NATIONAL PETROLEUM RESERVE IN ALASKA

HISTORY
OF
DRILLING OPERATIONS

NORTH INIGOK TEST WELL NO. 1

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

For the

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

TABLE OF CONTENTS

LIST OF FIGURES

NORTH INIGOK TEST WELL NO. 1

INTRODUCTION

The North Inigok Test Well No. 1 is located in the National Petroleum Reserve in Alaska (Figure 1). The location is 182 feet from the south line and 382 feet from the east line of protracted Section 36, Township 11 North, Range 4 West, Umiat Meridian (Latitude 70°15'27.32" North; Longitude 152°45'57.53" West). Alaska State Plane Coordinates are X = 652,675.25 and Y = 5,945,312.32, Zone 5. Elevations: Pad 136 feet, Kelly Bushing 166 feet. Drilling related operations began on December 27, 1980, with preparations to move the rig from the Seabee well location to the North Inigok location, and terminated on April 17, 1981.

This well was drilled to a total depth of 10,170 feet. The primary objective was an apparent stratigraphic sandstone development in the Upper Jurassic formations with the Sag River Sandstone a secondary target. At the conclusion of drilling and evaluation operations, cement and mechanical plugs were set at selected intervals and the well was abandoned. The top 2,000 feet of the hole was filled with diesel oil.

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

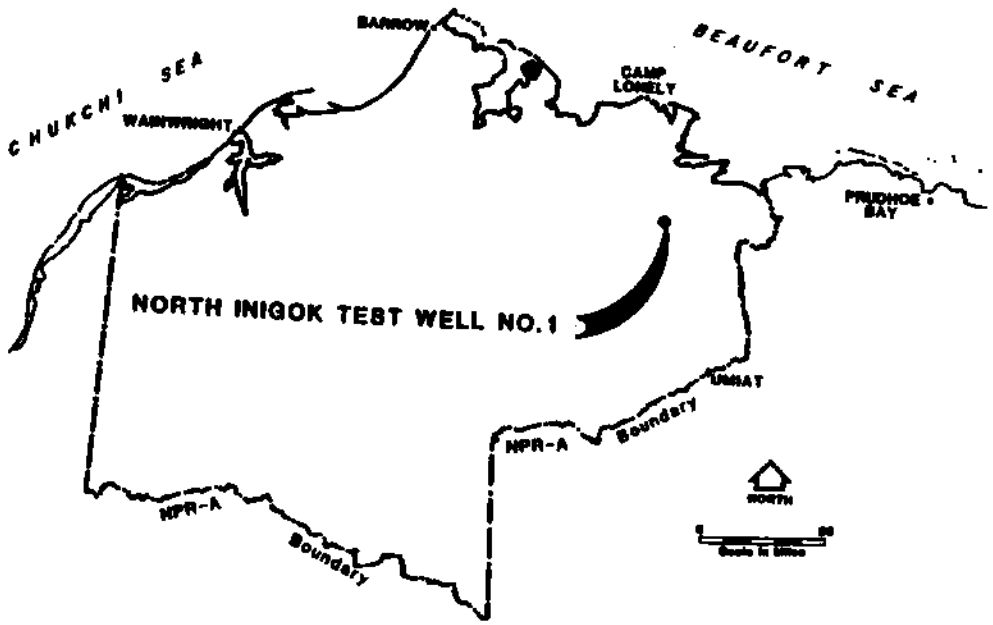


FIGURE 1 - WELL LOCATION MAP - NORTH INIGOK NO. 1

DRILLING SUMMARY

Field operations at the North Inigok Test Well No. 1 began December 18, 1980, with the mobilization of construction crews and equipment required to build the drilling location and an ice airstrip to accommodate C-130 Hercules aircraft. Construction of the airstrip was completed on January 2, 1981; the drilling pad was completed on January 22, 1981.

The rig move from the Seabee well location to North Inigok was made with C-130 Hercules aircraft. Crews were flown in to Seabee on December 27, 1980, to prepare equipment for the rig move. The first load was flown out of Seabee on January 3, 1981; the move was completed on January 24, 1981. Weather at both locations was frequently bad, slowing the completion of the rig move and construction of the drilling pad. Rig-up operations began on January 23, 1981, and were completed in 20 days. The well was spudded at 7:00 p.m. on February 12, 1981.

During rig-up, 20" conductor pipe was set at 107' KB and cemented with 500 sacks of ArcticSet II cement containing 0.2% D-46, slurry weight 15.2 ppg. A 20", slip-on, 2,000 psi wellhead was installed and tested to 750 psi. A 20", 2,000 psi annular blowout-preventer, and diverter lines were installed on the wellhead. The blowout-preventer was tested to 250 psi.

A 17-1/2" hole was drilled below the conductor pipe to 2,600 feet. Native mud weighing 9.1 to 9.8 ppg was used. The hole was conditioned prior to running logs. The following logs were run: DIL/SFL/GR/SP, BHC-Sonic/GR/TTI, LSS/GR/TTI, FDC/CNL/GR/Caliper, and HDT-Dipmeter. Thirty sidewall cores were shot and 28 recovered.

After logging, 63 joints of 13-3/8", 72#/ft., S-95, BTC casing were run to 2,594 feet and cemented with 3,615 sacks ArcticSet II cement weighing 15.2 ppg with full returns. A 20" x 13-3/8" casing spool was nippled up and tested to 2,000 psi. A 13-5/8", 5,000 psi, SRRA arrangement blowout-preventer stack and manifold were nippled up. Blowout-preventer rams, choke manifold, and kill lines were tested to 5,000 psi and the Hydril was tested to 2,500 psi. Casing was pressure tested to 2,500 psi. Five feet of new 12-1/4" hole was drilled and the formation was tested to 0.624 psi/ft. equivalent gradient (380 psi, with 9.2 ppg mud).

A 12-1/4" hole was drilled to 8478'. Mud weight was increased from 9.2 ppg to 11.4 ppg gradually through the interval to control sloughing shale. The following cores were cut: Core No. 1, from 4022' to 4036.5' - recovered 14.5'; Core No. 2, from 6454' to 6470' - no recovery; Core No. 3, from 6852' to 6867' - recovered 15'; Core No. 4, from 7488' to 7506' - recovered 18'.

At 8478', the following logs were run: DIL/SFL/SP/GR, BHC-Sonic/GR/TTI, LSS/GR/TTI, FDC/CNL/GR, and HDT-Dipmeter. Fifty-two sidewall cores were shot and 46 were recovered.

After log evaluation, 194 joints of 9-5/8", 53.5#/ft., S-95, BTC casing were run and landed at 8457', with the bottom FO at 2342' and the upper FO at 2165'. Returns were lost while circulating prior to cementing. Volume was built in pits and mud weight was cut to 10.3 ppg. Circulation was regained while mixing cement. Casing was cemented with 800 sacks Class "G" cement containing 0.75% D-65, 0.3% D-13R, and 1/4 PPB fine Kwik-Seal. Returns were lost while displacing cement. The casing was hung, the casing and packoff were tested to 500 psi and the FOs tested. The casing was cemented through the lower FO at 2342' with 300 sacks ArcticSet II weighing 15.2 ppg. The lower FO was closed and tested; three barrels of cement were reversed out. The upper FO at 2165' was opened and the 9-5/8" x 13-3/8" annulus was circulated; five barrels of cement were recovered. The blowout-preventer equipment was tested to 5,000 psi; the Hydril was tested to 2,500 psi. Cement was drilled to the float collar and the casing tested to 3,000 psi. Cement was then drilled to the shoe. The mud pits were cleaned in preparation for changing the mud system to a potassium chloride system. It was at this point in the drilling operation that a bad storm consisting of heavy snows and 35-40 knot winds hit the area; consequently, the operation was delayed 2-1/2 days as the crews were unable to reach the water hole. As soon as water was available, the mud system was converted to a potassium chloride system and drilling resumed. After advancing 10 feet, the formation was tested to 0.624 psi/ft. equivalent gradient (490 psi with 10.9 ppg mud).

An 8-1/2 inch hole was drilled to a total depth of 10,170 feet. Mud weight was increased from 10.8 to 11.7 ppg gradually through the interval. Two cores were cut as follows: Core No. 5, from 8563' to 8573' - recovered 9.5'; Core No. 6, from 10,160' to 10,170' - recovered 10'. The following logs were run: Temperature Survey from 10,161' to surface; DLL/MSFL/SP/GR, BHC-Sonic/GR/TTI, FDC/CNL/GR, HDT-Dipmeter, a second Temperature Survey from 10,170' to 100'; and a Velocity Survey. Thirteen sidewall cores were shot, 12 were recovered.

After the log evaluation, a decision was made to plug back and test the intervals 8330' to 8360' and 8257' to 8307'. Plug No. 1 was spotted at 10,170' to 10,000' with 60 sacks Class "G" cement, slurry weight 15.8 ppg. A 9-5/8" Howco E-Z drill cement retainer was set at 8411'. Ninety-four sacks of Class "G" cement were squeezed below the retainer from 8411' to 8561'.

A Schlumberger 4" HyperJet casing gun was run and the intervals 8330' to 8360' and 8257' to 8307' were perforated with four shots per foot. The lines and head were tested with a Howco test tool to 3,500 psi and a packer was set at 8195'. The test was conducted with no water cushion. Surface chokes were 1/4" and 1/8", and the bottom hole choke was 3/4". The test is summarized as follows (bottom hole pressures field recorded at 8182'):

> Initial Flow (30 minutes): Opened with a medium blow, increasing to a strong blow at shut-in; initial hydrostatic pressure was 4,921 psi, bottom hole flowing pressure increased from 443 psi to 520 psi at shut-in.

Initial Shut-In (60 minutes): Initial shut-in pressure was 1,691 psi.

Final Flow (240 minutes): Gas to surface in 52 minutes, decreasing in volume to shut-in; flowing surface pressure on 1/4" choke peaked at 50 psi, decreasing to 13 psi at shut-in; flowing bottom hole pressure increased from 626 psi to 736 psi at shut-in.

Final Shut-In (684 minutes): Final shut-in pressure 3,232 psi; final hydrostatic pressure 4,738 psi.

Recovery: 310 feet of gas-cut mud.

After evaluation of test data, a decision was made to plug and abandon the well. A 9-5/8" Howco E-Z drill cement retainer was set at 8192'. Fifty-seven sacks of Class "G" cement were spotted across the perforations at 8257' to 8307' and 8330' to 8360'; fourteen sacks of Class "G" cement were left on top of the retainer. At 2000', mud was displaced with water, then water was displaced with diesel oil (5,950 gallons) to allow future temperature measurements by U. S. Geological Survey personnel.

The rig was released at 11:00 a.m. on April 4, 1981. The rig and camp were demobilized to Chevron Oil Company's location at Cobblestone via Hercules aircraft (114 loads). Rental equipment and Husky materials were flown or hauled to Lonely (38 Hercules loads and 1 Rolligon load). Kodiak equipment was flown to Deadhorse (21 Hercules loads). The final cleanup of the location was inspected by Tetra-Tech's environmentalist on April 17, 1981, and the site abandoned.

8

Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NOTICE OF INTENT TO DRILL, DEEPEN, OR PLUG BACK

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

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

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

7. UNIT AGREEMENT NAME: N/A

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

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

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

9. WELL NO.: North Inigok Test Well No. 1

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

10. FIELD AND POOL, OR WILDCAT: Wildcat

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 182' NSL; 382' WEL

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA

At proposed prod. zone: Same (straight hole)

Sec 36, T11N, R4W, UM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 117 Miles Southeast of Barrow, Alaska

12. COUNTY OR PARISH: North Slope

13. STATE: 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
165,000'	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**
87,450'	10,800'	Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): Pad: 136'; KB 166'

22. APPROX. DATE WORK WILL START*

23. PROPOSED CASING AND CEMENTING PROGRAM

SIZE OF HOLE	SIZE OF CASING	WEIGHT PER FOOT	SETTING DEPTH	QUANTITY OF CEMENT
26"	20"	133# (K-55)	100'	325 Sx Arctic Set II
17 1/2"	13 3/8"	72# (S-95)	2600'	3900 Sx Arctic Set II
12 1/4"	9 5/8"	53.5# (S-95)	8500'	600 Sx Cl "G" + 300 Sx Arctic Set II Downsqueezed through FO @ ~2350'
8 1/2"	7"	38# (S-95)	10,800'	Cl "G"; Volume to be calculated from Caliper + 15% excess.

BOP Program:
From 100' to 2600':
20", 2000 psi SA Diverter Assembly

From 2600' to TD:
13 3/8", 5000 psi SRRA Assembly
w/5000 psi Choke Manifold and Kill Lines

RECEIVED
DEPUTY CONSERVATION MGR.
ONSHORE MINERALS

JAN 16 1981

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 Brewer TITLE Chief of Operations DATE 15 Jan 1981

(This space for Federal or State office use)

APPROVED BY Harold J. Hedlund ACTING TITLE DISTRICT SUPERVISOR DATE 1-26-81

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 ☒ 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: 182' NSL; 382' WEL
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH: Same (straight hole)

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.: North Inigok Test Well No. 1

10. FIELD OR WILDCAT NAME: Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec 36, T11N, R4W, UM

12. COUNTY OR PARISH: North Slope Borough, Alaska

13. STATE

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD): Pad: 136'; KB: 166'

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			

RECEIVED
DEPUTY CONSERVATION MGR.
ONSHORE FIELD OPERATIONS

FEB 2 1981

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

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.)*

This well was spudded February 12, 1981, at 7:00 PM, with a 17 1/2" bit. Prior to spud, a 20" conductor was set in a 24" dry-drilled hole and cemented with 500 sacks 15.2 ppg ArcticSet II cement. Cement in place 2/6/81 at 12:00 midnight. KB depth: 107'.

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

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

SIGNED [signature] TITLE Chief of Operations DATE 19 February 81

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

[signature] TITLE DISTRICT SUPERVISOR DATE 2/25/81

*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: 182' NSL; 382' NEL
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH: Same (straight hole)

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.
North Inigok Test Well No. 1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK AND SURVEY OR AREA
Sec 36, T11N, R4W, UM

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

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
Pad: 136'; KB: 166'

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 Running and Cementing 13 3/8" Casing

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

RECEIVED
DEPUTY CONSERVATION MGR.
ONSHORE FIELD OPERATIONS
MAR 3 1981
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 17 1/2" hole to 2600'. Logged with DLL/GR, GR/Sonic, BHC/Sonic, Long Spaced BHC/Sonic, FDC/CNL/GR/Cal, and Dipmeter. Shot 30 sidewall cores, 2562' to 2314'; recovered 18. Ran 63 joints 13 3/8", 72#, S-95 Buttress casing; float shoe at 2594'; float collar at 2508'. Ran one centralizer ten feet above shoe, one at float collar, one at third, fourth, and fifth joints, then every other collar, for a total of nine centralizers. Cemented casing to surface with 3615 sacks ArcticSet II cement at 15.2 ppg. Full returns throughout job. At end of displacement, returns were 15.2 ppg. Cement in place February 19, 1981, at 11:43 AM. Nippled up BOP stack; pressure tested BOP stack, choke line, and choke manifold to 5000 psi. Pressure tested Hydril to 2500 psi. Tested casing to 2500 psi. Drilled duplex collar, cement, and shoe at 2594'. Drilled 12 1/4" hole to 2605'. Tested formation to equivalent gradient of 0.624 psi/ft (380 psi with 9.2 mud).

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

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

SIGNED Max Brewer TITLE Chief of Operations DATE 26 February 81

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

[signature] TITLE DISTRICT SUPERVISOR 3/6/81

*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: 182' NSL: 382' WEL
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH: Same (straight hole)

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.
North Inigok Test Well No. 1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 36, T11N, R4W, UM

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

14. API NO.

15. ELEVATIONS (SHOW DF, KDB AND WD)
Pad: 136'; KB: 166'

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

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

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

(other) Subsequent Report of Running and Cementing 9-5/8" Casing

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

Drilled 12 1/4" hole to 8478'. Ran 194 joints of 9 5/8", 53.5#, S-95 Buttress casing. Set shoe at 8457', float collar at 8376', bottom FO at 2342', and top FO at 2165'. Set centralizers 10 feet above shoe and on casing collars number 1, 3, 5, 7, and 9 above the shoe, with one centralizer above and below each FO. Cemented with 800 sacks Class "G" cement with 0.75% D-65, 0.3% D-13R, and 1/4 PPB fine Quick Seal. Slurry at 15 ppg. Lost 100 percent returns while displacing cement. Pumped 300 sacks Arctic Set II cement at 15.2 ppg through lower FO. Tested BOPs, choke, choke manifold, kill line, upper and lower kelly cocks, safety valves to 5000 psi, and Hydril to 2500 psi. Tested casing to 3000 psi. Drilled to 8488'. Ran leak-off test to 490 psi with 10.8 ppg mud. Mud weight equivalent of 12.0 ppg.

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

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

SIGNED Max Brewer TITLE Chief of Operations DATE 8 April 1981

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

Barry A Brendlan TITLE DEPUTY CONSERVATION MANAGER ~~ONSHORE FIELD OPERATIONS~~ DATE April 15, 1981

*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: 182' NSL; 382' WEL
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH: Same (straight hole)

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.
North Inigok Test Well No. 1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 36, T11N, R4W, UM

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

14. API NO.

15. ELEVATIONS (SHOW DF, KDB AND WD)
GL: 136'; KB: 166'

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*	[X]		[ ]
(other)			

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

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

An 8 1/2" hole reached TD of 10,170' on March 28, 1981. Open hole logs were subsequently run with no indication of any potential hydrocarbon bearing zones evident. Beginning on March 31, 1981, the well will be plugged and abandoned as follows:

1. Set a cement plug across Shublik and Sag River, 10,170'-10,000'.
2. Set a cement retainer at 8400' in 9 5/8" casing and spot cement plug, 8550'-8400' (9 5/8" casing shoe at 8457').
3. Perforate FDC-CNL-GR intervals 8360'-8330' and 8307'-8257' with 4SPF.
4. Run cased hole DST of Jurassic siltstone, 8360'-8257'.
5. Set a cement retainer at 8200' in 9 5/8" casing and spot cement plug across perforations 8360'-8200'.
6. Displace top 2000' of hole with diesel.
7. Install dry hole marker.

The above P&A procedure was verbally approved by Bill Hauser on March 29, 1981.

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

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

SIGNED Mike Bowser TITLE Chief of Operations DATE 8 April 1981

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

Barry A Bandrowski DEPUTY CONSERVATION MANAGER, ONSHORE FIELD OPERATIONS DATE April 15, 1981

*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: 182' NSL; 382' WEL
AT TOP PROD. INTERVAL:
AT TOTAL DEPTH: Same (straight hole)

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.: North Inigok Test Well No. 1

10. FIELD OR WILDCAT NAME: Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec 36, T11N, R4W, UM

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

14. API NO.:

15. ELEVATIONS (SHOW DF, KDB, AND WD): Pad: 136'; KB: 166' (Est)

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

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

RECEIVED
DEPUTY CONSERVATION MGR.
ONSHORE FIELD OPERATIONS

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

MAY 18 1981

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.)*

This is a confirming notice to abandon North Inigok Test Well No. 1. This well was drilled to a depth of 10,170', logged, and tested. No evidence was discovered of hydrocarbon bearing zones being present. Verbal approval was received from Bill Hauser on March 29, 1981, to abandon North Inigok No. 1. Logged with HRT, DLL/MSFL/GR/SP, BHC/GR/TTI, FDC/CNL/GR/CAL, HDT Dipmeter, Sidewall Cores, HRT, and Velocity Survey. Spotted cement plug, 10,000' to 10,170', with 60 sacks Class "G" cement containing 1% D-65 and 0.2% D-13R mixed at 15.8 ppg. Set cement retainer at 8411'. Squeezed 94 sacks Class "G" cement containing 1% D-65 and 0.2% D-13R, mixed at 15.8 ppg, below cement retainer, 8411' to 8561'. Perforated FDC/CNL/GR intervals, 8330' to 8360' and 8257' to 8307' with 4 SPF, using a 4" Schlumberger casing gun. Set packer at 8195' and ran cased hole Drill Stem Test on Jurassic formation, 8330' to 8360' and 8257' to 8307'. Recovered 310 feet of gas cut mud. Set 9 5/8" EZ Drill

(Continued on Page 2)

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 27 April 1981

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

(Sgd.) Kenneth W. Dell TITLE ACTING DISTRICT SUPERVISOR DATE 5/22/81

*See Instructions on Reverse Side

cement retainer at 8192'. Spotted 57 sacks Class "G" cement plus 1% D-65 and 0.2% D-13R across perforations. Left 14 sacks on top of retainer. Displaced top 2000 feet of hole with diesel. Installed dry hole marker. Released rig April 4, 1981, at 11:00 AM.

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

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements)*
At surface: 182' NSL; 382' FEL
At top prod. interval reported below
At total depth: Same (straight hole)

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.: North Inigok Test Well No. 1
10. FIELD AND POOL, OR WILDCAT: Wildcat
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec 36, T11N, R4W, UM
12. COUNTY OR PARISH: North Slope Borough
13. STATE: AK

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
2/12/81	3/28/81	N/A	Pad: 136'; KB: 166'	N/A

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
10,170'	8155'	N/A	——→	All	N/A

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/SFL/SP/GR, LS/BHCS/GR, BHC/GR, BHC-Sonic, FDC/CNL/GR/Cal, Dipmeter, DIL/CNL/FDC, Temp, DLL, FDC/CNL, BHCS/GR, Dipmeter

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
20"	133# (K-55)	107'	26"	500 Sx Arctic Set II	None
13 3/8"	72# (S-95)	2594'	17 1/2"	3615 Sx Arctic Set II	None
9 5/8"	53.5# (S-95)	8457'	12 1/4"	1100 Sx Class "G"	None

29. N/A — LINER RECORD

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

30. N/A — TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)

31. PERFORATION RECORD (Interval, size and number)
8330' - 8360'
8257' - 8307'
80 ft interval @ 4SPF; total of 320 holes.

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED
8257'-8360'	Squeezed cement perforations with 57 sacks Class "G" plus 1% D-65 plus 0.2% D-13

33.* N/A — PRODUCTION

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

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

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

DEPUTY CONSERVATION COMMISSIONER ONSHORE FIELD OPERATIONS

OCT 29 1981

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

35. LIST OF ATTACHMENTS: Wellbore Schematic

U.S. GEOLOGICAL SURVEY ANCHORAGE, ALASKA

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

SIGNED Max S Brewer TITLE Chief of Operations, ONPRA DATE 17 June 81

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

18

13

North Inigok Test Well No. 1
Page 2

INSTRUCTIONS

General: This form is designed for submitting a complete and correct well completion report and log on all types of lands and leases to either a Federal agency or a State agency, or both, pursuant to applicable Federal and/or State laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from, the local Federal and/or State office. See instructions on items 22 and 24, and 33, below regarding separate reports for separate completions.

If not filed prior to the time this summary record is submitted, copies of all currently available logs (drillers, geologists, sample and core analysis, all types electric, etc.), formation and pressure tests, and directional surveys, should be attached hereto, to the extent required by applicable Federal and/or State laws and regulations. All attachments should be listed on this form, see item 35.

Item 4: If there are no applicable State requirements, locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local State or Federal office for specific instructions.

Item 18: Indicate which elevation is used as reference (where not otherwise shown) for depth measurements given in other spaces on this form and in any attachments.

Items 22 and 24: If this well is completed for separate production from more than one interval zone (multiple completion), so state in item 22, and in item 24 show the producing interval, or intervals, top(s), bottom(s) and name(s) (if any) for only the interval reported in item 33. Submit a separate report (page) on this form, adequately identified, for each additional interval to be separately produced, showing the additional data pertinent to such interval.

Item 29: *"Sacks Cement"*: Attached supplemental records for this well should show the details of any multiple stage cementing and the location of the cementing tool.

Item 33: Submit a separate completion report on this form for each interval to be separately produced. (See instruction for items 22 and 24 above.)

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

FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.
Torok	4022'	4036.5'	Core No. 1: Cut 14.5'; recovered 14.5'. Clyst, m gy w/com lt gy slst, lams and top becoming more widely spaced below 4025', carb frags, low angle dips approx 8°
Torok	6454'	6470'	Core No. 2: No recovery.
Torok	6852'	6867'	Core No. 3: Cut 15'; recovered 15'. Sh, dk gy, hd, carb, mica, pyr, w/com sltst strgs, lam & micro-lams; slst, ltgy sl calc, some slump features, w/micro-sbdg, low dips of 5°-10°, fr top quality dips, no frac, tr bleeding gas, no odor, no cut, no fluor.
"Pebble Shale" Unit	7488'	7506'	Core No. 4: Cut 18'; recovered 18'-jammed. Sh, v dk brn, fldy, splty, carb w/m ss "pbls"; occ sh, dk gy, sm strs, occ thn pyr strs.

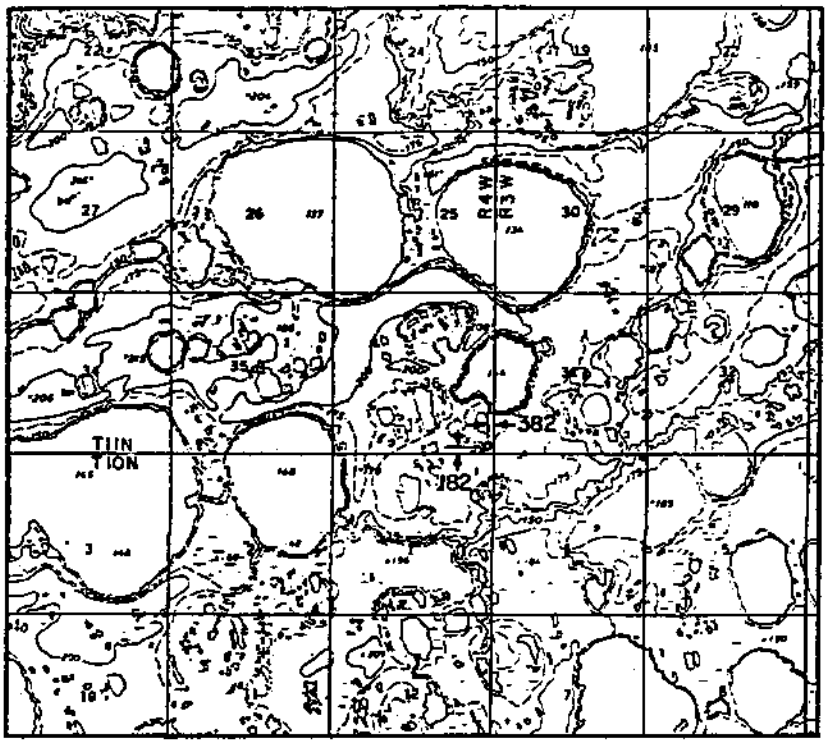
38. GEOLOGIC MARKERS

NAME	TOP: MEAS. DEPTH	TOP: TRUE VERT. DEPTH
Nanushuk Gr	Surface	
Torok Fm	3851'	
"Pebble Shale" Unit	7382'	
Kingak Shale Unit	7653'	
Kingak Siltstone Unit	8144'	
Lower Kingak Shale Unit	8398'	
Sag River SS	10,096'	
Shublik Fm	10,134'	

RECEIVED
DEPUTY CONSERVATION MGR.
ONSHORE FIELD OPERATIONS
OCT 29 1981
CONSERVATION DIVISION
U.S. GEOLOGICAL SURVEY
ANCHORAGE, ALASKA

871-233

Kingak Shale	8563'	8573'	Core No. 5: Cut 10'; recovered 9.5'. Sh, v dk brn-gy, sm, splty, some munt pyr wandlike fos.
Shublik	10,160'	10,170'	Core No. 6: Cut 10'; recovered 10'. Ls, gy, mxly, arg, v fos.
Kingak Silt-stone Unit	DST		Interval tested: 8330'-8360', 8257'-8307'. Cushion used: None Time tool open: 6 hours (second period). Flowing pressure: IF 607.6, FF 734.2 (second (period) Recovery: 310 feet of gas cut mud; strong blow, GTS in 52 minutes, max FP 50 psi, before open through choke, decrease to 13 psi gradually over flow period through 1/4" choke; est rate of 30 mcfg/day.



COMPUTED LOCATION BASED ON DATA FROM INTERNATIONAL TECHNOLOGY LIMITED TO HUSKY OIL NPR OPERATIONS, INC. DATED AUG. 14, 1980, A COPY OF WHICH IS ON FILE WITH NANA-BELL-HERRING, ANCHORAGE, ALASKA.

NORTH INIGOK 4-81

Lat. = 70° 15' 27.32"
Long. = 152°45' 57.53"
Y = 5,945,312.32
X = 652,675.25
Zone 5

0 1/2 1 2
SCALE IN MILES

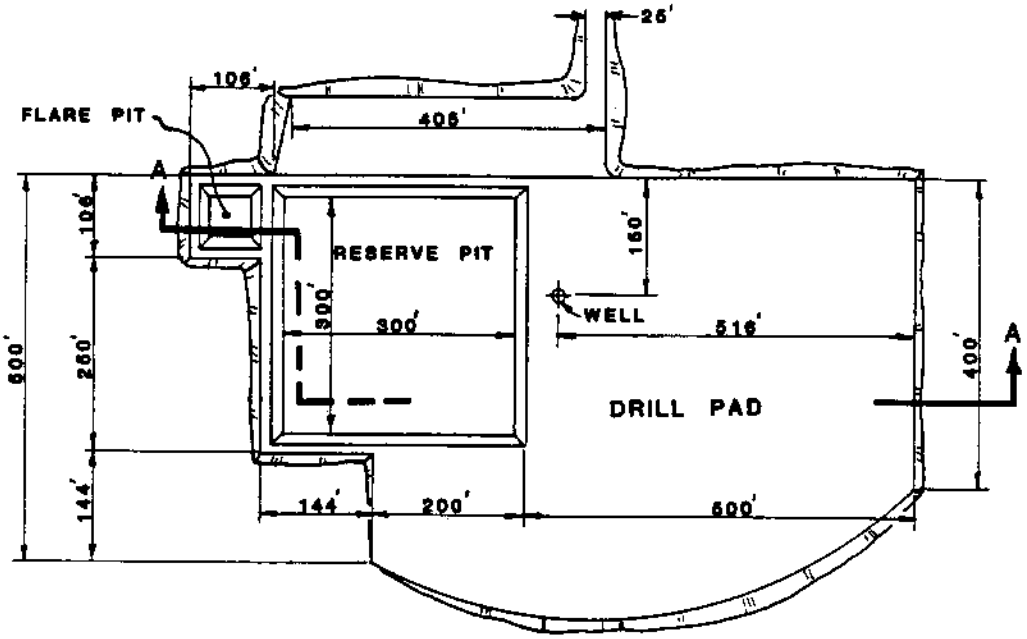
I hereby certify that I am properly registered and licensed to practice land surveying in the State of Alaska and that this plat represents a location survey made by me or under my supervision, and that all dimensions and other details are correct.
DATE: DEC. 12, 1980

AS—STAKED LOCATION
FOR
NORTH INIGOK No. 1

located in: SE 1/4 protracted Sec. 36, T. 11 N., R. 4 W., Umiat Meridian, Ak.

Surveyed for:
HUSKY OIL
NPR Operations Inc

Surveyed by: nana-bell-herring, inc.
engineers and land surveyors
3340 Arctic Blvd., Suite 207, Anchorage, Alaska 99503



PLAN VIEW

SECTION A - A
Not to Scale

NORTH INIGOK NO. 1

OPERATIONS HISTORY

DATE AND FOOTAGE DRILLED AS OF 6:00 A.M.	ACTIVITY
1/24/81	Completed movement of rig from Seabee Test Well No. 1. Set rig matting and rigged up Kodiak Oilfield Haulers' elevator.
1/25/81	Started rigging up subbase. Installed roof on engine house; installed hydromatic. Set up heater for Kodiak Oilfield Haulers' shop.
1/26/81	Installed motor subbase; installed National duplex pump and set in mud house. Installed shale shaker and mud tanks.
1/27/81	Finished rigging up substructure. Set desander, desilter, and degasser on mud tanks. Set covers on Nos. 2 and 5 mud tanks.
1/28/81	Centered substructure over conductor. Set draw works on rig floor; set Nos. 1, 2 and 3 drilling engines on subbases. Rigged up mud handling equipment. Assembled mud cleaning unit.
1/29/81	Set rig matting board for mud tanks and pumps. Set Nos. 1 and 2 mud pumps and mud manifold building; set dog house. Installed Sweco house on mud tanks. Began assembling derrick.
1/30/81	Set Nos. 1, 2, and 3 mud tanks and hooked up suction lines; set centrifugal pump building. Installed roof on No. 4 mud tank. Assembled drilling mask.
1/31/81	Set Nos. 4 and 5 mud tanks. Set blowout-preventer accumulator building. Finished assembling derrick in preparation for setting on rig floor.
2/1/81	Set derrick on rig floor; set windwalls on derrick board. Set No. 1 rig generator, rig fuel tank, boiler, oil house, and pre-mix pump house. Built dike and installed liner under fuel rig tank. Started No. 2 generator.
2/2/81	Set parts house, boiler houses, and hot air heater. Hooked up fuel lines; set electrical parts house. Strung up drilling lines.

2/3/81	Put compound and master chain together. Hooked up air line and started air compressor. Started Nos. 1 and 3 engines; installed heater duct works to mud pits. Rigged water, steam and fuel lines to boilers. Set floor and cement pump.
2/4/81	Raised derrick. Installed braces and one-half of lower windwall around floor. Filled No. 1 water tank and fired up No. 1 boiler. Checked out steam lines to rig. Completed rig-up of pump manifold and displacement tank.
2/5/81	Set in rotary table and two floor plates. Set in braces for top windwall section; fired No. 2 boiler.
2/6/81	Finished hanging windwalls around rig floor; started No. 2 engine.
2/7/81	Installed liners in Nos. 1 and 2 pumps. Installed clutch in No. 2 rig motor. Set 20" conductor pipe at 107' and cemented with 500 sacks of ArcticSet II cement.
2/8/81	Cut off 20" conductor and welded on 20", 2,000 psi Braden head. Tested weld on head to 750 psi.
2/9/81	Finished rigging up rig floor. Filled mud pit with water; nippled up drilling spool. Set Baroid mud logging unit and started rigging up mud system.
2/10/81	Nippled up drilling nipple and started fabricating diverter nipple. Picked up swivel and kelly; began rigging up mud logging unit.
2/11/81	Filled accumulator with oil and charged same. Picked up bit, six-point reamer, SS, and monel drill collar. Ran in hole with bit to 77'; circulated one hour to warm up Hydril rubber. Tested blowout-preventer to 250 psi. Set back bottom hole assembly. Conditioned mud in pits. Set in mousehole; set pipe racks; calipered drill collars. Began rigging up diverter line.
2/12/81	Continued with rig up; welded on diverter line.
2/13/81 298'	Total Depth: 405'; Mud Weight: 9.1; Viscosity: 38. Finished rigging up diverter line; replaced valve in diverter. Repaired lubricator on No. 1 pump and replaced belts on charge pump. Picked up two 9" drill collars and circulated to 107'. The well was spudded February 12, 1981, at 7:00 p.m. Drilled 17-1/2" hole to 187'. Tripped for bottom hole assembly. Picked up two-blade stabilizer. Drilled to 405'.

2/14/81
874'

TD: 1279'; MW: 9.3; Vis: 35. Drilled to 447'. Picked up bottom hole assembly; drilled to 510'. Circulated and conditioned hole. Surveyed. Drilled to 1028'; circulated and conditioned hole. Surveyed at 980'. Drilled ahead.

2/15/81
718'

TD: 1997'; MW: 9.6; Vis: 35. Drilled to 1341'; unplugged flow line. Pulled out of hole; changed bits. Cleaned bottom hole assembly. Ran in hole with bit; circulated and washed 30 feet to bottom; no fill. Drilled to 1497'; circulated; surveyed. Drilled to 1655'; circulated samples. Drilled to 1997'; circulated; surveyed.

2/16/81
603'

TD: 2600'; MW: 9.8; Vis: 33. Finished surveying; drilled to 2600'. Circulated bottoms up; surveyed. Pulled out of hole, steel-line measuring; no correction. Ran in hole; circulated and conditioned; started second wiper trip.

2/17/81
0'

TD: 2600'; MW: 10.1; Vis: 47. Made wiper trip; washed and reamed from 2540' to 2600'; had 20 feet of fill. Circulated and conditioned mud and hole; pulled out of hole. Rigged up logging unit and ran in hole. Pulled out of hole; removed centralizers. Ran in hole to 2311'; circulated and conditioned hole; chained out. Ran DIL/SFL/GR/SP.

2/18/81
0'

TD: 2600'; MW: 9.9; Vis: 37. Ran BHC-Sonic/GR/TTI, LSS BHC-Sonic, FDC/CNL/GR, and HDT-Dipmeter. Shot 30 sidewall cores; recovered 28. Rigged down logging unit and ran in hole with bit. Circulated and conditioned mud and hole. Pulled out of hole to run 13-3/8" casing.

2/19/81
0'

TD: 2600'. Pulled out of hole; laid down bottom hole assembly. Rigged up casing tools. Ran casing, shoe joint, two joints of casing, and float collar. Ran 63 joints of 13-3/8", 72#, S-95 buttress casing, with float shoe at 2594' and float collar at 2508'. Ran one centralizer 10 feet above shoe; at first, third, fourth, and fifth collars; and one at every other collar. Total of nine centralizers. Rigged down casing tools. Ran in hole with Dowell duplex stinger; picked up 33 joints of drill pipe. Rigged up Dowell unit; filled 13-3/8" x 5" annulus. Stung into duplex float collar and circulated casing to cement.

2/20/81
0'

TD: 2600'. Circulated 13-3/8" casing at 2594'. Cemented casing to surface with 3,615 sacks ArcticSet II at 15.2 ppg. Continued mixing cement until returns were 15 ppg, then began displacement. At end of

displacement, returns were 15.2 ppg; had full returns throughout job. Cement in place at 11:43 a.m. Pulled out of hole with Dowell stab-in tool. Picked up blowout-preventer stack. Set 13-3/8" slips; cut off 13-3/8" casing. Nippled down blowout-preventer stack; nippled up 20" x 13-5/8" casing head spool.

2/21/81
0'

TD: 2600'. Attempted to pressure test 20" x 13-5/8" seal with no success. Nippled down 13-5/8" casing spool. Installed new seals. Nippled up 20" x 13-5/8" casing spool; tested spool to 2,000 psi. Nippled up blowout-preventer.

2/22/81
5'

TD: 2605'. Nippled up blowout-preventer; pressured stack, choke line, and choke manifold to 5,000 psi. Pressure tested Hydril to 2,500 psi. Made up bottom hole assembly; ran in hole to duplex float collar; circulated. Pressure tested casing to 2,500 psi. Drilled duplex collar, cement, and shoe at 2,594'. Drilled to 2605'; conditioned mud.

2/23/81
410'

TD: 3015'; MW: 8.2; Vis: 35. Conditioned mud. Tested formation to equivalent gradient of 0.624 psi/ft. Drilled to 2693'; some junk in hole. Pulled out of hole; made up bottom hole assembly. Set wear bushing. Ran in hole; washed and reamed from 2620' to 2683'. Drilled ahead.

2/24/81
1007'

TD: 4022'; MW: 9.5; Vis: 34. Drilled to 3139'; surveyed. Drilled to 3655'; surveyed. Drilled to 4022'. Circulated bottoms up in preparation for coring.

2/25/81
163'

TD: 4185'; MW; 9.6; Vis: 36. Pulled out of hole for Core No. 1; tight hole to 13-3/8" shoe; worked drill pipe until hole was free. Picked up Christensen core barrel; tripped in to shoe. Cut drilling line. Tripped in with core barrel; circulated and pumped ball down. Cut Core No. 1, 4022' to 4036.5'. Pulled out of hole; laid down core barrel and core; recovered 14.5 feet of core. Tripped in with bit; reamed core hole. Drilled to 4148'; surveyed; misrun. Drilled ahead.

2/26/81
886'

TD: 5071'; MW: 9.6; Vis: 36. Drilled to 4211'; surveyed. Drilled to 4711'; surveyed. Drilled to 5071'; surveyed. Pulled out of hole for bit.

2/27/81
651'

TD: 5722'; MW: 9.7; Vis: 37. Pulled out of hole; laid down 30 joints of 4-1/2" drill pipe; serviced rig. Ran in hole with bit; drilled to 5535'; surveyed. Drilled ahead.

2/28/81 624'	TD: 6346'; MW: 9.8; Vis: 36. Drilled to 5775'; surveyed. Tripped for bit. Drilled to 6331'; surveyed. Drilled ahead.
3/1/81 124'	TD: 6470'; MW: 9.8; Vis: 34. Drilled to 6454'; circulated bottoms up. Pulled out of hole to core. Tested blowout preventers to 5,000 psi; tested Hydril to 2,500 psi. Ran in hole with core barrel; circulated. Dropped ball; cut Core No. 2, 6454' to 6470'. Pulled out of hole with core barrel; no recovery.
3/2/81 382'	TD: 6852'; MW: 9.7; Vis: 32. Ran in hole with bit; reamed rat hole, 6454' to 6470'. Drilled to 6852'; circulated bottoms up. Surveyed. Pulled out of hole; picked up core barrel.
3/3/81 98'	TD: 6950'; MW: 9.7; Vis: 33. Ran in hole; reamed from 6582' to 6672'; circulated and dropped ball. Cut Core No. 3, 6852' to 6867'. Pulled out of hole; laid down core barrel; recovered 15 feet of core. Ran in hole with bit to casing shoe. Cut 77 feet off drilling line and serviced rig. Finished running in hole; reamed rat hole, 6852' to 6867'. Drilled to 6950'.
3/4/81 364'	TD: 7314'. Drilled to 7314'; circulated for trip. Surveyed; pulled out of hole.
3/5/81 174'	TD: 7488'; MW: 10.4; Vis: 65. Tripped for bit. Ran in hole and drilled to 7488'; circulated and conditioned mud. Pulled out of hole; picked up and serviced core barrel. Ran in hole with core barrel; circulated; dropped ball.
3/6/81 218'	TD: 7706'; MW: 10.5; Vis: 61. Cut Core No. 4, 7488' to 7506'. Pulled out of hole; recovered 18 feet of core. Ran in hole with bit; reamed rat hole, 7488' to 7506'. Drilled ahead.
3/7/81 344'	TD: 8050'; MW: 10.7; Vis: 61. Drilled to 7802'; surveyed. Drilled ahead.
3/8/81 23'	TD: 8073'; MW: 10.9; Vis: 68. Drilled to 8056'; surveyed. Tested blowout-preventers to 5,000 psi; tested Hydril to 3,500 psi. Reamed from 7824' to 8056'. Drilled ahead.
3/9/81 213'	TD: 8286'; MW: 10.9; Vis: 61. Drilled to 8073'; tripped for bit. Reamed from 8043' to 8073'. Drilled ahead.
3/10/81 192'	TD: 8478'; MW: 11.4; Vis: 73. Drilled to 8478'; circulated bottoms up; made 20-stand short trip. Circulated bottoms up; hole in good condition.

3/11/81 0'	TD: 8478'; MW: 11.4; Vis: 64. Circulated and conditioned mud at 8478'; surveyed. Pulled out of hole for logs. Ran DIL/SFL/SP/GR, and FDC/CNL/GR/Caliper.
3/12/81 0'	TD: 8478'; MW: 11.4; Vis: 59. Ran BHC/GR/TTI; LSS/GR/TTI, HDT-Dipmeter, and Velocity Survey.
3/13/81 0'	TD: 8478'; MW: 11.3; Vis: 85. Shot 52 sidewall cores; recovered 46. Ran in hole to 7888'; washed and reamed from 7888' to 8272'. Ran in hole to 8478'; circulated and conditioned.
3/14/81 0'	TD: 8478'; MW: 11.3; Vis: 64. Short tripped to 6600'; circulated and conditioned hole. Pulled out of hole to 2594'; slipped and cut drilling line. Pulled out of hole. Rigged up to run 9-5/8" casing.
3/15/81 0'	TD: 8478'; MW: 10.3; Vis: 62. Ran 194 joints of 9-5/8" casing; shoe at 8457', float collar at 8376'; bottom FO at 2342', top FO at 2165'. Cemented with 800 sacks Class "G" cement at 15 ppg. Lost metal ring off packoff assembly. Nippled down blowout-preventers; lifted stack and recovered packoff ring.
3/16/81 0'	TD: 8478'; MW: 10.3; Vis: 54. Installed and tested packoff. Ran in hole with RTTS; tested FOs. Pumped 300 sacks ArcticSet II cement through lower FO. Closed lower FO; pulled out of hole to upper FO. Opened and circulated through upper FO.
3/17/81 0'	TD: 8478'. Laid down RTTS; tested blowout-preventers. Made up bottom hole assembly. Ran in hole; tagged cement at 8223'. Drilled cement from 8223' to float collar at 8376'; pressure tested. Drilled cement to shoe at 8457'; circulated. Cleaned mud pits in preparation for mixing new mud.
3/18/81 0'	TD: 8478'. Waited on water; could not reach water source because of heavy snowfall. Cleaned mud pits and performed general rig repairs.
3/19/81 0'	TD: 8478'; MW: 9.0; Vis: 40. Waited on weather to clear. Mixed potassium chloride mud system.
3/20/81 85'	TD: 8563'; MW: 10.8; Vis: 38. Mixed KCL mud. Drilled shoe, cement, and four feet of new formation. Ran leak-off test. Drilled to 8563'. Circulated and conditioned mud. Pulled out of hole to core. Picked up core barrel.

3/21/81 27'	TD: 8590'; MW: 10.8; Vis: 43. Ran in hole with core barrel. Dropped ball; cut Core No. 5, 8563' to 8573'. Pulled out of hole with core. Repaired drive chain and guard. Finished pulling out of hole with core; recovered 9.5 feet of core. Picked up bottom hole assembly. Ran in hole with bit; slipped and cut 100 feet of drilling line. Finished running in hole; no fill. Drilled to 8590'.
3/22/81 303'	TD: 8893'; MW: 10.9; Vis: 41. Drilled to 8647'. Repaired air compressor. Drilled ahead.
3/23/81 290'	TD: 9183'; MW: 11.2; Vis: 46. Drilled to 8981'; short tripped five stands. Drilled ahead.
3/24/81 312'	TD: 9495'; MW: 11.2; Vis: 51. Drilled ahead.
3/25/81 328'	TD: 9823'; MW: 11.4; Vis: 44. Drilled to 9522'; short tripped to 8420'; no drag. Repaired torque hydraulic cylinder. Ran in hole; encountered bridges at 9373' and 9473'. Drilled to 9681'; serviced rig; drilled ahead.
3/26/81 110'	TD: 9933'; MW: 11.7; Vis: 46. Drilled to 9933'. Circulated samples; dropped survey; misrun. Tested blowout-preventers. Tested rams to 5,000 psi; tested Hydril to 2,500 psi; tested all manifolds to 5,000 psi. Made up bit and ran in hole to casing shoe. Cut drilling line; ran in hole. Repaired makeup chain on cathead; finished trip in.
3/27/81 189'	TD: 10,122'; MW: 11.7; Vis: 44. Drilled to 10,122'; circulated samples.
3/28/81 39'	TD: 10,161'; MW: 11.7; Vis: 44. Circulated samples at 10,122'; dropped survey. Tripped out to casing shoe; retrieved survey instrument. Ran in hole; no fill. Drilled to 10,147'; circulated samples. Drilled to 10,160'; circulated and conditioned mud. Pulled out of hole; mixed and pumped pill. Finished pulling out of hole, steel-line measuring; no correction. Picked up core barrel; serviced barrel and ran in hole. Washed and reamed to 10,160'; had four feet of fill. Began coring.
3/29/81 9'	TD: 10,170'; MW: 11.7; Vis: 44. Cut Core No. 6, 10,160' to 10,170'. Circulated and conditioned hole for logs. Tripped out; laid down core and core barrel; had full recovery. Rigged up logging unit. Ran Temperature Survey and FDC/CNL/GR.

3/30/81 0'	TD: 10,170'; MW: 11.7; Vis: 44. Ran DLL/MSFL/GP/GR, BHC-Sonic/GR/TTI, and CBL/VDL/GR. Rigged down logging unit. Picked up bottom hole assembly and ran in hole to shoe; broke circulation at shoe. Finished running in hole; reamed from 10,140' to 10,170'; no fill. Circulated and conditioned mud. Pulled out of hole to log. Rigged up logging unit. Ran Dipmeter and Velocity Survey.
3/31/81 0'	TD: 10,170'; MW: 11.7; Vis: 43. Shot 13 sidewall cores; recovered 12. Ran Temperature Survey; had mechanical problems. Ran in hole; laid down bottom hole assembly.
4/1/81 0'	TD: 10,170'. Ran in hole with 5" drill pipe, open ended. Circulated and conditioned mud. Spotted cement plug from 10,000' to 10,170' with 60 sacks of Class "G" cement, slurry weight 15.8 ppg. Displaced with four barrels of water and 173 barrels of mud. Pulled out of hole five stands; reversed out. Pulled out of hole with 5" drill pipe. Made up 9-5/8" cement retainer. Ran in hole; set retainer at 8411'. Established injection rate of 2.5 barrels at 1,800 psi. Squeezed 94 sacks of Class "G" cement, 15.8 ppg, below cement retainer, 8411' to 8561'. Final pressure: 2,000 psi. Reverse circulated on top of retainer. Pulled out of hole.
4/2/81	TD: 10,170'; PBTD: 8411'; MW: 11.5; Vis: 42. Pulled out of hole. Perforated from 8330' to 8360' and from 8257' to 8307', four shots per foot, with 4" casing gun. Made up drill stem test tools and ran in hole. Tested lines and head to 3,500 psi. Set packer at 8195'.
4/3/81	TD: 10,170'; PBTD: 8192'. Ran Drill Stem Test No. 1. IFP: Opened with medium flow; increased to strong blow over 30-minute period. FFP: Strong blow; gas to surface in 52 minutes. Maximum flowing pressure: 50 psi before opening through choke; decreased to 13 psi gradually over flow period through 1/4" choke. Circulated and conditioned mud. Gas cut to 8.5 ppg for 1.5 hours. Pulled out of hole; laid down test tools; read charts. Made up cement retainer; setting tool sleeve would not function. Waited on setting tool. Made up 9-5/8" E-Z drill cement retainer and ran in hole; set retainer at 8192'. Circulated out gas cut mud.
4/4/81	TD: 10,170'; PBTD: 8155'. Stung into E-Z drill cement retainer. Established injection rate of 4 BPM into perforations. Mixed 71 sacks of Class "G" cement

containing 1% D-65 and 0.2% D-13R. Spotted 57 sacks across perforations; left 14 sacks on top of retainer. Pulled two stands. Reverse circulated out a small amount of cement contaminated mud. Laid down 5" drill pipe. Ran in hole with 2,000 feet of 5" drill pipe from derrick. Displaced top 2,000 feet of hole with diesel. Laid down 5" drill pipe. Removed wear bushing and cleaned mud pits.

4/5/81 TD: 10,170'; PBTD: 8155'. Finished cleaning mud pits. Released rig April 4, 1981, at 11:00 a.m. Rigged down rotary tools and began preparing for rig down.

37

DRILLING TIME ANALYSIS

NORTH INIGOK TEST WELL NO. 1

NABORS ALASKA DRILLING, INC., RIG 25

Spudded: 2/12/81, Rig released: 4/4/81

Total Depth: 10,170 Feet

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. NORTH INIGOK TEST WELL NO. 1 Page 1 of 8

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
1980 12-27																							12		Moving Rig From Seabee Locati
12-28																							12		To North Inigok
12-29																							12		Moving Rig
12-30																							12		Moving Rig
12-31																							12		Moving Rig
1981 1-1																							12		Moving Rig
1-2																							12		Moving Rig
1-3																							12		Moving Rig
1-4																							12		Moving Rig
1-5																							12		Moving Rig
1-6																							12		Moving Rig
1-7																							12		Moving Rig
1-8																							12		Moving Rig
1-9																							12		Moving Rig
1-10																							12		Moving Rig

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. NORTH INIGOK TEST WELL NO. 1 Page 2 of 8

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
1-11																							12		Continued Moving Rig From
1-12																							12		Seabee Location to North
1-13																							12		Inigok
1-14																							12		Moving Rig
1-15																							12		Moving Rig
1-16																							12		Moving Rig
1-17																							12		Moving Rig
1-18																							12		Moving Rig
1-19																							12		Moving Rig
1-20																							12		Moving Rig
1-21																							12		Moving Rig
1-22																							12		Moving Rig
1-23																							12		Moving Rig
1-24	12																							Rigging Up	Began Rigging Up
1-25	12																							Rigging Up	

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. North Inigok Test WELL NO. 1 Page 3 of 8

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
1-26	12																							Rigging Up	
1-27	12																							Rigging Up	
1-28	12																							Rigging Up	
1-29	12																							Rigging Up	
1-30	12																							Rigging Up	
1-31	12																							Rigging Up	
2-1	12																							Rigging Up	
2-2	12																							Rigging Up	
2-3	24																							Rigging Up	
2-4	24																							Rigging Up	
2-5	24																							Rigging Up	Set 20" Conductor at 107'
2-6	24																							Rigging Up	
2-7	24																							Rigging Up	
2-8	24																							Rigging Up	
2-9	24																							Rigging Up	

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. NORTH INIGOK TEST WELL NO. 1 Page 4 of 8

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
2-10	24																							Rigging Up	
2-11	24																							Rigging Up	
2-12	17	5																					2	Rigging Up	Spudded Well at 7:00 p.m.
2-13		19		2½	2½																			Drilling	
2-14		12¾		4	2¼			¾															4½	Drilling	
2-15		18½		3				1	1½															Surveying	
2-16			½	12				7	4½															Making Wiper Trip	
2-17				1½					22½															Logging	Ran Schlumberger Wireline Lo
2-18				8				3		8½													4½	Laying Down BHA	Set 13 3/8" Casing at 2594'
2-19				6				2		6		10												Conditioning Mud	
2-20												24												Testing 13 3/8" Packoff	
2-21				2								12	10											Nipple Up	
2-22		7		4				4½															8½	Cleaning Mud Pits	
2-23		19½	½	1¼	2¾																			Drilling	
2-24		5½		10½				2½									3¾						2	Circulating	Core No. 1: 4022' - 4036.5'

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. NORTH INIGOK TEST WELL NO. 1 Page 5 of 8

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
2-25		21½	½		2																			Drilling	
2-26		16		6½	½																		1	Pulling Out of Hole	
2-27		16		6	2																			Drilling	
2-28		8		5	1			2					5				3							Drilling	Core No. 2: 6454' - 6470'
3-1		12¼	1¼	6				¾									3¼							Picking Up Bit	
3-2			1	16	1	¼		1¼									3¼						¾	Picking Up Core Barrel	Core No. 3: 6852' - 6867'
3-3		23	1																					Drilling	
3-4		8¼		9¼	1¼			4¼																Pulling Out Of Hole	
3-5		3¼	1	10¼				1									8							Coring	Core No. 4: 7488' - 7506'
3-6		22¾			1¼																			Drilling	
3-7		8	3¼	6¼	1			1					4											Drilling	
3-8		14	1	7¼			1¼																	Drilling	
3-9		24																						Drilling	
3-10				6	1¼			5	7														4¼	Circulating	
3-11									24															Logging	Ran Schlumberger Wireline Lo

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. NORTH INIGOK TEST WELL NO. 1 Page 6 of 8

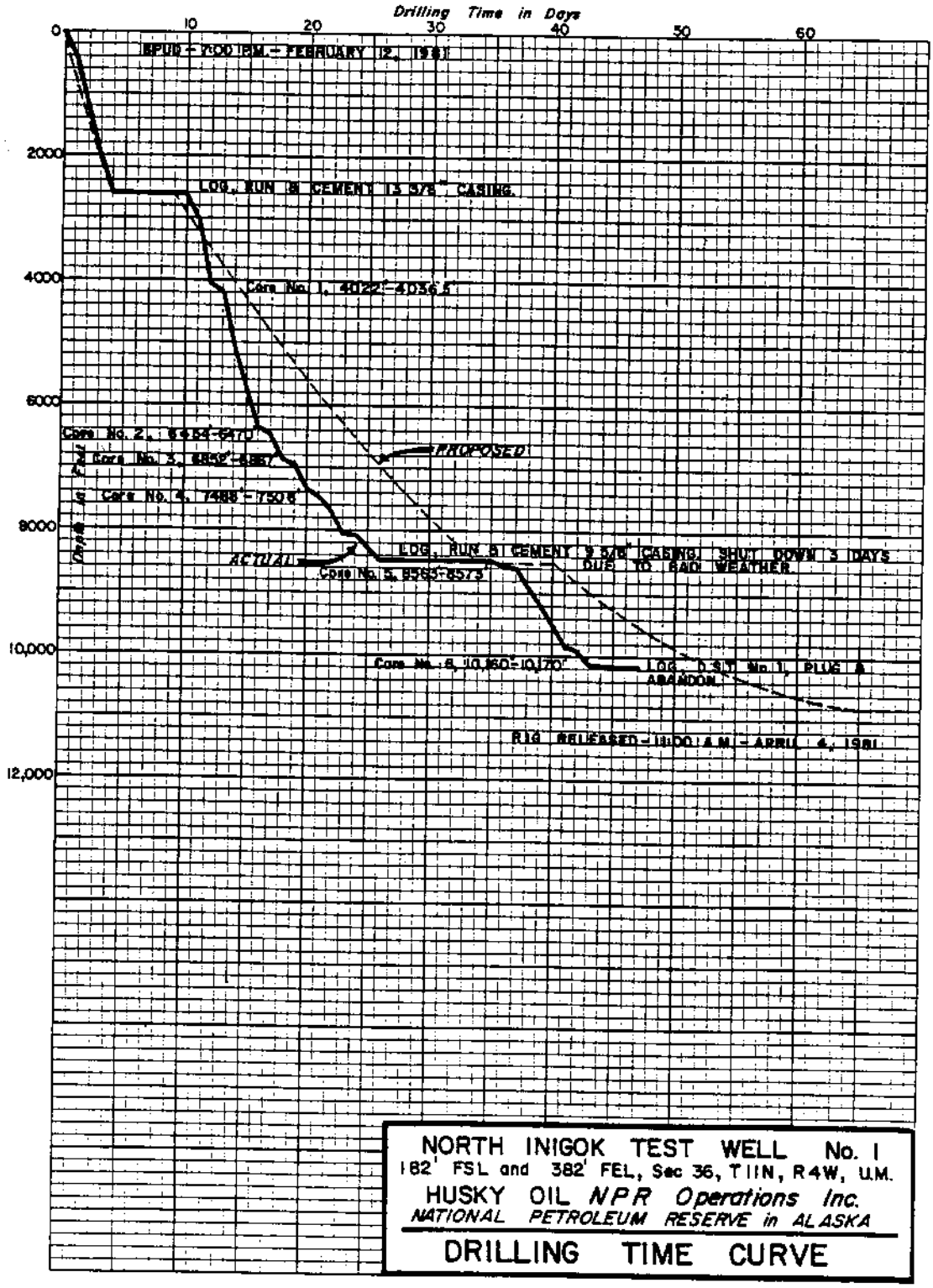
DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
3-12			10½	2½					11															Logging	
3-13			2½	9½				6		5													1	Pulling Out of Hole	
3-14								6		18														Running Casing	Set 9 5/8" Casing at 8457'
3-15				2½								4	14										3½	Testing Packoff	
3-16				8½									6				4½			5			½	Pulling Out of Hole	
3-17		½						1½															22½	Cleaning Mud Pits	
3-18																							24	Waiting on Water	Location Weathered In
3-19		10						13½															½	Conditioning Mud	
3-20				11½				1½									4						7	Picking Up Core Barrel	Core No. 5: 8563' - 8573'
3-21		20		2½	½																		1	Drilling	
3-22		23		1																				Drilling	
3-23		24																						Drilling	
3-24		21½		2½																				Drilling	
3-25		15		3½				2					3½											Drilling	
3-26		18		3			1						1										1	Drilling	

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. NORTH INIGOK TEST WELL NO. 1 Page 7 of 8

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
3-27		8½		6½	2½			6									½							Circulating	
3-28				7				3½	8½								5							Coring	Core No. 6: 10160' - 10170'
3-29			½	5½				2½	15½															Logging	Ran Schlumberger Wireline Logs
3-30									24															Logging	
3-31				14				4½	4										1½					Running In Hole	
4-1				5				2	9½									5½	2					Pulling Out of Hole	
4-2				3				5½										12½					3	Drill Stem Testing	Ran DST No. 1
4-3				10½		½	7	3½											2½					Circulating	
4-4	24																							Rigging Down	Released Rig at 11:00 a.m.
4-5	24																							Rigging Down	
4-6	24																							Rigging Down	
4-7	24																							Rigging Down	
4-8	24																							Rigging Down	
4-9	24																							Rigging Down	
4-10	24																							Rigging Down	

DRILLING TIME ANALYSIS (HOURS) - HUSKY NPR OPERATIONS, INC. NORTH INIGOK TEST WELL NO. 1 Page 8 of 8

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
4-11																							24	Making Up Herc Loads	
4-12																							24	Making Up Herc Loads	
4-13																							24	Making Up Herc Loads	
4-14																							24	Making Up Herc Loads	
4-15																							12	Cleaning Location	
4-16																							12	Cleaning Location	
	521		24		21¾		9½		132		-0-		43½		-0-		35½		-0-		-0-		547		
TOTAL HOURS		405¼		232½		1¼		94¼		37½		50		-0-		-0-		18		11		-0-			


Drilling Time in Days
0
10
20
30
40
50
60
2000
4000
6000
8000
10,000
12,000
Depth in Feet
SPUD - 9:00 P.M. - FEBRUARY 12, 1981
LOG, RUN & CEMENT 13 3/8" CASING.
Core No. 1, 4022'-4036.5'
Core No. 2, 6454'-6470'
Core No. 3, 6852'-6867'
Core No. 4, 7488'-7505'
PROPOSED
ACTUAL
LOG, RUN & CEMENT 9 5/8" CASING, SHUT DOWN 3 DAYS DUE TO BAD WEATHER
Core No. 5, 8563'-8573'
Core No. 6, 10,160'-10,170'
LOG, D.S.T. No. 1, PLUG & ABANDON
RIG RELEASED - 11:00 A.M. - APRIL 4, 1981
NORTH INIGOK TEST WELL No. 1
182' FSL and 382' FEL, Sec 36, T11N, R4W, U.M.
HUSKY OIL NPR Operations Inc.
NATIONAL PETROLEUM RESERVE in ALASKA
DRILLING TIME CURVE

ARCTIC DRILLING SERVICES

COMPANY Husky Oil NPR Operations, Inc. STATE Alaska CASING PROGRAM: 13 3/8 inch at 2594 ft.

WELL North Inigok Test Well No. 1 COUNTY North Slope Borough 9 5/8 inch at 8457 ft.

CONTRACTOR Nabors Alaska Drilling LOCATION NPRA SEC 36 TWP 11N RNG 4W ____ inch at ____ ft.

STOCKPOINT ____ DATE ____ BAROID ENGINEER ____ TOTAL DEPTH 10,170 ft.

DATE	DEPTH	WEIGHT	VISCOSITY		Yp	GELS	pH	FILTRATION			FILTRATE ANALYSIS				SAND	RETORT			CEC	REMARKS AND TREATMENT
1981	feet	lb/gal	Sec API @ °F	PV @ °F		10 sec/ 10 min	Strip ☐ Meter ☐	ml API	HTHP @ °F	Cake 32nds	Pm	Pf/Mf	Cl ppm	Ca ppm	%	Solids %	Oil %	Water %	Mud, me/ml	
2/13	337	9.1	38	6	15	5/10										4		96		
2/14	1281	9.3	35	7	13	3/6	10.5									4		96		
2/15	1994	9.6	35	5	11	4/8	10.5						450			6		94		
2/16	2600	10.1	37	8	16	4/8	10.5						450			8		92		
2/17	2600	9.8	33	6	18	3/5	10.5						450			8		92		
2/18	2600	9.9	37	7	18	5/8	10.5						450			8		92		
2/20	2600	10.0	35	8	13	4/8	10.0						400			10		90		
2/23	2910	9.2	35	6	15	3/8	11.0	22		4	1.2		650	80	Tr	5		95		
2/24	4022	9.5	34	7	14	3/7	10.5	12		3	1.0		600	80	3	5		95		
2/25	4155	9.6	36	8	15	4/9	11.0	10.8		2	1.3		650	80	Tr	6		94		
2/26	5071	9.6	36	8	15	3/8	11.0	9.6		2	1.3		600	80	Tr	6		94		
2/27	5683	9.7	37	8	17	4/9	11.0	9.6		2	1.3		650	80	1½	7		93		
2/28	6395	9.8	36	8	10	4/8	10.0	9.6		3	.8		600	80	1	8		92		
3/1	6470	9.8	34	9	9	1/3	9.0	9.6		3	.1	.4	650	80	1/4	10		90		
3/2	6852	9.8	33	9	8	0/1	9.0	9.8		3	.1	.7	500	60	1/4	10		90		
3/3	6923	9.7	33	9	8	0/2	9.0	11.0		3	.1	.8	500	20	1/4	10		90		
3/4	7314	10.2	41	15	15	7/23	9.0	11.0		3	.1	.9	500	Tr	1/4	12		88		
3/5	7488	10.4	65	25	34	16/47	9.0	8.6		3	.1	.9	500	Tr	1/4	12		88		
3/6	7706	10.5	61	25	28	8/28	9.0	6.2		3	.1	1.0	500	Tr	Tr	14		86		
3/7	8027	10.7	61	29	33	8/32	9.0	4.3		3	.1	1.1	500	Tr	Tr	15		85		
3/8	8069	10.9	68	32	39	12/38	8.5	4.5		3	.1	1.2	500	Tr	Tr	16		84		
3/9	8240	10.9	61	28	37	10/35	8.5	4.8		3	.1	1.1	650	Tr	Tr	16		84		
3/10	8478	11.4	73	34	47	15/38	8.5	4.2		3	.1	1.2	700	Tr	Tr	17		83		
3/11	8478	11.4	60	27	35	10/29	8.5	4.3		3	.1	1.1	700	Tr	Tr	17		83		
3/12	8378	11.4	59	25	34	10/27	8.5	4.7		3	.1	1.2	700	Tr	Tr	17		83		
3/13	8478	11.3	85	37	51	14/36	9.0	4.1		2	.5	1.2	700	Tr	Tr	16		84		
3/14	8478	11.3	64	29	37	14/32	9.0	4.3		2	.1	1.2	700	Tr	Tr	16		84		
3/15	8478	10.3	62	21	36	12/19	9.0	6.5		3	.1	.8	500	Tr	Tr	12		88		
3/16	8478	10.3	54	19	34	16/40	12.0	20		4	1.8	2.0	700	200	Tr	12		88		
3/17	8478																			
3/18	8478																			Cleaning mud pits. Waiting on water.
3/19	8478	9.0	40	7	15	5/10	9.5	20		2			35,000			5		95		
3/20	8563	10.8	37	14	10	2/8	10.5	14.5		2			27,000		Tr	12		88		
3/21	8590	10.8	43	16	14	2/8	9.5	13.5		2			23,000		Tr	12		88		
3/22	8893	10.9	41	18	19	2/11	9.0	8.		2			22,000	80	1/4	13		87		

ARCTIC DRILLING SERVICES

COMPANY Husky Oil NPR Operations, Inc. STATE Alaska

WELL North Inigok Test Well No. 1 COUNTY North Slope Borough

CONTRACTOR Nabors Alaska Drilling LOCATION NPRA SEC 36 TWP 11N RNG 4W

STOCKPOINT _____ DATE _____ BAROID ENGINEER _____

CASING PROGRAM: 13-3/8 inch at 2594 ft.
9-5/8 inch at 8457 ft.
_____ inch at _____ ft.

TOTAL DEPTH 10,170 ft.

DATE	DEPTH	WEIGHT	VISCOSITY		Yp	GELS	pH	FILTRATION			FILTRATE ANALYSIS				SAND	RETORT			CEC	REMARKS AND TREATMENT
1981	feet	lb/gal	Sec API @ °F	PV @ °F		10 sec/10 min	Strip Ø Meter Ø	ml API	HTHP @ °F	Cake 32nds	Pm	Pf/Mf	Cl ppm	Ca ppm	%	Solids %	Oil %	Water %	Mud, me/ml	
3/23	9158	11.2	46	20	25	8/27	9.5	10.2		2			22,000	80	1/4	15		85		
3/24	9495	11.2	51	24	28	10/34	10.5	10.4		2			21,000	80	1/4	15		85		
3/25	9823	11.4	44	18	24	7/19	10	9.6		2			22,000	80	1/4	13		86		
3/26	9933	11.7	46	20	27	8/24	10	9.4		2			22,000	80	1/4	14		86		
3/27	10122	11.7	44	19	20	7/22	9.5	9.6		2			24,000	80	1/4	15		85		
3/28	10160	11.7	44	18	16	5/21	9.3	9.8		2			22,000	80	1/4	15		85		
3/29	10170	11.7	44	20	20	5/21	9.3	9.8		2			22,000	80	1/4	15		85		
3/30	10170	11.7	44	19	17	5/21	9.5	10.0		2			23,000	80	1/4	15		85		
3/31	10170	11.7	43	17	15	5/20	9.3	10.0		2			22,000	80	1/4	15		85		
4/1	10170	11.5	43	18	16	5/20	9.2	10.4		2			22,000	240	1/4	15		85		
4/2	8411	11.5	42	17	15	5/22	9.5	10.5		2			22,000	220	1/4	15		85		
4/3	8411	11.5	39	12	12	5/16	9.5	11.0		2			19,000	200	1/4	14		86		
4/4	8195																			

BIT RECORD

COMPANY: Husky Oil NPR Operations, Inc
CONTRACTOR: Nabors Alaska Drilling, Inc.
COUNTY: North Slope Borough
STATE: Alaska
LEASE: National Petroleum Reserve
WELL NO: North Inigok TW No. 1
SEC: 36
TOWNSHIP: 11N
RANGE: 4W
BLOCK:
FIELD:
TOOL PUSHER:
DAY DRILLER:
EVENING DRILLER:
MORNING DRILLER:
DRILL PIPE:
TOOL JOINT: MAKE / SIZE / TYPE
DRILL COLLAR: NO / O D / I D / LENGTH
DRILL COLLAR: NO / O D / I D / LENGTH
DRAW WORKS:
POWER: H.P
PUMP NO 1: MAKE / MODEL / STROKE
PUMP NO 2: MAKE / MODEL / STROKE
UNDER SURF:
INT DATE:
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 I	B	G	REMARKS FORMATION, CIRC. FLUID, ETC.	DATE
1	17½	HTC	OSC3A	CD961	15	15	16	107	1234	30.5	30.5	40.5			1/2°	1450			61	9.6	35	3	5	I		
2	17½	Sec	S3S	963797	13	14	14	1341	1259	24.75	55.25	50.9			1/2°	1450			61	9.8	33	3	4	I		
3	12¼	STC	DSJ	AL6989	0	P	E	N	2600	83	4.5	59.75	18.5	20/25	120	1/2°	1650			62	8.2	35	2	1	I		
4	12¼	STC	DSJ	AL7171	14	14	14	4022	1339	25	84.75	53.5	35	120	3/4°	1300			130	9.6	36	3	3	I		
5	12¼	STC	DSJ	AL7017	14	14	14	5071	1034	25.5	110.25	40.5	50	150	1½°	1450			130	9.7	37	3	6	I		
6	12¼	HTC	OSC	AA701	14	14	14	5775	704	19	129.25	37	50	150	1½°	1450			130	9.8	36	3	8	I		
7	12¼	HTC	J-1	EA918	14	14	14	6454	579	17	146.25	34	50	150	1/2°	1450			130	9.8	34	2	6	I		
8	12¼	HTC	OSC	K2364	0	P	E	N	6470	382	12.5	158.75	30.5	50	110	1/2°	1500			135	9.7	33	3	8	I		
9	12¼	HTC	X1G	DM230	14	14	14	7314	447	23.5	182.25	19	50	110	0°	1450			130	10.2	41	–	–	–		
10	12¼	HTC	X1G	PM279	14	14	14	7488	174	7	189.5	24.8	50	120	0°	1450			125	10.4	65	2	2	I		
11	12¼	HTC	X1G	ZJ979	14	14	14	8056	550	33	222.5	16.6	35	90	3/4°	2400			120	10.9	68	4	4	I		
12	12¼	IPEC	S11J	S347-112	11	12	12	8073	17	7.5	230	2.25	50	110	3/4°	1600			125	10.9	61	G	O	C	D	
13	12¼	HTC	X1G	PM280	14	14	14	8478	405	31.5	261.5	12.8			0°					11.4	64	5	4	I		
RR13	12½	HTC	X1G	PM280	14	14	14	Conditioning Trip																		
14	8½	STC	DSJ	MJ429	0	P	E	N	8563	85	10	271.5	8.5	80/120	30/38	0°	260			108	10.8	38	4	8	I		
15	8½	HTC	J22	KH232	10	10	9	9933	1360	103	374.5	13.25	38	70	1/2°	1500			121	11.7	46	3	7	I		
16	8½	HTC	J22	VK610	0	P	E	N	10,160	227	26.5	401	8.5	10	60	1/2°	1000			110	11.7	44	2	4	I		

SMITH REPRESENTATIVE _____ PHONE _____

Compliments of SMITH TOOL

P.O. BOX 4549 · COMPTON, CALIF. 90224
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"	38#/ft.	95,000	110,000	12,600	9,200	BTC

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

(2) Special drift to 12.25".

(3) Special drift to 8.50".

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

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

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

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

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

In addition, the following handling requirements were made:

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

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

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

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

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

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

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

8. All pipe to be Range 3.

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

Casing programmed for North Inigok Test Well No. 1 was as follows: 20" conductor at ±100'; 13-3/8" at ±2600'; 9-5/8" at ±8500'; and a 7" liner to a total depth of 10,800' if needed for evaluation of hydrocarbon bearing zones. The casing actually run was 20" at 107', 13-3/8" at 2594', 9-5/8" at 8457'. The 7" liner was not needed.

When abandoning the well, the 9-5/8" annulus was left full of diesel from 2000' to the surface. This was to allow re-entry by U. S. Geological Survey personnel to take future temperature measurements in the well bore.

42

CASING TALLY
SUMMARY SHEET

DATE: February 18, 1981

FIELD National Petroleum Reserve in Alaska LEASE & WELL NO. North Inigok Test Well No. 1 TALLY FOR 13 3/8" CASING

SUMMARY OF PAGE MEASUREMENTS	NO. OF JOINTS	FEET	.00'S
PAGE 1	50	2042	19
PAGE 2	21	854	80
PAGE 3			
PAGE 4			
PAGE 5			
PAGE 6			
PAGE 7			
PAGE 8			
PAGE 9			
TOTAL	71	2896	99

SUMMARY OF DEPTH CALCULATIONS		NO. OF JOINTS	FOOTAGE FEET	FOOTAGE .00'S
1	TOTAL CASING ON RACKS	71	2896	99
2	LESS CASING OUT (JTS NOS	8	303	35
3	TOTAL (1 - 2)	63	2593	64
4	SHOE LENGTH		1	62
5	FLOAT LENGTH		1	38
6	MISCELLANEOUS EQUIPMENT LENGTH			
7	TOTAL CASING AND EQUIPMENT FROM CEMENT HEAD (3 + 4 + 5 + 6)		2596	64
8	LESS WELL DEPTH (KB REFERENCE)			
9	~~CUT-ON LANDING JOINT~~ Above RKB		2	26

Weight indicator before cementing: 154,000 ; 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
Dowell Float Shoe				New	JT NO. - THRU NO. -		1.62	2592.76' - 2594.38'
72# S-95 Buttress				New	JT NO. 1 THRU NO. 2	2	83.24	2509.52' - 2592.76'
Dowell Duplex Float Collar				New	JT NO. THRU NO.		1.38	2508.14' - 2509.52'
72 S-95 Buttress				New	JT NO. 3 THRU NO. 63	61	2510.40	0 - 2508.14'
					JT NO. THRU NO.			
					JT NO. THRU NO.			
					JT NO. THRU NO.			

PAGE 1 OF 2

CASING TALLY

DATE: February 12, 1981

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

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	41	42			
2	41	82			
3	42	13			
4	41	06			
5	37	26			
6	42	00			
7	42	57			
8	41	91			
9	40	20			
0	39	75			
TOTAL A	410	12			

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	42	05			
2	42	10			
3	42	82			
4	41	22			
5	43	19			
6	42	52			
7	40	93			
8	37	70			
9	41	79			
0	41	36			
TOTAL D	415	68			

1	40	21			
2	41	30			
3	42	47			
4	41	41			
5	41	07			
6	43	17			
7	42	35			
8	38	07			
9	41	26			
0	41	26			
TOTAL B	412	57			

1	42	28			
2	37	01			
3	42	45			
4	39	82			
5	41	70			
6	41	80			
7	42	48			
8	40	79			
9	41	23			
0	41	08			
TOTAL E	410	64			

1	40	77			
2	37	56			
3	35	80			
4	42	49			
5	42	59			
6	37	00			
7	37	10			
8	42	90			
9	37	32			
0	39	65			
TOTAL C	393	18			

TOTAL A	410	12		
TOTAL B	412	57		
TOTAL C	393	18		
TOTAL D	415	68		
TOTAL E	410	64		
TOTAL PAGE	2042	19		

PAGE 2 OF 2 **CASING TALLY** DATE: February 12, 1981

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

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	41	89			
2	36	67			
3	42	43			
4	42	62			
5	43	08			
6	41	47			
7	41	77			
8	37	20			
9	42	06			
0	42	78			
TOTAL A	411	97			

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

1	37	85			
2	37	65			
3	41	00			
4	40	86			
5	42	15			
6	41	45			
7	39	78			
8	38	20			
9	42	36			
0	41	36			
TOTAL B	402	66			

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

1	40	17			
2					
3					
4					
5					
6					
7					
8					
9					
0					
TOTAL C	40	17			

TOTAL A	411	97		
TOTAL B	402	66		
TOTAL C	40	17		
TOTAL D				
TOTAL E				
TOTAL PAGE	854	80		

CASING AND CEMENTING REPORT

WELL NAME North Inigok Test Well No. 1

LOCATION National Petroleum Reserve in Alaska

RAN CASING AS FOLLOWS:

63	Jts	13 3/8"	72#	S-95	BTC	
	Jts					
	Jts					

Shoe @ 2594' Float @ 2508' DV @ -

Centralizer @ 2582', 2551', 2466', 2425', 2388', 2303', 2221', 2141', and 2057',

FIRST STAGE

Sx of Cement 3615 Type AS II Additives 0.2% D-46 % Excess

Preflush 40 barrels water Initial Pressure

Displacement 46 bbls. Final Pressure

Plug Down 11:43 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 2600' Overall Casing Tally

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

Weight Indicator Before Cementing lbs.

Weight Indicator After Slacking Off lbs.

Inches Slacked Off

Remarks: Continued mixing cement until 15.0 ppg returns were measured. Stopped mixing cement and displaced drill pipe. Had 15.2 returns at end of displacement. Floats held OK. Stung out of duplex float collar, then pulled out of hole with drill pipe. Mixed a total of 3615 sacks cement; left 74 sacks inside shoe joints.

CASING TALLY
SUMMARY SHEET

DATE: March 14, 1981

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

SUMMARY OF PAGE MEASUREMENTS

	NO. OF JOINTS	FEET	.00'S
PAGE 1	50	2182	23
PAGE 2	50	2155	11
PAGE 3	50	2160	93
PAGE 4	50	2167	07
PAGE 5	15	646	26
PAGE 6			
PAGE 7			
PAGE 8			
PAGE 9			
TOTAL	215	9311	60

SUMMARY OF DEPTH CALCULATIONS

		NO. OF JOINTS	FOOTAGE FEET	FOOTAGE .00'S
1	TOTAL CASING ON RACKS	215	9311	60
2	LESS CASING OUT (JTS NOS.	2	86	05
3	TOTAL (1 – 2)	213	9225	55
4	SHOE LENGTH		1	42
5	FLOAT LENGTH		1	34
6	MISCELLANEOUS EQUIPMENT LENGTH		–	–
7	TOTAL CASING AND EQUIPMENT FROM CEMENT HEAD (3 + 4 + 5 + 6)		9228	31
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 5

CASING TALLY

DATE: March 14, 1981

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

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	45	26			
2	34	62			
3	44	18			
4	48	35			
5	37	58			
6	40	29			
7	40	11			
8	42	86			
9	47	56			
0	41	28			
TOTAL A	422	09			

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	45	56			
2	42	25			
3	42	10			
4	46	22			
5	41	17			
6	43	18			
7	42	55			
8	41	26			
9	41	72			
0	46	80			
TOTAL D	432	81			

1	36	28			
2	46	37			
3	46	62			
4	46	55			
5	45	42			
6	42	77			
7	44	42			
8	47	40			
9	42	95			
0	41	74			
TOTAL B	440	52			

1	37	18			
2	47	17			
3	43	56			
4	43	92			
5	43	09			
6	42	72			
7	46	80			
8	45	66			
9	45	31			
0	44	36			
TOTAL E	439	77			

1	44	72			
2	44	85			
3	41	50			
4	46	64			
5	41	50			
6	46	20			
7	46	40			
8	43	28			
9	46	80			
0	45	15			
TOTAL C	447	04			

TOTAL A	422	09		
TOTAL B	440	52		
TOTAL C	447	04		
TOTAL D	432	81		
TOTAL E	439	77		
TOTAL PAGE	2182	23		

PAGE 2 OF 5

CASING TALLY

DATE: March 14, 1981

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

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	46	46			
2	47	22			
3	47	12			
4	40	32			
5	42	32			
6	41	00			
7	42	82			
8	44	47			
9	47	50			
0	44	97			
TOTAL A	444	18			

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	46	07			
2	41	56			
3	42	62			
4	35	53			
5	46	78			
6	43	05			
7	42	91			
8	41	73			
9	38	86			
0	42	40			
TOTAL D	421	51			

1	41	61			
2	41	39			
3	44	21			
4	39	58			
5	46	80			
6	42	60			
7	45	76			
8	36	44			
9	44	38			
0	42	37			
TOTAL B	425	14			

1	45	56			
2	45	33			
3	41	84			
4	37	45			
5	44	38			
6	42	02			
7	41	98			
8	43	75			
9	46	87			
0	42	98			
TOTAL E	432	16			

1	44	00			
2	42	53			
3	43	35			
4	45	46			
5	45	92			
6	42	70			
7	44	08			
8	37	72			
9	44	00			
0	42	36			
TOTAL C	432	12			

TOTAL A	444	18		
TOTAL B	425	14		
TOTAL C	432	12		
TOTAL D	421	51		
TOTAL E	432	16		
TOTAL PAGE	2155	11		

PAGE 3 OF 5

CASING TALLY

DATE: March 14, 1981

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

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	44	03			
2	44	69			
3	41	17			
4	47	00			
5	43	83			
6	44	00			
7	42	45			
8	42	15			
9	46	65			
0	45	53			
TOTAL A	441	50			

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	40	75			
2	40	94			
3	45	64			
4	45	96			
5	42	13			
6	46	55			
7	41	07			
8	41	53			
9	40	88			
0	45	23			
TOTAL D	430	68			

1	44	38			
2	42	51			
3	38	15			
4	45	86			
5	46	40			
6	43	27			
7	46	84			
8	47	43			
9	42	05			
0	44	54			
TOTAL B	441	43			

1	40	15			
2	43	94			
3	43	26			
4	41	84			
5	46	32			
6	37	57			
7	41	14			
8	41	86			
9	37	26			
0	41	07			
TOTAL E	414	41			

1	46	14			
2	41	45			
3	40	60			
4	39	56			
5	41	87			
6	42	53			
7	46	66			
8	45	90			
9	41	58			
0	46	63			
TOTAL C	432	91			

TOTAL A	441	50		
TOTAL B	441	43		
TOTAL C	432	91		
TOTAL D	430	68		
TOTAL E	414	41		
TOTAL PAGE	2160	93		

PAGE 4 OF 5 **CASING TALLY** DATE: March 14, 1981

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

JOINT NO.	FIRST MEASUREMENT FEET	.00'S	CHECK MEASUREMENT FEET	.00'S	WT GR.
1	42	28			
2	39	74			
3	45	00			
4	42	20			
5	41	90			
6	41	68			
7	46	20			
8	41	58			
9	35	48			
0	41	23			
TOTAL A	417	29			

JOINT NO.	FIRST MEASUREMENT FEET	.00'S	CHECK MEASUREMENT FEET	.00'S	WT GR.
1	44	22			
2	41	60			
3	46	95			
4	42	36			
5	40	74			
6	43	60			
7	41	90			
8	45	42			
9	43	18			
0	46	46			
TOTAL D	436	43			

1	47	18			
2	42	65			
3	44	29			
4	41	22			
5	46	27			
6	41	10			
7	45	18			
8	42	01			
9	41	93			
0	46	78			
TOTAL B	438	61			

1	42	10			
2	44	68			
3	45	41			
4	42	00			
5	43	36			
6	46	25			
7	41	56			
8	41	24			
9	39	44			
0	45	01			
TOTAL E	431	05			

1	42	38			
2	47	00			
3	47	71			
4	42	92			
5	45	18			
6	41	29			
7	45	91			
8	46	65			
9	42	83			
0	41	82			
TOTAL C	443	69			

TOTAL A	417	29		
TOTAL B	438	61		
TOTAL C	443	69		
TOTAL D	436	43		
TOTAL E	431	05		
TOTAL PAGE	2167	07		

PAGE 5 OF 5 CASING TALLY DATE: March 14, 1981

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

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	42	16			
2	43	18			
3	42	00			
4	47	15			
5	44	42			
6	42	01			
7	42	35			
8	43	12			
9	44	07			
0	41	64			
TOTAL A	432	10			

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	41	76			
2	41	15			
3	46	75			
4	42	78			
5	41	72			
6					
7					
8					
9					
0					
TOTAL B	214	16			

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	432	10		
TOTAL B	214	16		
TOTAL C				
TOTAL D				
TOTAL E				
TOTAL PAGE	646	26		

58

CASING AND CEMENTING REPORT

WELL NAME North Inigok Test Well No. 1

LOCATION National Petroleum Reserve in Alaska

RAN CASING AS FOLLOWS:

194	Jts	9 5/8"	53.5#	S-95	BTC	
	Jts					
	Jts					

Shoe @ 8457' Float @ 8376' FOs @ 2165' and 2342'

Centralizer @ 10 feet above shoe on stop ring and on casing collars 1, 3, 5, 7, & 9 above shoe and above and below each FO.

FIRST STAGE

Sx of Cement 800 Type "G" Additives .75% D-65 .3% D-13R % Excess ____

Preflush 916 barrels water Initial Pressure ____

Displacement 614 bbls. Final Pressure 1600

Plug Down 10:25 ~~AM~~ PM

SECOND STAGE - Stage Collar @ 8376'

Sx of Cement 300 Type AS II Additives - % Excess -

Preflush 10 barrels water Initial Pressure ____

Displacement 33.5 bbls. Final Pressure 500

Plug Down 12:35 AM ~~PM~~

Well Depth 8478' Overall Casing Tally ____

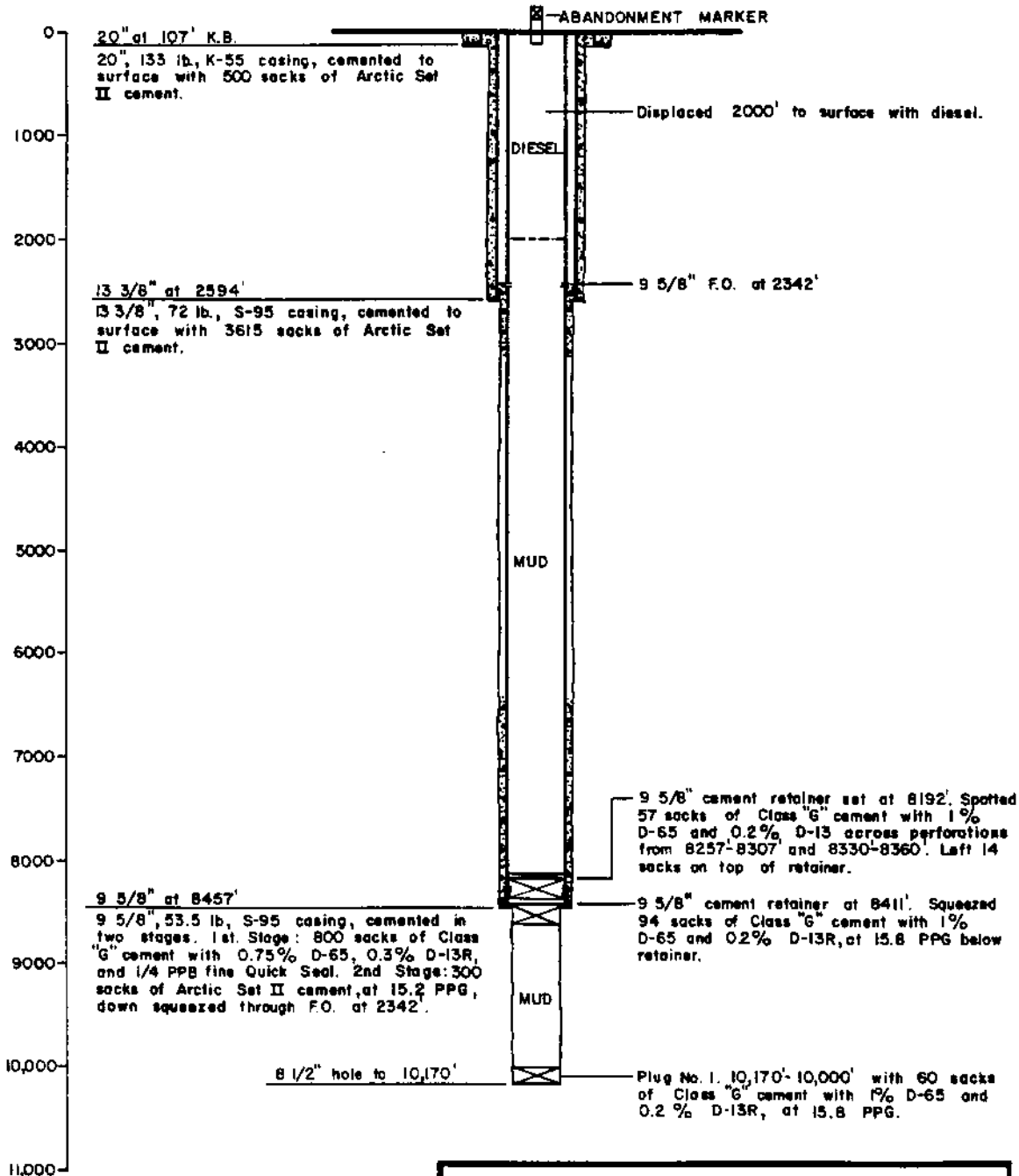
KB to Top of Cut Off Casing ____ Length of Landing Jt Removed ____

Weight Indicator Before Cementing ____ lbs.

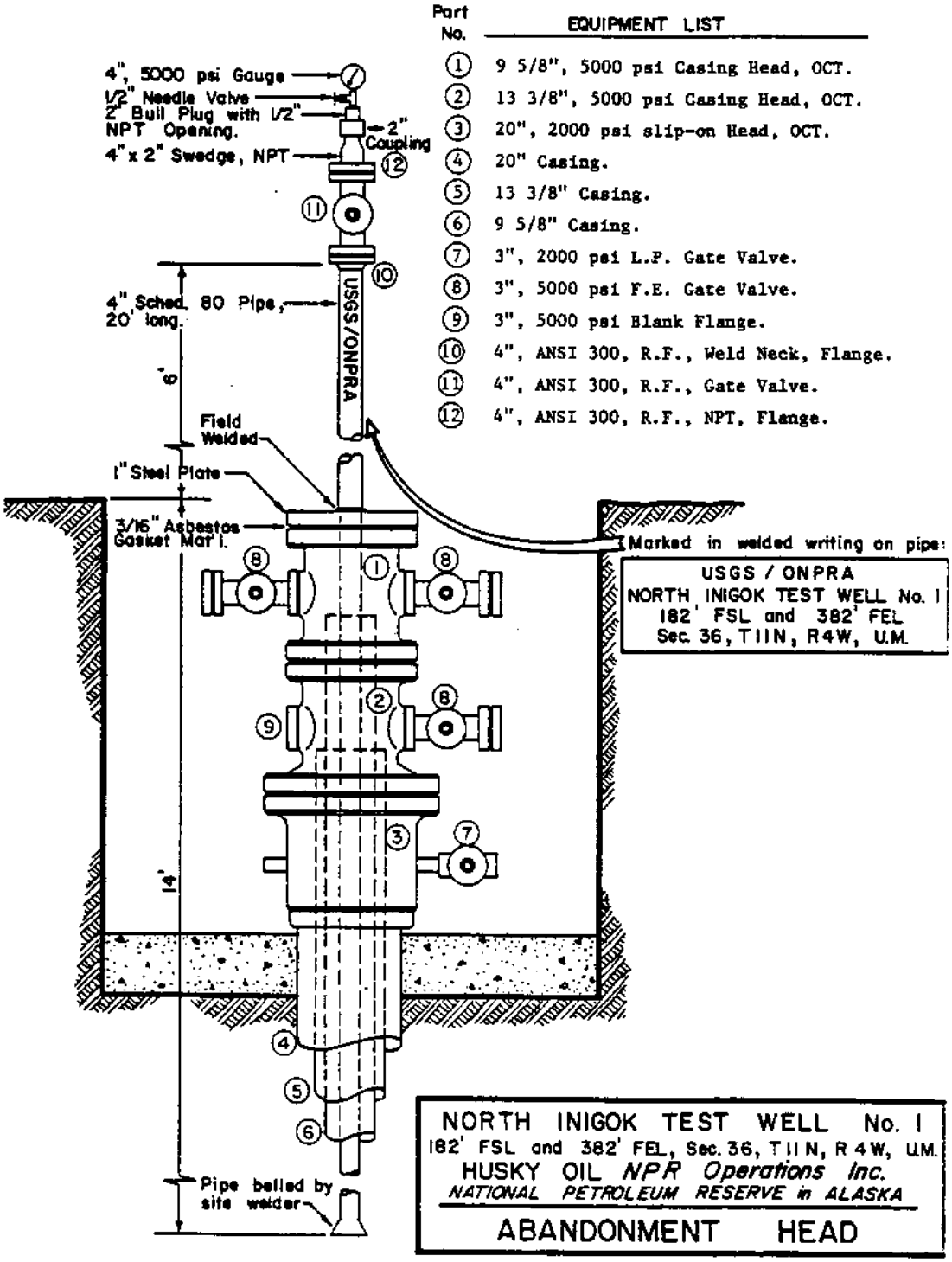
Weight Indicator After Slacking Off ____ lbs.

Inches Slacked Off ____

Remarks:



NORTH INIGOK TEST WELL No. 1
182' FSL and 382' FEL, Sec 36, T11N, R4W, U.M.
HUSKY OIL *NPR Operations Inc.*
NATIONAL PETROLEUM RESERVE in ALASKA
WELLBORE SCHEMATIC



Part No.	EQUIPMENT LIST
1	9 5/8", 5000 psi Casing Head, OCT.
2	13 3/8", 5000 psi Casing Head, OCT.
3	20", 2000 psi slip-on Head, OCT.
4	20" Casing.
5	13 3/8" Casing.
6	9 5/8" Casing.
7	3", 2000 psi L.P. Gate Valve.
8	3", 5000 psi F.E. Gate Valve.
9	3", 5000 psi Blank Flange.
10	4", ANSI 300, R.F., Weld Neck, Flange.
11	4", ANSI 300, R.F., Gate Valve.
12	4", ANSI 300, R.F., NPT, Flange.

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ABANDONMENT HEAD

RIG INVENTORY

THE FOLLOWING INVENTORY DOES NOT INCLUDE THESE ADDITIONAL ITEMS:

Mud System

Additional pit to bring active system to 1,000 barrels.

Hoisting and Pipe Handling System

40 joints of heavy wall drill pipe.
"Iron Roughneck" or equivalent.
7000' of 5" Grade "G" drill pipe.
Blocks, hook, swivel, and rotary replaced with increased capacity units (500 tons).

Other

Forklift
20" blowout-preventer ram stack.

RIG INVENTORY

Draw Works

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

Rig Drive

National BT3, 3 section drive with 2 pump drives.

Engines

Three Caterpillars, D398, with National C300 torque converters. Engines equipped with heat exchangers and waste heat recovery system in substructure. Horsepower rating without fans approximately 800 HP each.

Pumps

No. 1 - Emsco F1000 Triplex driven by compound.
No. 2 - National G1000, Serial No. 8298, with H1250 fluid end.

Substructure

Lee C. Moore Corporation
Overall length - 56.10'
Overall width - 23.00'
Floor height - 20.30'
Motor height - 16.30'

Mast

Lee C. Moore Corporation, Serial No. T 3013.
1,025,000 lb. GNC

Blocks

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

Swivel

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

Rotary Table

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

Tongs

B. J., Type B.

Kelly bushings - Varco H.D. square drive.

Accumulator

Koomey, Model T, 20160-3S, Serial No. 4899, 3,000 lb. wp with sixteen 10-gallon Greer hydraulic bottles.

Blowout Preventers

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

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

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

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

Boilers

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

Mud Tanks

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

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

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

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

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

Degasser

Clark Gas Hog, Serial No. 17.

Desander

Demco Model 123 with three 12" cones.

Desilter

Swaco Model 6T4 156 with twelve 4" cones.

Light Plants

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

Overshots

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

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

Water-Fuel Tanks

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

Drill Collars

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

Drill Pipe

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

Five inch, 19.50 lb., Grade E pipe as needed.

(Extra pipe as required for deep well.)

Air Heater

1 - 4,200,000 BTU air heater.

(Iron Roughneck)

Varco Model 50.