NATIONAL PETROLEUM RESERVE IN ALASKA

HISTORY
OF
DRILLING OPERATIONS

WALAKPA TEST WELL NO. 1

HUSKY OIL NPR OPERATIONS, INC.
Prepared by: Drilling Department
Edited by: S. L. Hewitt

For the

U. S. GEOLOGICAL SURVEY
Office of the National Petroleum Reserve in Alaska
Department of the Interior
SEPTEMBER, 1982

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WALAKPA TEST WELL NO. 1

INTRODUCTION

Walakpa Test Well No. 1 is located 15 miles south of Barrow, Alaska, on the National Petroleum Reserve in Alaska (Figure 1). The well is situated 2,604 feet from the east line and 2,072 feet from the south line in protracted Section 9, Township 20 North, Range 19 West, Umiat Meridian (Latitude: 71°05'57.63" North; Longitude: 156°53'03.79" West). Alaska State Plane Coordinates for the location are: X = 632,366.26 and Y = 6,253,083.18, Zone 5. Elevations: Ground 31 feet; Pad 33 feet; Kelly Bushing 50 feet.

Rig move from the South Barrow No. 6 location to Walakpa was begun on December 2, 1979, and was completed on December 17, 1979. Rig-up began on December 17, 1979, and the well was spudded December 25, 1979. The rig was released February 7, 1980, and preparations were begun for moving the rig to West Dease Test Well No. 1.

A Jurassic age sandstone mapped in the subsurface on seismic was the primary objective. The well was drilled to a total depth of 3666' and terminated in Argillite of Pre-Carboniferous age. At the conclusion of the drilling operations, a casing was run followed by cased hole drill stem tests.

Husky Oil NPR Operations, Inc. supervised and directed the drilling and support operations as prime contractor to the Department of the Interior, U. S. Geological Survey, Office of National Petroleum Reserve in Alaska. Brinkerhoff Signal, Inc. was the drilling contractor and their Rig 31, a National T-20, was used to drill the well.

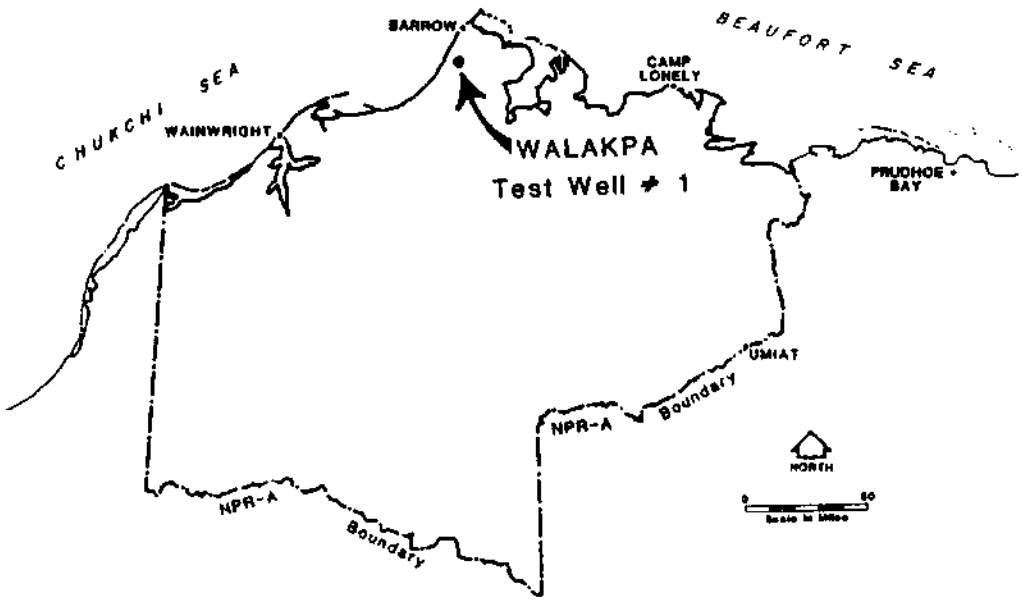

FIGURE 1 - WELL LOCATION MAP - WALAKPA NO. 1

DRILLING SUMMARY

Field operations at the Walakpa No. 1 location began on November 26, 1979, with construction of the drilling pad and camp location. The rig was skidded from the South Barrow No. 6 location, starting on December 12, 1979, and the move to the Walakpa location was completed on December 17, 1979. The 13-3/8" conductor was set at 100' and cemented with 155 sacks of Permafrost cement. A 13-3/8" starter head was welded on and a 12" annular blowout preventer and diverter line installed and pressure tested. Rig-up was completed on December 25, 1979, and the well was spudded on that date at 1:45 p.m.

Twelve and one-fourth inch hole was drilled to 1800'. Core No. 1 was cut from 257' to 287'. Additional cores were cut as follows: Core No. 2, 1590' to 1613', and Core No. 3, 1743' to 1760'. The hole was conditioned and logged with DIL/GR/SP, BHC-Sonic/GR, FDC/CNL/GR/CAL, and HDT Dipmeter.

The hole was conditioned and 41 joints of 9-5/8", 53.5#, S-95 casing were run, with shoe at 1786'. Casing was cemented with 1,400 sacks of Permafrost cement at 14.7 ppg. A 12", 3,000 psi blowout-preventer stack was installed on the 9-5/8" casing. The blowout-preventer rams, choke manifold, and kill lines were tested to 3,000 psi. The Hydril was tested to 1,500 psi; the casing was drilled out with an 8-1/2" bit and the formation tested to a 0.62 psi/ft. equivalent gradient.

Drilling was resumed with the 8-1/2" hole being drilled to 3666'. Cores were cut as follows: No. 4: 1837' to 1897'; No. 5: 1981' to 2041'; No. 6: 2060' to 2120'; No. 7: 2808' to 2825'; No. 8: 2930' to 2990'; No. 9: 2990' to 3020'; No. 10: 3051 to 3111'; No. 11: 3360 to 3420'; and No. 12: 3656' to 3666'. The interval 2066' to 2120' was tested, prior to drilling ahead, with Drill Stem Test No. 1, with gas to surface in 14 minutes. Pressures at surface were erratic due to freezing flow lines. Maximum recorded pressure was 814 psi.

The hole was conditioned and logged with Temperature Survey, DIL/GR, BHC-Sonic/GR, FDC/CNL/GR, HDT (Dipmeter), Velocity Survey, Temperature Survey, and sidewall cores were shot.

In anticipation of possible testing through pipe of the Lower Barrow and Sag River sands, 7" production casing was run to 3644'. Circulation was lost while conditioning for cement. The casing was cemented with 215 sacks Permafrost cement. The slips were set and the casing landed. The blowout-preventer stack was nippled up and pressure tested.

Log analysis indicated that testing was not warranted in the Sag River Sandstone and preparations were made to retest the sands at 2073-2088'. A cement-bond log indicated poor bonding over the intended test interval and it was recemented. Four perforations were shot at 2266', a retainer set at 2230', and the zone cemented through the retainer with 100 sacks of Permafrost cement at 14.6 ppg. While circulating the perforations prior to

cementing, partial returns were lost but were regained with lost-circulation material. The 7" casing was cleaned out to 2200', a CBL/VDL log run, and the interval 2073' to 2088' was perforated at four shots per foot for the test.

The cased-hole Drill Stem Test No. 2 was run as follows (500' water cushion, IHP 1,124 psi):

> 1st FP (410 Minutes): Opened tool with strong blow, GTS in 14 minutes, well flowed gas at variable rate 390-545 MCFPD through variable choke of 1/8"-1", IFP 256-157 psi, shut in for 297 minutes, ISIP 1,027 psi.
>
> 2nd FP (283 minutes): Flowed dry gas through 50/64" choke at 435 MCFPD, FP 210-86 psi, shut in for 401 minutes, SIP 1,012 psi.
>
> 3rd FP (2873 minutes): Flowed dry gas through 14/64" at approximately 322 MCFPD, FFP 646-334? psi, shut in for 2,879 minutes, FSIP 1,026 psi, FHP 1,124 psi.

Subsequent analysis of test data indicated the possibility that flow rates during the test were drastically reduced due to skin damage. The damage was attributed to hydrate formation near the wellbore during flow periods of the test. Also, there may have been some formation damage caused by the use of a fresh-water mud system when drilling rocks containing expanding clays.

After the test was completed, plug back and abandonment began. A retainer was set in the 7" casing at 2005' and the test perforations squeezed with 50 sacks of Permafrost cement. A 50-sack plug of Permafrost cement was spotted on top of the retainer. The FO at 1545' was opened and 60 sacks of Permafrost cement down-squeezed through it. After the cement had set, the 9-5/8" x 7" annulus from 1545' to surface was displaced with Arctic Pack through the FO and the FO closed. The mud in the 7" casing was displaced to water, a retainer set at 1507', and 10 sacks of Permafrost cement spotted on the retainer. The water in the 7" above the retainer was reversed to diesel, the blowout preventer nippled down, and the abandonment head and dry-hole marker installed.

The well was abandoned and the rig released February 7, 1980, at 9:00 a.m.

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

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

7. UNIT AGREEMENT NAME: N/A

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

9. WELL NO.: Walakpa Test Well No. 1

10. FIELD AND POOL, OR WILDCAT: N/A

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec 9, T20N, R19W, UM

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

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

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

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 and in accordance with any State requirements.*)
At surface: 2604' FEL and 2072' FSL
At proposed prod. zone: Same (straight hole)

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 15 miles south of Barrow Alaska

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
34,320'	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**
43,560'	3600'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): Ground = 31'; Pad = 33'; KB = 50'

22. APPROX. DATE WORK WILL START*: December 29, 1979

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
17 1/2"	13 3/8" (Cond)	72# (S-95)	120' KB	± 100 Sx Permafrost to Surface
12 1/4"	9 5/8"	53.5# (S-95)	1650'	±1000 Sx Permafrost to Surface

Blowout Preventer Program
From ± 120' KB to ± 1650':
12", 3000 psi, SA Diverter Assembly

From ± 1650' to TD:
12", 3000 psi, SRRA BOP Assembly
w/3000 psi Choke Manifold and Kill Line

RECEIVED
ONSHORE DIST. OFFICE
DEC 12 1979
CONSERVATION DIVISION
U.S. GEOLOGICAL SURVEY
ANCHORAGE, ALASKA

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 C Brewer TITLE Chief of Operations, ONPRA DATE 5 Dec 79

(This space for Federal or State office use)

APPROVED BY: William James Webber TITLE ACTING DISTRICT SUPERVISOR DATE 12/19/79

CONDITIONS OF APPROVAL, IF ANY:

See attached conditions.

*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 [X] gas well [ ] other

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: 2604' FEL; 2072' FSL
AT TOP PROD. INTERVAL: Same
AT TOTAL DEPTH: Same

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.
Walakpa Test Well No. 1

10. FIELD OR WILDCAT NAME
N/A

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 9, T20N, R19W, UM

12. COUNTY OR PARISH North Slope 13. STATE Alaska

14. API NO.
N/A

15. ELEVATIONS (SHOW DF, KDB, AND WD)
GL 31'; Pad 33'; KB 50'

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 December 25, 1979, at 1:45 PM. Hole size at spud is 12 1/4". 13 3/8" conductor was cemented in place with 155 sacks permafrost cement at 100' KB previous to spudding.

JAN 3 1980

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 2 January 80

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

[illegible] TITLE DISTRICT [illegible] DATE 1-8-80

*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

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: 2604' FEL; 2072' FSL
AT TOP PROD. INTERVAL: Same
AT TOTAL DEPTH: Same

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.
Walakpa Test Well No. 1

10. FIELD OR WILDCAT NAME
N/A

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 9, T2ON, R19W, UM

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

14. API NO.
N/A

15. ELEVATIONS (SHOW DF, KDB, AND WD)
GL 31'; Pad 33'; KB 50'

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 Notice of Running and Cementing 9 5/8" Casing		

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JAN 16 1980
CONSERVATION DIVISION
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.)*

Drilled a 12 1/4" hole to 1800'. Log with DIL/GR/SP, BHCS/GR/TTI/Cal, FDC/CNL/GR/Cal, and HDT Dipmeter. Ran 41 joints of 9 5/8", 53.5#, S-95 Buttress, Range 3 casing. Ran centralizers as per Drilling Program. Float shoe at 1786'. Float collar at 1738'. Cemented with 1400 sacks of Permafrost cement. Slurry weight: 14.7 ppg. CIP at 11:30 PM, 1/1/80. Installed 3000# BOPE and tested. OK. Tested casing to 1500 psi. OK. Drilled float collar and shoe. Drilled to 1805' and tested formation to 0.62 psi/ft gradient; no leak off. Drilling 8 1/2" hole ahead.

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

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

SIGNED Max V Brewer TITLE Chief of Operations DATE 16 January 80

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

Barry A Bowdoin DISTRICT SUPERVISOR DATE 1-17-80

*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

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:
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.
Walakpa Test Well No. 1

10. FIELD OR WILDCAT NAME
N/A

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 9, T20N, R19W, UM

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

14. API NO.
N/A

15. ELEVATIONS (SHOW DF, KDB, AND WD)
GL 31'; Pad 33; KB 50'

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 Intent to Change Plans			

(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.)*

To test Walakpa Test Well No. 1, 7" casing must be run. The hole will be logged prior to running and cementing casing. See attached procedure for details.

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FEB 20 1980
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 J Max Brewer TITLE Chief of Operations DATE 19 February 80

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

APPROVED BY Barry A Bowhon TITLE DISTRICT SUPERVISOR DATE 2-21-80

*See Instructions on Reverse Side

7" CASING AND CEMENTING PROCEDURE REVISION
WALAKPA TEST WELL NO. 1

1. After logging, RIH and condition hole to run casing.

2. Pull the wear bushing. Install 7" rams in BOP. Run 7" casing as follows:

   a. BOT float shoe, 8RLT&C.

   b. Two joints 7", 32#, N-80, 8RLT&C casing.

   c. BOT float collar, 8RLT&C.

   d. 7", 32#, N-80, 8RLT&C casing to ± 1550'.

   e. Howco FO cementer at ± 1550'.

   f. 7", 32#, N-80-8RLT&C casing to surface.

   NOTE: Check the 7 inch casing to be sure at least five joints conform to API OD tolerance. Run these joints last to land the casing so that the casing slips will operate properly. Space out so that no collar is in slip area.

   NOTE: Use threadlock compound on the bottom three connections. Put one centralizer 10 feet above the shoe and nine centralizers, one every other collar from the shoe. Also, place centralizers on two collars below lower FO, on collar between FOs, and every third collar to surface above upper FO. This will require 25 centralizers and one stop ring. Make up the shoe and float collar in the rotary table. Use API modifed Arctic grade thread compound on all casing connections. (Place three centralizers on collars from 2000' tp 2150')

3. Tag bottom, book up circulating head, and condition as required for cementing.

4. Rig up to cement. Pump 10 bbls water with wiper plug. Mix and pump Permafrost cement. Drop solid plug and displace with mud at ± 7 BPM. Bump plug to 3000 psi. Do not overdisplace by more than 10 bbls over calculated displacement. Cement volume to be determined from Caliper log. Figure TD to 1600' calculated volume with no excess. Check floats and rig down cement head.

5. Rig up and run FO shifting assembly as follows:

   a. FO cementer closing fingers.

   b. 7", 32# RTTS packer (be sure volume tube is in place) with bypass.

   c. 1 joint DP.

d. FO cementer opening fingers.

e. 3 1/2" DP to surface.

6. RIH to FO at ± 1550'. Open FO. Position closing fingers ± 6' above FO and set RTTS packer. Circulate 7" X 9 5/8" annulus slowly, limiting pressure to 300 psi to assure no cement above FOs. When clean, close FO. POH.

7. Drain the stack and head. Set the casing slips and land the full weight of the casing to the slips. Install the packoff and tubing head. Test to 3000 psi.

8. Nipple up BOP and test rams to 3000 psi and Hydril to 1500 psi.

9. WOC 24 hours.

10. Rig up and run VDL/CBL/CCL/GR Cement Bond log from TD to ± 1400'. Evaluate log and call results to Anchorage drilling staff. If bond across Zone of Interest (2063' to 2082") is good and bond in casing to casing lap is good, proceed to testing program. If squeeze is required, cement as directed. Appropriate procedure will be furnished as required.

David L. Reid

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

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: 2604' FEL; 2072' FSL
AT TOP PROD. INTERVAL: Same
AT TOTAL DEPTH: Same

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.
Walakpa Test Well No. 1

10. FIELD OR WILDCAT NAME
N/A

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 9, T20N, R19W, UM

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

14. API NO.
N/A

15. ELEVATIONS (SHOW DF, KDB, AND WD)
GL 31'; Pad 33'; KB 50'

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 Notice of Running and Cementing 7" Casing			

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

RECEIVED
ANCHORAGE, ALASKA
MAR 3 1980
CONSERVATION DIVISION
U.S. GEOLOGICAL SURVEY
ANCHORAGE, ALASKA

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.)*

Drilled 8 1/2" hole to 3666'. Logged with DIL/GR, BHC/GR, FDC/CNL/GR, and HDT Dipmeter. Ran 89 joints of 7", 32#, N-80, 8RD casing. Landed at 3644'. Ran centralizer as per Drilling program. Cemented with 10 bbls of water and 215 sacks of Permafrost cement. Bumped plug to 3000 psi. CIP @ 11:00 PM, 1/25/80. No returns during cement job. Landed casing with 110,000 lbs. Nippled up 7" BOPs. Tested rams to 3000 psi and Hydril to 1500 psi. Installed tubing spool and tested flange to 3000 psi. Installed 3 1/2" rams. Ran CBL. Top of cement at 3435'. Perforated 4 holes @ 2266'. Set retainer @ 2230' and set a cement plug with 5 bbls water and 100 sacks of Permafrost cement. CIP at 7:00 PM, 1/28/80. Full returns. Tested to 2000 psi. OK. Drilled cement to 2200'. Ran CBL. Found good bond across test zone @ 2073' to 2088'. Prepared for DST No. 2.

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

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

SIGNED O Max Foreman TITLE Chief of Operations DATE 25 February 80

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

Bessy A Bordeaux DISTRICT SUPERVISOR DATE 3-3-80

*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

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: 2604' FEL; 2072' FSL
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH: Same

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.
Walakpa Test Well No. 1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 9, T20N, R19W, UM

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

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
GR = 31'; Pad = 33'; KB = 50'

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)			

RECEIVED
ONSHORE DIST. OFFICE
MAR 3 1980
CONSERVATION DIVISION
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.)*

This is a confirming notice to abandon Walakpa Test Well No. 1. This well was drilled to a total depth of 3666', logged, and tested. As a result of the evaluation, plans were developed to abandon the well. The abandonment procedure is attached.

This plan has been discussed with and verbally approved by Mr. Jim Weber and Mr. R. Kornbrath on 1/5/80.

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

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

SIGNED Max S. Brewer TITLE Chief of Operations DATE 25 February 80

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

Harry A. Bonhren TITLE DISTRICT SUPERVISOR DATE 3-3-80

*See Instructions on Reverse Side

WALAKPA TEST WELL NO. 1
ABANDONMENT PROCEDURE

1. RIH with bit and scraper to ± 2100'. Condition mud. POH.

2. Pick up retainer and RIH to ± 2000'. Set retainer. Pull out of retainer.

3. Mix and pump 100 sacks Permafrost cement -- 50 sacks below and 50 sacks above retainer. Precede cement with 5 bbls water. Follow cement with 1 bbl water. Spot cement ± 3 bbls from retainer. Sting into retainer. Squeeze perforations with 50 sacks. Pull out of retainer. Spot 50 sacks cement on top of retainer. POH 4 stands. Reverse out excess cement. POH.

5. Pick up FO shifting assembly as follows:

   a. FO cementer closing fingers.

   b. 7", 32#, RTTS packer. (Be sure volume tube is in place.)

   c. 1 joint 3 1/2" DP.

   d. FO cementer opening fingers.

   e. 3 1/2" DP to surface.

6. RIH to FO at 1545'. Open FO. Set RTTS with closing fingers ± 6' above FO. Break circulation with annulus valves open. Condition mud.

7. Close annulus valve and attempt to establish an injection rate of 2 BPM out 7" X 9 5/8" annulus. Limit pressure to 1500 psi. If formation does not break down, eliminate down squeeze. If formation breaks down, squeeze as follows.

8. Pump 5 bbls water. Mix and pump 60 sacks Permafrost cement at 14.9 ppg. Limit annulus pressure to 1500 psi. Displace with mud. Overdisplace squeeze job by ± 1 bbl. (Assure that FO is clear of cement. Arctic Pack will be pumped out same FO.)

9. Shut down. Observe pressure.

10. If the 7" X 9 5/8" annulus pressure bleeds to zero, release the RTTS packer. If the annulus does not bleed to zero, close the Hydril. Take a small strain on the packer. If the packer does not release, pressure the 7" X 3 1/2" drill pipe annulus slowly. The packer should release when the differential across the packer is zero. Slack off and close the FO. Bleed pressure below the Hydril. Open the Hydril.

11. Position the RTTS ± 10' below the FO (be sure opening fingers remain above the FO) and reverse out excess cement.

12. Set the RTTS and close the pipe rams. Test the FO to 2000 psi. Be sure that the 7" X 9 5/8" annulus and drill pipe are open. Release pressure and open pipe rams.

ARCTIC PACK PLACEMENT (See Mixing Procedure in Drilling Program)

As soon as practical after the cement job, clean necessary pit volume to mix Arctic Pack. Clean enough pit volume so that 60 bbls of premix are available to pump. Take into account any volume in pits that cannot be pumped due to suctions, etc. Mix and condition the required volume according to the Baroid Arctic Casing Pack mixing procedure.

13. WOC 12 hours.

14. Reopen FO. Open annulus valves. Set RTTS with closing fingers ± 6' above FO. Break circulation with mud. Limit pressure to 1000 psi.

15. Displace drilling mud with water. Pump water at maximum rates not exceeding 500 psi pressure. Pump a minimum of 100 bbls water until returns are clear and weigh 8.34 ppg. Record volume of water at breakthrough as that volume pumped at a 0.5 ppg drop in mud weight. Record total water pumped, rates, and pressures during wash. Circulate water wash through choke. Pump at least one hole volume of + 80°F water.

16. Pump the first 10 bbls premix without adding geltone. After pumping the initial ten bbls, begin adding geltone so that the final geltone content of the Pack is 50 #/bbl. Add geltone evenly to Pack. At breakthrough, shut down and record the volume of Pack pumped. Catch a sample of the Pack at breakthrough.

17. Resume pumping Arctic Pack. Sample returns at 5, 10, 15 bbls. Shut down at 15 bbls after breakthrough. Retort sample to confirm gelled Pack returns and check excess water content.

18. If results of retort are acceptable, resume pumping. Pump three bbls premix without adding geltone as spacer and displace with mud. Continue taking samples at 20 bbls and two samples of final returns. Retort samples to check excess water in Pack returns and verify good gelled Pack returns.

19. Release RTTS and close FO. Position RTTS ± 10' below FO. (Be sure opening fingers remain above the FO.) Set RTTS and close pipe rams. Test FO to 2000 psi. Be sure that the 7" X 9 5/8" annulus and drill pipe are open. Release pressure and open rams. Release RTTS. Watch for drag through the FO as you pull closing finger above FO. Reverse mud to water. POH. (Dilute Pack returns and remaining Pack with diesel.)

20. Pick up retainer and RIH. Set retainer at ± 1500'.

21. Pull out of retainer and spot 10 sacks of Permafrost cement at 14.9 ppg above retainer. POH three stands and reverse out excess cement.

22. Reverse out water with diluted Pack.

23. POH. Do not fill hole full. Leave ± 25' of 7" empty. 1500' hole volume is ± 45 bbls when 3 1/2" DP in place.

24. Nipple down BOP to tubing spool. Rig up dry hole marker as shown on attached schematic.

25. Clean pits and release rig.

26. Prepare to move to West Dease location.

D. L. Reid

Attachment

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

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: 2604' FEL; 2072' FSL
AT TOP PROD. INTERVAL: Same
AT TOTAL DEPTH: Same

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.
Walakpa Test Well No. 1

10. FIELD OR WILDCAT NAME
N/A

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 9, T20N, R19W, UM

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

14. API NO.
N/A

15. ELEVATIONS (SHOW DF, KDB, AND WD)
GL 31'; Pad.33'; KB 50'

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 Abandonment			

RECEIVED
ONSHORE DIST. OFFICE
MAR 3 19[illegible]
CONSERVATION DIVISION
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.)*

This well was drilled to 3666', logged, and tested. Following an evaluation of the logs and DST No. 2, the well was abandoned as follows: A retainer was set at 2005'. Squeezed 50 sacks of Permafrost cement through the retainer and spotted 50 sacks of Permafrost cement on top. Top of cement at 1755'. Opened FO at 1545' and set packer. Established an injection rate and squeezed 60 sacks of Permafrost cement. Reversed out and tested FO to 2000 psi. OK. Mixed Arctic Pack. Opened FO at 1545' and set RTTS. Pumped 110 bbls of water wash at 6 BPM and pumped 60 bbls of Arctic Pack into 7" X 9 5/8" annulus. Closed FO and tested to 2000 psi. OK. Displaced mud in 7" casing with water. Set E2 Drill at 1507' and spotted 10 sacks of Permafrost cement on top. CIP at 10:15 PM, 2/6/80. Top of cement at 1440'. Displaced water with diesel and diluted Arctic Pack. Nippled down BOP. Installed dry hole marker. Released rig at 9:00 PM, 2/7/80.

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 25 February 80

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

Barry A. Bowhan TITLE DISTRICT SUPERVISOR DATE 3-3-80

*See Instructions on Reverse Side

Form 9-330
(Rev. 5-63)

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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

Form approved.
Budget Bureau No. 42-R355.5.

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

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

RECEIVED
ONSHORE DIST. OFFICE
MAR 3 1980
CONSERVATION DIVISION
U.S. GEOLOGICAL SURVEY
ANCHORAGE, ALASKA

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 2604' FEL; 2072' FSL
At top prod. interval reported below
At total depth

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 AK
9. WELL NO.: Walakpa Test Well No. 1
10. FIELD AND POOL, OR WILDCAT: N/A
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec 9, T20N, R19W, UM
12. COUNTY OR PARISH: North Slope
13. STATE: Alaska

14. PERMIT NO.: N/A
DATE ISSUED: N/A

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (Ready to prod.)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
12/25/79	1/23/80	N/A	GL 31'; Pad 33; KB 50'	33'

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
3666' TD	1507'	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/GR, BHC/GR, FDC/CNL/GR, HDT (Dipmeter), Temperature Survey, Velocity 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	100'	17 1/2"	155 Sx Permafrost Cement	N/A
9 5/8"	53.5	1786'	12 1/4"	1400 Sx Pmfst Cmt @ 14.7 ppg	N/A
7"	32	3644'	8 1/2"	1st Stg: 215 Sx Pmfst @ 15 ppg	N/A
				2d Stg: 100 Sx Pmfst @ 14.6 ppg	

29. LINER RECORD

SIZE	TOP (MD)	BOTTOM (MD)	SACKS CEMENT*	SCREEN (MD)

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)

31. PERFORATION RECORD (Interval, size and number)
2073' to 2088'
4 Inch Hyperjet II
4 Shots per Foot

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
2073' to 2088'	50 Sx of Permafrost Cement

33.* PRODUCTION

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

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
1/1/80	56	14/64			840		

FLOW. TUBING PRESS.	CASING PRESSURE	CALCULATED 24-HOUR RATE →	OIL—BBL.	GAS—MCF.	WATER—BBL.	OIL GRAVITY-API (CORR.)
260	N/A			328		

34. DISPOSITION OF GAS (Sold, used for fuel, vented, etc.): Vented
TEST WITNESSED BY:

35. LIST OF ATTACHMENTS: Wellbore Schematic

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

SIGNED Max Brewer TITLE Chief of Operations DATE 29 February 80

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

AREA FILE

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.)

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

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.
SEE ATTACHED			

38. GEOLOGIC MARKERS

NAME	TOP: MEAS. DEPTH	TOP: TRUE VERT. DEPTH
	DIL Log	(straight hole)
GR/"Pebble Sh"	1702'	-1752' Subsea
Basal Cretaceous SS	2067'	-2017' "
Kingak Sh	2088'	-2038' "
Barrow SS	3048'	2998' "
Sag River	3224'	-3174' "
Shublik	3320'	-3370' "
Argillite	3631'	-3581' "

U.S. GOVERNMENT PRINTING OFFICE: 1963—O-683636

871-233

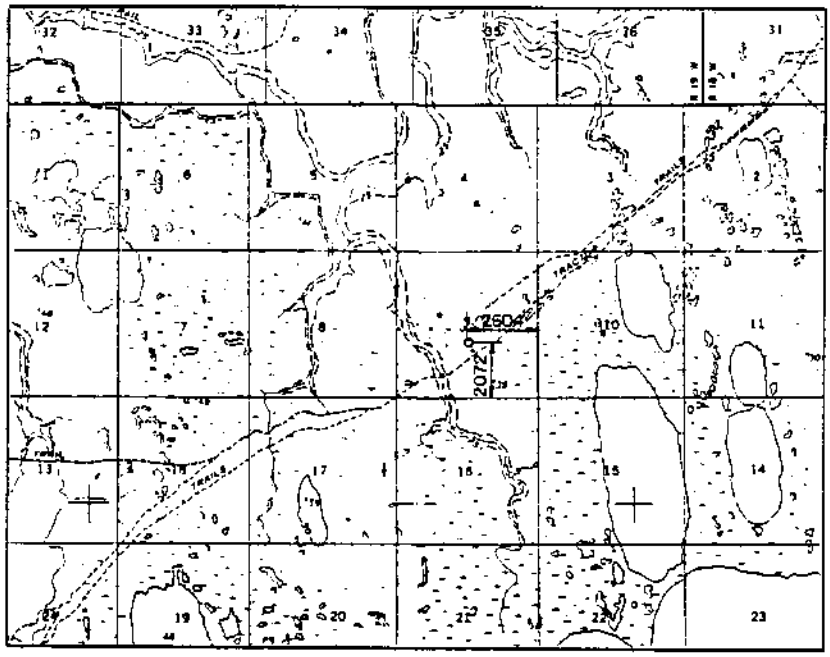
CORE SUMMARY

Core No.	Formation	Interval	Description
1	Cretaceous	257-287' (Rec 23')	Clay w/minor argillaceous Ss, nil porosity, no indication of hydrocarbons.
2	Cretaceous	1590'-1613' (Rec 0')	No recovery.
3	GR/Pebble Sh	1743'-1760' (Rec 0')	No recovery.
4	L. Cretaceous Sh	1837'-1897' (Rec 51')	Shale: black and fissile, rare pyrite, no indication of hydrocarbons.
5	L. Cretaceous Sh	1981'-2041' (Rec 51')	Shale: dark grey - brown, micaceous and silty, minor Siltstone laminae, no indication of hydrocarbons.
6	Basal Cretaceous Ss	2060'-2120' (Rec 54')	Shale (2'): dark brown with occasional floating chert grains. Sandstone (17'): with interbedded conglomerate at top, measured core porosity 9-25% with permeability average: 35 millidarcies, fair oil stain and fluorescence (see DSTs No. 1 and No. 2). Shale (34'): with interbedded Siltstone, no indication of hydrocarbons.
7	Kingak Sh	2808'-2825' (Rec 3.8')	Siltstone: silty in part, carbonaceous. No indication of hydrocarbons.
8	Kingak Sh	2930'-2990' (Rec 60')	Shale: grading to Siltstone at base, no indication of hydrocarbons.
9	Kingak Sh	2990'-3020' (Rec 30')	Siltstone: grades in part to Sandstone. No indication of hydrocarbons.
10	Barrow sand	3051'-3111' (Rec 60')	Sandstone: fine grain, fair - generally poor porosity, grades to Siltstone in lower 11'. No indication of hydrocarbons.

11	Shublik	3360'-3420' (Rec 60')	Siltstone, Limestone and Shale: occasionally grades to thin Sandstones. Nil to very poor porosity. No indication of hydrocarbons.
12	Argillite Basement	3656'-3666' (Rec 10')	Argillite: grey, micaceous, slaty cleavage with minor calcite-filled fractures. No hydrocarbons.

DRILL STEM TEST SUMMARY

Test No.	Formation	Interval	Test Description
1	Basal Cretaceous Ss	2063'-2120'	Open Hole DST: 500' fresh water cushion, IHP 1132 psi. 1st FP (23 min): Opened tool with fair blow, fluid and gas to surface in 13 minutes, rate unmeasurable due to freezing flow line, initial flow pressure: 259-806 psi, shut in well for 67 minutes, ISIP 1018. 2d FP (207 min): Flowed well through 1/4" - 3/8" choke, rate unmeasurable due to freezing flow line. FFP 757-928 psi, shut in well for 298 minutes, FSIP 1018, recovered 306' water (filtrate?) and 153' gas cut mud and water.
2	Basal Cretaceous Ss	2073'-2088'	Cased Hole DST: Perforated 7" casing with 4 shots/ft, 500' fresh water cushion. 1st FP (approx 7 hrs): IHP 1094, opened tool with strong blow, GTS in 14 minutes, well flowed gas at variable rate of 390-545 MCFPD through variable choke settings of 1/8" - 1", IFP 239 - 141 psi, shut in well for approx 4 hours with SIP 1024 psi. 2d FP (approx 5 hrs): Opened tool with strong blow through 50/64" choke, well flowed dry gas at 435 MCFPD and FP 159-88 psi, shut in well for approx 4 hrs, with SIP of 1015 psi. 3d FP (approx 48 hrs): Flowed well through approx 14/64" choke, well flowed gas at approx 325 MCFPD, no water cut, FP 141-327 psi, shut in well for 48 hrs with SIP of 1015 psi. Recovered approx 500 milliliters water from sample chamber.



Computed location based on data from Barr Automated Surveys, Inc. to Husky Oil NPR Operations, Inc. dated Aug. 11, 1979, a copy of which is on file with Tectonics, Inc., Anchorage, AK.

WALAKPA 6-80
LAT. = 71°05'57.63"
LONG. = 156°53'03.79"
Y = 6,253,083.18
X = 632,366.26
ZONE 5

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.

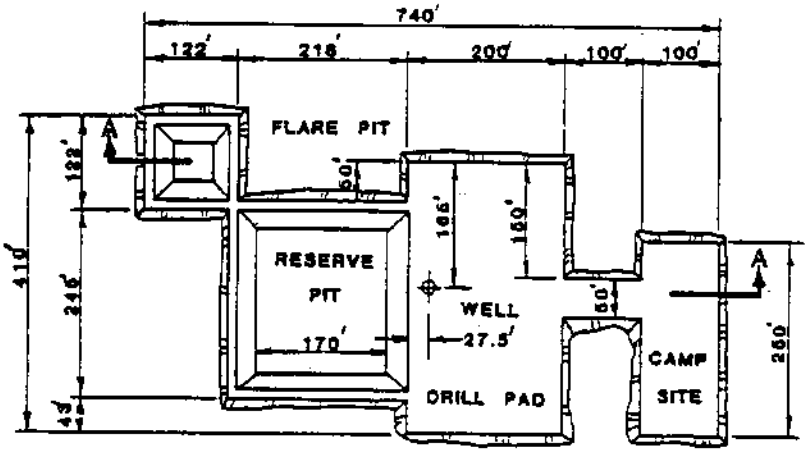
0 1/2 1 2
SCALE IN MILES

STATE OF ALASKA
49TH
James L. Roberts
No. 3260-S
REGISTERED PROFESSIONAL LAND SURVEYOR

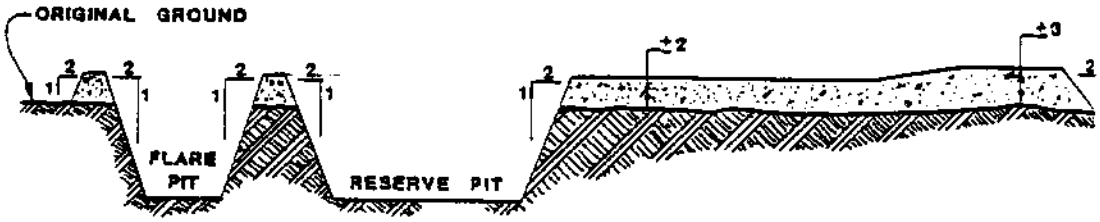
AS STAKED
WALAKPA TEST WELL No.1
LOCATED IN
SE 1/4 PROTRACTED SEC. 9, T20N, R19W, UMIAT MERIDIAN, AK.

SURVEYED FOR
HUSKY OIL
N.P.R. OPERATIONS, INC.

TECTONICS INC.
P.O. BOX 4-2265, ANCHORAGE, AK 99509



PLAN VIEW



SECTION A - A

WALAKPA NO.1 DRILL PAD

OPERATIONS HISTORY

DATE AND FOOTAGE DRILLED AS OF 6:00 A.M.	ACTIVITY
12/24/79	Continued with general rig up. Set 13-3/8" conductor at 100' and cemented in place with 155 sacks Permafrost cement. Cement in place 12/23/79 at 7:30 p.m.
12/25/79	Waited on cement. Cut off conductor and welded on 13-3/8" starter head. Tested weld to 750 psi. Set in diverter spool and Hydril; flanged up cellar. Prepared to pick up drilling assembly.
12/26/79 160'	Total Depth: 260'; Mud Weight: 9.0 ppg; Viscosity: 35. Spudded well December 25, 1979, at 1:45 p.m. Drilled; surveyed. Pulled out of hole; picked up core barrel and ran in hole. Began coring.
12/27/79 514'	TD: 774'; MW: 9.6; Vis: 38. Cut Core No. 1, 257' to 287'; recovered 23 feet. Pulled out of hole. Ran in hole; drilled; surveyed. Drilled ahead.
12/28/79 727'	TD: 1501'; MW: 9.8; Vis: 36. Drilled to 925'; circulated and surveyed. Drilled to 1241'; circulated and surveyed. Drilled ahead.
12/29/79 155'	TD: 1556'; MW: 9.9; Vis: 37. Drilled; pulled out of hole. Picked up core barrel. Ran in hole; cut Core No. 2, 1590' to 1613'. Pulled out of hole; no recovery. Ran in hole; drilled ahead.
12/30/79 144'	TD: 1800'; MW: 9.9; Vis: 45. Drilled; circulated samples at 1677' and 1743'. Pulled out of hole to core. Cut Core No. 3, 1743' to 1760'; no recovery. Reamed core hole. Drilled to 1800'; pulled out of hole to log.
12/31/79 0'	TD: 1800'; MW: 9.9; Vis: 35. Began logging; hit bridge at 1561'. Ran in hole to 1800'; circulated and conditioned mud. Ran DIL/GR/SP, BHCS/GR, FDC/CNL/GR/CAL, and HDT Dipmeter. Ran in hole to circulate and condition hole for casing.
1/1/80 0'	TD: 1800'; MW: 9.8; Vis: 46. Circulated and conditioned. Pulled out of hole. Ran 41 joints of 9-5/8", 53.5# casing. Shoe at 1786'; float collar at

	1738'. Ran stab-in tool on 3-1/2" drill pipe. Circulated and conditioned. Cemented with 1,400 sacks Permafrost cement; 20 barrels of water ahead and 13 barrels of water behind; 14.7 ppg slurry weight and 14.5 ppg returns. Cement in place at 11:30 p.m. Pulled out of hole and waited on cement.
1/2/80 0'	TD 1800'. Waited on cement. Cut off 13-3/8" casing and nippled down blowout preventer. Welded on 9-5/8" head. Attempted 1,000 psi test; inside weld failed. Cleaned pits and built mud volume.
1/3/80 0'	TD: 1800'. Rewelded 9-5/8" head and tested to 1,000 psi. Nippled up 12" X 3,000 psi blowout-preventer stack.
1/4/80 30'	TD: 1830'; MW: 10.1; Vis: 43. Tested blowout-preventer equipment. Ran in hole and tested casing to 1,500 psi. Drilled float collar, cement, and shoe. Tested formation to 0.62 gradient. Drilled ahead.
1/5/80 52'	TD: 1882'; MW: 10.6; Vis: 41. Drilled to 1840'; circulated samples. Pulled out of hole for core barrel. Ran in hole; circulated; dropped ball. Began coring.
1/6/80 102'	TD: 1984'; MW: 10.4; Vis: 41. Finished cutting Core No. 4, 1837' to 1897'. Pulled out of hole; recovered 51 feet of core. Ran in hole. Drilled; circulated; drilled; circulated samples. Pulled out of hole for core barrel. Ran in hole with core barrel; began coring.
1/7/80 57'	TD: 2041'; MW: 10.5; Vis: 41. Finished cutting Core No. 5, 1981' to 2041'. Pulled out of hole and laid down core; recovered 58 feet.
1/8/80 62'	TD: 2103'; MW: 10.5; Vis: 40. Ran in hole; drilled to 2060'. Circulated. Pulled out of hole; picked up core barrel. Ran in hole and began coring.
1/9/80 17'	TD: 2120'; MW: 10.5; Vis: 41. Cut Core No. 6, 2060' to 2120'. Pulled out of hole; recovered 54 feet of core. Ran in hole and circulated for Drill Stem Test No. 1.
1/10/80 0'	TD: 2120'; MW: 10.5; Vis: 43. Rigged up and ran tools for drill-stem test. Opened tool at 9:54 p.m., with strong blow on 1/4" choke. Gas to surface at 10:08 p.m.; cushion to surface at 10:09 p.m. Shut in

	at 10:24 p.m.; opened at 11:34 p.m. Closed at surface at 11:54 p.m. to de-ice lines. Opened at 12:50 a.m. Closed for final shut-in at 2:50 a.m.
1/11/80 305'	TD: 2425'; MW: 10.4; Vis: 39. Reversed out drill-stem test; recovered 1-1/2 barrels water and 3/4 barrel mud. Circulated; pulled out of hole. Laid down test tools. Ran in hole with drilling assembly; drilled ahead.
1/12/80 383'	TD: 2808'; MW: 10.5; Vis: 43. Drilled; circulated samples at 2808'. Surveyed; pulled out of hole. Tested blowout-preventer equipment.
1/13/80 17'	TD: 2825'; MW: 10.5; Vis: 45. Finished testing blowout-preventer equipment. Picked up core barrel and ran in hole. Cleaned out bridges, 2074' to 2090', 2112' to 2118', 2480' to 2485', and 2630' to 2646'. Washed from 2710' to 2808'; began coring.
1/14/80 108'	TD: 1933'; MW: 10.5; Vis: 43. Cut Core No. 7, 2808' to 2825'; recovered 3.8 feet of core. Ran in hole; reamed core hole. Drilled to 2917'; circulated samples. Drilled to 2930'; circulated samples. Surveyed; pulled out of hole. Ran in hole with core barrel; began coring.
1/15/80 57'	TD: 2990'; MW: 10.5; Vis: 43. Cut Core No. 8, 2930' to 2990'. Began pulling out of hole.
1/16/80 30'	TD: 3020'; MW: 10.3; Vis: 53. Pulled out of hole with core; recovered 60 feet. Ran in hole with drilling assembly; reamed core hole. Dropped survey. Pulled out of hole. Ran in hole with core barrel and cut Core No. 9, 2990' to 3020'.
1/17/80 83'	TD: 3103'; MW: 10.3; Vis: 49. Pulled out of hole; recovered 30 feet of core. Ran in hole; reamed core hole. Drilled to 3051'; circulated samples. Pulled out of hole. Ran in hole with core barrel and cleaned out 10 feet of fill. Began coring.
1/18/80 154'	TD: 3257'; MW: 10.3; Vis: 54. Cut Core No. 10, 3051' to 3111', Pulled out of hole; recovered 60 feet. Ran in hole; reamed core hole. Drilled to 3220'; circulated samples. Drilled ahead.
1/19/80 101'	TD: 3358'; MW: 10.3; Vis: 48. Drilled to 3293'; circulated samples; surveyed. Pulled out of hole; tested blowout-preventer equipment. Ran in hole;

	drilled to 3316'; circulated samples. Drilled to 3325'; circulated samples. Drilled to 3351'; circulated samples. Drilled ahead.
1/20/80 52'	TD: 3410'; MW: 10.3; Vis: 47. Drilled to 3360'; circulated samples. Pulled out of hole, steel line measuring. Ran in hole with core barrel; washed seven feet of fill. Began coring.
1/21/80 121'	TD: 3531'; MW: 10.3; Vis: 48. Finished cutting Core No. 11, 3360' to 3420'. Pulled out of hole; recovered 60 feet of core. Ran in hole; reamed from 3360' to 3420', Drilled to 3487'; circulated samples. Drilled ahead.
1/22/80 82'	TD: 3613'; MW: 10.3; Vis: 49. Drilled to 3544'; surveyed. Pulled out of hole. Ran in hole to shoe; cut drilling line. Reamed 30 feet to bottom; drilled ahead.
1/23/80 56'	TD: 3666'; MW: 10.3; Vis: 52. Drilled to 3656'; surveyed. Pulled out of hole. Cut Core No. 12, 3656' to 3666'. Began pulling out of hole.
1/24/80 0'	TD: 3666'; MW: 10.3; Vis: 55. Finished pulling out of hole. Laid down core; recovered a 10-foot core. Ran in hole; reamed core hole and conditioned to log. Pulled out of hole, steel line measured. Ran Temperature Survey, DIL/GR, BHC/GR, FDC/CNL/GR. Began running Velocity Survey.
1/25/80 0'	TD: 3666'; MW: 10.3; Vis: 56. Finished Velocity Survey, shot 30 sidewall cores and recovered 25, and ran Temperature Survey. Ran in hole; circulated. Pulled out of hole; laid down drill collars and pulled wear bushing.
1/26/80 0'	TD: 3666'; MW: 10.2; Vis: 46. Changed rams to 7". Ran 89 joints of 7", 32#, N-80, 8rd casing and landed at 3644'. Lost circulation; built volume. Spotted 30-barrel lost-circulation material pill. Cemented with 10 barrels of water and 215 sacks of Permafrost cement; followed with 10 barrels of water and mud. Bumped plug to 3,000 psi. Cement in place 1/25/80 at 11:00 p.m. Set slips; cut casing. Landed with 110,000 pounds.
1/27/80 0'	TD: 3666'; MW: 10.3; Vis: 43. Finished cutting 7" casing. Installed tubing spool. Tested flange to 3,000 psi. Changed rams to 3-1/2". Picked up ten 4-3/4" drill collars.

1/28/80 0'	TD: 3666; MW: 10.2; Vis: 4. Waited on cement. Nippled up blowout preventers. Tested rams to 3,000 psi; tested Hydril to 1,500 psi. Ran bowl protector. Ran in hole with bit and scraper. Began running CBL.
1/29/80 0'	TD: 3666'; MW: 10.3; Vis: 44. Finished running CBL. Perforated four holes at 2266'. Circulated, with loss of 45 barrels per hour. Mixed lost-circulation material. Ran in hole with retainer and set at 2230'. Circulated with full returns. Mixed and pumped 100 sacks Permafrost cement at 14.6 ppg, with five barrels of water ahead. Cement in place 1/28/80 at 7:00 p.m. Had full returns during job. Pulled out of hole; ran in hole with shifting tools. Opened FO; circulated out annulus; no cement. Closed FO; tested to 2,000 psi. Pulled out of hole; ran in hole with scraper.
1/30/80 0'	TD: 3666'; MW: 10.2; Vis: 42. Circulated at 1987' with scraper. Waited on cement. Ran in hole to 2196'; drilled cement to 2200'. Pulled out of hole. Ran CBL. Perforated from 2073' to 2088'. Picked up test tools. Ran in hole with open-ended drill pipe; circulated.
1/31/80 0'	TD: 3666'; MW: 10.2; Vis: 44. Continued circulating while repairing Otis heater. Pulled out of hole. Picked up drill-stem test tools and ran in hole.
2/1/80 0'	TD: 3666'; MW: 10.2; Vis: 44. Ran Drill Stem Test No. 2. Opened tool at 7:10 a.m, 1/31/80. Shut in; reopened at 8:10 a.m., 1/31/80, with water to surface. Increased to 3/4" choke at 8:25 a.m. to 10:00 a.m. with mud and water to surface. Turned to separator at 10:25 a.m.; 400 MCF at 150 psi on drill pipe. Flowed at 400 MCF until 2:00 p.m. Final rate: 335 MCF on 24/64" choke with 82 psi on drill pipe. Opened tool at 8:45 p.m. to pit; received no water or mud. Turned to separator at 9:15 p.m.; 50 psi tubing pressure on 1/2" choke; 420 MCFD. Flowed until 1:30 a.m., 2/1/80, with final of 435 MCFD and 22.5 psi on drill pipe; 50/64" choke. Unable to close downhole tool; shut in at surface.
2/2/80 0'	TD: 3666'; MW: 10.2; Vis: 44. At 6:30 a.m., 2/1/80, 946 psi. Opened at 8:10 a.m., 2/1/80, on 1/4" choke; changed to 14/64" choke at 9:20 a.m.; to 12/64" choke at 9:50 a.m.; stabilized at 11:00 a.m. to 360 MCFD and 385 psi. Rate varied between 335 and 360 MCFD and 356 and 385 psi.

2/3/80 TD: 3666'; PBTD: 2200'; MW: 10.2; Vis. 44. At 5:00 p.m., 2/2/80, 310 MCFD and 336 psi. Changed choke to 13/16" at 5:15 p.m. At 3:00 a.m., 2/3/80, 325 MCFD and 289 psi. At 6:00 a.m., 2/3/80, 328 MCFD and 256 psi. Pressure declined 100 pounds over 24 hours.

2/4/80 TD: 3666'; PBTD: 2200'; MW: 10.2; Vis: 44. Closed tool for final buildup 2/3/80 at 8:00 a.m. Reversed out drill pipe.

2/5/80 TD: 3666'; PBTD: 2200'; MW: 10.2; Vis: 44. Remained shut in for final buildup.

2/6/80 TD: 3666'; PBTD: 1755'. Recovered the following from the down-hole pressure chart at 2095': First flow period: Initial hydrostatic pressure 1,094 psi. Initial flowing pressure 239 psi. Final flowing pressure 141 psi. Shut-in pressure 1,024 psi. Second flow period: Initial flowing pressure 159 psi. Final flowing pressure 88 psi. Shut-in pressure 1,015 psi. Third flow period: Initial flowing pressure 141 psi. Final flowing pressure 327 psi. Final shut-in pressure 1,015 psi. Final hydrostatic pressure 1,147 psi. Pulled packer and circulated; pulled out of hole. Picked up bit and scraper. Ran in hole with retainer set at 2005'. Squeezed 50 sacks of Permafrost cement and spotted 50 sacks on top of retainer. Pulled out of hole; picked up RTTS shifting tools. Ran in hole. Opened FO; set packer and established injection rate. Squeezed 60 sacks Permafrost cement. Reversed out; tested FO to 2,000 psi. Pulled out of hole. Began cleaning mud tanks in preparation for Arctic Pack.

2/7/80 TD: 3666'; PBTD: 1507'. Mixed Arctic Pack. Opened FO at 1545'; set RTTS. Pumped 110 barrels prewash at six BPM; pumped 60 barrels Arctic Pack. Closed FO and tested to 2,000 psi. Displaced hole with water; pulled out of hole. Ran in hole; set EZ drill at 1507'; mixed and pumped 10 sacks Permafrost cement. Cement in place at 10:15 p.m. Pulled out one stand and reversed circulation. Cleaned pits and rigged down blowout-preventer equipment.

2/8/80 TD: 3666'; PBTD: 1507'. Mixed and displaced hole with diluted Arctic Pack and diesel. Laid down 3-1/2" drill pipe, kelly, and swivel. Nippled down blowout preventer and installed dry hole marker. Cleaned cellar. Released rig February 7, 1980, at 9:00 p.m. Began rigging down.

DRILLING TIME ANALYSIS

WALAKPA TEST WELL NO. 1

BRINKERHOFF SIGNAL, INC., RIG 31

Spud 12/25/79, Rig released 2/7/80

Total Depth: 3,666 Feet

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

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
12-17	24																							Rigging Up	
12-18	24																							Rigging Up	
12-19	24																							Rigging Up	
12-20	24																							Rigging Up	
12-21	24																							Rigging Up	
12-22	24																							Rigging Up	
12-23	12						6½			1	4½													Rigging Up	Set 13 3/8" at 100' KB
12-24											17½	6½												Waiting on Cement	
12-25		7½		6¼	½			1½				7											½	Tripping	Spudded Well at 1:45 p. m.
12-26		9½	¾	6½	1¼	½		¾									2¾						2¼	Coring	Core No. 1: 257' -287'
12-27		17¾		2	1		2	¾															½	Drilling	
12-28		7½		7¾				2½									4¾						1½	Drilling	Core No. 2: 1590' - 1613'
12-29		3¾	½	10				4¾									4						1	Drilling	Core No. 3 1734' to 1760'
12-30		1½	½	9½	½			2½	10															Tripping	Ran Schlumberger Logs
12-31				4				1½	5½	13														Tripping	

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. WALAKPA TEST WELL NO. 1 Page 2 of 4

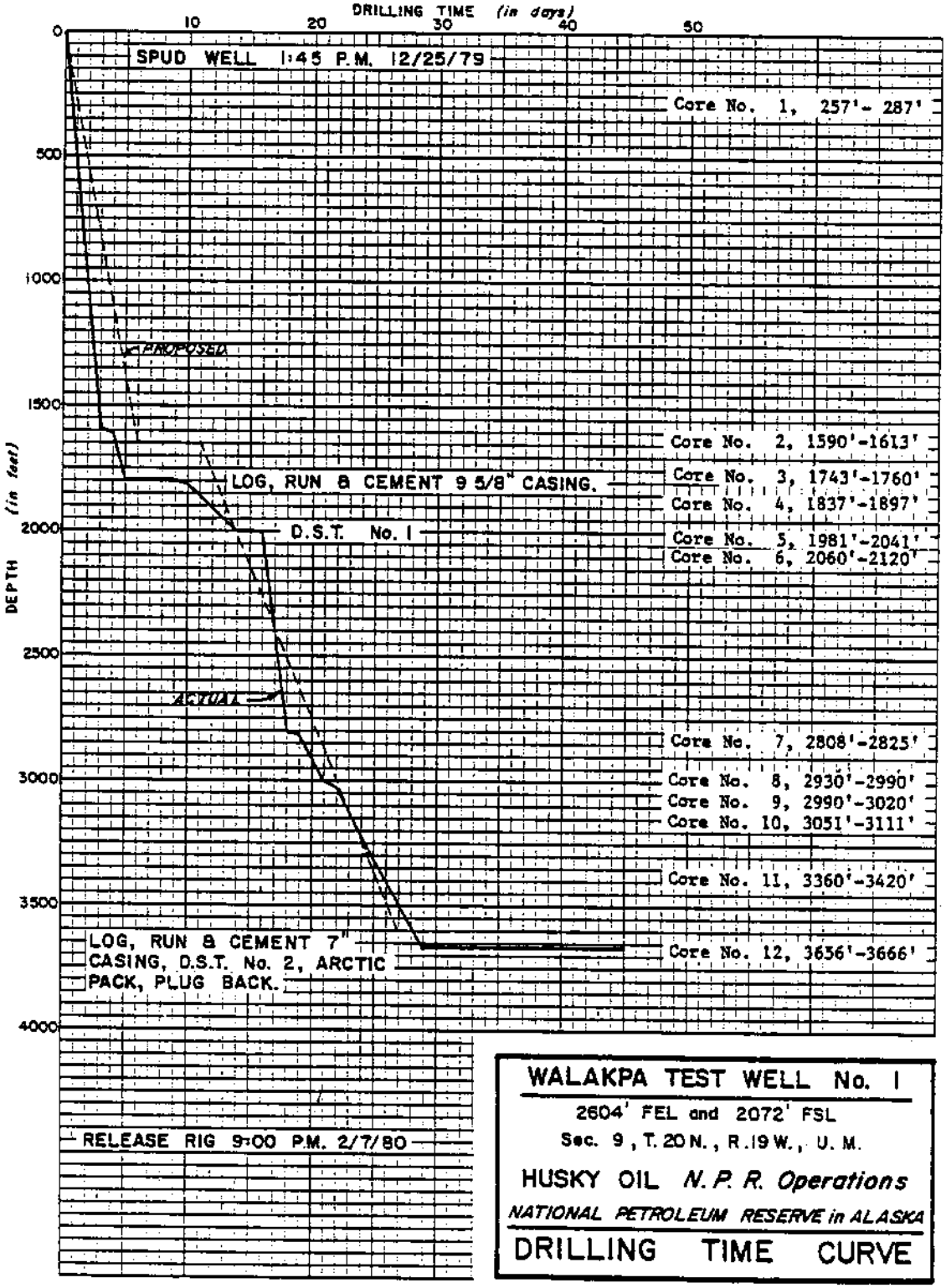
DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
1-1											23½	½												Waiting on Cement	Set 9 5/8" at 1786'
1-2												14½											9½	Welding on Head	
1-3				4½			4	½				6	9											Testing BOP	
1-4		1½		7¾				2½					½			9½							2½	Circulating Samples	
1-5		3		6½				1½								10½							2½	Coring	Core No. 4: 1837' - 1897'
1-6				3				¼								20¾								Coring	Core No. 5: 1981' - 2041'
1-7		1		7¼	1			4½								7¼							3	Laying Down Core	
1-8			½	3½				6								14								Coring	Core No. 6: 2060' - 2120
1-9				9				13					2											Circulating	
1-10		6½	¾	4¾				4½									7						1	Drill Stem Testing	DST No. 1
1-11		17½			1½			2½															2½	Drilling	
1-12		½	7½	5¾	½			¾					4			3½							1½	Testing BOP	
1-13		5¼		9¼	½			1¼								6 ¾							1	Coring	Core No. 7: 2808' - 2825'
1-14			1	2¾				¼								19¼							½	Coring	Core No. 8: 2930' - 2990'
1-15			¾	11	¼			2								5¼							4 ¾	POH with Core	Core No. 9: 2990' - 3020'

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. WALAKPA TEST WELL NO. 1 Page 3 of 4

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		2	½	10½				2¾									6½						2	Coring	
1-17		8½	1	4¾				¾									8						1	Coring	Core No. 10: 3051' - 3111'
1-18		10½		6½	¾			2¾															3½	Drilling	
1-19		5½		7½	¼		1½	3									6¾							Drilling	
1-20		6½	¾	4½			¾	¾									9½						1¾	Coring	Core No.11: 3360' - 3420'
1-21		15½		6½				¾															1½	Drilling	
1-22		16½		5¾	¼			½															1	Coring	Core No. 12: 3656' - 3666'
1-23			½	7				2	10½								2¾						1½	Laying Down Core	Ran Schlumberger Logs
1-24				3				1½	19½															Logging	
1-25				4½				½		18	1													Changing Pipe Rams	Set 7" Casing at 3644'
1-26											12	12												Nipple Up BOP	
1-27				2¾				¼			19												2	Waiting on Cement	
1-28				6				10	5½											½			2	Logging	Ran CBL Log
1-29				3½				7	5½		5½												3	Waiting on Cement	
1-30				1				19½															3½	Circulating	

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

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				2½				1½										20						Tripping	Began Running DST No. 2
2-1																		24						Drill Stem Testing	
2-2																		24						Drill Stem Testing	
2-3																		24						Drill Stem Testing	
2-4																		24						Drill Stem Testing	
2-5				8¼				4			¾							8					3	Drill Stem Testing	
2-6				3							11									3			7	Laying Down Excess DP	
2-7	3			4½				½				9											7	Cleaning Mud Pits	Released Rig at 9:00 p. m.
2-8	24																							Rigging Down	
2-9	24																							Rigging Down	
2-10	24																							Moving Rig	
2-11	24																							Moving Rig	
2-12	24																							Moving Rig	
TOTAL HOURS	279	146¾	15	211¾	¼		14¾	111½	56¼	32¾	93¾	56¼	15½	-0-	-0-	-0-	141¾	131	-0-	3½	-0-	74			


DRILLING TIME (in days)
0
10
20
30
40
50
SPUD WELL 1:45 P.M. 12/25/79
Core No. 1, 257'- 287'
500
1000
PROPOSED
1500
Core No. 2, 1590'-1613'
LOG, RUN & CEMENT 9 5/8" CASING.
Core No. 3, 1743'-1760'
Core No. 4, 1837'-1897'
2000
D.S.T. No. 1
Core No. 5, 1981'-2041'
Core No. 6, 2060'-2120'
DEPTH (in feet)
2500
ACTUAL
Core No. 7, 2808'-2825'
3000
Core No. 8, 2930'-2990'
Core No. 9, 2990'-3020'
Core No. 10, 3051'-3111'
Core No. 11, 3360'-3420'
3500
LOG, RUN & CEMENT 7" CASING, D.S.T. No. 2, ARCTIC PACK, PLUG BACK.
Core No. 12, 3636'-3666'
4000
RELEASE RIG 9:00 P.M. 2/7/80
WALAKPA TEST WELL No. 1
2604' FEL and 2072' FSL
Sec. 9, T. 20 N., R. 19 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: 13 3/8 inch at 100 ft.

WELL Walakpa Test Well No. 1 COUNTY North Slope 9 5/8 inch at 1786 ft.

CONTRACTOR Brinkerhoff Signal, Inc. LOCATION NPRA SEC 9 TWP 20N RNG 19W 7 inch at 3648 ft.

STOCKPOINT DATE BAROID ENGINEER TOTAL DEPTH 3666 ft.

DATE	DEPTH	WEIGHT	VISCOSITY		Yp	GELS	pH	FILTRATION			FILTRATE ANALYSIS				SAND	RETORT			CEC	REMARKS AND TREATMENT
1979	feet	lb/gal	Sec API @ °F	PV @ °F		10 sec/ 10 min	Strip Chloride	ml API	HTHP @ °F	Cake 32nds	Pm	Pf/Mf	Cl ppm	Ca ppm	%	Solids %	Oil %	Water %	Mud, me/ml	
12/25		8.4	40	8	8	1/3	8	20		1	0	1.3	2900	40	0	2	0	98		Mixed spud mud.
12/26	257	9.0	35	6	9	3/8	8	30		3	0	.3	1500	110	Tr	5	0	95		
12/27	440	9.6	38	10	12	4/19	8	30		3	0	.2	1500	80	Tr	8	0	92		
12/28	1460	9.8	36	12	11	5/20	8	28		3	0	.2	1500	80	Tr	10	0	90		
12/29	1660	9.9	37	12	13	5/22	8	25		3	0	.2	1200	90	Tr	10	0	90		
12/30	1800	9.9	35	11	11	5/20	8	23		3	0	.2	1000	80	Tr	10	0	90		
12/31	1800	9.9	35	11	11	5/20	8	23		3	0	.2	1000	90	Tr	10	0	90		
1/1	1800																			Cleaning mud pits.
1/2	1800	9.0	40	5	14	3/10	8	30		3	0	0	1000	80	0	4	0	96		
1/3	1800	10.2	40	7	17	5/13	8	25		3	0	0	1000	80	0	7	0	93		
1/4	1820	10.1	43	14	13	8/18	9	27		3	.2	3.5	900	400	Tr	10	0	90		
1/5	1880	10.6	51	14	8	2/16	9	10		2	.2	2.0	1000	60	Tr	12	0	88		
1/6	1980	10.4	41	14	9	2/15	9	8		2	.2	1.8	1000	70	Tr	12	0	88		
1/7	2041	10.5	41	14	9	2/16	9	7.5		2	.1	1.2	1000	40	1/4	12	0	88		
1/8	2105	10.5	40	14	8	1/15	8.5	7.5		2	.1	1.1	1000	40	1/4	12	0	88		
1/9	2120	10.5	41	14	9	2/16	8.5	7.5		2	.1	1.1	1000	40	1/4	12	0	88		
1/10	2120	10.5	43	15	10	2/16	8.5	7.0		2	.1	1.0	1000	40	1/4	11	0	89		
1/11	2425	10.4	39	17	10	2/19	8.5	8.0		2	.1	.8	900	40	1/4	14	0	86		
1/12	2808	10.5	43	16	11	2/15	8.5	7.0		2	.1	.8	900	40	1/4	14	0	86		
1/13	2825	10.5	45	20	13	2/17	8.5	6.0		2	Tr	.9	800	20	1/4	15	0	85		
1/14	2930	10.5	43	19	13	2/16	8.5	6.5		2	Tr	.9	800	20	1/4	15	0	85		
1/15	2989	10.5	43	17	10	2/17	8.5	7.5		2	Tr	.9	800	20	Tr	14	0	86		
1/16	3018	10.3	53	21	17	6/18	8.5	6.0		2	.1	.7	700	40	1/4	13	0	87		
1/17	3092	10.3	49	18	15	6/17	8.5	6.5		2	.1	.7	600	40	1/4	13	0	87		
1/18	3240	10.3	54	22	18	6/19	8.5	6.5		2	.1	.7	600	40	1/4	13	0	87		
1/19	3355	10.3	48	17	16	5/16	8.5	6.0		2	.1	.7	600	40	1/2	13	0	87		
1/20	3406	10.3	47	17	14	5/15	8.5	6.0		2	.1	.7	600	40	1/2	13	0	87		
1/21	3530	10.3	48	17	15	5/16	8.5	6.0		2	.1	.8	550	40	1/4	13	0	87		
1/22	3611	10.3	49	18	15	4/16	9.0	6.0		2	.1	.8	500	40	1/2	13	0	87		
1/23	3666	10.3	52	20	18	5/16	8.5	6.0		2	Tr	.7	600	100	1/2	13	0	87		
1/24	3666	10.3	55	20	22	6/19	8.5	6.0		2	Tr	.9	600	100	1/2	13	0	87		
1/25	3666	10.3	56	21	23	5/16	8.5	6.0		2	.1	.7	600	60	1/2	13	0	87		
1/26	3648	9.8	48	14	19	5/7	8.3	10		1	Tr	.7	550	80	Tr	9	0	91		
1/27	3648	10.3	43	17	11	3/5	8.3	6.2		1	Tr	.7	550	80	Tr	12	0	88		
1/28	3648	10.2	41	14	11	3/6	8.3	6.4		1	Tr	.7	500	120	1/4	11	0	89		

DRILLING MUD RECORD

ARCTIC DRILLING SERVICES

COMPANY Husky Oil NPR Operations, Inc STATE Alaska

WELL Walakpa Test Well No. 1 COUNTY North Slope

CONTRACTOR Brinkerhoff Signal, INC. LOCATION NPRA

SEC 9 TWP 20N RNG 19W

STOCKPOINT DATE BAROID ENGINEER

CASING PROGRAM: 13 3/8 inch at 100 ft.
9 5/8 inch at 1786 ft.
7 inch at 3648 ft.

TOTAL DEPTH 3666 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 D Meter D	ml API	HTHP @ °F	Cake 32nds	Pm	Pf/Mf	Cl ppm	Ca ppm	%	Solids %	Oil %	Water %	Mud, me/ml	
1/29	2200	10.3	44	17	9	2/6	8.5	6.5		2	.1	.8	450	140	1/4	13	0	87		
1/30	2200	10.2	46	17	13	4/10	8.3	6.0		2	Tr	.8	475	160	1/4	13	0	87		
1/31	2200	10.2	44	17	10	4/8	8.3	6.0		2	Tr	.8	475	160	1/4	12	0	88		
2/1	2200	10.2	44	18	11	4/8	8.3	6.0		2	Tr	.7	500	100	1/4	12	0	88		
2/2	2200	10.2	44	18	12	4/8	8.3	6.0		2	Tr	.7	450	100	1/4	12	0	88		
2/3	2200	10.2	43	17	10	3/7	8.3	6.0		2	Tr	.7	500	100	1/4	12	0	88		
2/4	2200	10.2	43	17	10	3/7	8.5	6.8		2	.1	.7	600	100	1/4	12	0	88		
2/5	2200	10.2	44	18	11	4/8	8.5	6.8		2	.1	.7	600	100	1/4	12	0	88		
2/6	1545	10.2	52	20	18	12/22	9.5	10		2	.4	1.6	650	160	1/4	12	0	88		
2/7		9.5		60	45	20										12	6	82		Arctic packed; cleaned pits.

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BIT RECORD

COMPANY: Husky Oil NPR Operations
CONTRACTOR: Brinkerhoff Signal, Inc.
COUNTY: North Slope Borough
STATE: Alaska
LEASE: National Petroleum Reserve
WELL NO: Walakpa Test Well No 1
SEC:
TOWNSHIP:
RANGE:
BLOCK:
FIELD:
TOOL PUSHER:
DRILL PIPE:
DRAW WORKS:
DAY DRILLER:
TOOL JOINT: MAKE SIZE TYPE
POWER: H.P
UNDER SURF:
EVENING DRILLER:
DRILL COLLAR: NO O D I D LENGTH
PUMP NO 1: MAKE MODEL STROKE
INT DATE:
MORNING DRILLER:
DRILL COLLAR: NO O D I D LENGTH
PUMP NO 2: MAKE MODEL STROKE
T D DATE:

BIT NO	BIT SIZE	BIT MFGR	BIT TYPE	SERIAL NO OF BIT	JET SIZE 1	2	3	DEPTH OUT	FTGE	HOURS RUN	ACC HOURS	FT/HR	WEIGHT 1000 LBS	ROTARY R.P.M	VERT DEV	PUMP PRESS	PUMPS No	LINER	SPM	MUD WT.	VIS	DULL CODE 1	2	3	REMARKS FORMATION, CIRC. FLUID, ETC	DATE
1	12¼	HTC	OSC3A	22366	12	12	12	257	157	7.5	7.5	20.9	15	90	1/2	1100		5.5	120	9.6	38	1	1	I		
CH1	*	ACC	EHS	16571	None			287	30	3	10.5	10	15	65	1/2	200		"	68	9.8	36	G	0	D		
RR1	12¼	HTC	OSC3A	22366	12	12	12	1590	1303	20.5	30.75	64.3	20	90	1/2	1100		"	120	9.9	37	1	1	I		
CH2	*	ACC	EHS	16571	None			1613	23	4.75	35.5	4.8	15	65	1/4	200		"	68	"	"	G	0	D		
RR1	12¼	HTC	OSC3A	22366	12	12	12	1743	130	6	41.5	21.6	15	90	1/4	1100		"	120	"	45	3	3	I		
CH3	*	ACC	EHS	16571	None			1760	17	4	45.5	4.25	15	65	1/4	200			68	"	"	G	0	D		
RR1	12¼	HTC	OSC3A	22366	12	12	12	1800	40	1.25	51.5	32	20	90	1/4	1100		"	120	"	"	4	4	I		
2	8½	HTC	X3A	ZA695	12	12	12	1837	37	1.5	53	24.6	15	90		1100		"	120	10.1	43	1	1	I		
CH1	*	ACC	EHS	16571	None			1897	60	20	73	3	20	68		200		"	68	10.4	41	G	0	D		
RR2	8½	HTC	X3A	ZA695	10	10	10	1891	84	3	76	28	20	120		1100		"	114	"	"	1	1	I		
CH1	*	ACC	EHS	16571	None			2041	60	23.5	99.5	2.55	20	68		800		"	68	"	"	G	0	D		
RR2	8½	HTC	X3A	ZA695	12	12	12	2060	20	1	100.5	20	20	66		400		"	116	10.5	"	G	0	D		
CH1	*	ACC	EHS	16571	None			2120	60	17.5	118	3.4	20	68		800		"	68	"	"	Starting to show wear.				
3	8½	HTC	X3A	AT947	10	10	10	2808	688	24.25	142.25	28	30	90		1400		"	100	"	"	5	7	I		
CH2	*	ACC	EHS	16643	None			2826	18	10.25	152.5	1.8	20	75		1000		"	68	"	"	G	0	D		
4	8½	HTC	X3A	AU129	10	10	10	2930	104	5.25	157.75	19.8	30	80		1500		"	100	"	"	G	0	D		
CH2	*	ACC	EHS	16643	None			2990	60	13.25	181	2.5	20	70		1000		"	68	10.5	"	G	0	D		
RR4	8½	HTC	X3A	AU129	10	10	10		CLEAN OUT																	
CH2	*	ACC	EHS	16643	None			3020	30	7.25	188.25	4.1	20	70		1000		"	68	10.3	50	G	0	D		
5	8½	STC	SDT	500ND	12	12	12	3051	31	2	190.25	16.5	30	70		1200		"	100	"	"	1	1	2		
CH2	*	ACC	EHS	16643	None			3111	60	8	198.25	7.5	20	70		1000		"	68	"	49	G	0	D		

* 8 15/32

Compliments of SMITH TOOL

P.O. BOX C19511 • IRVINE, CALIF. 92713
DIVISION OF SMITH INTERNATIONAL, INC.

SMITH REPRESENTATIVE _____ PHONE _____

BIT RECORD

COMPANY: Husky Oil NPR Operations | CONTRACTOR: Brinkerhoff Signal, Inc. | COUNTY: North Slope | STATE: Alaska

LEASE: National Petro. Reserve | WELL NO: Walakpa #1 | SEC | TOWNSHIP | RANGE | BLOCK | FIELD

TOOL PUSHER | DRILL PIPE | DRAW WORKS | UNDER SURF

DAY DRILLER | KOOH JOINT: MAKE, SIZE, TYPE | POWER, H.P | INT DATE

EVENING DRILLER | DRILL COLLAR: NO, O D, I D, LENGTH | PUMP NO 1: MAKE, MODEL, STROKE | T D DATE

MORNING DRILLER | DRILL COLLAR: NO, O D, I D, LENGTH | PUMP NO 2: MAKE, MODEL, STROKE

BIT NO	BIT SIZE	BIT MFGR	BIT TYPE	SERIAL NO OF BIT	JET SIZE 1	2	3	DEPTH OUT	FTGE	HOURS RUN	ACC HOURS	FT/HR	WEIGHT 1000 LBS	ROTARY R P M	VERT DEV	PUMP PRESS	PUMPS No	Cu/rev	SPM	MUD WT	VIS	DULL CODE T	B	G	REMARKS FORMATION, CIRC. FLUID, ETC	DATE
RR5	8½	STC	SDT	500ND	12	12	12	3293	182	17.25	215.5	10.5	30	70		1100		5.5	100	10.3	49	6	5	I		
6	8½	STC	SDT	337NR	12	12	12	3360	67	7	222.5	9.5	30	70		1100		5.5	100	"	49	3	2	I		
CH2	*	ACC	EHS	16643	None			3420	60	13.25	235.75	4.5	20	70		1000		5.5	68	"	49	G	O	O	D	
7	8½	HTC	X1G	JF686	12	12	12	3544	124	15	250.75	8.2	30	70		1100		5.5	100	"	49	7	4	I		
8	8½	HTC	X1G	RN237	12	12	12	3656	112	22.5	273.25	5	30	70		1100		5.5	100	"	49	6	5	I		
CH2	*	ACC	EHS	16643	None			3666	10	2.75	276	3.6	20	70		1000		5.5	68	"	49	G	O	O	D	

* 8 15/32

SMITH REPRESENTATIVE _____ PHONE _____

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DIVISION OF SMITH INTERNATIONAL, INC.

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"	32#/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.

Proposed casing for Walakpa Test Well No. 1 was as follows: 13-3/8" conductor set at ±120'; 9-5/8" casing set at ±1650'. The casing actually run was 13-3/8" conductor at 100', 9-5/8" casing set at 1786', and 7" casing set at 3644'. The 7" casing was run to total depth in anticipation of testing several zones between 3000' and 3600', as well as the sand at 2073'. However, subsequent log analysis indicated testing zones below 3000' was not warranted, and the tests were not conducted.

CASING TALLY
SUMMARY SHEET

DATE: December 30, 1979

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

SUMMARY OF PAGE MEASUREMENTS

	NO. OF JOINTS	FEET	.00'S
PAGE 1	46	2011	38
PAGE 2			
PAGE 3			
PAGE 4			
PAGE 5			
PAGE 6			
PAGE 7			
PAGE 8			
PAGE 9			
TOTAL	46	2011	38

SUMMARY OF DEPTH CALCULATIONS

		NO. OF JOINTS	FOOTAGE FEET	FOOTAGE .00'S
1	TOTAL CASING ON RACKS	46	2011	38
2	LESS CASING OUT (JTS NOS.	5	209	03
3	TOTAL (1 – 2)		1802	35
4	SHOE LENGTH		1	71
5	FLOAT LENGTH		1	68
6	MISCELLANEOUS EQUIPMENT LENGTH			
7	TOTAL CASING AND EQUIPMENT FROM CEMENT HEAD (3 + 4 + 5 + 6)		1805	74
8	LESS WELL DEPTH (KB REFERENCE)			
9	"UP" ON LANDING JOINT			

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
					JT NO. THRU NO.			' – '
					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 1

CASING TALLY

DATE: December 30, 1979

FIELD NPRA LEASE & WELL NO. Walakpa Test Well 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.
1	46	84			
2	42	80			
3	47	03			
4	44	49			
5	46	63			
6	43	29			
7	44	70			
8	46	69			
9	46	82			
0	40	77			
TOTAL A	450	06			

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	35	58			
2	47	45			
3	43	41			
4	44	50			
5	46	53			
6	44	62			
7	46	54			
8	45	62			
9	43	54			
0	42	40			
TOTAL D	434	19			

1	44	31			
2	40	74			
3	43	80			
4	45	83			
5	36	33			
6	46	64			
7	41	32			
8	45	00			
9	45	57			
0	37	82			
TOTAL B	427	36			

1	47	14			
2	42	25			
3	41	57			
4	38	21			
5	41	57			
6	45	43			
7					
8					
9					
0					
TOTAL E	256	17			

1	42	03			
2	46	74			
3	43	86			
4	46	20			
5	42	13			
6	41	15			
7	45	78			
8	42	60			
9	44	26			
0	42	85			
TOTAL C	437	60			

TOTAL A	450	06		
TOTAL B	427	36		
TOTAL C	437	60		
TOTAL D	440	19		
TOTAL E	256	17		
TOTAL PAGE	2011	38		

CASING AND CEMENTING REPORT

WELL NAME Walakpa Test Well No. 1

LOCATION National Petroleum Reserve in Alaska

RAN CASING AS FOLLOWS:

41	Jts	9 5/8"	53.5	Buttress		
	Jts					
	Jts					

Shoe @ 1786' Float @ 1738' DV @ _____

Centralizer @ 1774', 1695', 1615', 1525', 1439', 1347', 132', 86', and 41'

FIRST STAGE

Sx of Cement 1400 Type Permafrost Additives None % Excess 180

Preflush 20 Barrels Initial Pressure 0

Displacement 13 bbls. Final Pressure 500

Plug Down 11:30 ~~AM~~ PM

SECOND STAGE - Stage Collar @ _____

Sx of Cement _____ Type _____ Additives _____ % Excess _____

Preflush _____ Initial Pressure _____

Displacement _____ bbls. Final Pressure _____

Plug Down _____ AM PM

Well Depth 1800' Overall Casing Tally 1788'

KB to Top of Cut Off Casing _____ Length of Landing Jt Removed _____

Weight Indicator Before Cementing 70,000 lbs.

Weight Indicator After Slacking Off 0 lbs.

Inches Slacked Off 0

Remarks:

CASING TALLY
SUMMARY SHEET

DATE: January 22, 1980

FIELD National Petroleum Reserve in AK LEASE & WELL NO. Walakpa Test Well No. 1 TALLY FOR 7 " CASING

SUMMARY OF PAGE MEASUREMENTS

	NO. OF JOINTS	FEET	.00'S
PAGE 1	50	2064	43
PAGE 2	50	2028	21
PAGE 3	8	322	33
PAGE 4			
PAGE 5			
PAGE 6			
PAGE 7			
PAGE 8			
PAGE 9			
TOTAL	108	4414	97

SUMMARY OF DEPTH CALCULATIONS

		NO. OF JOINTS	FOOTAGE FEET	.00'S
1	TOTAL CASING ON RACKS	108	4414	97
2	LESS CASING OUT (JTS NOS.	13	529	56
3	TOTAL (1 – 2)		3885	41
4	SHOE LENGTH		1	83
5	FLOAT LENGTH		1	42
6	MISCELLANEOUS EQUIPMENT LENGTH		3	80
7	TOTAL CASING AND EQUIPMENT FROM CEMENT HEAD (3 + 4 + 5 + 6)		3892	46
8	LESS WELL DEPTH (KB REFERENCE)			
9	"UP" ON LANDING JOINT			

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

SUMMARY OF STRING AS RUN

WEIGHT	GRADE	THREAD	MANUFACTUREH	CONDITION NEW-USED	LOCATION IN STRING	NO. OF JOINTS	FOOTAGE	INTERVAL
					JT NO. THRU NO.			
					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 3

CASING TALLY

DATE: January 22, 1980

FIELD NPRA LEASE & WELL NO. Walakpa Test Well No. 1 TALLY FOR 7 " CASING

JOINT NO.	FIRST MEASUREMENT FEET	.00'S	CHECK MEASUREMENT FEET	.00'S	WT GR.
1	41	51			
2	38	87			
3	41	25			
4	41	33			
5	42	12			
6	40	35			
7	41	17			
8	42	45			
9	40	95			
0	41	15			
TOTAL A	411	15			

JOINT NO.	FIRST MEASUREMENT FEET	.00'S	CHECK MEASUREMENT FEET	.00'S	WT GR.
1	39	82			
2	42	35			
3	41	86			
4	41	98			
5	42	25			
6	41	66			
7	40	78			
8	40	55			
9	40	54			
0	40	71			
TOTAL D	412	50			

1	41	53			
2	41	70			
3	42	23			
4	42	75			
5	41	40			
6	42	43			
7	42	60			
8	41	12			
9	42	32			
0	40	90			
TOTAL B	418	98			

1	40	10			
2	41	41			
3	41	67			
4	41	30			
5	39	44			
6	40	28			
7	40	14			
8	42	02			
9	42	17			
0	41	45			
TOTAL E	409	98			

1	42	36			
2	41	36			
3	40	57			
4	39	02			
5	41	98			
6	40	77			
7	41	61			
8	41	70			
9	41	92			
0	40	53			
TOTAL C	411	82			

TOTAL A	411	15		
TOTAL B	418	98		
TOTAL C	411	82		
TOTAL D	412	50		
TOTAL E	409	98		
TOTAL PAGE	2064	43		

PAGE 2 OF 3 **CASING TALLY** DATE: January 22, 1980

FIELD NPRA LEASE & WELL NO. Walakpa Test Well No. 1 TALLY FOR 7 " CASING

JOINT NO.	FIRST MEASUREMENT FEET	.00'S	CHECK MEASUREMENT FEET	.00'S	WT GR.
1	41	41			
2	40	83			
3	42	25			
4	41	40			
5	40	57			
6	37	65			
7	39	95			
8	41	17			
9	36	87			
0	41	67			
TOTAL A	403	77			

JOINT NO.	FIRST MEASUREMENT FEET	.00'S	CHECK MEASUREMENT FEET	.00'S	WT GR.
1	39	96			
2	41	79			
3	42	02			
4	39	27			
5	42	29			
6	39	48			
7	40	37			
8	41	65			
9	38	10			
0	40	35			
TOTAL D	405	28			

1	37	90			
2	38	95			
3	42	18			
4	40	90			
5	41	71			
6	40	54			
7	41	66			
8	41	98			
9	38	54			
0	38	55			
TOTAL B	402	91			

1	41	98			
2	38	20			
3	40	45			
4	41	81			
5	38	21			
6	41	75			
7	41	01			
8	41	57			
9	41	27			
0	40	88			
TOTAL E	407	13			

1	42	03			
2	41	28			
3	38	18			
4	42	10			
5	41	01			
6	41	94			
7	42	64			
8	40	43			
9	40	03			
0	39	48			
TOTAL C	409	12			

TOTAL A	403	77			
TOTAL B	402	91			
TOTAL C	409	12			
TOTAL D	405	28			
TOTAL E	407	13			
TOTAL PAGE	2028	21			

PAGE 3 OF 3

CASING TALLY

DATE: January 22, 1980

FIELD NPRA LEASE & WELL NO. Walakpa Test Well No. 1 TALLY FOR 7 " CASING

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	42	07			
2	40	88			
3	42	20			
4	39	78			
5	37	60			
6	40	08			
7	39	09			
8	40	63			
9					
0					
TOTAL A	322	33			

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					

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

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	322	33		
TOTAL B				
TOTAL C				
TOTAL D				
TOTAL E				
TOTAL PAGE	322	33		

CASING AND CEMENTING REPORT

WELL NAME Walakpa Test Well No. 1

LOCATION National Petroleum Reserve in Alaska

RAN CASING AS FOLLOWS:

89	Jts	32#	N-80	8 RLT&C	7"	
	Jts					
	Jts					

Shoe @ 3648' Float @ 3564' DV @ 1537'

Centralizer @ 80', 200', 322', 445', 565', 691', 812', 931', 1055', 1180', 1299', 1417', 1537', 1581', 1622', 2856', 2939', 3024', 3108', 3192', 3275', 3358', 3440', 3523', and 3638'.

FIRST STAGE

Sx of Cement 215 Type Permafrost Additives None % Excess None

Preflush 10 Barrels Water Initial Pressure 0

Displacement 128 bbls. Final Pressure 0

Plug Down 11:00 ~~AM~~ PM

SECOND STAGE - Stage Collar @ _____

Sx of Cement _____ Type _____ Additives _____ % Excess _____

Preflush _____ Initial Pressure _____

Displacement _____ bbls. Final Pressure _____

Plug Down _____ AM PM

Well Depth 3666' Overall Casing Tally 3648'

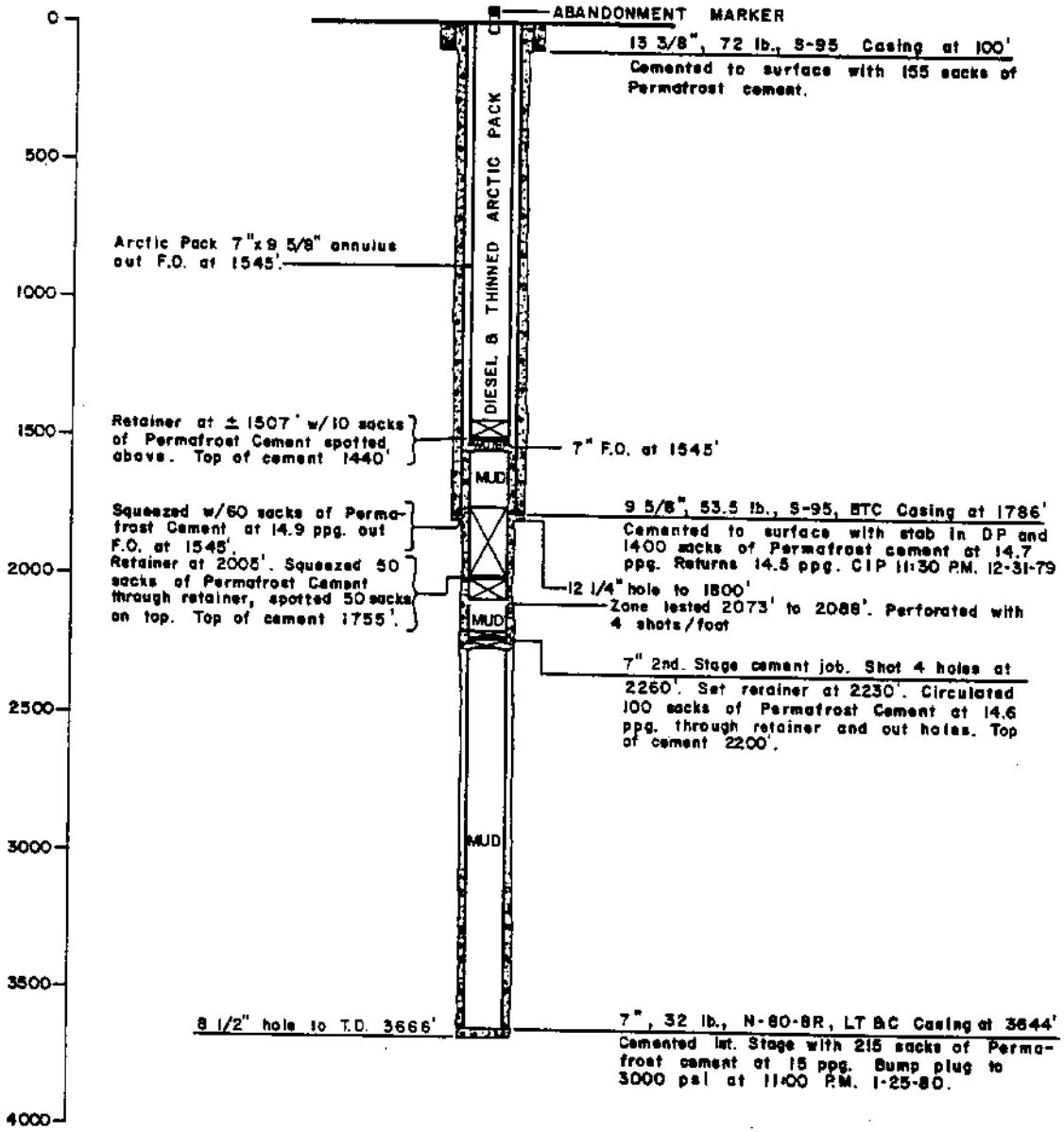
KB to Top of Cut Off Casing _____ Length of Landing Jt Removed _____

Weight Indicator Before Cementing 110,000 lbs.

Weight Indicator After Slacking Off 0 lbs.

Inches Slacked Off 3"

Remarks: No returns throughout job.



WALAKPA TEST WELL No. 1

2604' FEL and 2072' FSL

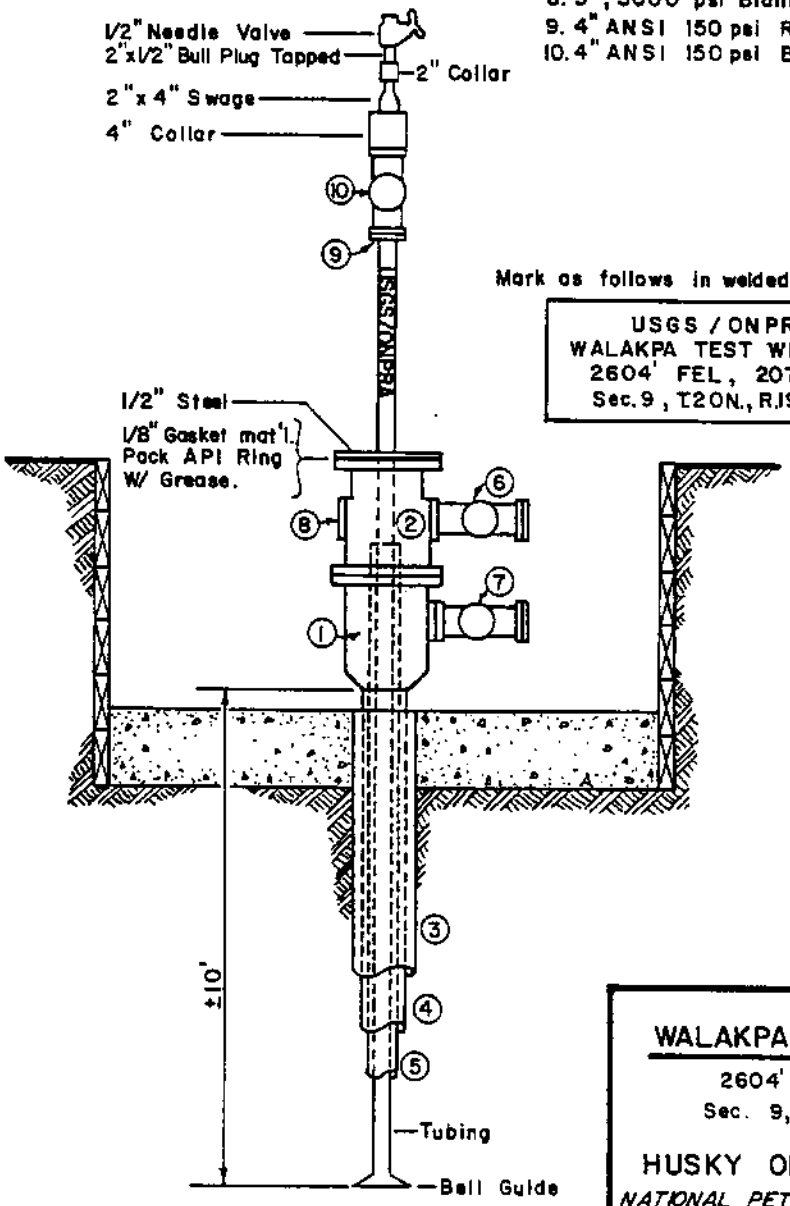
Sec. 9, T.20N., R.19W., U.M.

HUSKY OIL *N. P. R. Operations*

NATIONAL PETROLEUM RESERVE in ALASKA

WELLBORE SCHEMATIC

Part No.	EQUIPMENT LIST
1.	9 5/8", 3000 psi Slip-on Head, McEvoy.
2.	12", 3000 psi x 8", 3000 psi Tubing Spool.
3.	13 3/8" Casing.
4.	9 5/8" Casing.
5.	7" Casing.
6.	3", 3000 psi Gate Valve.
7.	2", 2000 psi LP Gate Valve, OCT.
8.	3", 3000 psi Blanking Flange.
9.	4" ANSI 150 psi RF Flange *(slip-on)*.
10.	4" ANSI 150 psi Ball Valve.



Mark as follows in welded writing on pipe.

USGS / ONPRA
WALAKPA TEST WELL No. 1
2604' FEL, 2072' FSL
Sec. 9, T.20N., R.19W., U.M.

WALAKPA TEST WELL No. 1

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HUSKY OIL *N.P.R. Operations*
NATIONAL PETROLEUM RESERVE in ALASKA

ABANDONMENT HEAD

ARCTIC CASING PACK

INTRODUCTION

In production wells, wells suspended through summer months, and wells completed for re-entry with temperature recording tools, Baroid Arctic Casing Pack was used between casing strings. It is a stable, highly viscous fluid which will not freeze and collapse casing set in permafrost zones. Its unique gelling characteristics exhibit excellent thermal properties (heat transfer coefficient of approximately 0.1 BTU per hour per square feet per degree F at 32°F). Composition of Baroid Arctic Casing Pack used is as follows for each 100 barrels mixed:

Diesel	82.0 barrels
Water	5.0 barrels
Salt	60.0 ppb per barrel of water
EZ Mul	12.5 ppb
Gel Tone	50.0 ppb
Barite	103.0 ppb

In Walakpa No. 1, the 7" x 9-5/8" annulus was displaced with Arctic Pack from the FO at 1545' to the surface. The 7" casing was then left full of a mixture of diesel and Arctic Pack to allow future temperature data to be gathered by U. S. Geological Survey personnel. The Arctic Pack record is attached.

ARCTIC PACK RECORD

WALAKPA TEST WELL NO. 1

DATE: February 6, 1980

I. JOB SUMMARY

Annulus volume: 7 " x 9 5/8" x 1545'	36	bbl
Drill pipe volume: 3½ x 15.5 #/ft x ____ '	10	bbl
Total volume of system:	46	bbl
Volume of water used in water wash	110	bbl
Volume of water pumped at water breakthrough	40	bbl
Volume of pack pumped	60	bbl
Volume of pack pumped at breakthrough	44	bbl
Displacement efficiency at breakthrough	98	%
% Water contamination of returns at end of job	2	%

Remarks (including weather): Temperature: -15°F; winds at 5 MPH. Mixed pre-mix and gelled pack with rig pump; displaced with rig pump. Pumped water wash with Howco.

II. PILOT TEST OF FLUIDS

A. Prepack

Retort Data:

% Oil	84	
% Water	4	
% Solids		
Weight	9.5	#/gal

Rheology (at 48 °F):

PV	18	cps
YP	14	#/100 ft^2
10 Sec Gel	6	#/100 ft^2
Emulsion Stability	-	volts

B. Gelled Pack (20 #/bbl Geltone added to prepack):

Rheology (at 65 °F):

PV	60	cps
YP	40	#/100 ft^2
10 Sec Gel	20	#/100 ft^2

C. Drilling Mud (prior to displacement with water):

Wt	10.2	#/gal
PV	18	cps
YP	11	#/100 sq ft
10 Sec Gel	3	#/100 sq ft

Remarks: Prepack temperature: 48°. Gelled pack at surface: 53°. Gelled pack returns: 63°.

III. RELEVANT WELL DATA

Outer casing: 9 5/8" ; 53 #/ft
Inner casing: 7 ; 32 #/ft
Drill pipe: 3 1/2 ; 15.5 #/ft

Depth of cement sleeve: 1545 ft

Casing annulus volume: 36 bbls

Drill pipe volume (includes height to floor) 10.2 bbls
Total system volume 46 bbls
Rig pump capacity .059 strokes/bbl
Cementing unit pump capacity - strokes/bbl

Remarks:

IV. WATER WASH STEP

Volume water pumped 110 bbls

Rate 6 bbl/min

Volume pumped at water breakthrough (0.5 #/gal drop in weight of mud return) 40 bbls

Appearance of water at end of water wash X clear

_____ turbid

_____ muddy

Remarks:

V. ARCTIC PACK DISPLACEMENT

a. Volume of pre-mix spacer -0- bbl
b. Total volume of gelled pack pumped 60 bbl
c. Total number of (50 lb) sacks of Geltone added 70 sacks
d. Average lb Geltone added per bbl 50 lb/bbl
e. Pumping rate 3 bbl/min
f. Total volume of pre-mix and gelled pack pumped at breakthrough 44 bbl
g. Volume of returns dumped into mud system -0- bbl
h. Volumes of fluids used to displace drill pipe 12 bbl of water

-0- bbl of _____

i. Volume of uncontaminated returns _____ bbl

k. Remarks: Excellent; good job.

RIG INVENTORY

Draw Works

National T-20, single drum grooved for 1" wireline with 15" double hydromatic brake, automatic breakout and make up catheads, driven by one set of GMC diesel twin 671 engines, 300 HP, through Allison torque converter, all mounted on single skid. One Westinghouse 3YC air compressor driven by main PTO.

Mast

Lee C. Moore, 95' high with 9 foot wide front by spread cantilever. Gross nominal capacity: 290,000 pounds, with racking board capacity of 130 stands 4-1/2" drill pipe (doubles). Mast crown block capable of stringing eight 1" wire lines.

Subbase

Three box sections two at ground level, 8 feet high, 9 feet wide, 37 feet long; center section, 8 feet 5 inches high, 9 feet wide, and 37 feet long. Clear working space from bottom of rotary beam to bottom of subbase is 14 feet 7 inches. Rotary table to bottom of subbase is 17 feet. (Add four inches for rig matts.)

Rig Matts

Ten 4" x 16' long x 8' wide; fifteen 4" x 24' long x 8' wide.

Traveling Blocks

IDECO, 160 ton, four 1" sheave combination block and hook.

Swivel

EMSCO L-140, 6-5/8" left-hand API regular pin, 140 ton capacity.

Bails

Byron Jackson, 2-1/4" x 108", links 250 ton capacity.

Rotary Table

Oilwell 17-1/2" split square drive master bushing, 275 ton static load capacity.

Mud Tank

Three section, insulated tank. Capacity shale tank: 75 barrels; capacity middle tank: 100 barrels; capacity suction tank: 112 barrels. Shale tank equipped with shale jet and 16 barrel trip tank. Total capacity: 303 barrels.

Shaker

Single Brandt tandem separator driven by 3 HP, three-phase, 440 volt, 1,750 RPM explosion proof electric motor.

Degasser

Drilco, see-flo, driven by 7-1/2 HP, three-phase, 440 volt, explosion proof motor with 1/2 HP, three-phase, 440 volt explosion proof blower.

Desander

Pioneer Model S2-12; capacity: 500 GPM.

Desilter

Pioneer Model T8-6; capacity: 500 GPM.

Mud Mixer

One Dreco, driven by 5 HP, three-phase, 440 volt, 1,725 RPM explosion proof motor.

Hopper

One low pressure mud mixing hopper.

Generators

One Caterpillar Model 3406, 210 KW; one Caterpillar, skid mounted in Hercable house, 8' 5" high x 8' 2" wide x 29' 5" long; one Caterpillar Model D-333, 100 KW standby.

Boilers

Two Continental, 40 HP, 120 psi, diesel fired, skid mounted in Hercable house, 8' 4" high x 8' wide x 35' long.

Steam Heaters

Seven Model 90H Trane steam heaters; three Model 96H Trane steam heaters.

Tongs

Byron Jackson, Type "C", short lever, with heads.

Indicator

(Weight) Cameron, Type "C", up to 400,000 pounds.

Indicator

(Rotary Torque) Martin Decker hydraulic piston wheel type with remote gauge at driller's position.

Indicator

(Tong Torque) Martin Decker, hydraulic piston type with remote gauge.

Mud Box

OKE mud box with 3-1/2" and 4-1/2" rubbers.

Slips

One set for 3-1/2" drill pipe. One set for 4-1/2" drill pipe.

Elevators

One set for 3-1/2" drill pipe, 18 degrees taper. One set for 4-1/2" drill pipe, 18 degrees taper.

Kelly

One square 4-1/4" drive, 4" FH pin, 6-5/8" API regular left-hand box. One square, 3-1/2" drive, 3-1/2" IF pin, 6-5/8" API regular left-hand box.

Kelly Bushing

VARCO, square drive, 3-1/2" rollers.

Pumps

(Drilling and Cementing) Two Halliburton, HT-400D, single acting piston pumps with Gist Oil Tool API fluid ends, each driven by GMC diesel 8V-71N, 300 HP engines through an Allis-Chalmers torque converter, Model 8FW1801-1, and a twin-disc power shift transmission, Model No. T-A-51-2003. Continuous duty with 5-1/2" API pistons at maximum of 75 SPM will produce 185 GPM for each pump with maximum pressure up to 3,000 psi. Both pumps can be run simultaneously if desired. The discharge mud line furnished by contractor from pumps to swivel connection is designed for 3,000 psi working pressure. Each pump unit mounted on 8' 4" high x 10" wide x 40' long covered skid.

Air Compressors

One LeRoi 34C mounted on draw works compound. One Ingersoll Rand Model 71-T2-T3011 TM, driven by 10 HP, 440 volt, 1,725 RPM explosion proof electric motor.

Water Tanks

One 7' high x 9' wide x 20' long, insulated water tank, mounted in the subbase; capacity: 225 barrels. One 17' 4" long x 6' 4" wide; capacity: 120 barrels.

Fuel Tanks

One 20' long x 8' 6" wide; capacity: 6,000 gallons.

Blowout Preventer Equipment

One ten-inch, 900 dual Shaffer gate LWS with three-inch flanged side outlet one side.
One ten-inch 900 GK Hydril.
One ten-inch 900 drill spool with two-inch flanged outlets both sides.
One set 4-1/2" pipe rams.
One set 3-1/2" pipe rams.
One set blind rams.
One upper kelly cock TIW 6-5/8" regular LH box to pin.
Two TIW 10,000 psi lower kelly cocks, 4-1/2" XH joints.
Two TIW 10,000 psi lower kelly cocks, 3 1/2" IF joints.
One inside preventer, 10,000 lb. Hydril, 4-1/2" XH.
One inside preventer, 10,000 lb. Hydril, 3-1/2" IF.

Choke Manifold

Three-inch, 3,000 lb., with one two-inch OCT adjustable choke; one two-inch OCT positive choke and space for automatic choke.

Closing Unit

One 80-gallon Hydril closing unit for four nitrogen bottle backup. Four-station Koomey control manifold with four station air operated remote stations.

Drill Pipe

5,000 feet, 4-1/2", 16.6 lb., Grade E, 4-1/2" XH joints; 5,000 feet, 3-1/2", 15.5 lb., Grade E, 3-1/2" IF joints.

Drill Collars

Nineteen 6-1/4" x 2-1/4" x 30' four-inch H90 tool joints.
One 6-1/4" x 2-1/4" x 30' four-inch H90 x 4-1/2" regular bottom collar.
Nineteen 4-3/4" x 1-3/4" x 30' x 3-1/2" IF x 3-1/2" regular bottom collar.
One 4 3/4" x 1-3/4" x 30' x 3-1/2" IF x 3-1/2" regular bottom collar.

Subs

Two 4-1/2" XH kelly savor subs.
Two 3-1/2" IF kelly savor subs.
Two 4-1/2" XH box to 4" H90 pin (DC crossover).
Two 4" H90 box to 4-1/2" regular box (bit sub).
Two 3-1/2" IF box to 2-7/8" API regular box (bit sub).

Forklift

One 966 Caterpillar, equipped with 60-inch forks.

Pipe Racks

One V door ramp with stairs.
One Tail walk section, 6' 1" wide x 43" high x 42 feet long.
Four Pipe rack sections, 43" high x 4' wide x 28 feet long.