81			
8	43	76			
9	47	70			
100	41	97			
TOTAL E	417	85			

71	43	47			
2	40	33			
3	42	15			
4	42	78			
5	44	12			
6	40	12			
7	39	14			
8	34	84			
9	37	60			
0	40	70			
TOTAL C	405	25			

TOTAL A	407	26		
TOTAL B	396	86		
TOTAL C	405	25		
TOTAL D	410	45		
TOTAL E	417	85		
TOTAL PAGE	2031	67		

PAGE 3 OF 4 **CASING TALLY** DATE: February 9, 1978

FIELD NPRA LEASE & WELL NO. Drew Point TW No. 1 TALLY FOR 9 5/8 " CASING

JOINT NO.	FIRST MEASUREMENT FEET	.00'S	CHECK MEASUREMENT FEET	.00'S	WT GR.
101	39	47			53.5
2	41	22			S-95
3	42	92			
4	38	04			
5	43	73			
6	42	50			
7	38	47			
8	39	33			
9	41	77			
0	42	32			
TOTAL A	409	27			

JOINT NO.	FIRST MEASUREMENT FEET	.00'S	CHECK MEASUREMENT FEET	.00'S	WT GR.
131	41	08			
2	41	68			
3	43	24			
4	43	26			
5	39	02			
6	43	46			
7	41	07			
8	41	60			
9	41	83			
0	40	65			
TOTAL D	414	89			

111	41	98			
2	40	90			
3	42	20			
4	3	82			
5	43	24			
6	41	13			
7	41	38			
8	39	15			
9	42	40			
0	3	82			
TOTAL B	340	02			

141	44	88			
2	41	58			
3	42	10			
4	40	58			
5	40	62			
6	43	50			
7	41	14			
8	38	42			
9	37	20			
0	46	00			
TOTAL E	416	02			

121	37	75			
2	42	33			
3	42	18			
4	39	08			
5	39	80			
6	39	65			
7	38	38			
8	38	75			
9	38	24			
0	38	28			
TOTAL C	394	44			

TOTAL A	409	27		
TOTAL B	340	02		
TOTAL C	394	44		
TOTAL D	414	89		
TOTAL E	416	02		
TOTAL PAGE	1976	64		

PAGE 4 OF 4

CASING TALLY

DATE: February 9, 1978

FIELD NPRA LEASE & WELL NO. Drew Point TW No. 1 TALLY FOR 9 5/8 " CASING

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
151	42	42			53.5
2	40	42			S-95
3	44	72			
4	42	18			
5	37	32			
6	37	40			
7	38	58			
8	41	46			
9	40	59			
0	42	88			
TOTAL A	407	97			

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1					
2					
3					
4					
5					
6					
7					
8					
9					
0					
TOTAL D					

161	36	75			
2	46	03			
3	41	45			
4	40	26			
5	36	47			
6	37	90			
7	40	44			
8	37	28			
9	40	00			
0	41	24			
TOTAL B	397	82			

1					
2					
3					
4					
5					
6					
7					
8					
9					
0					
TOTAL E					

171	42	05			
2	39	80			
3					
4					
5					
6					
7					
8					
9					
0					
TOTAL C	81	85			

TOTAL A	407	97		
TOTAL B	397	82		
TOTAL C	81	85		
TOTAL D				
TOTAL E				
TOTAL PAGE	887	64		

CASING OR LINER CEMENT JOB

Lease National Petroleum Reserve in Alaska Well Drew Point Test Well No. 1 Date February 9, 1973

Size Casing 9 5/8" Setting Depth 6834 Top (liner hanger) —

Hole Size 12 1/4" Mud Gradient 0.53 psi/ft Viscosity 48

Casing Equipment

Dowell float shoe, Dowell float located 82.17 feet

above shoe, Howco FO (DV, FO) collars located at 2442 feet

and 2354 feet.

33 centralizers located as per Well Program.

scratchers located

Liner hanger and pack off (describe)

Miscellaneous (baskets, etc.)

Cement (around shoe)

	No. Sacks	Brand	Type	Additives	Slurry Weight	Slurry Volume
(1)	1000	Dowell	Class G	0.75% D65 & 0.2% D13R	15.1	1150 cu ft
(2)						

Cement through ~~DV~~, FO Collar at 2350.53 feet

	No. Sacks	Brand	Type	Additives	Slurry Weight	Slurry Volume
(3)	300	Dowell	ArcticSet		15.2	279 cu ft
(4)						

Cementing Procedure (around shoe) (cross out where necessary)

Circulated 200 bbls @ 5 BPM, pumped in 50 ~~cu. ft.~~, (barrels) water

_____ prewash, used bottom plug (yes, ~~no~~), mixed cement (1) above 30

minutes, cement (2) above - minutes, top plug (yes, ~~no~~) displaced with
6 water
480 mud (cu. ft.), (barrels) in 90 minutes at rate of 5.4 BPM, ~~CFM~~,
~~(Bumped plug)~~ (Did not bump plug). Final Pressure 550 Reciprocated
pipe - feet while (mixing) and (displacing) cement. Displacing time 120
minutes. Had full circulation (full, partial,
none, etc.). Completed job at 9:00 ~~a.m.~~, p.m.

Cementing Procedure (through ~~DV~~, FO) at 2442 feet) (cross out where necessary)

Opened ~~(DV~~, FO) at 11:30 a.m., ~~p.m.~~, circulated 200 bbls @ 4.5 BPM, pumped in
10 ~~(cu. ft.)~~, (barrels) water prewash, mixed cement (3) above
10 minutes, cement (4) above - minutes, ~~dropped closing plug~~, dis-
2 water
placed with 37 mud mud ~~(cu. ft.)~~, (barrels) in 8 minutes at rate of 5
_____ BPM, ~~CFM~~. (Bumped plug) (Did not bump plug). Final Pressure -
Displacing time 8 minutes. Had no (down squeeze) circulation
(full, partial, none, etc.)

Remarks (Third Stage Job, etc.)

_____

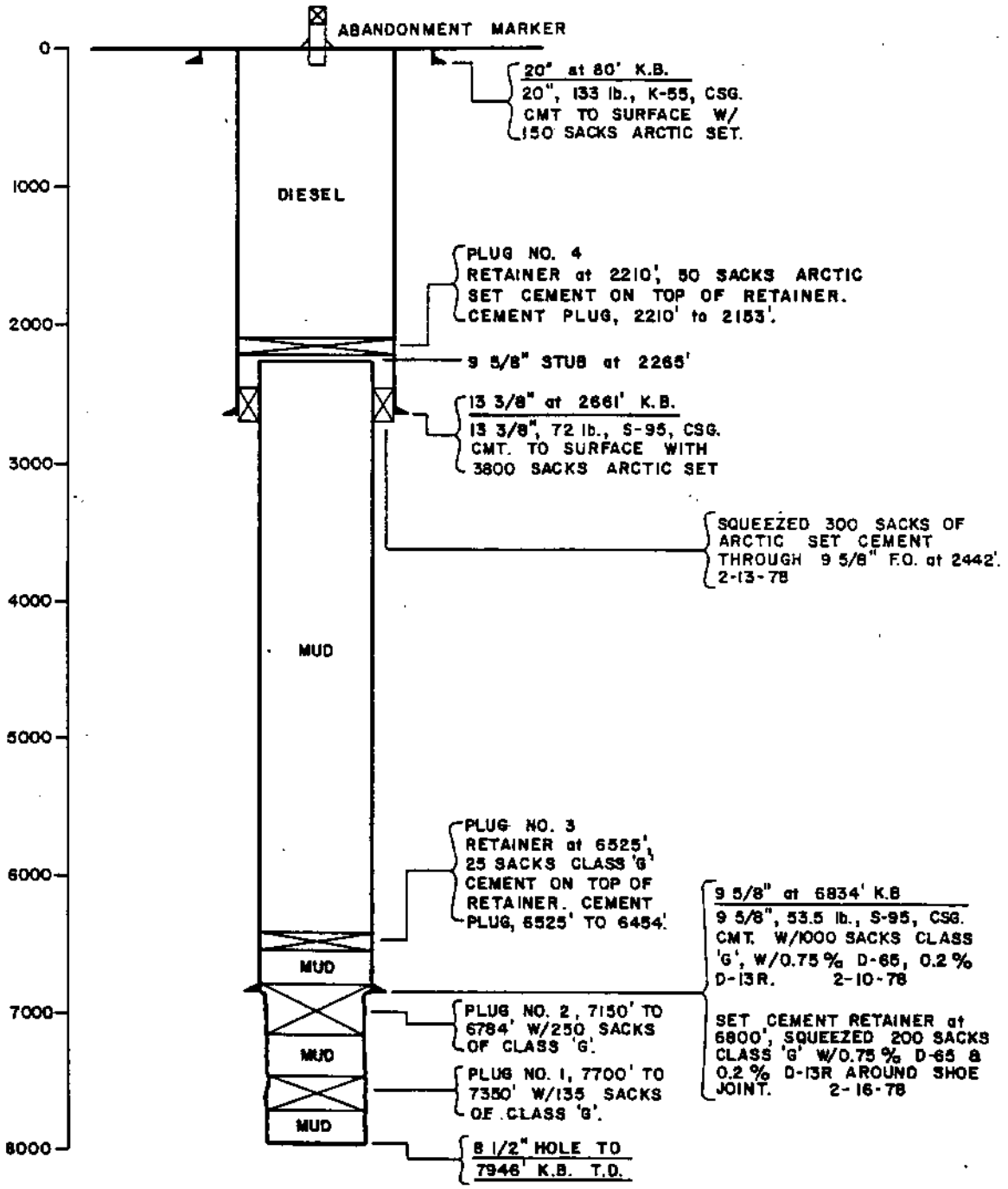
_____

_____

_____

_____

Brown/Thompson
Foreman



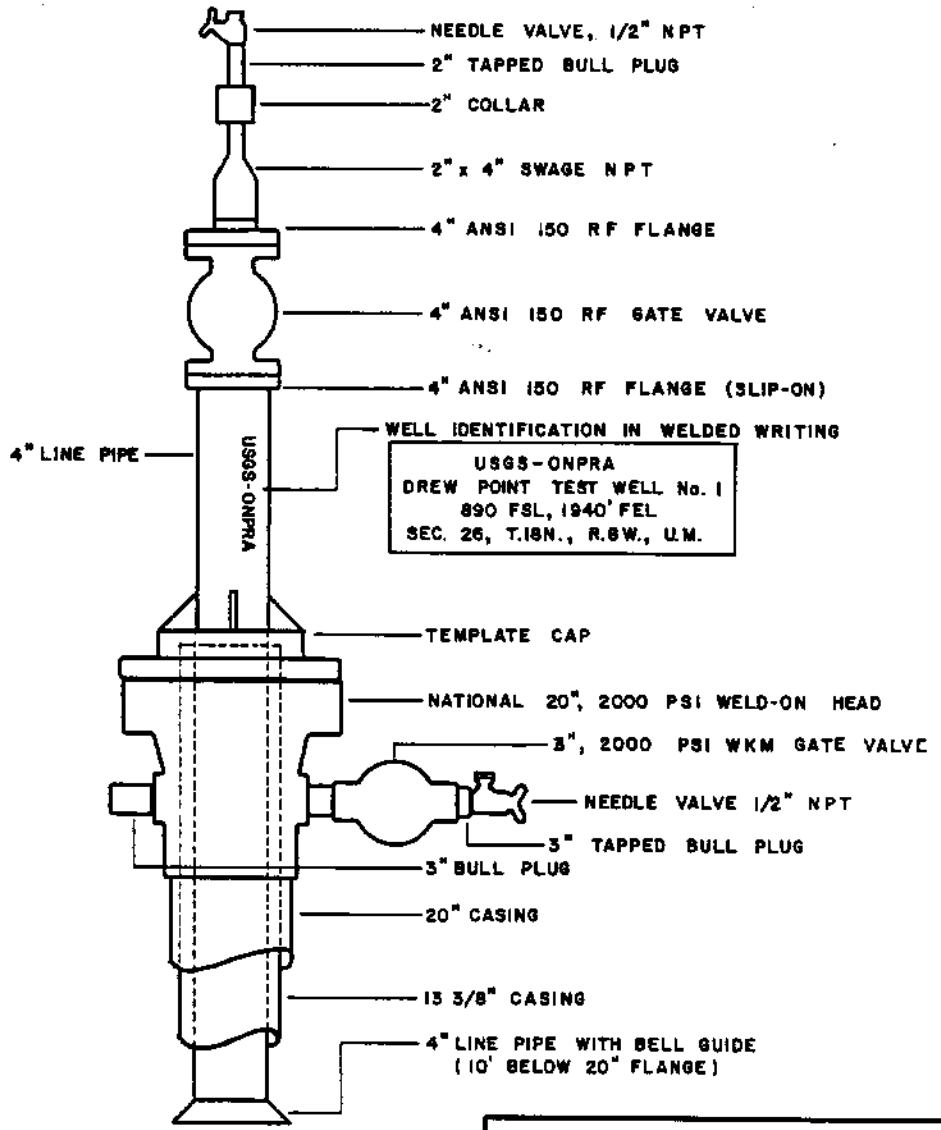
DREW POINT TEST WELL No. 1

890' FSL and 1940' FEL
Sec. 26, T.18 N., R.8 W., U.M.
PAD LEVEL 15' EST.
K.B. 39'

HUSKY OIL *N.P.R. Operations*

NATIONAL PETROLEUM RESERVE in ALASKA

WELLBORE SCHEMATIC



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ABANDONMENT HEAD

RIG INVENTORY

Draw Works

National 110, Serial No. T1866, grooved for 1-3/8" line. Equipped with Fluid Brake Company auxiliary brake, Model S501A, Serial No. 114-50; Crown-O-Matic Model TCB crown stopper; and National Micro-Matic automatic driller.

Rig Drive

National BT3, 3 section drive with 2 pump drives.

Engines

Three Caterpillars, D398, with National C300 torque converters. Engines equipped with heat exchangers and waste-heat recovery system in substructure. Horsepower rating without fans approximately 8000 HP each.

Pumps

No. 1 - Emsco F1000 Triplex driven by compound.

No. 2 - National G1000, Serial No. 8298, with H1250 fluid end.

Substructure

Lee C. Moore Corporation:

Overall length:	56.10'
Overall width:	23.00'
Floor height:	20.30'
Motor height:	16.30'.

Mast

Lee C. Moore Corporation, Serial No. T3013.
1,025,000 lb. GNC.

Blocks

National Model 548-F300 block hook assembly, grooved for 1-3/8" line, 300-ton capacity (Emsco RA 52-6-H500).

Swivel

National Type R, Serial No. T2985 with R. B. type washpipe and packing (Emsco LB 500).

Rotary Table

Ideco, Model HS-275, 27-1/2", Serial No. 101 (Emsco T3750, 37-1/2").

Tongs

B. J., Type B.

Kelly bushings - Varco H. D. square drive.

Accumulator

Koomey, Model T, 20160-3S, Serial No. 4899, 3000 lb. wp with sixteen 10-gallon Greer hydraulic bottles.

Blowout Preventers

1 - 13-5/8", 5,000 lb. Hydril, Model GK, Serial No. 5103.

1 - 13-5/8", 5,000 lb. double Shaffer, Serial No. 2145.

1 - 13-5/8", 5,000 lb. single Shaffer, Serial No. 486-LA 80.

1 - 20", 2,000 lb. Hydril.

Boiler

2 - Williams and Davis, 150 HP oil-fired boilers.

Mud Tanks

No. 1 - 30' x 8' x 5' 8" deep with four low pressure guns, two high-pressure guns, and Rumba dual shale shakers.

No. 2 - 30' x 8' x 5' 8" deep with two low pressure guns, two high-pressure guns, and one 5 HP lightening mixer.

No. 3 - 40' x 8' x 5' 8" deep with two low pressure guns, three high-pressure guns, 5 HP lightening mixer.

No. 4 - 30' x 9' x 5' 8" deep pre-mix tank with two mud hoppers and 5" x 6" mixing pump.

No. 5 - 30' x 8' x 5' 8" with lightening mixer.

Degasser

Clark Gas Hog, Serial No. 17.

Desander

Demco Model 123 with three 12" cones.

Desilter

Sweco Model 6T4 156 with twelve 4" cones.

Light Plants

Two Caterpillar, D3798, 400 KW generator sets and necessary distribution system.

Overshots

1 - 10-5/8" Bowen Model 150, maximum catch 9".

1 - 7-5/8" OD Bowen Model 150, maximum catch 6 1/2".

Water-Fuel Tanks

2 - Combination water-fuel tanks. Approximate capacity: 800 barrels water; 16,000 gallons fuel.

Drill Collars

20 - approximately 7-3/4" OD x 2-7/8" ID drill collars with 6-5/8" regular connections.

Drill Pipe

100 joints, 5", 19.50 lb., Grade G drill pipe.

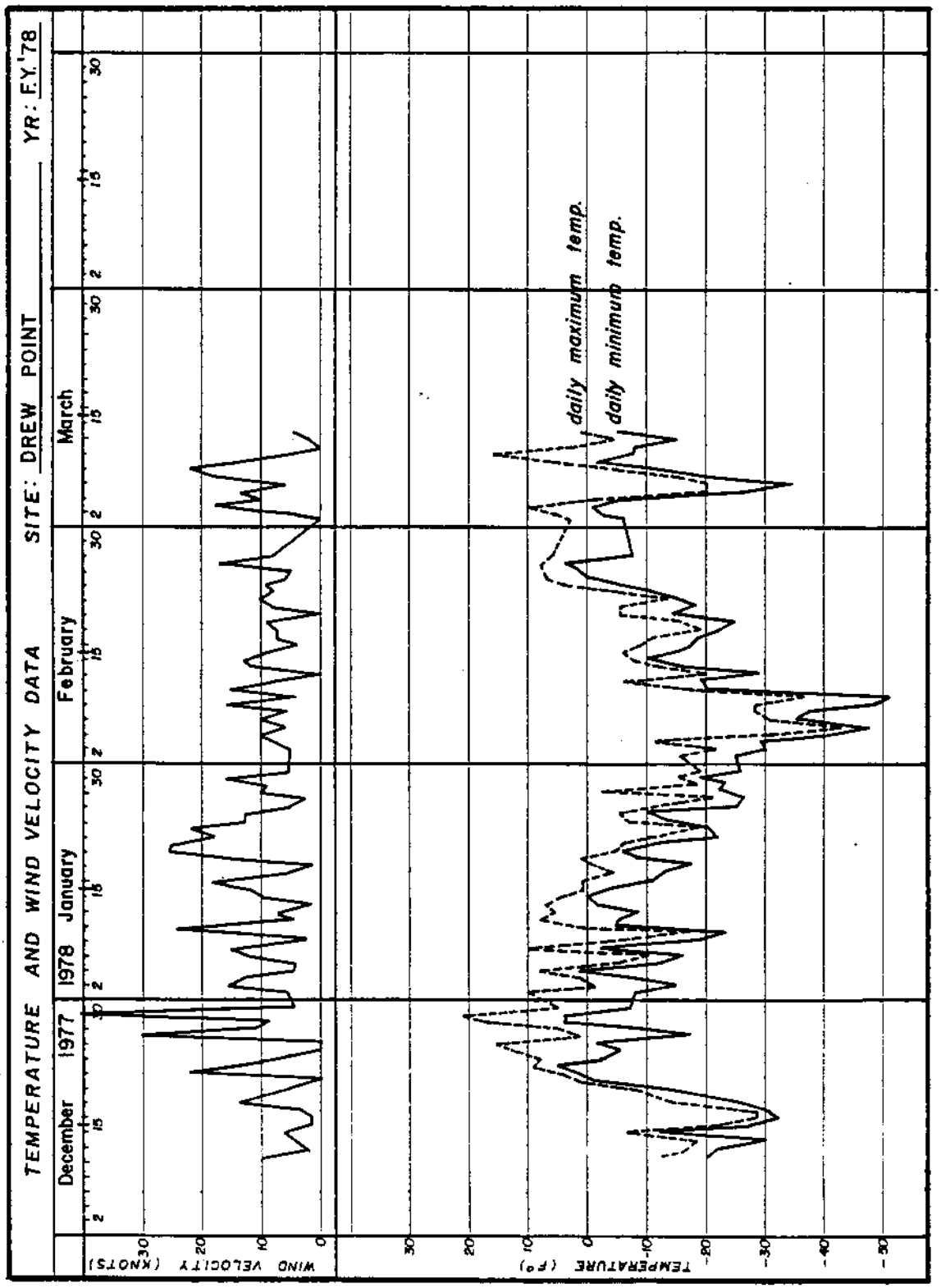
5", 19.50 lb., Grade E pipe as needed.

Air Heater

1 - 4,200,000 BTU air heater.

Iron Roughneck

Varco Model 50.


TEMPERATURE AND WIND VELOCITY DATA
SITE: DREW POINT
YR: F.Y.'78
December 1977
1978 January
February
March
WIND VELOCITY (KNOTS)
TEMPERATURE (F°)
daily maximum temp.
daily minimum temp.