N A T I O N A L P E T R O L E U M R E S E R V E I N A L A S K A

HISTORY
OF
DRILLING OPERATIONS

KUYANAK TEST WELL NO. 1

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

For the

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

TABLE OF CONTENTS

LIST OF FIGURES

KUYANAK TEST WELL NO. 1

INTRODUCTION

Kuyanak Test Well No. 1 is located on the coastal plain region of the National Petroleum Reserve in Alaska (Figure 1). The well is located 1,282 feet from the north line and 1,031 feet from the west line of protracted Section 10, Township 18 North, Range 16 West, Umiat Meridian (Latitude: 70°55'53.48" North; Longitude: 156°03'53.08" West). Alaska State Plane Coordinates are X = 731,554.81 and Y = 6,194,132.46, Zone 6. Mobilization of the drilling equipment and camp began on January 16, 1981. Drilling related operations started with rig-up on January 26, and were finished on March 31, 1981. Elevations were: Kelly bushing 28' and pad 11' (estimated).

The well was drilled to a total measured depth of 6,690 feet. The primary objective of the well was the Jurassic Simpson sandstone within the Kingak Formation. Secondary objectives were the underlying Sag River Sandstone and possibly the overlying Walakpa sandstone of Cretaceous age. The proposed traps were combination structural/stratigraphic in nature.

At the conclusion of the drilling operations, the well was abandoned with cement and mechanical plugs set at selected intervals.

Husky Oil NPR Operations, Inc. supervised and directed the drilling and support operations as prime contractor to the Department of the Interior, U. S. Geological Survey, Office of National Petroleum Reserve in Alaska. Nabors Alaska Drilling, Inc. was the drilling contractor; Nabors Rig 1, an Emsco A 800, was used to drill the well.

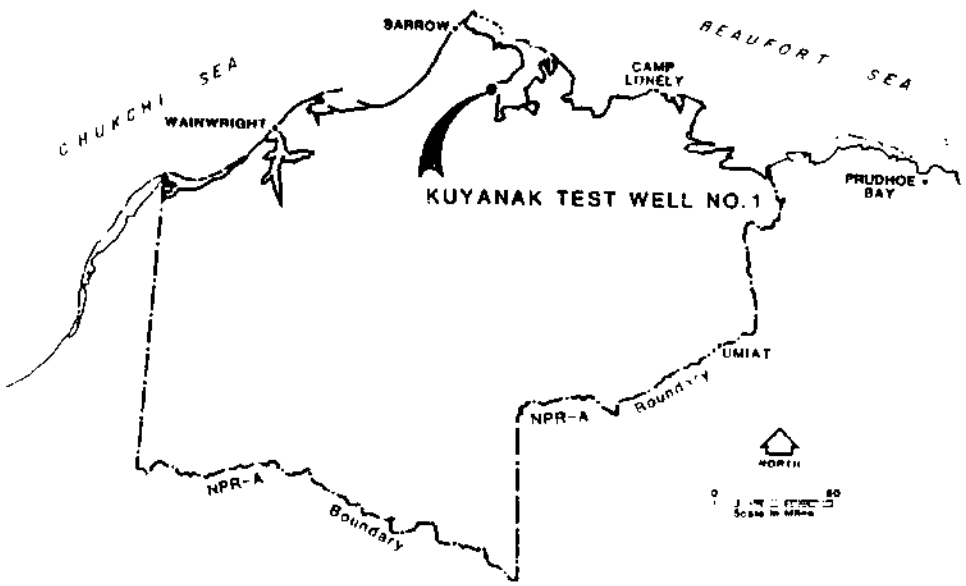


FIGURE 1 - WELL LOCATION MAP - KUYANAK NO. 1

DRILLING SUMMARY

Field operations at Kuyanak Test Well No. 1 were started on December 23, 1980, with the mobilization of construction crews and equipment required to build the drilling pad and an ice airstrip. Construction work was completed on January 22, 1981.

Rig-up operations began at Kuyanak on January 26, 1981, and continued through February 13. The well was spudded February 13, 1981, at 8:00 p.m. A 20" conductor was set at 100' and cemented with 325 sacks ArcticSet II cement. A Gel/Ben-Ex mud system weighing 9.0 to 9.7 ppg was used to a depth of 3789'. A change over to a $CaCl_2$ mud was begun at this point and essentially completed by 4205'. The change over was necessitated to prevent damage to any potential reservoirs encountered below. Producing reservoirs in the Barrow area are known to contain swelling clays which are hightly susceptible to fresh water. Tests conducted by Chemical and Geological Laboratories of Alaska, Inc. and Core Laboratories, Inc. on core samples from the Upper and Lower Barrow gas sands from South Barrow Wells Nos. 12 and 13 demonstrated severe permeability damage on contact of the clays with fresh water filtrate. Permeability damage began to decrease with increased concentrations of calcium chloride greater than 25,000 ppm. Concentrations used in the Kuyanak No. 1 well varied from 28,000 to 57,000 ppm $CaCl_2$. Mud weights varied between 9.7 and 10.6 ppg from 3789' to total depth of 6,690 feet.

A 17-1/2" hole was drilled to 1529' (1530' Schlumberger) and then logged with DIL/GR, BHC-Sonic/GR, LSS/TTI/GR, FDC/CNL/CAL/GR, and HDT-Dipmeter.

The 13-3/8" casing was run and landed at 1521' (1515' Schlumberger) with the duplex collar at 1445' (37 joints, 72#, Buttress). The casing was cemented with 2,280 sacks of ArcticSet II mixed to a 14.8-15.2 ppg slurry with full returns. The shoe and new formation were drilled out to 1540', and the formation was tested to a 12.8 ppg equivalent gradient (260 psi surface pressure with 9.6 ppg mud).

A 12-1/4" hole was drilled to 4758' (Schlumberger). Wireline logs were run as follows: DLL/MSFL/GR, BHC-Sonic/GR, LSS/TTI/GR, HDT-Dipmeter. Thirty sidewall cores were shot and recovered.

The 9-5/8" casing was run and the shoe landed at 4755' with FOs at 1543' and 1198' (111 joints, 53.5#, S95, Buttress). The casing was cemented in two stages. The first stage at the shoe consisted of 800 sacks of 15.8 ppg Class "G" cement with 0.75% D-65 and 0.2% D-46. Good returns were obtained throughout the cementing job. The second stage of 300 sacks of 15.2 ppg ArcticSet II cement was pumped through the FO at 1198'. After the cement had set, the casing was tested to 3,000 psi. The shoe, cement and 12' of formation were drilled to 4767' and the formation tested to 0.6 fracture gradient (11.5 ppg) equivalent (250 psi surface pressure with 10.5 ppg mud).

An 8-1/2" hole was drilled to 6682'. Cores were cut as follows: Core No. 1, 4965' to 5024', recovered 58.2'; Core No. 2, 5024' to 5075', recovered 50.9'; Core No. 3, 5093' to 5153', recovered 58.4'; Core No. 4, 5153' to 5186', recovered 33'; Core No. 5, 6203' to 6236', recovered 33'; Core No. 6, 6254' to 6314', recovered 60'; and Core No. 7, 6682' to 6690' (total depth of well), recovered 7.7'.

The well was logged with the following wireline logs: Temperature Survey (Runs 1 and 2), DLL/MSFL/GR/SP, FDC/CNL/CAL/GR, BHC-Sonic/GR, HDT-Dipmeter; seventeen sidewall cores were shot with 16 recovered.

After evaluation of logs, a decision was made to plug and abandon the well. Plugs were placed in the well bore as follows: Plug No. 1, in the open hole from 6352' to 6152', 70 sacks of 15.8 ppg Class "G" cement (0.2% D-13R); Plug No. 2, in the open hole from 5200' to 5000', 115 sacks of 15.8 ppg Class "G" cement (0.2% D-13R); Plug No. 3, across the 9-5/8" shoe from 4848' to 4464', 170 sacks of 15.8 ppg Class "G" cement (0.2% D-13R). The top 2000' of the 9-5/8" annulus was displaced with diesel. This was to allow future re-entry of the upper well bore by U. S. Geological Survey personnel to take temperature measurements.

An abandonment marker was installed and the rig released on March 31, 1981, at 6:00 p.m. Nabors Rig 1 was moved to Camp Lonely and stacked out for shipment by barge to Seattle in August, 1981. Equipment belonging to Kodiak Oilfield Haulers and the Nabors Rig 1 camp were shipped to Deadhorse. Demobilization was completed on April 8, 1981.

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

Amended April 13, 1983

NOTICE OF INTENT TO DRILL, DEEPEN, OR PLUG BACK

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

b. TYPE OF WELL: OIL WELL [X] GAS WELL [ ] OTHER 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: 1282' FNL; 1031' FWL
At proposed prod. zone: 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.: Kuyanak Test Well No. 1

10. FIELD AND POOL, OR WILDCAT: Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec 10, T18N, R16W, UM

12. COUNTY OR PARISH: North Slope

13. STATE: Alaska

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 30 Miles Southeast of Barrow, Alaska

15. DISTANCE FROM PROPOSED* LOCATION TO NEAREST PROPERTY OR LEASE LINE, FT. (Also to nearest drlg. unit line, if any): 123,750'

16. NO. OF ACRES IN LEASE: 23,680,000

17. NO. OF ACRES ASSIGNED TO THIS WELL: N/A

18. DISTANCE FROM PROPOSED LOCATION* TO NEAREST WELL, DRILLING, COMPLETED, OR APPLIED FOR, ON THIS LEASE, FT.: 90,750'

19. PROPOSED DEPTH: 6,800'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): Pad: 11'; KB: 31' (Estimated)

22. APPROX. DATE WORK WILL START*: February 1, 1981

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)	1500'	2250 Sx Arctic Set II
12 1/4"	9 5/8"	53.5# (S-95)	4825'	1st Stage: 600 Sx Cl "G" 2nd Stage: Downsqueeze 300 Sx Arctic Set II thru FO @ 2350'
8 1/2"	7"	32# (N-80)	TD	Caliper Volume + 15% Excess Cl "G"

BOP Program:
From 100' to 1500'
20", 2000 psi, SA Diverter Assembly
From 1500' to TD:
13 3/8", 5000 psi, SRRA BOP Assembly
w/5000 psi Choke Manifold and Kill Line

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 _____ TITLE Chief of Operations, ONPRA DATE _____

(This space for Federal or State office use)

NO. _____ DATE _____

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS IF ANY:

*See Instructions On Reverse Side

Amended April 13, 1983

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: 1282' FNL; 1031' FWL
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.
Kuyanak Test Well No. 1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 10, T18N, R16W, UM

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

14. API NO.

15. ELEVATIONS (SHOW DF, KDB AND WD)
Pad: 11'; KB: 31'

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 February 13, 1981, at 8:00 PM, with a 17 1/2" bit. Prior to spud, a 20" conductor was set in a 24" dry-drilled hole and cemented with 325 sacks ArcticSet II cement. Cement in place 2/9/81 at 12:30 PM. KB depth: 100'.

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

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

SIGNED _____ TITLE Chief of Operations DATE _____

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

_____ TITLE _____ DATE _____

*See Instructions on Reverse Side

Amended April 13, 1983

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: 1282' FNL; 1031' FWL
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.
Kuyanak Test Well No. 1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 10, T18N, R16W, UM

12. COUNTY OR PARISH 13 STATE
North Slope Borough Alaska

14. API NO.

15. ELEVATIONS (SHOW DF KDB, AND WD)
Pad: 11': KB: 31'

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.)

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 1529'. Logged with DIL/GR, BHC/GR, Long Space Sonic, FDC/CNL/GR, DIL/GR, Dipmeter. Ran 37 joints of 13 3/8", 72#, S-95 Buttress casing. Stabbed in duplex shoe at 1445'. Cemented 13 3/8" casing at 1521' (1515' Schlumberger) with 2280 sacks of Arctic Set II slurry at 14.8 to 15.2 ppg. Circulated to reserve until 14.8 ppg slurry returns. Good returns throughout cement job. Nippled up BOP stack. Tested choke manifold and line to 5000 psi, Hydril to 2500 psi, pipe rams to 5000 psi, and blind rams to 5000 psi. Tested 13 3/8" casing to 2500 psi. Drilled float collar, cement, and shoe. Top of cement at 1439'. Drilled to 1540'. Tested formation to 260 spi with 9.6 ppg mud; equivalent of 12.8 ppg mud.

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

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

SIGNED _____ TITLE Chief of Operations DATE _____

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

_____ TITLE _____ DATE _____

*See Instructions on Reverse Side

Amended April 13, 1983

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: 1282' FNL; 1031' FWL
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.
Kuyanak Test Well No. 1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 10, T18N, R16W, UM

12. COUNTY OR PARISH 13 STATE
North Slope Borough Alaska

14. API NO.

15. ELEVATIONS (SHOW DF KDB, AND WD)
Pad: 11': KB: 31

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 4715', ran FDC/CNL/GR log 4710'-1515', tight hole, washed and reamed to bottom. Drilled to 4755' (4758' Schlumberger), logged with DLL/MSFL 4757'-1515': BHC/Sonice 4752'-1515'; long space sonic 4748'-1515'. Dipmeter 4757'-1515'. Shot 30 sidewall cores 4713'-1370'; 100% recovered. Ran 111 jts 9 5/8" 53.5#, S-95 Buttress casing. Casing shoe at 4755' (4741' Schlumberger), f/c at 4667', lower FO 1543'; top FO at 1198'. Cemented first stage with 800 sacks 15.88 ppg class "G" cement with .75% D-65 and .2% D-46. Good returns throughout CIP (first stage) 7:30 PM, 3/3/81. Pumped second stage through upper FO with 300 sacks Arctic Set II 15.2 ppg cement. Second stage CIP at 4:00 PM, 3/5/81. Tested choke manifold, pipe and blind rams to 5000 psi; Hydril to 2500 psi. Tested casing to 3000 psi. Drilled to 4767'. Tested formation to equivalent 11.5 ppg mud (250 psi surface pressure with 10.5 ppg mud).

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

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

SIGNED _____ TITLE Chief of Operations DATE _____

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

_____ TITLE _____ DATE _____

*See Instructions on Reverse Side

Amended April 13, 1983

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: 1282' FNL; 1031' FWL
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.: Kuyanak Test Well No. 1

10. FIELD OR WILDCAT NAME: Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec 10, T18N, R16W, UM

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

14. API NO.:

15. ELEVATIONS (SHOW DF, KDB, AND WD): Pad: 11'; KB: 31'

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

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

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

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

An 8 1/2" hole reached TD of 6690' on 3/26/81. Logs were subsequently run. There was no indication of any potential hydrocarbon bearing zones evident. Beginning on March 30, 1981, the well will be plugged and abandoned as follows:

1. Set a cement plug across the Shublik and Sag River, 6350'-6150'.
2. Set a cement plug across Kingak and Walakpa SS, 5200'-5000'.
3. Set a cement plug across 9 5/8" casing shoe (9 5/8" @ 4755'), 4850'-4460'.
4. Displace mud in top 2000' of hole with diesel.
5. Install dry hole marker.

The above P&A procedure was verbally approved by Bill Hauser on March 28, 1981.

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

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

SIGNED _____ TITLE Chief of Operations DATE _____

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

_____ TITLE _____ DATE _____

*See Instructions on Reverse Side

Amended April 13, 1983

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: 1282' FNL; 1031'FWL
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.
Kuyanak Test Well No. 1

10. FIELD OR WILDCAT NAME
Wildcat

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 10, T18N, R15W, UM

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

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
Pad: 11'; KB: 31'

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

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

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

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

This is a confirming notice to abandon Kuyanak Test Well No. 1. This well was drilled to a depth of 6690' and logged. There was no evidence of any hydrocarbon bearing zones present in the well. Verbal approval was received from Bill Hauser on March 28, 1981, of intent to abandon. Ran HRT, DLL/MSFL/GR/SP, FDC/CNL/GR/CAL, BHC/GR/TTI, HDT Dipmeter, Sidewall Cores, Velocity Survey, HRT. Spotted cement plug No. 1, 6352' to 6152', with 70 sacks Class "G" cement with 0.2% D-13R at 15.8 ppg. Spotted cement plug No. 2, 5200 to 5000', with 115 sacks Class "G" cement with 0.2% D-13R at 15.8 ppg. Spotted cement plug No. 3, 4848' to 4464', with 170 sacks Class "G" cement with 0.2% D-13R at 15.8 ppg. Displaced top 2000 feet of hole with diesel fuel to surface. Installed dry hole marker. Released Nabors Rig 1 March 31, 1981, at 6:00 PM.

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

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

SIGNED _____ TITLE Chief of Operations DATE _____

(This space for Federal or State office use)

onforms with
ertinent
rovisions of
) CFR 221.

_____ TITLE _____ DATE _____

*See Instructions on Reverse Side

Amended April 13, 1983

Form 9-330
(rev. 5-68)

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*

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

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

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

7. UNIT AGREEMENT NAME: N/A

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

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.: Kuyanak 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: 1282' FNL; 1031' FWL
At top prod. interval reported below
At total depth: Same (straight hole)

11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec 10, T18N, R16W, UM

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

15. DATE SPUDDED	16. DATE T.D. REACHED	17. DATE COMPL. (*Ready to prod.*)	18. ELEVATIONS (DF, RKB, RT, GR, ETC.)*	19. ELEV. CASINGHEAD
2/13/81	3/26/81	N/A	Pad: 11'; KB: 31'	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
6690'	4464'	N/A	→	0'-TD	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: DI/BHCS/LSS/FDC/CNL, CNL/FDC, DLL/BHCS/LSS/Dipmeter, Temp, DLL, CNL/FDC, HRD, BHCS, Dipmeter, GR/SP/DLL/MSFL, GR/CAL/FDC, GR/BHCS, HRD Dipmeter

27. WAS WELL CORED: Yes

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)	100'	26"	325 Sx Arctic Set II	None
13 3/8"	72# (S-95)	1521'	17 1/2"	2280 Sx Arctic Set II	None
9 5/8"	53.5# (S-95)	4755'	12 1/4"	800 Sx Class "G" and 300 Sx AS II	None

28. 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*): N/A

32. N/A — ACID, SHOT, FRACTURE, CEMENT SQUEEZE, ETC.

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED

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.)

34. DISPOSITION OF GAS (*Sold, used for fuel, vented, etc.*) — 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 _____ TITLE Chief of Operations, ONPRA DATE _____

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

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.)

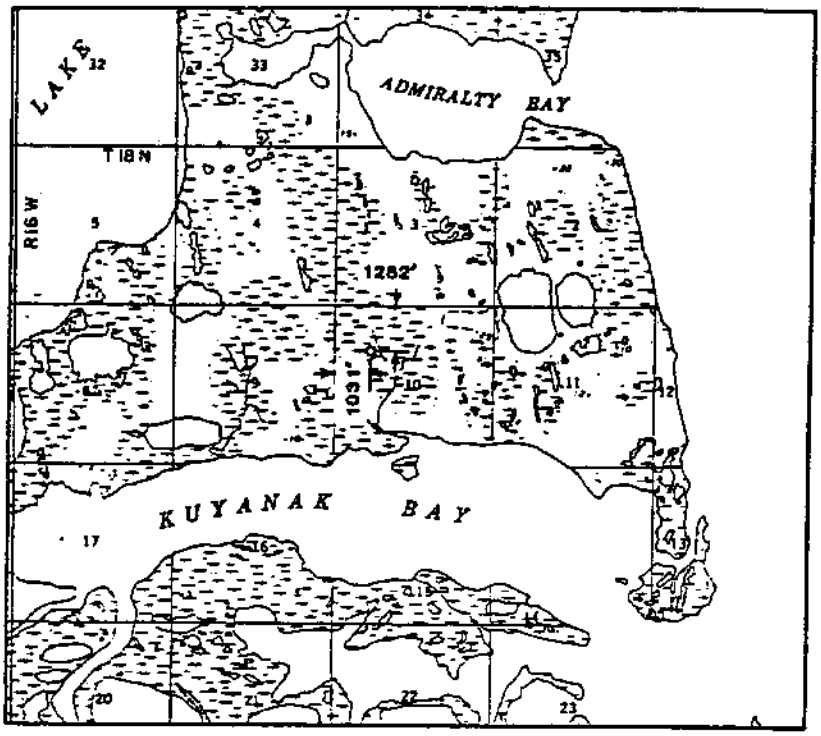
37 SUMMARY OF POROUS ZONES: SHOW ALL IMPORTANT ZONES OF POROSITY AND CONTENTS THEREOF; CORED INTERVALS; AND ALL DRILL-STEM TESTS, INCLUDING DEPTH INTERVAL TESTED, CUSHION USED, TIME TOOL OPEN, FLOWING AND SHUT-IN PRESSURES, AND RECOVERIES				38. GEOLOGIC MARKERS		
FORMATION	TOP	BOTTOM	DESCRIPTION, CONTENTS, ETC.	NAME	TOP MEAS. DEPTH	TOP TRUE VERT. DEPTH
"Pebble Shale" Unit	4965'	5024'	Core No. 1: See subsequent pages.	Nanushuk Group	Surface	
Base "Pebble Shale" Unit/ Kingak Shale	5024'	5075'	Core No. 2: See subsequent pages.	Torok Shale	1250'(?)	
Simpson SS	5093'	5153'	Core No. 3: See subsequent pages.	"Pebble Shale" Unit	4643'	
Base Simpson SS/Kingak Shale	5153'	5186'	Core No. 4: See subsequent pages.	Kingak Shale	5073'	
Sag River SS	6203'	6236'	Core No. 5: See subsequent pages.	Top Simpson SS	5090'	
Shublik Fm	6254'	6314'	Core No. 6: See subsequent pages.	Base Simpson SS	5164.6'	
Neruokpuk Fm	6682'	6690'	Core No. 7: See subsequent pages.	Sag River SS	6200'	
				Shublik Fm	6250'	
				Neruokpuk Fm	6557'	

U.S. GOVERNMENT PRINTING OFFICE: 1963 O-685430

871-733

CORE NO.	INTERVAL			DESCRIPTION
1	4965-5024' (Cut 59'; Rec 58.2')	4965-5023.2'	-	Sh, m-dk gy, sl slty to slty, w/f-crs, SR-R, in pt fros fltg qtz grns w/mica, pyr, carb frags & lams & a few fish scales, teeth, & skeletal frags; fairly hd, s amt sks.
2	5024-5075' (Cut 51'; Rec 50.9')	5024-5075'	-	37.6' sh, 11.1' grty sdy sh w/Cht pbls and 0.1' thn cgl at 5072'; also 0.8' Ls, 1.4' sh, rbly, broken.
3	5093'-5153' Cut 60'; Rec 58.4')	5093-5153'	-	Ss, lt gy, f grn, qtz w/abun glau, ang, p srtd, fis to fri w/difficulty, patchy cly cmt here & there, por is f overall w/20-35' g & 10-15' p, no fluor, no oil stn, no cut, no petroliferous odor.
4	5153-5186' (Cut 33'; Rec 33'	5153-5186'	-	11.6 ss as abv w/f-g por, no hydro carbon shows & tt in bottom ± 2'; contact w/sh is @ 5164.6'; 21.4' sh, m grn w/occ pyr incl, shell fos, fairly hd.
5	6203-6236' (Cut 33'; Rec 33')	6203-6223.9'	-	20.9', ss, m lt gy, v f grn, slty grdg to aren sltst, qtz, SA-SR, p srtd, sparsely glau w/incr glau in places, blk carb grns & frags, irreg arg strs, occ sh frags (incls), tr to occ tiny patch pore por, in general tt w/3' (6209-6212') arg shy zone; no shows; fairly well ind & hd, general mot marble-like appearance.
		6223.9-6236'	-	12.1', sh, m gy, slty w/v slty strs, mica w/tiny carb frags & irreg lams, lenses, and bands of sltst, fairly hd, brit.
6	6254-6314' (Cut 60'; Rec 60')	6254-6314'	-	Ss, lt gy, occ w/grn tinge from glau, brn-gy to m-gy, arg in bottom ± 0.8', v f grn & slty in top & bottom 10 ft, qtz, ang-SR, p srtd, w/sparse mica, rr pyr, few carb grns, calc to sl calc in places, occ v calc w/calc cmt in a couple places, approaching an aren arg, brn ls @ 6294', the rest w/cly cmt, mod fri,

CORE NO.	INTERVAL			DESCRIPTION
6 (Cont'd)				w/fos shell frags Pecten shells & unidentified Plcy scat thru core; @ 6258' had 0.3' blk, sm, rd nod or pos fos, irreg arg strks & burrows - bioturbated por ls tt to tr por from 6254-6270', tr to por to fr from 6254-6270', tr to por to fr from 6270-86', fr & fr-g por from 6286-6303', dec to tt in basal 5-6' w/some sec por in core.
7	6682-6690' (Cut 8'; Rec 7.7')	6682-6690'	-	Sh, m to dk gy, mica, slty to v slty in places w/occ thn sltst lam, sil, hd, banded at 80-90° vertical.



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.

0 1/2 1 2

SCALE IN MILES

KUYANAK 1-81

Lat. = 70°55'53.48"
Long. = 156°03'53.08"
Y = 6,194,132.46
X = 731,554.81
Zone 6

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

JOHN H. HERRING
No. 953-S

AS—STAKED LOCATION
FOR

KUYANAK No. 1

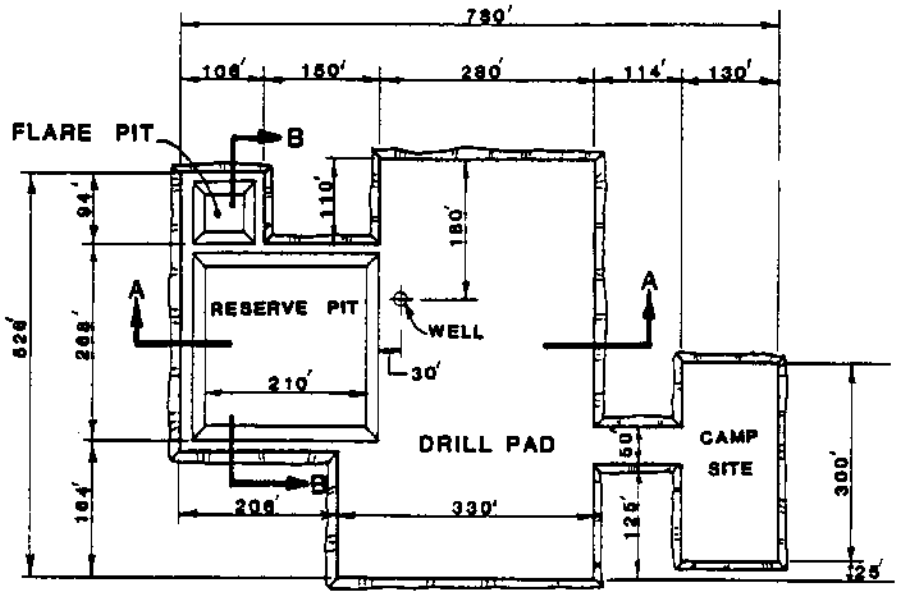
located in: NW 1/4 protracted Sec. 10, T. 18 N., R. 16 W., Umiat Meridian, Ak.

Surveyed for:

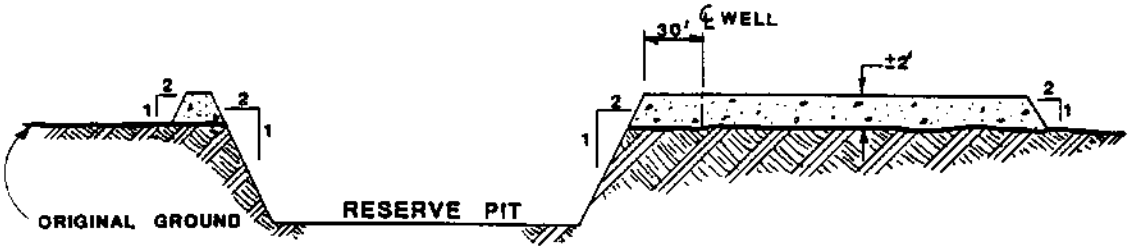
HUSKY OIL
NPR Operations Inc

Surveyed by: nana-bell-herring, inc.
engineers and land surveyors

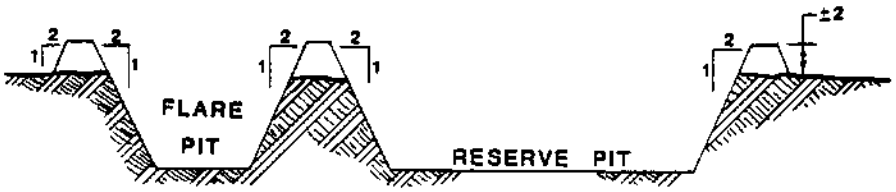
3340 Arctic Blvd. Suite 202, Anchorage, Alaska 99503



PLAN VIEW



SECTION A - A



SECTION B - B

KUYANAK DRILL PAD NO.1

OPERATIONS HISTORY

DATE AND FOOTAGE DRILLED AS OF 6:00 A.M.	ACTIVITY
12/23/80	Construction camp on site, began building drilling pad and ice airstrip, construction completed January 22, 1981.
1/18/81	Two Rolligons carrying drilling camp units arrived on location at 12:30 a.m. and left at 1:00 a.m. for the return trip to Lonely. Three Herc loads were received.
1/19/81	Rolligons were reloaded with camp units at Lonely and began the trip to Kuyanak. Two Herc loads were received.
1/20/81	Four Rolligon loads and three Herc loads were received this date. All camp units are on location. Began setting up camp.
1/21/81	Continued setting up camp. All camp units are in place except sewer plant. Expect that camp will be operational on January 23.
1/22/81	Moved four Rolligon loads. Diverted Rolligons around Admiralty Bay in order to stay off tundra with heavy loads. Received five Herc loads.
1/23/81	Received seven Herc loads and three Rolligon loads. Continued setting up camp.
1/24/81	Continued moving rig in. Camp is expected to be in full operation today.
1/25/81	Continued with rig move. Water treatment plant is not yet operational due to a broken bladder.
1/26/81	Moved the last four Rolligon loads. Two Herc loads of rig remain to be moved.
1/27/81	Rig move is complete. Several loads of support equipment are still to be moved.
1/28/81	Began rigging up subbase. Put derrick together on ground; set in master skid for pumps. Leveled and centered 20" conductor in 30" hole. Set conductor at 100' KB.

1/29/81	Finished rigging up subbase. Put draw works in shop; assembled draw-works guards. Pinned derrick to subbase and set on stand. Installed standpipe and rotary hose on derrick. Put board and crown on derrick; began rigging up elevator; set one mud tank.
1/30/81	Continued rigging up elevator; repaired draw works; set catwalk and blocks; rigged up bull line.
1/31/81	Finished repairs to draw works; finished rigging up elevator and set it. Installed draw works; set Nos. 1 and 2 engines on rig floor. Raised A-legs and pinned them in place. Worked on ice airstrip and road to camp.
2/1/81	Set up mechanics shop, supply house for rig, and electric shop. Set No. 3 motor on subbase and rigged up to compound. Set dog house on rig floor. Set Nos. 1 and 2 pumps and installed belts. Set Nos. 1, 2, and 3 mud tanks. Set fuel and water tanks. Set Nos. 1 and 2 generator houses and Nos. 1 and 2 boiler houses.
2/2/81	Hooked up steam lines; laid and hooked up fuel lines. Rigged up and set fuel tank. Started No. 2 rig generator. Hooked up Tioga heater; rigged up hot-air ducts; set in suitcases. Thawed fuel lines.
2/3/81	Worked on boiler and steam lines. Worked on rig lights. Lined up mud pump. Finished repairing Tioga heater and started same. Set Dowell house and six cement tanks. Rig-up is approximately 51% complete.
2/4/81	Worked on boiler; hooked up steam and water lines. Set rig work shop, oil house, and pump house. Rigged up and repaired electrical lines and lights. Worked on air compressor and cement transfer tanks. Started No. 1 boiler; lined up mud tanks. Dowell personnel finished rigging up their equipment.
2/5/81	Worked on boilers; replaced damaged hose connections. Thawed out steam lines and water lines and repaired same. Repaired electrical lines and steam heater. Began rigging up derrick lights. Installed derrick lines and prepared to string them.
2/6/81	Rigged up mud tank and pumps. Repaired and worked on steam heater. Rigged up draw-works compound; started No. 1 engine. Finished rigging up derrick lights; strung up blocks. Worked on No. 2 boiler.

2/7/81 Raised derrick; started No. 2 engine. Rigged up mud tanks and suction lines. Rigged up rig floor and windwalls. Dowell personnel worked on cement unit.

2/8/81 Finished rigging up windwalls. Worked on steam heater and hooked it up to rig floor. Worked on mud lines and mud tank. Rigged up and dressed out rig floor.

2/9/81 Rigged up mud lines inside mud tanks; performed general rig maintenance. Finished installing windwalls. Picked up kelly and swivel; checked out mud pumps. Installed 6" diverter lines. Airstrip and road to camp are closed due to weather.

2/10/81 Cemented conductor pipe with 325 sacks cement. Welded on 20" head; tested to 750 psi. Nippled up 20" Hydril; hooked up diverter lines and flow line. Set mud logging unit. Set choke house in place. Rigged up rotary chain and guard. Worked on steam heater. Finished rigging up kelly and standpipe manifold.

2/11/81 Finished rigging up V-door and windwalls. Rigged up mud cleaner, Flo-Sho, and stroke counter. Rigged up Baroid mud logging unit and blowout preventer hydraulic lines. Repaired electric and steam heaters.

2/12/81 Dowell personnel received equipment parts and began repairing cement unit; repairs should be completed today. Finished rigging up Flo-Sho and stroke counter. Finished setting in mud cleaner. Continued rigging up Baroid mud logging unit. Set and hooked up mud tank centrifugal motors. Thawed out water line and repaired same. Began filling mud tanks with water. Rigged up Totco recorder. Began picking up bottom-hole assembly.

2/13/81 Completed picking up bottom-hole assembly. Finished rigging up Baroid mud logging unit, Tri-Flo mud cleaner, and Totco drilling recorder. Filled mud tanks with water. Began mixing spud mud. Repaired and replaced rubbers in Dresser sleeves between mud tanks. Repaired leaks in mud line; repaired leaks in steam line and heaters. Completed laying and welding diverter line; circulated and inspected pumps, mud lines, and mud system; repaired leaks. Dowell cementing unit is repaired and in good working condition.

2/14/81 217'	Total Depth: 317'; Mud Weight: 9.0; Viscosity: 39. Performed miscellaneous rig-up activities. Mixed mud; tested blowout preventer to 250 psi. Mixed mud; repaired pump. Spudded well February 13, 1981, at 8.00 p.m. Flow line plugged; unplugged same and drilled ahead. Repaired leak in rig compound. Drilled; worked on fuel line; drilled.
2/15/81 1073'	TD: 1390'; MW: 9.5; Vis: 34. Drilled to 445'; picked up drilling collars. Drilled to 497'; surveyed. Drilled to 528'; surveyed. Drilled to 1025'; surveyed. Drilled to 1132'; circulated bottoms up (had drilling break from 1127' to 1132'). Drilled to 1390'; pulled out of hole for bit. Began running in hole with new bit.
2/16/81 139'	TD: 1529'; MW: 9.7; Vis: 43. Finished running in hole with bit. Drilled to 1529'. Circulated and conditioned hole; spotted light gel pill. Surveyed. Short tripped seven stands; had 25 feet of fill. Circulated; spotted heavy gel pill. Pulled out of hole. Ran in hole with logging tool. Ran DIL/GR, BHC-Sonic/GR, LS-Sonic and FDC/CNL/GR.
2/17/81 0'	TD: 1529'; MW: 9.6; Vis: 42. Reran DIL/GR; ran Dipmeter. Rigged down logging unit. Ran in hole; circulated and conditioned hole. Spotted light gel pill. Pulled out of hole to run 13-3/8" casing. Rigged up and ran 37 joints of 13-3/8", 72.0#, S-95 Buttress casing. Float shoe at 1521'; two joints of 13-3/8", 72#, S-95 Dowell duplex collar at 1445'. Rigged down casing tools; rigged up and circulated casing at 1521'.
2/18/81 0'	TD: 1529'; MW: 9.7; Vis: 43. Circulated 13-3/8" casing at 1521'; rigged down 13-3/8" circulating head. Rigged up and ran in hole with Dowell duplex stinger on drill pipe. Stabbed into duplex shoe at 1445'; circulated to clear drill pipe. Cemented casing with 2,280 sacks of ArcticSet II cement; 50 barrels of water ahead; slurry weight 14.8 to 15.2 ppg. Circulated to reserve pit until 14.8 ppg slurry returns were received. Displaced drill pipe with two barrels of water and 20 barrels of mud. Left four barrels of cement in drill pipe. Float collar held; drill pipe pulled dry. Had good returns throughout job. Pulled out of hole with drill pipe and duplex stinger. Waited on cement; cut off casing and nippled up 13-3/8" National head and blowout preventers.

2/19/81 0'	TD: 1529'; MW: 9.6; Vis: 35. Set slips in National head; tested to 1,500 psi; held OK. Worked on 13-3/8" x 20" head. Welded 2" packing ring. Began nippling up blowout preventer stack.
2/20/81 0'	TD: 1529'; MW: 9.6; Vis: 35. Finished nippling up blowout preventer; changed out blind rams. Made up and welded choke line. Pressure tested Tri-Flo choke.
2/21/81 150'	TD: 1679'; MW: 9.4; Vis: 39. Tested choke manifold and line to 5,000 psi, Hydril to 2,500 psi, pipe rams to 5,000 psi, and blind rams to 5,000 psi. Laid down 17-1/2" bit; laid down 9" Monel drill collar and 17-1/2" stabilizer. Tripped in hole with 12-1/4" bit. Tested 13-3/8" casing to 2,500 psi. Drilled float collar, cement, and shoe. Top of cement at 1439'. Drilled to 1540', tested formation to 260 psi with 9.6 ppg, equivalent to 12.8 ppg. Drilled to 1679'; circulated and pumped pill prior to trip. Began making up bottom-hole assembly.
2/22/81 1101'	TD: 2780'; MW: 9.5; Vis: 34. Finished making up bottom-hole assembly; tripped in. Drilled; surveyed at 2057'. Drilled; surveyed at 2562'. Drilled ahead.
2/23/81 530'	TD: 3310'; MW: 9.5; Vis: 35. Drilled; tightened pump belts. Drilled; circulated and surveyed. Pumped pill; blew down kelly. Pulled out of hole; changed bottom-hole assembly. Picked up 9" Monel drill collar and ran in hole. Cut 100 feet off drilling line. Tripped in hole; drilled ahead.
2/24/81 479'	TD: 3789'; MW: 9.7; Vis: 35. Drilled; surveyed. Drilled; pumped pill and short tripped 10 stands. Drilled; surveyed. Pumped pill; blew down kelly; tripped for bit. Changing mud system to $CaCl_2$.
2/25/81 416'	TD: 4205'; MW: 9.9; Vis: 38. Laid down five stands of drill pipe; added sub to bottom-hole assembly. Drilled ahead.
2/26/81 409'	TD: 4614'; MW: 10; Vis: 41. Drilled; surveyed. Drilled; circulated for samples. Drilled.
2/27/81 101'	TD: 4715'; MW: 10.1; Vis: 53. Drilled; circulated for samples. Drilled; circulated and conditioned hole in preparation for logging. Short tripped 15 stands. Washed to bottom; circulated and conditioned hole. Pulled out of hole; surveyed. Ran FDC/CNL/GR.

2/28/81 40'	TD: 4755'; MW: 10.4; Vis: 95. Finished running FDC/CNL/GR; experienced tight hole at 3400'. Rigged down logging unit; ran in hole. Had tight hole at 3500'. Washed and reamed to bottom. Drilled to 4736'. Serviced swivel. Drilled to 4755'; circulated and conditioned hole. Pumped pill; made 15-stand short trip. Circulated and conditioned hole to log. Blew down kelly; pulled out of hole, chain out. Rigged up to log. Ran in hole with test tool to 3000'; pulled out of hole with tool.
3/1/81 0'	TD: 4755'; MW: 10.8; Vis: 85. Ran DLL/MSFL, BHC-Sonic, and Long-Space Sonic. Attempted to run Dipmeter. Opened calipers on bottom; pulled 4,500 pounds over normal weight. Stopped; closed calipers. Ran back to bottom; pulled 4,500 pounds; tool freed. Pulled out of hole; no Dipmeter log. Rigged down logging unit. Ran in hole; cut drilling line. Finished running in hole; safety reamed 60 feet. Conditioned mud and hole.
3/2/81 0'	TD: 4755'; MW: 11.4; Vis: 81. Circulated and conditioned hole. Raised mud weight to 11.4 ppg. Pumped pill; pulled out of hole, with chain out, to 1500'. Ran in hole with logging unit. Ran Dipmeter (two runs); pulled off pad on first run. Shot 30 sidewall cores; recovered 30. Rigged down logging unit; tripped in hole.
3/3/81 0'	TD: 4755'; MW: 11.1; Vis: 90. Circulated and conditioned hole in preparation for running 9-5/8" casing. Surveyed; misrun. Tripped out; laid down bottom-hole assembly. Pulled wear ring and changed rams. Rigged up to run casing. Began running casing. Dropped 3" union inside casing; laid down 14 joints of casing to retrieve union. Resumed running casing.
3/4/81 0'	TD: 4755'; MW: 11.1; Vis: 92. Finished running 9-5/8" casing to 4755', a total of 111 joints. Rigged up head and lines. Circulated and waited on water (road to water hole closed due to drifting snow). Rigged up and cemented with 800 sacks Class "G" cement with 0.75% D-65 and 0.2% D-46; slurry weight 15.8 ppg; yield 1.15 cubic feet per sack; water ratio 4.97/gallon. Total slurry volume: 163 barrels. Had good returns throughout cement job. Ran 50 barrels D-104 (gelled water spacer) ahead of cement; displaced with 330 barrels mud. Did not bump plug. Casing shoe at 4755'; float collar at 4667'; lower FO at 1543';

top FO at 1198'; centralizers at 4745' on joints 1, 3, 5, 7 and 9; and one centralizer above and below each FO cementer. Waited on cement.

3/5/81
0'

TD: 4755'; MW: 10.9; Vis: 90. Installed emergency slips and packing assembly; tested to 5,000 psi. Nippled up blowout preventer; rebuilt drilling nipple and rigged up line from annulus to flow line.

3/6/81
0'

TD: 4755'; MW: 11.2; Vis: 94. Nippled up blowout preventer. Picked up Howco FO shifting assembly; ran in hole to 1283'. Tested casing to 500 psi. Opened upper FO at 1198' and circulated annulus. Closed FO; set packer. Tested FO to 2,500 psi. Reopened FO; established injection rate of 4 BPM at 600 psi. Pumped 10 barrels of water ahead of 300 sacks ArcticSet II, 15.2 ppg slurry; followed with two barrels water and 32 barrels mud. Top of cement at 1400'. Initial injection pressure: 800 psi at 4 BPM. Final injection pressure: 750 psi at 3 BPM. Cement in place at 4:00 p.m. Could not release packer; shut in; held cement in place. Waited on cement; released pressure. Closed FO; tested to 500 psi. Circulated annulus for one hour. Reopened FO; circulated 9-5/8" x 13-3/8" annulus. Had approximately 20 barrels lightly contaminated mud on return. Closed FO. Tested to 3,000 psi for 30 minutes. Tripped out; laid down Howco tools. Cleared rig floor of drilling tools. Tripped in with 7-1/2" drill collars and laid down same.

3/7/81
0'

TD: 4755'; MW: 11.2; Vis: 102. Finished laying down 7-1/2" drill collars; picked up twenty-one 6-1/4" drill collars and stood in derrick. Cleaned rig floor. Tested choke manifold to 5,000 psi; tested lower kelly valve to 2,000 psi; upper kelly valve would not test.

3/8/81
12'

TD: 4767'; MW: 10.5; Vis: 45. Tested all blowout preventers to 5,000 psi; tested Hydril to 2,500 psi; upper kelly still would not test. Repaired Flo-Sho and remote control on Koomey unit. Installed wear bushing. Ran in hole with bit; tagged cement at 1276'. Cleaned out cement from 1276' to 1326'. Ran in hole to 4598'; tagged cement 65 feet above F.C. (4663'). Tested casing to 3,000 psi. Drilled cement from 4598' to 4726'; tested casing to 3,000 psi. Drilled from 4726' to 4755' plus 12 feet of formation to 4767'. Circulated and conditioned mud. Tested formation with 0.6 gradient, 250 psi surface pressure.

3/9/81 198'	TD: 4965'; MW: 10.5; Vis: 45. Circulated and conditioned mud. Tripped out; picked up reamer, shock sub, and stabilizers. Built new bit breaker carrier. Tripped in with new bit; reamed and cleaned to 4767'. Drilled to 4965'; circulated; dropped survey. Tripped out for core barrel.
3/10/81 57'	TD: 5022'; MW: 10.1; Vis: 39. Finished tripping for core barrel. Picked up core barrel and ran in hole. Reamed from 4935' to 4965'; had three feet of fill. Began cutting Core No. 1 at 4965'.
3/11/81 3'	TD: 5025'; MW: 10.1; Vis: 40. Finished cutting Core No. 1 at 5024'. Circulated and pumped pill; tripped out of hole. Laid down core; received 58.2 feet. Made up bit, shock sub, and roto reamer on stand of drill collars. Ran in hole; took weight in area of wear bushing. Laid down bottom-hole assembly. Pulled and inspected wear bushing. Reinstalled bushing. Picked up bottom-hole assembly and ran in hole. Reamed from 4960' to 5024'; circulated and conditioned mud. Tripped out for core barrel; picked up core barrel and ran in hole. Washed 30 feet to bottom. Began cutting Core No. 2.
3/12/81 50'	TD: 5075'; MW: 10.2; Vis: 42. Cut Core No. 2, 5024' to 5075'. Core barrel jammed. Pumped pill; tripped out of hole. Laid down core; received 50.9 feet. Picked up bottom-hole assembly and tripped in hole.
3/13/81 78'	TD: 5153'; MW: 10.3; Vis: 40. Ran in hole to shoe; slipped and cut 100 feet off drilling line. Serviced rig. Ran in hole; reamed 15 feet to bottom; no fill. Drilled from 5075' to 5093'; circulated samples. Pulled out of hole to core. Laid down bottom-hole assembly; picked up core barrel. Ran in hole with core barrel; washed from 5033' to 5093'. Cut Core No. 3, 5093' to 5153'.
3/14/81 33'	TD: 5186'; MW: 10.3; Vis: 39. Circulated and pumped pill. Pulled out of hole with Core No. 3. Laid down core; recovered 58.4 feet of core. Ran in hole with core barrel; washed and reamed from 5093' to 5153'. Cut Core No. 4, 5153' to 5186'. Circulated; pumped pill; pulled out of hole. Laid down core; recovered 33 feet. Changed upper kelly valve. Picked up drilling assembly and ran in hole.

3/15/81 215'	TD: 5401'; MW: 10.2; Vis: 44. Tripped in hole with drilling assembly. Reamed from 5086' to 5186'; no fill. Drilled to 5401'; circulated. Dropped survey; pulled out of hole for bit.
3/16/81 152'	TD: 5553'; MW: 10.3; Vis: 43. Repaired rotary chain. Tripped out of hole; tested blowout preventer. Tripped in hole with bit; reamed from 5341' to 5401'. Drilled from 5401' to 5485'. Repaired rotary chain. Drilled ahead.
3/17/81 96'	TD: 5649'; MW: 10.5; Vis: 44. Drilled to 5649'; dropped survey. Tripped for new bit. Attempted to circulate but mud volume was too low. Tripped out to casing shoe; built mud volume.
3/18/81 87'	TD: 5736'; MW: 10.2; Vis: 41. Built mud volume; lost mud through open dump gate. Tripped in hole from shoe; tight at 5100'. Reamed from 5590' to 5649'; circulated and surveyed at 5649'. Repaired mud pumps. Started out of hole to change bottom-hole assembly; after 10 stands tripped back in hole to resurvey. Circulated; surveyed at 5649'. Drilled ahead.
3/19/81 131'	TD: 5867'; MW: 10.6; Vis: 39. Drilled from 5736' to 5760'. Ran out of water; blew down water lines. Drilled to 5832'. Short tripped 10 stands; no drag; had 25 feet of fill. Washed and reamed from 5772' to 5832'. Drilled to 5850'; circulated and checked for flow. Drilled ahead.
3/20/81 113'	TD: 5980'; MW: 10.5; Vis: 39. Drilled to 5980'; pumped pill and dropped survey. Pulled out of hole; retrieved survey; serviced roller reamer and changed bit. Ran in hole with new bit to 5960'. Reamed to 5980'.
3/21/81 172'	TD: 6152'; MW: 10.4; Vis: 47. Drilled to 6006'; circulated bottoms up. Drilled to 6134'; checked for flow; circulated samples. Drilled to 6152'; circulated; dropped survey. Pulled out of hole; changed bits. Picked up junk basket; changed jars. Ran in hole.
3/22/81 67'	TD: 6219'; MW: 10.4; Vis: 39. Ran in hole with new bit; washed and reamed from 6082' to 6152'; had 20 feet of fill. Drilled to 6200'; checked for flow and circulated samples. Drilled to 6203'; checked for flow. Slugged pipe; pulled out of hole. Laid down stabilizers; picked up core barrel. Ran in hole to

4700'; cut drilling line. Ran in hole; encountered bridge at 4652'. Washed and reamed to 5740'. Ran in hole to 6162'; washed and reamed from 6162' to 6203'. Installed rotary chain. Began cutting Core No. 5.

3/23/81
35'

TD: 6254'; MW: 10.4; Vis: 43. Cut Core No. 5, 6203' to 6236'. Pulled out of hole; laid down and serviced core barrel; recovered a 33' core. Tested blowout preventers. Dumped sand trap and cleaned flow lines. Ran in hole; washed and reamed from 6176' to 6236'; had 15' of fill. Drilled to 6254'. Checked for flow; circulated samples; pumped pill. Pulled out of hole, steel-line measuring; no correction. Changed bottom-hole assembly; picked up core barrel. Ran in hole for Core No. 6.

3/24/81
115'

TD: 6369'; MW: 10.3; Vis: 44. Ran in hole with core barrel to 4700'. Serviced rig. Ran in hole with core barrel to 5951'; hit bridge. Washed and reamed from 5951' to 6254'; had 20 feet of fill. Circulated and dropped ball. Cut Core No. 6, 6254' to 6314'. Pulled out of hole; received 60' of core. Picked up bottom-hole assembly; ran in hole to 6234'. Washed and reamed from 6234' to 6314'; had two feet of fill. Drilled ahead.

3/25/81
196'

TD: 6565'; MW: 10.4; Vis: 39. Drilled ahead.

3/26/81
100'

TD: 6665'; MW: 10.3; Vis: 45. Pumped pill. Pulled out of hole; changed bit; cleaned junk basket and redressed reamer. Ran in hole to 6510'. Washed and reamed from 6510' to 6566'; had 12 feet of fill. Drilled to 6665'.

3/27/81
25'

TD: 6690'; MW: 10.4; Vis: 48. Drilled to 6682'; pumped pill. Pulled out of hole; changed bottom-hole assembly. Picked up core barrel; ran in hole to 6634'. Washed and reamed from 6634' to 6682'; had eight feet of fill. Dropped ball; cut Core No. 7, 6682' to 6690'. Repaired 5" drill-pipe slips. Pulled out of hole, retrieved core and laid down core barrel. Recovered 7.7 feet of core. Rigged up logging unit and ran in hole with logging tool.

3/28/81
0'

TD: 6690'; MW: 10.3; Vis: 47. Attempted to run temperature survey. Could not get deeper than 5330'; laid down temperature tool. Thawed out DLL tool; ran in hole for DLL/MSFL/GR/SP log. Could not get below 6256'. Pulled out of hole, laid down tool,

rigged-down Schlumberger, ran in hole to 6643'; washed and reamed from 6643' to 6690'. Circulated and conditioned mud. Made a ten-stand short trip. Had 50,000 to 75,000 pounds drag over string weight from 6484' to 6124'. Washed and reamed from 6645' to 6690'; had 20 feet of fill. Circulated; made five-stand short trip; no drag. Circulated and spotted gel pill on bottom. Surveyed; spotted bar pill; blew down kelly. Chained out of hole to 4700'; no drag. Continued pulling out of hole. Surveyed (misrun). Rigged up logging unit. Began running Temperature Survey.

3/29/81
0'

TD: 6690'; MW: 10.3; Vis: 44. The following logs were run: Temperature Survey, DLL/MSFL/GR/SP, FDC/CNL/GR, BHC-Sonic/GR, HDT-Dipmeter, and Velocity Survey.

3/30/81
0'

TD: 6690'; MW: 10.3; Vis: 44. Shot 17 sidewall cores; recovered 16. Ran Temperature Survey and HDT-Dipmeter. Rigged down logging unit. Pulled wear bushing. Ran in hole with bottom-hole assembly. Pulled out of hole; laid down bottom-hole assembly. Ran in hole with open-ended drill pipe to 4700'; slipped and cut drilling line. Ran in hole to 5488'. Picked up drill pipe and ran in hole to 6352'. Thawed plug out of kelly; circulated and conditioned mud.

3/31/81

TD: 6690'; PBTD: 4464'. Spotted cement Plug No. 1 from 6352' to 6152' with 70 sacks Class "G" cement plus 0.2% D-13R at 15.8 ppg. Circulated and conditioned mud. Spotted cement Plug No. 2 from 5200' to 5000' with 115 sacks Class "G" cement plus 0.2% D-13R at 15.8 ppg. Spotted cement Plug No. 3 from 4848' to 4464' with 170 sacks Class "G" cement with 0.2% D-13R at 15.8 ppg. Pulled out of hole to 3915'; reversed out. Laid down drill pipe. Displaced $CaCl_2$ mud with water from 2000'. Reversed out water and changed to diesel from 2000' to the surface to allow the well to be used in the USGS's North Slope geothermal measurements program. Finished laying down drill pipe and kelly. Nippled down blowout preventers and cleaned mud pits.

4/1/81

TD: 6690'; PBTD: 4464'. Finished nippling down blowout preventers; nippled up abandonment valves and marker. Finished cleaning mud pits. Released rig March 31, 1981, at 6:00 p.m. Began rigging down and moving rig and material from location.

DRILLING TIME ANALYSIS

KUYANAK TEST WELL NO. 1

NABORS ALASKA DRILLING, INC., RIG 1

Spudded 2/13/81; Rig released 3/31/81

Total Depth: 6,690 Feet

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

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
1981 1-18																							12	Unloading Rolligon	Began Moving Camp Units From Camp Lonely
1-19																							24	Unloading Rolligon	
1-20																							24	Unloading Hercs	
1-21																							24	Unloading Hercs	
1-22																							24	Unloading Hercs	
1-23																							24	Unloading Hercs	
1-24																							24	Unloading Hercs	
1-25																							24	Unloading Hercs	
1-26	24																							Rigging Up Sub-structure	
1-27	24																							Rigging Up Drawworks	Set 20" at 100'
1-28	24																							Setting Master Skid	
1-29	24																							Rigging Up Elevator	
1-30	24																							Working on Derrick	
1-31	24																							Setting Motors	
2-1	24																							Setting Water Tanks	

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

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
2-2	24																							Rigging Up Diesel Lines	
2-3	24																							Setting Oil House	
2-4	24																							Working on Steam Lines	
2-5	24																							Rigging Up Derrick	
2-6	24																							Rigging Up Derrick	
2-7	24																							Rigging Up Floor	
2-8	24																							Working on Wind Walls	
2-9	24																							Rigging Up Flowline	
2-10	24																							Picking Up Drill Collars	
2-11	24																							Starting Drawworks Engine	
2-12	24																							Fixing Water Leaks	
2-13	20	2																				2		Mixing Mud	Spudded Well at 8:00 p.m.
2-14	17½			2½	2½		1½	½																Drilling	
2-15		6½		2½	½			4	5½															Changing Bit	
2-16				3				2½	13	5½														Logging	Ran Schlumberger Wireline Logs

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

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
2-17				3				3		10		8												Circulating	Set 13 3/8" at 1521'
2-18										1½		22½												Working On Packoff Rings	
2-19												24												Nippling up BOPs	
2-20		1		4								3	13										3	Testing BOP	
2-21		14½		3	1			½															5	Making up BHA	
2-22		12½		5	2		½																4	Drilling	
2-23		21¾		1½	¾																			Drilling	
2-24		17½		6	½																			Running in Hole	
2-25		23			1																			Drilling	
2-26		10½	¼	6¼				6																Drilling	
2-27		4½	¾	7½		½		4	7															Logging	Ran Schlumberger Wireline Logs
2-28				4½				2	17½															Logging	
3-1				5¾				8½	8½														1½	Washing & Reaming	
3-2				6½	1			3	4	3½		1											5	Washing & Reaming	
3-3								9		11		4												Running Casing	Set 9 5/8" at 4755

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

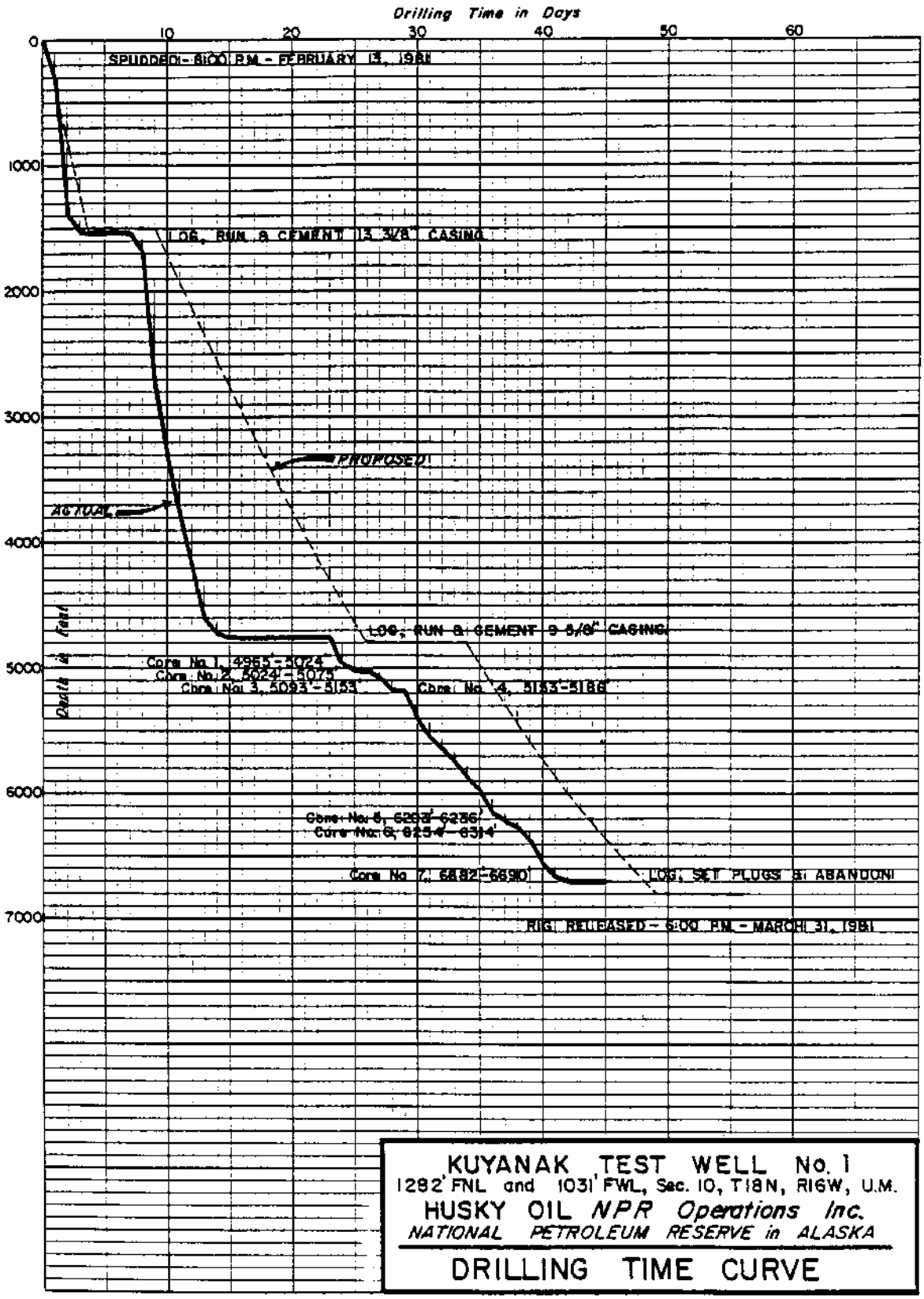
DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
3-4												24												Setting Casing	
3-5					5			4		4		7	1										3	Nippling Up	
3-6					18								3										3	Laying Down Drill Collars	
3-7					7½			1½					10½										4½	Testing BOPE	
3-8		12	1½	6½				2															2	Circulating	
3-9		3½	1	7½	½			1									10½							Pumping Pill	Core No. 1: 4965' - 5024'
3-10			1	10				1½									6½						5	Coring	
3-11			½	6													17½							Coring	Core No. 2: 5024' - 5075'
3-12		2	2	12		½	2	1½									3						1	Running In Hole	Core No. 3: 5093' - 5153'
3-13			½	6				½									15						2	Circulating	Core No. 4: 5153' - 5186'
3-14		16	1	5				½															1½	Picking up BHA	
3-15		12	½	6			1½	1					3											Pulling Out of Hole	
3-16		22		1½	½																			Drilling	
3-17		6½	½	7	1½		2	6½																Building Mud Volume	
3-18		20½	½	2			1																	Drilling	

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

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
3-19		22½		½	½			½																Drilling	
3-20		15	½	5½				3																Drilling	
3-21		6½	2½	11½				2½															1	Running In Hole	
3-22		1	2½	5			1	2					2½				8						2	Coring	Core No. 5: 6203' - 6236'
3-23		2½	1½	12½		½		2									5							RIH With Core Barrel	Core No. 6: 6254' - 6314'
3-24		23½	½																					Drilling	
3-25		15½	½	6½																			1½	Drilling	
3-26		9	1	8½			1										4						½	Drilling	Core No. 7: 6682' - 6690'
3-27			1½	4½				4	13														1	Logging	Ran Schlumberger Wireline Logs
3-28				2½	½				21															Logging	
3-29				5					18														1	Logging	
3-30				13					3½	3½													4	Cementing	Set Cement Plugs
3-31	6											18												Cleaning Mud Pits	Released Rig at 6:00 p.m.
4-1	24																							Rigging Down	
4-2	24																							Rigging Down	

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

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
4-3	24																							Rigging Down	
4-4	24																							Rigging Down	
4-5	24																							Rigging Down	
4-6	24																							Rigging Down	
4-7	24																							Rigging Down	
4-8																							24	Loading Rolligons	
4-9																							12	Stacking Rig	
4-10																							12	Stacking Rig	
4-11																							12	Loading Rolligons	
4-12																							12	Loading Rolligons	
	643¼	21		12½		12		110¾		-0-		33		-0-		69½		-0-		-0-		305¼			
TOTAL HOURS		303½		241½		1½		75¼		39		111½		-0-		-0-		-0-		-0-		-0-			


Drilling Time in Days
0
10
20
30
40
50
60
1000
2000
3000
4000
5000
6000
7000
Depth in Feet
SPUDDED - 6:00 P.M. - FEBRUARY 13, 1981
LOG, RUN & CEMENT 13 3/8" CASING
PROPOSED
ACTUAL
LOG, RUN & CEMENT 9 5/8" CASING
Core No. 1, 4965' - 5024'
Core No. 2, 5024' - 5075'
Core No. 3, 5093' - 5153'
Core No. 4, 5153' - 5186'
Core No. 5, 6293' - 6336'
Core No. 6, 6254' - 6314'
Core No. 7, 6882' - 6890'
LOG, SET PLUGS & ABANDON
RIG RELEASED - 6:00 P.M. - MARCH 31, 1981
KUYANAK TEST WELL No. 1
1282' FNL and 1031' FWL, Sec. 10, T18N, R16W, U.M.
HUSKY OIL NPR Operations Inc.
NATIONAL PETROLEUM RESERVE in ALASKA
DRILLING TIME CURVE

DRILLING MUD RECORD

ARCTIC DRILLING SERVICES

COMPANY Husky Oil NPR Operations, Inc. STATE Alaska CASING PROGRAM: 20 inch at 100 ft.

WELL Kuyanak Test Well No. 1 COUNTY North Slope Borough 13 3/8 inch at 1521 ft.

CONTRACTOR Nabors Rig 1 LOCATION NPRA SEC 10 TWP 18N RNG 16W 9 5/8 inch at 4755 ft.

STOCKPOINT DATE BAROID ENGINEER TOTAL DEPTH 6690 ft.

DATE 1981	DEPTH feet	WEIGHT lb/gal	VISCOSITY Sec API @ °F	PV @ °F	Yp	GELS 10 sec/10 min	pH Strip ☐ Meter ☐	FILTRATION ml API	HTHP ml @ °F	Cake 32nds	FILTRATE ANALYSIS Pm	Pf/Mf	Cl ppm	Ca ppm	SAND %	RETORT Solids %	Oil %	Water %	CEC Mud, me/ml	REMARKS AND TREATMENT
2/13		8.5	31	4	2	0/1	11	25		2	.5	.6	700	180	0	2	0	98		
2/14	317	9.0	39	9	13	3/11	10.5	20		3	.5	.6	600	180	.5	4	0	96		
2/15	1390	9.5	34	9	6	4/9	8.5	24		3	.1	.2	1000	40	.25	8	0	92		
2/16	1530	9.7	43	11	14	4/18	9	14		3	.2	.6	800	40	.25	9	0	91		
2/17	1530	9.6	42	11	13	4/16	9	12		2	.2	.6	900	40	.25	8	0	92		
2/18	1530	9.6	35	9	6	2/4	9	12		2	.2	1.8	900	40	.25	8	0	92		
2/19	1530	9.6	35	9	6	2/4	9	12		2	.2	1.8	900	40	.25	8	0	92		
2/20	1530	9.6	35	9	6	2/4	9	12		2	.2	1.8	900	40	.25	8	0	92		
2/21	1677	9.4	38	10	12	10/14	9	22		2	.1	.5	1200	440	.25	7	0	93		
2/22	2780	9.5	34	7	10	6/16	8.5	18		2	.1	.2	800	120	Tr	7	0	93		
2/23	3310	9.5	35	8	7	4/6	9	11		2	.4	.6	650	120	Tr	6	0	94		
2/24	3789	9.7	35	8	10	10/14	8	18		3	.0	.4	18000	10000	Tr	7	0	93		Slowly changed to $CaCl_2$.
2/25	4205	9.9	38	7	18	12/15	8	16		3	.0	.2	32000	17900	Tr	8	0	92		
2/26	4610	10.0	41	10	20	14/16	8	14		3	.0	.2	35000	20000	Tr	8	0	92		
2/27	4715	10.1	53	11	33	18/27	8	12		4	.0	.2	34000	19000	Tr	10	0	90		
2/28	4755	10.4	95	12	75	32/40	8	12		5	.0	.2	34000	19000	Tr	12	0	88		
3/1	4755	10.8	85	12	45	22/31	8	12		5	.0	.2	30000	16000	Tr	14	0	86		Circulated mud; raised weight.
3/2	4755	11.4	81	20	65	27/39	8	6.0		4	0	.2	32000	18000	Tr	16	0	82		
3/3	4755	11.1	90	25	50	32/41	8	9.0		4	0	.2	32000	18000	Tr	15	0	85		
3/4	4755	11.1	92	25	52	34/44	8	10.0		4	0	.2	32000	18000	Tr	15	0	85		
3/5	4755	10.9	90	25	50	32/41	8	9.0		4	0	.2	32000	18000	Tr	15	0	85		
3/6	4755	11.2	94	20	56	34/46	8	12.0		4	0	.2	33000	19000	Tr	16	0	84		
3/7	4755	11.2	102	22	60	36/58	10	14.0		6	0	.8	32000	18000	Tr	16	0	84		
3/8	4755	10.6	45	16	2	2/18	11.0	28.0		5	.2	1.0	25000	18000	Tr	12	0	88		
3/9	4895	10.5	45	12	12	8/15	9.0	12.0		4	.1	.5	32000	18000	Tr	12	0	88		
3/10	5004	10.1	39	10	7	8/16	8.5	14.8		3	0	.4	30000	18000	Tr	10	0	90		
3/11	5024	10.1	40	10	10	10/15	8.5	12.6		3	0	.2	34000	20000	0	10	0	90		
3/12	5075	10.2	42	7	12	5/20	8.0	14.0		3	0	.2	34000	20000	0	12	0	88		
3/13	5115	10.3	40	9	11	10/22	8.0	14.4		3	0	.1	32000	19000	0	10	0	90		
3/14	5182	10.3	39	9	9	7/20	8.0	12.6		3	0	.1	34000	20000	0	10	0	90		
3/15	5370	10.2	44	10	17	17/22	8.0	15.0		3	0	.1	29000	19000	0	12	0	88		Mud becoming aired up.
3/16	5505	10.3	43	12	14	12/27	8.0	9.4		2	0	.1	33000	19000	0	Tr	13	87		
3/17	5648	10.5	44	11	13	12/24	8.0	15.4		3	0	.1	35000	21000	0	15	0	85		Mud aired up.
3/18	5696	10.2	41	10	17	16/21	8.0	15.8		3	0	.1	32000	20000	Tr	10	0	90		Lost 500 barrels thru sfc eqpt.
3/19	5839	10.6	39	10	14	14/20	8.0	20.4		3	0	.1	35000	22000	.5	15	0	85		Short on water; mud slightly dehydrated.

DRILLING MUD RECORD

ARCTIC DRILLING SERVICES

COMPANY Husky Oil NPR Operations STATE Alaska CASING PROGRAM: _____ Inch at _____ ft.

WELL Kuyanak Test Well No. 1 COUNTY North Slope Borough _____ Inch at _____ ft.

CONTRACTOR _____ LOCATION _____ SEC _____ TWP _____ RNG _____ _____ Inch at _____ ft.

STOCKPOINT _____ DATE _____ BAROID ENGINEER _____ TOTAL DEPTH _____ ft.

DATE	DEPTH	WEIGHT	VISCOSITY		Yp	GELS	pH	FILTRATION			FILTRATE ANALYSIS				SAND	RETORT			CEC	REMARKS AND TREATMENT
	feet	lb/gal	Sec API @ ___°F	PV @ ___°F		10 sec/ 10 min	Strip □ Meter □	ml API	HTHP @ ___°F	Cake 32nds	P_m	P_f/M_f	Cl ppm	Ca ppm	%	Solids %	Oil %	Water %	Mud, me/ml	
3/20	5980	10.5	39	10	17	14/22	8.0	22.8		4	0	0	33000	21000	Tr	14	0	86		Mud still dehydrated.
3/21	6151	10.4	47	14	10	4/16	8.0	9.0		3	0	.1	35000	21000	Tr	14	0	86		Running water.
3/22	6203	10.4	39	11	5	3/12	8.0	12.8		2	0	.1	31000	20000	Ø	13	0	87		
3/23	6253	10.4	43	4	16	5/22	7.5	18.2		3	0	0	32000	20000	0	13	0	87		
3/24	6314	10.3	44	14	10	6/16	7.0	12.8		2	0	0	31000	20000	0	13	0	87		
3/25	6520	10.4	37	11	2	2/8	7.0	8.3		2	0	0	35000	23000	0	13	0	87		
3/26	6629	10.3	45	13	10	5/14	7.0	15.2		2	0	0	31000	19000	0	14	0	86		
3/27	6682	10.4	48	15	11	2/12	7.0	9.2		2	0	0	33000	20000	0	15	0	85		
3/28	6690	10.3	47	12	10	5/11	7.0	10.0		2	0	0	33000	20000	0	14	0	86		
3/29	6690	10.3	44	8	10	3/10	7.0	10.8		2	0	0	32000	18000	0	14	0	86		

BIT RECORD

COMPANY	CONTRACTOR	COUNTY	STATE
Husky Oil NPR Operations, Inc	Nabors Alaska Drilling	North Slope Borough	Alaska

LEASE	WELL NO	SEC	TOWNSHIP	RANGE	BLOCK	FIELD
National Petroleum Reserve	Kuyanak Test Well No. 1	10	18N	16W		

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	FTGS	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 T	B	G	REMARKS FORMATION CIRC. FLUID, ETC.	DATE
1	17½	HTC	OSC3A	AL793	12	12	12	1390	1290	22	22	59	50	120		1750			58			4	6	I		
2	17½	HTC	OSC1G	2C427	12	12	12	1529	139	3½	25½	40	50	120		1750			58			1	1	1		
3	12¼	STC	DSJ	AL7013	12	12	11	2973	1444	25	50½	58	45	80		2100			56	9.5		4	6	1/16		
4	12¼	HTC	X1G	PM172	12	12	12	3789	816	17½	78	78	45	80		2100			56	9.5		4	4	1/16		
5	12¼	STC	SDS	AN0698	12	12	11	4715	926	48½	126½	19	45	130		2300			60	10.1		4	6	1/16		
6	12¼	HTC	X1G	PM172	12	12	11	4755	40	4½	131	9	45	120		2300			55	10.4						
7	8½	STC	DSJ	MK618	13	13	13	4767	12	-	131	-	25	65		1000			63	10.5		2	2	I		
8	8½	HTC	X3A	2B079	10	10	10	4965	198	11	142	18	45	90		2300			60	10.5		5	4	I		
CH1	8½	CDP	MC201	1W4233				5024	59	17	(17)	3	20	65		900			52	10.1		G	O	D		
CH2	8½	CDP	MC201	1W4233				5075	51	17½	(34½)	2.9	18	65		900			54	10.2		G	O	D		
9	8½	Reed	S136	912518	10	10	10	5093	18	2	144	9	40	80		2300			60	10.2		1	1	1		
CH3	8½	CDP	MC201	1W4233				5153	60	7½	(42)	22	50	50		1100			51	10.3	40	G	O	D		
CH4	8½	CDP	MC201	1W4233				5186	33	9	(51)	3.6	25	60		900			51	10.3		G	O	D		
10	8½	Reed	S13G	912518	10	10	10	5401	215	19	163	11.3	45	80	4°	2000			60	10.2		5	7	I		
11	8½	HTC	J22	NT740	10	10	10	5649	248	31	194	8	40	60	4½°	1700			55	10.5		3	6	I		
12	8½	HTC	J33	2X045	10	10	10	5980	331	49½	243½	6.7	44	44	4½°	2000			53	10.4	40	3	5	1/16		
13	8½	Reed	S13G	911230	9	10	10	6152	172	15	258½	11.4	40/45	85	5°	2000			53	10.4	42	7	8	1		
14	8½	HTC	J-22	KH201	9	9	10	6203	51	6½	265	7.8	45	45		2000			56	10.5	42	1	1	1		
CH5	8½	CDP	MC201	1W4233				6236	33	8	(59)	4.1	24/27	60		900			54	10.5	41	G	O	D		
RR14	8½	HTC	J-22	KH201	9	9	10	6254	18	1	266	18	45	60		2000			56	10.4	43	1	1	I		
CH1	8½	CDP	MC201	1W4233				6314	60	7½	(66½)	8	24/27	60		900			60	10.3	44	G	O	D		

SMITH REPRESENTATIVE _____ PHONE _____

BIT RECORD

COMPANY: Husky Oil NPR Operations, Inc. | CONTRACTOR: Nabors Alaska Drilling | COUNTY: North Slope Borough | STATE: Alaska

LEASE: National Petroleum Reserve | WELL NO: Kuyanak Test Well No. 1 | SEC: 10 | TOWNSHIP: 18N | RANGE: 16W | BLOCK | FIELD

TOOL PUSHER | 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 I	O	G	REMARKS FORMATION, CIRC FLUID, ETC	DATE
RR14	8½	HTC	J-22	KH201	9	9	10	6565	251	29½	295½	8.5	50	55		2000			54	10.4	40	3	5	I		
15	8½	HTC	J-22	KH055	9	9	10	6682	117	18½	314	6.2	45	55		2000			54	10.4	44	1	1	I		
CH1	8½	CDP	MC201	1W4233				6690	8	4	(70½)	2	30	60		1000			52	10.3	48	G	0	0		

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 Kuyanak Test Well No. 1 was as follows: 20" conductor at ±100'; 13-3/8" at ±1500'; 9-5/8" at ±4825'; and a 7" liner from 4825' to a total depth of 6800' if needed for formation evaluation. Actual casing run was 20" conductor at 100'; 13-3/8" at 1521'; and 9-5/8" at 4755'. The 7" liner was not required.

The upper 2000' of the 9-5/8" annulus was filled with diesel when the well was abandoned. This was to allow future re-entry into the upper well bore by U. S. Geological Survey personnel to take temperature measurements.

CASING TALLY
SUMMARY SHEET

DATE: February 16, 1981

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

SUMMARY OF PAGE MEASUREMENTS

	NO. OF JOINTS	FEET	.00'S
PAGE 1	45	1852	45
PAGE 2			
PAGE 3			
PAGE 4			
PAGE 5			
PAGE 6			
PAGE 7			
PAGE 8			
PAGE 9			
TOTAL	45	1852	45

SUMMARY OF DEPTH CALCULATIONS

		NO. OF JOINTS	FOOTAGE FEET	FOOTAGE .00'S
1	TOTAL CASING ON RACKS	45	1852	45
2	LESS CASING OUT (JTS NOS. 38 thru 45)	8	331	53
3	TOTAL (1 - 2)	37	1520	92
4	SHOE LENGTH		1	82
5	FLOAT LENGTH		1	35
6	MISCELLANEOUS EQUIPMENT LENGTH			
7	TOTAL CASING AND EQUIPMENT FROM CEMENT HEAD (3 + 4 + 5 + 6)	37	1524	09
8	LESS WELL DEPTH (KB REFERENCE)			
9	"UP" ON LANDING JOINT			

Weight indicator before cementing: 115,000 ; after slack-off: _____ ; inches slacked off 1/2 .

SUMMARY OF STRING AS RUN

WEIGHT	GRADE	THREAD	MANUFACTURER	CONDITION NEW-USED	LOCATION IN STRING		NO. OF JOINTS	FOOTAGE	INTERVAL
72	S-95	Buttress	BRG	New	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.			' - '

41

42

PAGE 1 OF 1 **CASING TALLY** DATE: February 16, 1981

FIELD NPRA LEASE & WELL NO. Kuyanak Test Well 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	1	82	Shoe		
2	37	54			
3	35	35	Duplex Collar		
4	1	35	Float		
5	42	24			
6	43	24			
7	39	40			
8	40	89			
9	39	50			
0	41	15			
TOTAL A	322	48			

1	41	42			
2	42	53			
3	40	55			
4	43	37			
5	37	66			
6	42	80			
7	42	28			
8	39	53			
9	41	99			
0	42	09			
TOTAL B	414	22			

1	39	15			
2	42	27			
3	42	69			
4	42	24			
5	40	95			
6	40	44			
7	43	07			
8	40	84			
9	37	05			
0	42	95			
TOTAL C	411	65			

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	42	62			
2	40	66			
3	41	84			
4	41	39			
5	42	45			
6	42	24			
7	43	39			
8	43	18			
9	37	97			
0					
TOTAL D	375	74			

1	40	39			
2	41	96			
3	40	70			
4	39	80			
5	42	34			
6	43	23			
7	42	79			
8	40	32			
9					
0					
TOTAL E	331	53			

TOTAL A	322	48		
TOTAL B	414	22		
TOTAL C	411	65		
TOTAL D	375	74		
TOTAL E	331	53		
TOTAL PAGE	1852	45		

CASING AND CEMENTING REPORT

WELL NAME Kuyanak Test Well No. 1

LOCATION National Petroleum Reserve in Alaska

RAN CASING AS FOLLOWS:

37	Jts	13 3/8"	S-95	72#	Buttress	
	Jts					
	Jts					

Shoe @ 1521' Float @ 1445' DV @ _____

Centralizer @ 1511', 1473', 1438', 1395', 1311', 1231', 1148', 1065', and 984'

FIRST STAGE

Sx of Cement 2280 Type AS II Additives - % Excess 43

Preflush 50 Barrels Water Initial Pressure 300 psi

Displacement 2 Barrels Water / 20 Barrels Mud Final Pressure 650 psi

Plug Down 2:10 ~~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 1529' Overall Casing Tally 1524.09'

KB to Top of Cut Off Casing 21.5 Length of Landing Jt Removed 23.60

Weight Indicator Before Cementing 115,000 lbs.

Weight Indicator After Slacking Off 0 lbs.

Inches Slacked Off 1/2

Remarks:

CASING TALLY
SUMMARY SHEET

DATE: March 3, 1981

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

SUMMARY OF PAGE MEASUREMENTS

	NO. OF JOINTS	FEET	00'S
PAGE 1	50	2110	61
PAGE 2	50	2166	47
PAGE 3	30	1280	27
PAGE 4			
PAGE 5			
PAGE 6			
PAGE 7			
PAGE 8			
PAGE 9			
TOTAL	130	5557	35

SUMMARY OF DEPTH CALCULATIONS

		NO. OF JOINTS	FOOTAGE FEET	FOOTAGE 00'S
1	TOTAL CASING ON RACKS	130	5557	35
2	LESS CASING OUT (JTS NOS. 112 through 130)	19	808	06
3	TOTAL (1 - 2)		4749	29
4	SHOE LENGTH		1	90
5	FLOAT LENGTH		1	55
6	MISCELLANEOUS EQUIPMENT LENGTH 2 FO Cementers		6	22
7	TOTAL CASING AND EQUIPMENT FROM CEMENT HEAD (3 + 4 + 5 + 6)		4758	96
8	LESS WELL DEPTH (KB REFERENCE)		4755	00
9	"UP" ON LANDING JOINT		3	96

Weight indicator before cementing: 270,000 ; after slack-off: 240,000 ; inches slacked off 4

SUMMARY OF STRING AS RUN

WEIGHT	GRADE	THREAD	MANUFACTURER	CONDITION NEW-USED	LOCATION IN STRING	NO. OF JOINTS	FOOTAGE	INTERVAL
					JT NO. Dowell THRU NO. Shoe		1.90	4755' - 4753.10'
					JT NO. 1 THRU NO. 2	2	88.24	4753.10' - 4664.86'
					JT NO. Dowell THRU NO. FC		1.55	4664.86' - 4663.31'
					JT NO. 3 THRU NO. 75	73	3117.17	4663.31' - 1546.14'
					JT NO. Howco THRU NO. FO		3.11	1546.14' - 1543.03'
					JT NO. 76 THRU NO 83	8	345.32	1543.03' - 1197.71'
					JT NO. Howco THRU NO. FO		3.11	1197.71' - 1194.60'
					Jt No. 84 Thru No. 111	28	1198.56	1194.60' - 0' - KB

PAGE 1 OF 3 **CASING TALLY** DATE: March 3, 1981

FIELD _____ LEASE & WELL NO. Kuyanak 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	45	45			
2	42	79			
3	42	56			
4	36	58			
5	43	32			
6	39	77			
7	39	30			
8	43	81			
9	45	19			
0	40	45			
TOTAL A	419	22			

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	47	02			
2	37	54			
3	41	90			
4	45	91			
5	40	48			
6	46	70			
7	44	88			
8	42	51			
9	44	62			
0	42	01			
TOTAL D	433	57			

1	37	50			
2	43	58			
3	41	90			
4	43	05			
5	39	80			
6	41	88			
7	42	46			
8	46	40			
9	42	64			
0	41	96			
TOTAL B	421	17			

1	42	40			
2	42	52			
3	44	37			
4	42	09			
5	41	36			
6	42	10			
7	42	41			
8	40	90			
9	37	49			
0	40	19			
TOTAL E	415	83			

1	39	79			
2	41	84			
3	46	59			
4	42	04			
5	42	90			
6	37	96			
7	41	65			
8	44	74			
9	43	77			
0	39	54			
TOTAL C	420	82			

TOTAL A	419	22		
TOTAL B	421	17		
TOTAL C	420	82		
TOTAL D	433	57		
TOTAL E	415	83		
TOTAL PAGE	2110	61		

PAGE 2 OF 3 **CASING TALLY** DATE: March 3, 1981

FIELD NPRA LEASE & WELL NO. Kuyanak 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	72			
2	42	00			
3	42	68			
4	45	90			
5	45	71			
6	46	10			
7	46	41			
8	42	09			
9	46	78			
0	41	60			
TOTAL A	445	99			

JOINT NO.	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	45	50			
2	45	82			
3	42	16			
4	45	73			
5	34	82			
6	44	39			
7	43	79			
8	47	00			
9	43	35			
0	40	55			
TOTAL D	433	11			

1	44	69			
2	45	87			
3	41	88			
4	46	57			
5	42	10			
6	42	15			
7	41	95			
8	41	86			
9	42	07			
0	42	08			
TOTAL B	431	22			

1	44	38			
2	39	75			
3	43	18			
4	41	80			
5	41	57			
6	38	89			
7	43	37			
8	42	36			
9	44	69			
0	46	73			
TOTAL E	426	72			

1	41	67			
2	41	38			
3	45	59			
4	46	93			
5	42	02			
6	43	44			
7	45	49			
8	39	36			
9	42	12			
0	41	43			
TOTAL C	429	43			

TOTAL A	445	99		
TOTAL B	431	22		
TOTAL C	429	43		
TOTAL D	433	11		
TOTAL E	426	72		
TOTAL PAGE	2166	47		

PAGE 3 OF 3 **CASING TALLY** DATE: March 3, 1981

FIELD NPRA LEASE & WELL NO. Kuyanak 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	75			
2	46	42			
3	38	25			
4	42	40			
5	39	90			
6	39	57			
7	42	50			
8	44	88			
9	46	22			
0	44	02			
TOTAL A	430	91			

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	30			
2	46	42			
3	42	45			
4	41	57			
5	46	72			
6	42	10			
7	41	65			
8	44	25			
9	40	20			
0	42	28			
TOTAL B	428	94			

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

1	42	23			
2	45	71			
3	46	63			
4	40	79			
5	41	97			
6	41	71			
7	41	45			
8	37	50			
9	43	51			
0	38	92			
TOTAL C	420	42			

TOTAL A	430	91		
TOTAL B	428	94		
TOTAL C	420	42		
TOTAL D				
TOTAL E				
TOTAL PAGE	1280	27		

CASING AND CEMENTING REPORT

WELL NAME Kuyanak Test Well No. 1

LOCATION National Petroleum Reserve in Alaska

RAN CASING AS FOLLOWS:

111	Jts	9 5/8"	53.5#	S-95	Buttress	
	Jts					
	Jts					

Shoe @ 4755' Float @ 4667' DV @

Centralizers@ ten feet above shoe; on collars of joints 1, 3, 5, 7, and 9; and one above and below each FO cementer.

FIRST STAGE

Sx of Cement 800 Type "G" Additives .75% D-65, .2% D-46 Total Volume 163 Bbls

Preflush 50 Barrels D-104 Initial Pressure 850 psi

Displacement 330 Barrels Mud bbls. Final Pressure 1000 psi

Plug Down 8:00 ~~AM~~ PM

SECOND STAGE - Stage Collar @ 1198'

Sx of Cement 300 Type AS II Additives - Excess 50 Bbls

Preflush 10 Barrels Water Initial Pressure 800 psi

Displacement 2 Barrels Water 32 Barrels Mud Final Pressure 750 psi

Plug Down 4:00 ~~AM~~ PM

Well Depth 4755' Overall Casing Tally 4758.96'

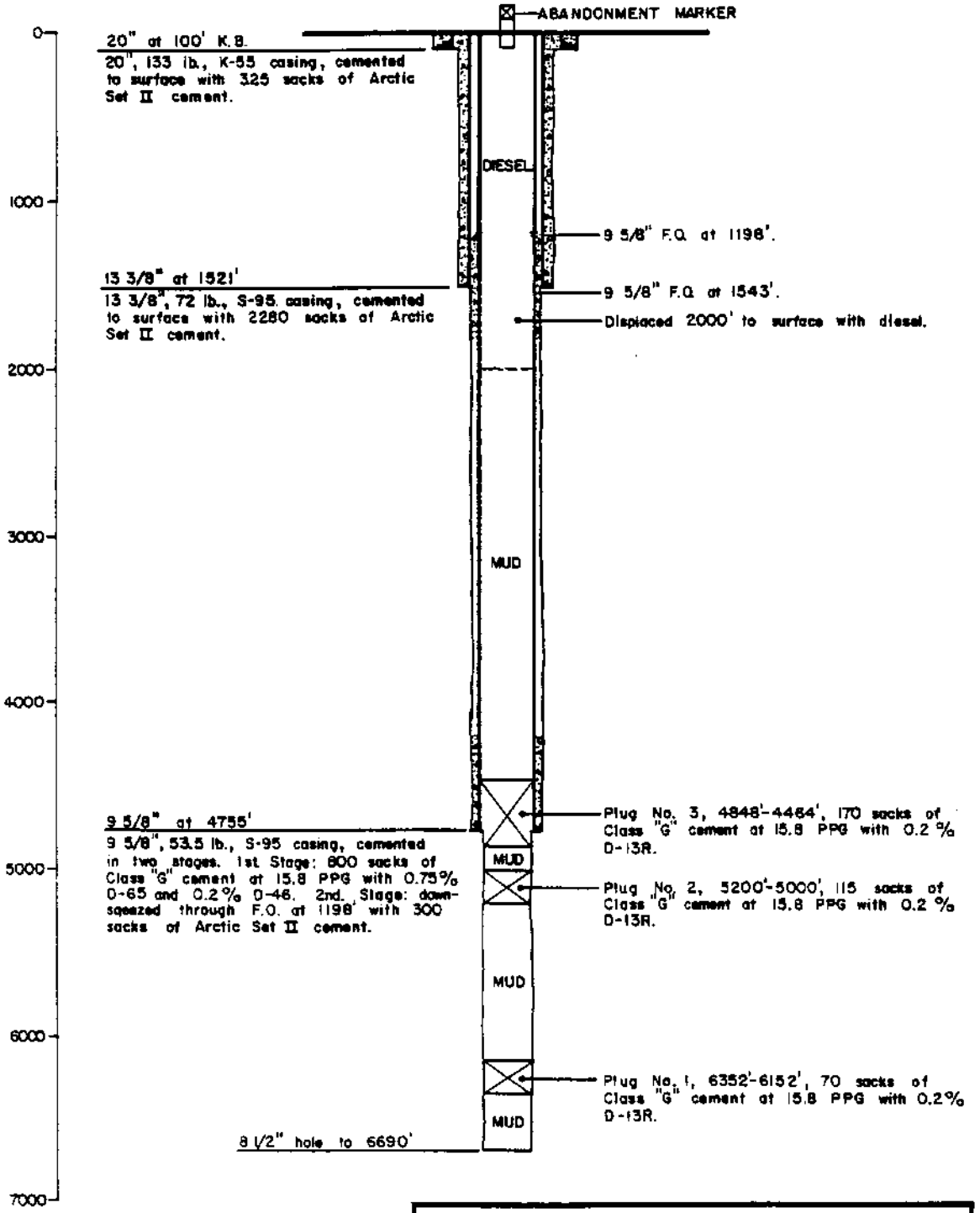
KB to Top of Cut Off Casing Length of Landing Jt Removed

Weight Indicator Before Cementing 270,000 lbs.

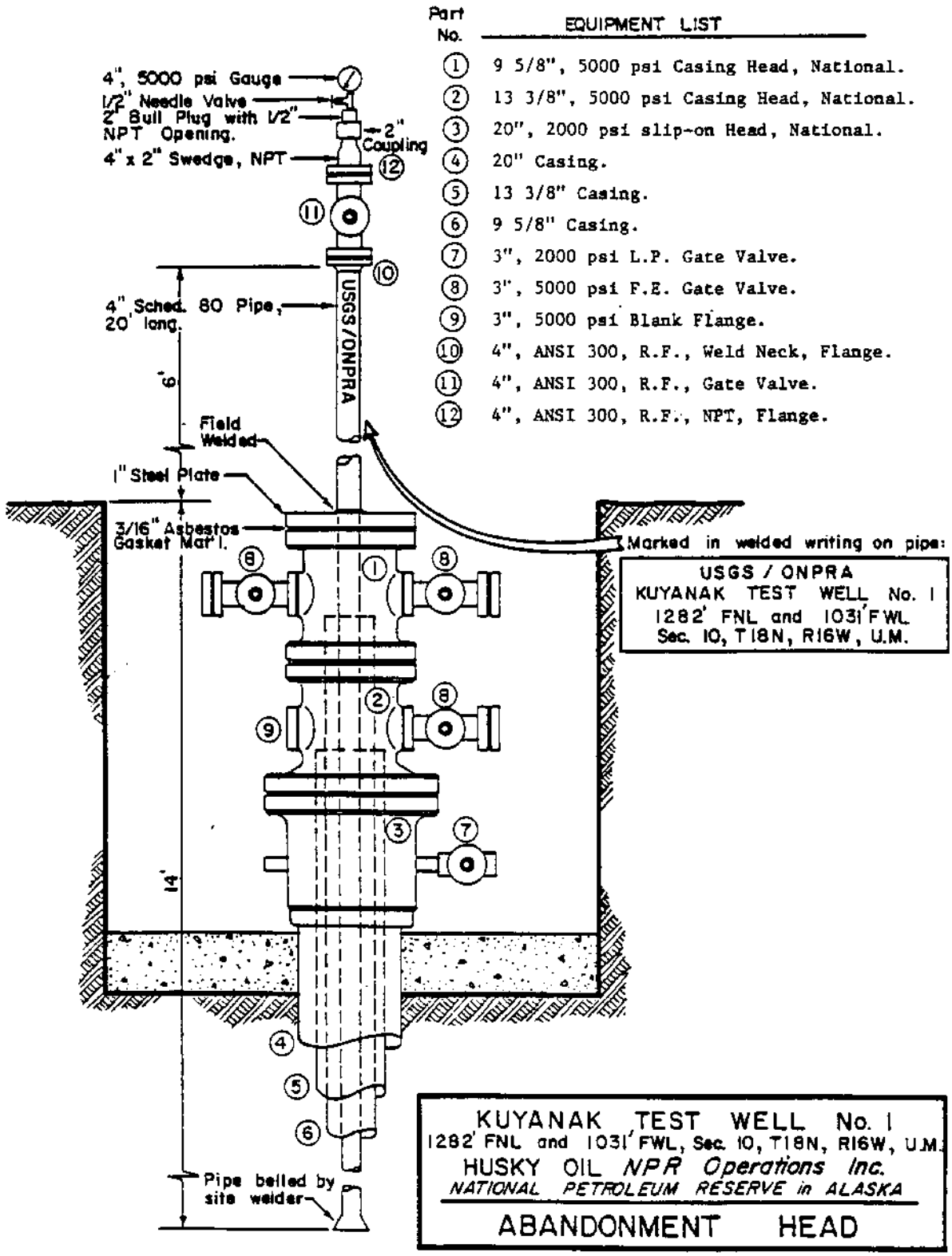
Weight Indicator After Slacking Off 240,000 lbs.

Inches Slacked Off 4

Remarks:



KUYANAK TEST WELL No. 1
1282' FNL and 1031' FWL, Sec. 10, T18N, R16W, 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, National.
2	13 3/8", 5000 psi Casing Head, National.
3	20", 2000 psi slip-on Head, National.
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.

KUYANAK TEST WELL No. 1
1282' FNL and 1031' FWL, Sec. 10, T18N, R16W, U.M.
HUSKY OIL *NPR Operations Inc.*
NATIONAL PETROLEUM RESERVE in ALASKA

ABANDONMENT HEAD

RIG INVENTORY

Draw Works

Emsco A 800, Serial No. 11, grooved for 1-1/4" line. Equipped with 46" Parkersburg hydromatic brake, sand line drum, and Emsco air operated catheads.

Rig Drive

Emsco A 83 sectional compound; Serial No. 11.

Engines

Three Caterpillars, D379, turbocharged diesel engines, Serial Nos. 68B 1724, 68B 1725, and 68B 1726.

Pumps

Oilwell A1000P, Serial No. P-117-34.

National K 700 with National forged steel fluid end.

Substructure

Lee C. Moore Corporation, 15' high, 23' wide, 52' long.

Mast

Lee C. Moore Corporation 136', Serial No. T3119. Equipped with Lee C. Moore kit. Hook load with 12 lines, 600,000 lbs.

Blocks

Emsco RA-44-5, Serial No. 45.

Swivel

Emsco L 400, Serial No. 14T.

Rotary Table

26" Oilwell.

Tongs

BJ, type DB.

Accumulator

Koomey, Model T-201603S, 3,000 lb. w.p.

Blowout Preventers

One - 13-5/8", 5,000 lb. Hydril, Serial No. 3588.

One - 13-5/8", 5,000 lb. Shaffer LWS double.

Boilers

Two Kewanee, 100 HP, Scotch Marine boilers with Kewanee oil burners.

Mud Tanks

No. 1: 35' long, 9' 6" wide, 6' 10" high, mud tank complete with insulated cover.

No. 2: 38' 10" long, 9' 6" wide, 6' 10" high, mud tank with insulated cover.

No. 3: 32' long, 9' 6" wide, 6' 10" high, mud tank with insulated cover.

Degasser

Clark Gas Hog.

Desander

Pioneer, 10 cone.

Desilter

Swaco, 8 cone.

Overshots

One 10-5/8" Bowen, maximum catch 9".

One 8" Bowen, maximum catch 6-3/4".

Water-Fuel Tanks

One combination water/fuel tank; capacity 400 lbs. water, 8,000 gallons fuel.

Two upright water tanks; capacity 400 lbs.

Drill Collars

Twenty-one 7-3/4" O.D., 2-7/8" I.D. drill collars, 6-5/8" H90 connections.

Twenty-one 6-1/4" O.D., 2-7/8" I.D. drill collars, 4-1/2" H90 connections.

Drill Pipe

Ninety joints, 5", 19.5 lb., Grade G; 5", 19.5 lb., Grade E as needed.

Air Heater

One Tioga, 4,200,000 BTU air heater.

Generator

Two Caterpillars, D353, 200 KW generator sets and required distribution system.