NATIONAL PETROLEUM RESERVE IN ALASKA

HISTORY
OF
DRILLING OPERATIONS

WEST DEASE TEST WELL NO. 1

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

For the

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

TABLE OF CONTENTS

LIST OF FIGURES

WEST DEASE TEST WELL NO. 1

INTRODUCTION

West Dease Test Well No. 1 is located 26 miles southeast of Barrow, Alaska, on the National Petroleum Reserve (Figure 1). The well is situated 2,295 feet from the east line and 2,464 feet from the north line in protracted Section 21, Township 21 North, Range 14 West, Umiat Meridian (Latitude: 71°09'32.65" North; Longitude: 155°37'45.19" West). Alaska State Plane Coordinates are: X = 307,294.09 and Y = 6,276,319.45, Zone 5. Elevations: Ground 5 feet; Pad 7 feet; Kelly Bushing 24 feet. The well was spudded February 19, 1980, and was drilled to a total depth of 4,170 feet. The rig was released on March 26, 1980.

The primary objective was an updip stratigraphic pinchout of the Sag River Sandstone onto the Barrow Arch. The well penetrated into "Argillite" of Pre-Carboniferous age.

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

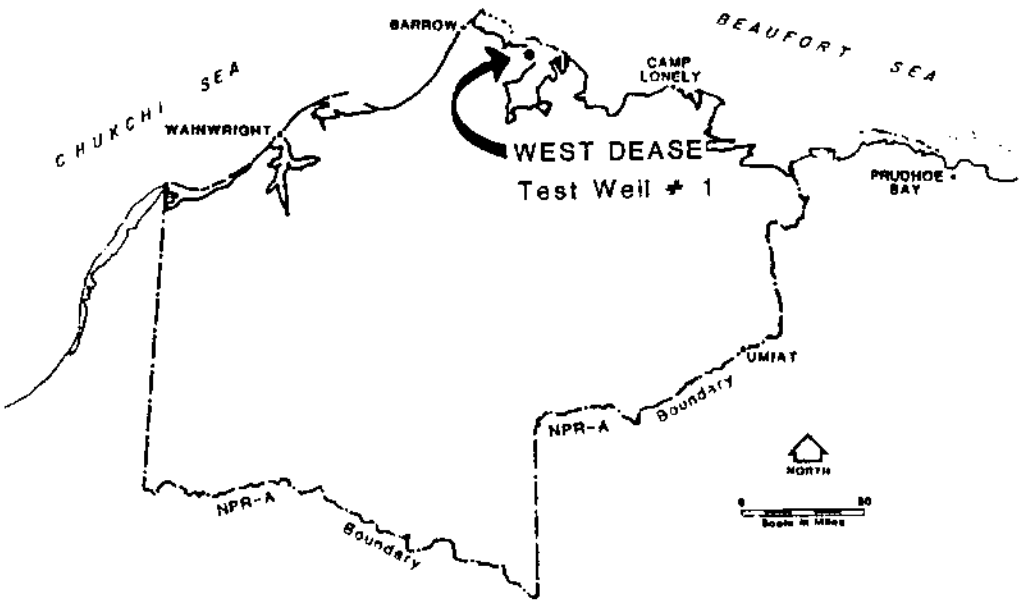


FIGURE 1 - WELL LOCATION MAP - WEST DEASE NO. 1

DRILLING SUMMARY

Field operations at the West Dease location began on January 8, 1980, with construction of the drilling pad and camp location. The rig was moved by Rolligon and Cat train from the Walakpa Test Well No. 1 location. The move began February 8, 1980, and was completed and rig-up begun on February 13, 1980.

The 20" conductor was run to 101' and cemented with 175 sacks Permafrost cement. The well was spudded February 19, 1980, at 6:00 a.m., and 17-1/2" hole was drilled to 295'. Seven joints of 13-3/8", 72#, S-95 casing were run, with the shoe at 288'. The casing was cemented with 700 sacks of Permafrost cement at 14.9 ppg, with good returns at 14.5 ppg. The cement was in place February 20, 1980, at 11:45 p.m.

The 13-3/8" blowout preventer equipment was nippled up and 12-1/4" hole drilled to 2945'. The following cores were cut: Core No. 1 from 600' to 630'; Core No. 2 from 1099' to 1129'; Core No. 3 from 1900' to 1930'; Core No. 4 from 2945' to 2975'. Logs were run (DLL/MSFL, BHC-Sonic/GR/TTI, FDC/CNL/GR/CAL, and HDT-Dipmeter) and 16 sidewall cores shot and recovered. The 9-5/8" casing was run (landed shoe at 2970') and cemented with 1,600 sacks of Permafrost cement (slurry weight: 14.8 to 15.0 ppg). The cement was in place March 5, 1980, at 5:30 a.m.

The 9-5/8" blowout preventer equipment was nippled up and the well drilled to 3700' with an 8-1/2" bit. Core No. 5 was cut from 3700' to 3732' and Drill Stem Test No. 1 was run in the interval 3700' to 3730'. No fluid or gas reached the surface during the test, and total recovery was 0.69 barrels of rat hole fluid with less than 1% oil. Maximum bottom hole flowing pressure was 375 psi at 3722'. The initial shut-in pressure was 1,374 psi and final shut-in pressure was 1,602 psi. Cores No. 6 and No. 7 were cut from 3732' to 3850'.

Drilling of 8-1/2" hole continued to 3912'. Cores No. 8 and No. 9 were cut from 3912' to 4033'. Drilling continued to 4150' and Core No. 10 was cut from 4150' to 4160'. The well was drilled to a measured total depth of 4170' and a final log suite run as follows: Temperature Survey, DLL/GR/SP/CAL, FDC/CNL/GR/CAL, BHC-Sonic/GR, MLL/ML/CAL, and HDT-Dipmeter, Velocity Survey, Sidewall Cores (shot 24, recovered 24), and Temperature Survey (second run).

After the final log run, the well was plugged and abandoned. Four plugs were set as follows: Plug No. 1: 175 sacks Permafrost cement, 4038' to 3640'; Plug No. 2: 50 sacks Permafrost cement, 3413' to 3313'; Plug No. 3: 75 sacks Permafrost cement, 3069' to 2859'; Plug No. 4: 50 sacks Permafrost cement, 2816' to 2700'. The mud was reversed to water and the water to diesel above the top of Plug No. 4. This was to allow U. S. Geological Survey personnel to make future temperature measurements. The dry hole marker was installed and the rig was released March 26, 1980, at 6:00 p.m.

Form 9-331 C
(May 1963)

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Form approved.
Budget Bureau No. 42-R1425.

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

NOTICE OF INTENT TO DRILL, DEEPEN, OR PLUG BACK

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

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

7. UNIT AGREEMENT NAME: N/A

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

b. TYPE OF WELL: OIL WELL [ ] GAS WELL [ ] OTHER Wildcat 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.: West Dease Test Well No. 1

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

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

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*)
At surface: 2295' FEL, 2464' FNL
At proposed prod. zone: Same (straight hole)

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec 21, T21N, R14W, UM

14. DISTANCE IN MILES AND DIRECTION FROM NEAREST TOWN OR POST OFFICE*: 28 miles East-Southeast of Barrow

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): 6300'

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.: 68,640'

19. PROPOSED DEPTH: ± 4000'

20. ROTARY OR CABLE TOOLS: Rotary

21. ELEVATIONS (Show whether DF, RT, GR, etc.): Ground = 5'; Pad = 7'; KB = 24'

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" (Conductor)	133# (K-55)	± 100 KB	SEE
17 1/2"	13 3/8" (Deep Conductor)	72# (S-95)	± 300 KB	DRILLING PROGRAM
12 1/4"	9 5/8"	53.5# (S-95)	± 2850 KB	FOR DETAILS

Blowout Preventer Program:
From ± 300' KB to ± 2850' KB:
12", 3000 psi, SA Diverter Assembly
From ± 2850' KB to TD:
12", 3000 psi, SRRA BOP Assembly
w/3000 psi Choke Manifold and Kill Line

RECEIVED
ONSHORE O.S.I. OFFICE
JAN 16 1980
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 S Brewer TITLE Chief of Operations DATE 16 January 80

(This space for Federal or State office use)

NO. _____ DATE _____

APPROVED BY Barry A Bondurant TITLE DISTRICT SUPERVISOR DATE 2-8-80
CONDITIONS OF APPROVAL, IF ANY:

*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: 2295' FEL; 2464' FNL
AT TOP PROD. INTERVAL: Same
AT TOTAL DEPTH: Same

5. LEASE
N/A

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

7. UNIT AGREEMENT NAME
N/A

8. FARM OR LEASE NAME National Petroleum Reserve in Alaska

9. WELL NO.
West Dease Test Well No. 1

10. FIELD OR WILDCAT NAME
N/A

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 21, T21N, R14W, UM

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

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
GL 5'; KB 24'

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 19, 1980, at 6:00 AM. Hole size at spud was 17 1/2". Twenty inch conductor pipe was cemented in place with 175 sacks of Permafrost cement at 101' previous to spudding.

RECEIVED

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 25 February 80

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

[signature] TITLE _____ DATE 3-3-80

*See Instructions on Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. oil well ☒ gas well ☐ other

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

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

4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17 below.)
AT SURFACE: 2295' FEL; 2464' FNL
AT TOP PROD. INTERVAL: Same
AT TOTAL DEPTH: Same

5. LEASE
N/A

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

7. UNIT AGREEMENT NAME
N/A

8. FARM OR LEASE NAME National Petroleum Reserve in Alaska

9. WELL NO.
West Dease Test Well No. 1

10. FIELD OR WILDCAT NAME
N/A

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 21, T21N, R14W, UM

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

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
GL 5'; KB 24'

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 & 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 a 17 1/2" hole to 295'. Ran 7 joints of 13 3/8", 72 lb, S-95 Buttress casing. Shoe at 288'. Cemented with 20 bbls of water and 700 sacks of Permafrost cement at 14.9 ppg. Had good returns at 14.5 ppg. CIP at 11:45 PM, 2/20/80. Nippled up 13 3/8" BOPE. Tested flange weld to 750 psi. OK. Tested Hydril for closure on 3 1/2" drill pipe to 250 psi. OK. Drilling ahead with 12 1/4" bit.

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

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

SIGNED Max Peavey TITLE Chief of Operations DATE 28 February 80

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

APPROVED BY _____ TITLE _____ DATE 3-3-80

*See Instructions on Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. oil well [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: 2295' FEL; 2464' FNL
AT TOP PROD. INTERVAL: Same
AT TOTAL DEPTH: Same

5. LEASE: N/A

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

7. UNIT AGREEMENT NAME: N/A

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

9. WELL NO.: West Dease Test Well No. 1

10. FIELD OR WILDCAT NAME: N/A

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec 21, T2lN, R14W, UM

12. COUNTY OR PARISH: North Slope

13. STATE: Alaska

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD): GL 5'; KB 24'

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 & Cementing 9 5/8" Casing

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

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

Drilled 12 1/4" hole to 2980'. Logged with DLL/MSFL/GR/CAL, BHCS/GR/TTI, CNL/FDC/GR/Cal, HDT Dipmeter, and Sidewall Cores. Ran 70 joints of 9 5/8", 53.5 lb, S-95 Buttress casing. Ran centralizers as per program. Shoe at 2970'. FC at 2926'. Cemented with 1600 sacks of Permafrost cement. Slurry weight of 14.8 ppg to 15 ppg. Had good returns. CIP at 5:30 AM, 3/5/80. Nipple up BOPE. Tested BOP to 3000 psi. OK. Tested Hydril to 1500 psi. OK. Drilled FC at 2926' and cement to 2945'. Tested 9 5/8" casing to 1500 psi. OK. Drilled shoe at 2970' and formation to 2990'. Tested formation to a 0.62 psi/ft equivalent gradient. OK. Drilling ahead with an 8 1/2" bit.

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

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

SIGNED [signature] TITLE Chief of Operation DATE 14 March 80

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

[signature] TITLE [illegible] DATE 3-17-80

*See Instructions on Reverse Side

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUNDRY NOTICES AND REPORTS ON WELLS

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

1. oil well [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: 2295' FEL; 2464' FNL
AT TOP PROD. INTERVAL: Same
AT TOTAL DEPTH: Same

5. LEASE
N/A

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

7. UNIT AGREEMENT NAME
N/A

8. FARM OR LEASE NAME National Petroleum Reserve in Alaska

9. WELL NO.
West Dease Test Well No. 1

10. FIELD OR WILDCAT NAME
N/A

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 21, T21N, R14W, UM

12. COUNTY OR PARISH North Slope 13. STATE Alaska

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
GL 5'; KB 24'

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

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

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

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

The original Notice of Intent to Drill indicated the proposed TVD to be 4,000'. Due to thicker geologic sequences, the objective TVD is expected to be 4500'. Mr. Jim Weber was notified on 3/21/80.

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 17 April 80

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

_____ TITLE _____ DATE _____

*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: 2295' FEL; 2464' FNL
AT TOP PROD. INTERVAL: Same
AT TOTAL DEPTH: Same

5. LEASE: N/A

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

7. UNIT AGREEMENT NAME: N/A

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

9. WELL NO.: West Dease Test Well No. 1

10. FIELD OR WILDCAT NAME: N/A

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA: Sec 21, T21N, R14W, UM

12. COUNTY OR PARISH: North Slope

13. STATE: Alaska

14. API NO.:

15. ELEVATIONS (SHOW DF, KDB, AND WD): GL 5'; KB 24'

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

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

RECEIVED
APR 21 1980
CONSERVATION DIVISION
U.S. GEOLOGICAL SURVEY
ANCHORAGE, ALASKA

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

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

This is a confirming notice to abandon West Dease Test Well No. 1. This well was drilled to 4170', logged, and tested. As a result of the evaluation, plans were developed to abandon this well. The abandonment procedure is attached.

This plan has been discussed with and verbally approved by Mr. Weber and Mr. Easson of the USGS Conservation Division.

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 18 April 80

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

TITLE _____ DATE _____

*See Instructions on Reverse Side

WEST DEASE TEST WELL NO. 1
ABANDONMENT PROCEDURE

1. Trip in with open ended drill pipe to 4050'.

2. Condition mud to uniform weight and viscosity for plugging.

3. Spot Plug No. 1, a 175 sack permafrost plug, mixed at 14.9 ppg. This is a +400' plug in the open hole, based on an average hole size of 9 1/4 inches. Spot a balanced plug with 21 barrels of water ahead and two barrels of water behind the cement.

4. Pull up to 3400', lay down excess drill pipe. Circulate and condition for Plug No. 2.

5. Spot Plug No. 2, a 50 sack, permafrost plug, mixed at 14.9 ppg. This is a +100' plug in the open hole, based on an average hole size of 9 inches. Spot a balanced plug with 20 bbls water ahead and 2 bbls water behind cement.

6. Pull up to 3070', lay down excess drill pipe. Circulate and condition for Plug No. 3.

7. Spot Plug No. 3, a 75 sack permafrost, mixed at 14.9 ppg. This is a +200' plug (100' in open hole (average hole size of 9 inches) and +100' in 9 5/8" casing). Spot a balanced plug with 19 bbls water ahead and 2 bbls water behind cement.

8. Pull up to ± 2700' and slowly circulate mud, limit pressure.

9. Trip out and pick up a bit and 9 5/8", 53.5# scraper. RIH, clean out to ± 2850'. Trip out and pick up 9 5/8", 53.5# retainer. RIH and set retainer at ± 2820'. Condition mud.

10. Spot a 50 sack, permafrost plug on top of retainer, mixed at 14.9 ppg. This is 145' fill inside 9 5/8" casing. Spot a balanced plug with 17 bbls water ahead and 2 bbls water behind cement.

11. Pick up slowly out of the cement plug to 2700'. Slowly circulate mud. WOC 4 hours.

12. Reverse out mud with water. Reverse out water with diesel. The approximate capacity of the 9 5/8" from 2700' to surface is 191 bbls. Trip out, laying down drill pipe. DO NOT fill casing to surface. Leave ± 25' of 9 5/8" casing empty.

13. Nipple down BOP and wellhead to the 9 5/8" head.

14. Rig up the 4" line pipe, 9 5/8" head cover, and dry hole marker. Set the 4" line pipe ± 10' below the surface. Put a flared wireline entry guide on the bottom of the 4".

15. Release rig and rig down for movement to Barrow No. 20. Clean location.

Information for well marker identification:

USGS - ONPRA
West Dease Test Well No. 1
2295' FEL and 2464' FNL
Sec 21, T21N, R14W, UM

H. M. Peterson

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: 2295' FEL; 2464' FNL
AT TOP PROD. INTERVAL: Same
AT TOTAL DEPTH: Same

5. LEASE
N/A

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

7. UNIT AGREEMENT NAME
N/A

8. FARM OR LEASE NAME National Petroleum Reserve in Alaska

9. WELL NO.
West Dease Test Well No. 1

10. FIELD OR WILDCAT NAME
N/A

11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA
Sec 21, T21N, R14W, UM

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

14. API NO.

15. ELEVATIONS (SHOW DF, KDB, AND WD)
GL 5'; KB 24'

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

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

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

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

This well was drilled to 4170', logged, and tested. Following an evaluation of the logs and test, the well was abandoned as follows: The first open hole plug from 4038' to 3640' was cemented with 175 sacks of Permafrost cement. The second plug, from 3413' to 3313', was cemented with 50 sacks of Permafrost cement. The third plug, from 3069' to 2859', was cemented with 75 sacks of Permafrost cement. A retainer was set at 2816' and 50 sacks of Permafrost cement was spotted on top of the retainer. Top of cement at 2700'. Displaced mud with water and water with diesel. Nipple down BOP. Install dry hole marker. Released rig 3/26/80 at 6:00 PM.

Wellbore schematic attached.

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 21 April 80

(This space for Federal or State office use)

Conforms with pertinent provisions of 30 CFR 221.

APPROVED _____ TITLE _____ DATE _____

*See Instructions on Reverse Side

Form 9-330
(Rev. 5-63)

RECEIVED
ONSHORE DIST. OFFICE
MAY 1 1980
CONSERVATION DIVISION
U.S. GEOLOGICAL SURVEY
ANCHORAGE, ALASKA

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
7. UNIT AGREEMENT NAME: N/A
8. FARM OR LEASE NAME: National Petroleum Reserve in AK
9. WELL NO.: West Dease Test Well No. 1
10. FIELD AND POOL, OR WILDCAT: N/A
11. SEC., T., R., M., OR BLOCK AND SURVEY OR AREA: Sec 21, T21N, R14W, UM
12. COUNTY OR PARISH: North Slope
13. STATE: Alaska

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: 2295' FEL; 2464' FNL
At top prod. interval reported below
At total depth: Same

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
2/19/80	3/23/80	N/A	GL 5'; Pad 7'; KB 24'	33'

20. TOTAL DEPTH, MD & TVD	21. PLUG, BACK T.D., MD & TVD	22. IF MULTIPLE COMPL., HOW MANY*	23. INTERVALS DRILLED BY	ROTARY TOOLS	CABLE TOOLS
4170' TD	2700'	N/A	→	All	None

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

25. WAS DIRECTIONAL SURVEY MADE: Yes

26. TYPE ELECTRIC AND OTHER LOGS RUN: FDC/CNL/GTR/CAL, BHCS/GR, MIL, HDT Dipmeter, Velocity & Temperature Survey, and Sidewall Cores

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 lb	101'	26"	175 Sx Permafrost Cmt	N/A
13 3/8"	72 lb	288'	17 1/2"	700 Sx Permafrost Cmt	N/A
9 5/8"	53.5 lb	2970'	12 1/4"	1600 Sx Permafrost Cmt	N/A

29. LINER RECORD

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

30. TUBING RECORD

SIZE	DEPTH SET (MD)	PACKER SET (MD)

31. PERFORATION RECORD (Interval, size and number)

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

DEPTH INTERVAL (MD)	AMOUNT AND KIND OF MATERIAL USED

33.* PRODUCTION

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

DATE OF TEST	HOURS TESTED	CHOKE SIZE	PROD'N. FOR TEST PERIOD →	OIL—BBL.	GAS—MCF.	WATER—BBL.	GAS-OIL RATIO
3/23/80	14	1/4"			TFTM		

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

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

TEST WITNESSED BY:

35. LIST OF ATTACHMENTS: Wellbore Schematic

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

SIGNED Max Brewer TITLE Chief of Operations DATE 29 April 80

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

ADDA FILE

INSTRUCTIONS

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

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

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

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

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

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

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

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
SEE ATTACHED FOR SUMMARY OF CORES AND DSTs				Torok Sh	Surface	Straight Hole
				Gr/Pebble Sh	2919'	
				Kingak Sh	3370'	
				U. Barrow Sd	3685'	
				L. Barrow Sd	3800'	
				Sag River SS	3885'	
				Argillite	4020'	

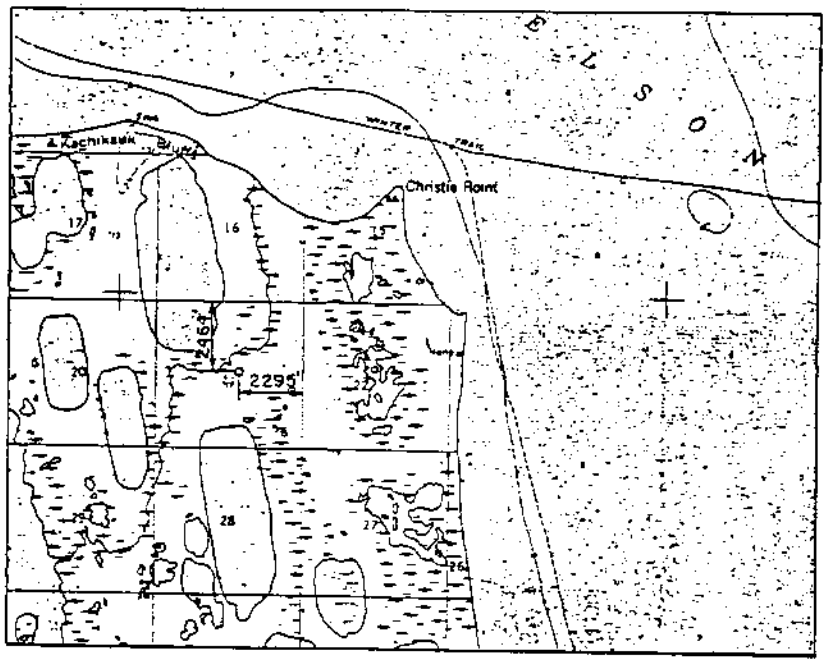
U.S. GOVERNMENT PRINTING OFFICE: 1963 O-683635

SUMMARY OF CORES

CORE NO.	FORMATION	INTERVAL	CORE DESCRIPTION
1	Torok	600-630' (Rec 27')	Claystone: soft - gummy, with siltstone lamination. No indication of hydrocarbons.
2	Torok	1099-1129' (Rec 14')	Claystone: soft - gummy, micaceous, silty in part. No indication of hydrocarbons.
3	Torok	1900-1930' (Rec 30')	Shale: with lignitic inclusions, silty, grading to sandy siltstone. No indication of porosity or hydrocarbons.
4	"Pebble Shale"	2945-2975' (Rec 58')	Shale: very dark gray, silty, organic, abundant biotite, pyritic. No indication of hydrocarbons.
5	Upper Barrow sand	3700-3730' (Rec 30')	Sandstone: very fine - fine grained, silty and argillaceous, with siderite and galuconite, measured porosity 6-4%, fair oil show, calculated water saturation 100%. See DST No. 1 test results.
6	Upper Barrow sand	3730-3790' (Rec 58')	Sandstone: with interbedded Siltstone: clay filled, very poor porosity, nil permeability, generally poor oil show, calculated water saturation 100%.
7	Barrow sand	3790-3850' (Rec 60')	Predominantly Siltstone with interbedded sandstone and shale, very poor porosities in sandstone, with poor oil shows. Analysis indicates low permeability and high water saturation.
8	Sag River	3912-3973' (Rec 57')	Sandstone, Siltstone and Shale: sandstone exhibits very poor - nil porosity with generally poor spotty oil shows. Analysis indicates very low permeability and very high water saturation.
9	Sag River	3973-4033' (Rec 30')	Recovered core consisted of Sandstone and Siltstone with minor conglomerate, very poor porosity, nil - very poor permeability and very high water saturation.
10	Argillite	4150-4160' (Rec 1.5')	Argillite: black with quartz veins and near vertical dip.

SUMMARY OF DRILL STEM TESTS

TEST NO.	FORMATION	INTERVAL	TEST DESCRIPTION
1	Upper Barrow sand	3700-3730'	Open Hole DST: Cushion 500' glycol, 1/4" surface choke. IHP: 2068 psi. 1st FP (29 min): Opened with immediate weak blow air continuing throughout period. 1st FP pressure: 277-298 psi; shut in well for 60 minutes; ISIP: 1374 psi. 2nd FP (237 min): Opened tool with weak blow increasing to fair blow, then decreasing to very weak blow in 2 hours-20 minutes, increasing slightly to weak blow in 3 hours, and continuing throughout remainder of test. No gas or fluid to surface. Second FP pressure: 324-375 psi; shut in well for 484 minutes; FSIP: 1602 psi; FHP: 2071 psi. Recovered 0.69 bbls rat hole mud with small trace of oil.



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

WEST DEASE 1-80

LAT. = 71° 09' 32.65"
LONG. = 155° 37' 45.19"
Y = 6,276,319.45
X = 307,294.09
ZONE 5

CERTIFICATE OF SURVEYOR

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

0 1/2 1 2
SCALE IN MILES

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

AS STAKED

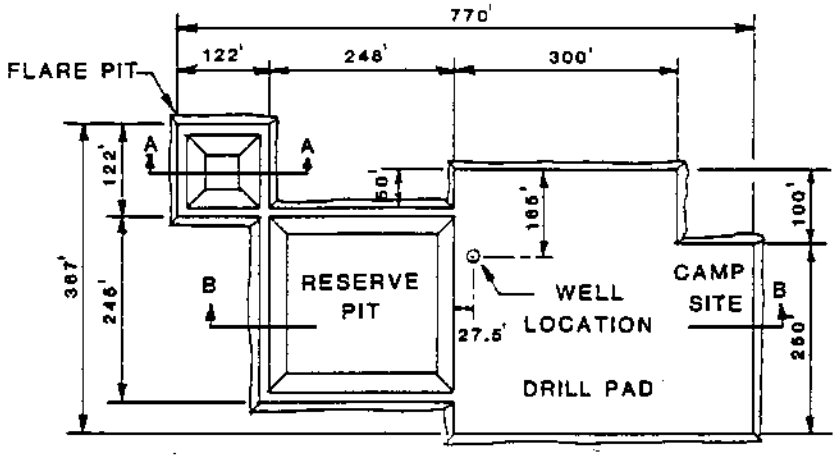
WEST DEASE TEST WELL No. 1

LOCATED IN
NE 1/4 PROTRACTED SEC. 21, T2N., R.14W. UMIAT MERIDIAN, AK.

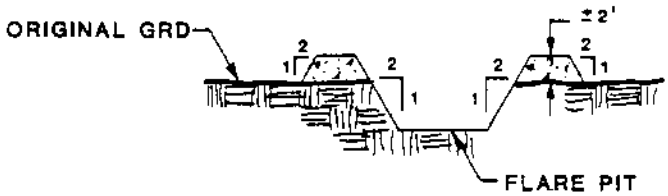
SURVEYED FOR

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

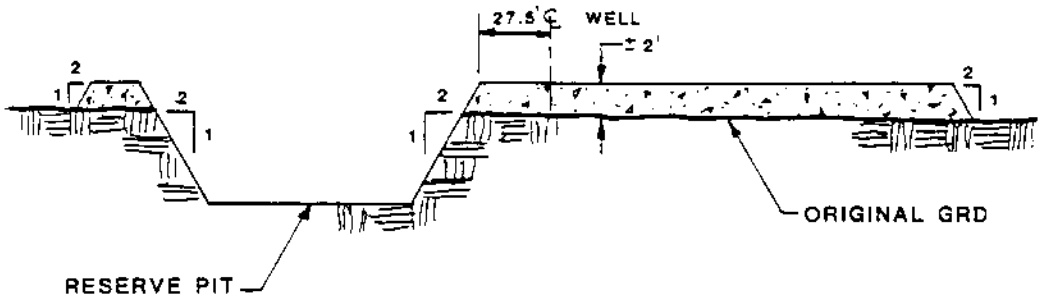
TECTONICS INC.
P.O. BOX 4-2265, ANCHORAGE, AK 99509



PLAN VIEW



SECTION A-A



SECTION B-B

WEST DEASE DRILL PAD

OPERATIONS HISTORY

DATE AND FOOTAGE DRILLED AS OF 6:00 A.M.	ACTIVITY
2/18/80	Set 20" conductor at 101' and cemented with 175 sacks Permafrost cement. Welded conductor box; installed flow line. Picked up kelly.
2/19/80	Total Depth: 101'; Mud Weight: 8.6; Viscosity: 55. Completed rigging up. Spudded well February 19, 1980, at 6:00 a.m.
2/20/80 141'	TD: 242'; MW: 9.5; Vis: 57. Drilled to 190'; pulled out of hole. Installed three 14/32" jets. Ran in hole; drilled ahead.
2/21/80 53'	TD: 295'; MW: 9.7; Vis: 51. Drilled to 295'; circulated and surveyed. Made wiper trip; circulated. Pulled out of hole. Ran seven joints of 13-3/8", S-95, 72# casing to 288'. Cemented with 700 sacks Permafrost cement at 14.9 ppg; had returns at 14.5 ppg. Preceded cement with 20 barrels of water. Cement in place 2/20/80 at 11:45 p.m. Waited on cement.
2/22/80 0'	TD: 295'; MW: 9.2; Vis: 35. Waited on cement; mixed mud. Cut off 13-3/8" casing and welded on 13-3/8" head; tested head to 750 psi. Began nippling up blowout preventer.
2/23/80 305'	TD: 600'; MW: 9.5; Vis: 44. Finished nippling up blowout preventer. Ran in hole; tested Hydril to 250 psi. Drilled shoe and formation to 600'; circulated and surveyed. Pulled out of hole for core barrel. Picked up core barrel and ran in hole.
2/24/80 450'	TD: 1050'; MW: 9.6; Vis: 40. Cut Core No. 1, 600' to 630'. Pulled out of hole; received 27 feet of core. Ran in hole and reamed core hole. Drilled ahead.
2/25/80 350'	TD: 1400'; MW: 9.6; Vis: 40. Drilled to 1099'; pulled out of hole for core barrel. Cut Core No. 2, 1099' to 1129'. Pulled out of hole; recovered 14 feet of core. Ran in hole; reamed core hole. Drilled ahead.
2/26/80 457'	TD: 1857'; MW: 9.8; Vis: 43. Drilled to 1506'; surveyed. Drilled to 1571'; surveyed. Drilled ahead.

2/27/80 158'	TD: 2015'; MW: 9.9; Vis: 42. Drilled to 1900'; surveyed. Pulled out of hole. Ran in hole with core barrel. Cut Core No. 3, 1900' to 1930'. Pulled out of hole; received 30 feet of core. Reamed core hole. Drilled to 2015'.
2/28/80 423'	TD: 2438'; MW: 10.2; Vis: 40. Drilled to 2351'; surveyed. Drilled ahead.
2/29/80 287'	TD: 2725'; MW: 10.1; Vis: 40. Circulated while repairing gas detector. Drilled ahead.
3/1/80 201'	TD: 2926'; MW: 10.2; Vis: 43. Drilled to 2753'; circulated samples. Drilled to 2832'; circulated samples. Drilled to 2926'; surveyed. Pulled out of hole; tight four stands off bottom.
3/2/80 44'	TD: 2970'; MW: 10.4; Vis: 54. Tripped for new bit. Washed and reamed from 2500' to 2926'. Conditioned mud. Drilled to 2945'; circulated samples. Pulled out of hole. Picked up core barrel and began coring.
3/3/80 10'	TD: 2980'; MW: 10.5; Vis: 55. Finished cutting Core No. 4, 2945' to 2975'. Pulled out of hole; laid down core and core barrel. Received 30 feet of core. Ran in hole and reamed core hole. Drilled to 2980'; conditioned hole. Pulled out of hole. Rigged up logging unit. Ran DLL/MSFL to 2450'; hit bridge. Ran in hole with bit; circulated and conditioned hole. Pulled out of hole for logs.
3/4/80 0'	TD: 2980'; MW: 10.5; Vis: 65. Rigged up logging unit; ran DLL/MSFL; BHCS/GR/TTI, FDC/CNL/GR/CAL, and HDT-Dipmeter. Began sidewall cores.
3/5/80 0'	TD: 2980'; MW: 20.5; Vis: 57. Shot and recovered 16 sidewall cores. Ran in hole; circulated and conditioned hole for casing. Pulled out of hole; ran 70 joints of 9-5/8" casing; shoe at 2970'. Ran in hole; stabbed in and circulated. Mixed and pumped 1,600 sacks Permafrost cement. Cement in place 3/5/80 at 5:30 a.m. Waited on cement.
3/6/80 0'	TD: 2980'; MW: 8.9; Vis: 33. Waited on cement; cleaned mud pits and mixed new mud. Prepared to land casing. Began cutting off 9-5/8" casing.

3/7/80 0'	TD: 2980'; MW: 9.9; Vis: 34. Finished cutting 9-5/8" casing; welded on head and pressure tested to 1,000 psi. Set in and nippled up blowout preventer and tested. Installed wear bushing.
3/8/80 328'	TD: 3308'; MW: 10.1; Vis: 45. Strapped in with bottom hole assembly. Drilled float collar at 2926'; drilled cement to 2945'. Pressure tested 9-5/8" casing to 1,500 psi. Drilled shoe at 2970'; drilled formation to 2990'. Tested formation to a 0.62 psi equivalent. Drilled ahead.
3/9/80 181'	TD: 3489'; MW: 10.2; Vis: 50. Drilled to 3346'. Pulled out of hole; tight. Ran in hole; washed and reamed through bridges from 2980' to 3180'. Drilled ahead.
3/10/80 155'	TD: 3644'; MW: 10.2; Vis: 54. Drilled to 3582'; surveyed. Pulled out of hole. Ran in hole; reamed from 3522' to 3582'. Drilled ahead.
3/11/80 86'	TD: 3730'; MW: 10.2; Vis: 48. Drilled to 3700'. Circulated samples. Short tripped; circulated; surveyed. Pulled out of hole. Ran in hole with core barrel; cut Core No. 5, 3700' to 3732'. Pulled out of hole.
3/12/80 0'	TD: 3730'; MW: 10.2; Vis: 48. Laid down core and core barrel; recovered 30 feet of core. Ran in hole; reamed core hole. Circulated and conditioned mud. Waited on test tools. Pulled out of hole. Made up tools for Drill Stem Test No. 1; ran in hole. Ran 500-foot glycol cushion. Prepared to test surface lines.
3/13/80 0'	TD: 3730'; MW: 10.3; Vis: 45. Set packer at 3697'. Opened test tool at 7:10 a.m.; weak blow; closed at 7:40 a.m. Opened at 8:40 a.m.; weak blow; closed at 12:40 p.m. Dropped bar at 5:00 p.m. Circulated out test. Recovered 0.69 barrels rat hole fluid with less than 1% oil. Pulled packer at 8:40 p.m.; no fluid loss. Pulled out of hole to shoe; circulated. Pulled out of hole; laid down drill stem test tools. Pressures recorded during test at 3722' as follows: Initial hydrostatic pressure: 2,068 psi. First flow period BHFP: 277 to 298 psi. Initial shut-in pressure: 1,374 psi. Final flow period BHFP: 324 to 375 psi. Final shut-in pressure: 1,602 psi. Final hydrostatic pressure: 2,071 psi. Ran in hole with bottom hole assembly.

3/14/80 39'	TD: 3769'; MW: 10.2; Vis: 42. Reamed 3670' to 3730'. Circulated and conditioned mud. Pulled out of hole; ran in hole with core barrel. Began coring.
3/15/80 21'	TD: 3790'; MW: 10.3; Vis: 44. Cut Core No. 6, 3732' to 3790'. Pulled 30 feet off bottom. Circulated and rotated; worked on No. 2 draw works engine.
3/16/80 0'	TD: 3790'; MW: 10.4; Vis: 45. Waited on weather for parts delivery. Received parts 3/15/80 at 11:00 p.m. Began repairing motor.
3/17/80 0'	TD: 3790'; MW: 10.4; Vis: 43. Completed repairs to draw works motor. Pulled out of hole; recovered 58 feet of core.
3/18/80 9'	TD: 3799; MW: 10.3; Vis: 48. Tested blowout preventer equipment. Ran in hole; reamed core hole. Circulated and conditioned mud. Pulled out of hole. Ran in hole with core barrel and began coring.
3/19/80 113'	TD: 3912'; MW: 10.4; Vis: 45. Finished cutting Core No. 7, 3790' to 3850'. Pulled out of hole; recovered 60 feet of core. Ran in hole; reamed core hole. Drilled to 3912'; circulated samples.
3/20/80 60'	TD: 3972'; MW: 10.2; Vis: 50. Circulated; pulled out of hole. Picked up core barrel; ran in hole. Cut Core No. 8, 3912' to 3973'. Lost circulation. Mixed lost circulation material pill and pumped. Lost 150 barrels mud. Continued coring to 3973'. Pulled out of hole with 57 feet of core. Started in hole with core barrel.
3/21/80 98'	TD: 4070'; MW: 10.2; Vis: 42. Ran in hole with core barrel; cut Core No. 9, 3973' to 4033'. Pulled out of hole; recovered 30 feet of core. Made up bottom hole assembly; ran in hole and washed to bottom. Drilled ahead.
3/22/80 84'	TD: 4154'; MW: 10; Vis: 41. Drilled to 4150'; circulated samples. Pulled out of hole. Ran in hole with core barrel; cut Core No. 10, 4150' to 4160'.
3/23/80 16'	TD: 4170'; MW: 10.2; Vis: 51. Pulled out of hole with core; recovered 1.5 feet of core. Ran in hole; washed 10 feet to bottom. Circulated to log. Pulled out of hole, steel-line measured. Rigged up logging unit and ran in hole; hit bridge at 3375'. Pulled out of hole.

3/24/80 0'	TD: 4170'; MW: 10; Vis: 49. Conditioned hole. Ran Temperature Survey, GR/SP/CAL/DLL, GR/CAL/CNL/FDC, GR/BHC, CAL/MLL/ML, and HDT-Dipmeter. Began running Velocity Survey.
3/25/80 0'	TD: 4170'; MW: 10; Vis: 51. Completed Velocity Survey. Shot 24 sidewall cores; recovered 24. Ran Temperature Survey. Pulled out of hole with logging unit. Ran in hole; circulated and conditioned mud. Pulled out of hole; laid down drill collars. Ran in hole with open-ended drill pipe to 4039'. Cement compressor broke down; waited on replacement.
3/26/80	TD: 4170'; PBTD: 2700'. Set Plug No. 1, 4038' to 3640', with 175 sacks Permafrost cement. Set Plug No. 2, 3413' to 3313', with 50 sacks Permafrost cement. Set Plug No. 3, 3069' to 2859', with 75 sacks Permafrost cement. Set 9-5/8" retainer at 2816'. Set Plug No. 4, 2816' to 2700', with 50 sacks Permafrost cement. Reversed out excess cement at 2700'. Cleaned pits. Reversed mud to water and water to diesel.
3/27/80	TD: 4170'; PBTD: 2700'. Laid down drill pipe; nippled down blowout preventer stack. Installed dry hole marker. Released rig March 26, 1980, at 6:00 p.m. Began rigging down.

DRILLING TIME ANALYSIS

WEST DEASE TEST WELL NO. 1

BRINKERHOFF SIGNAL, INC., RIG 31

Spud 2/19/80; Rig released 3/26/80

Total Depth: 4,170 Feet

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

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
1980 2-13	24																							Rigging Up	Began Rigging Up
2-14	24																							Rigging Up	
2-15	24																							Rigging Up	
2-16	24																							Rigging Up	
2-17	24																							Rigging Up	Set 20" at 101'
2-18	24																							Rigging Up	
2-19		16		1½			½																6	Drilling	Spudded Well at 6:00 a. m.
2-20		13¾		3½	½		¼	2		4														Drilling	
2-21				½							23½													Cleaning Mud Pits	Set 13 3/8" at 288'
2-22		6¼		1								11½											5¼	Nippling Up	
2-23		6	½	8½	½			1									4						3½	Picking Up Core Barrel	Core No. 1: 600' - 630'
2-24		12½	½	4	½			1									3½						2	Drilling	Core No. 2: 1099' - 1129'
2-25		22			1		½	½																Drilling	Core No. 3: 1900' - 1930'
2-26		8½	¾	7	¾												4½						1¾	Drilling	
2-27		21½	1		½		1																	Drilling	

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

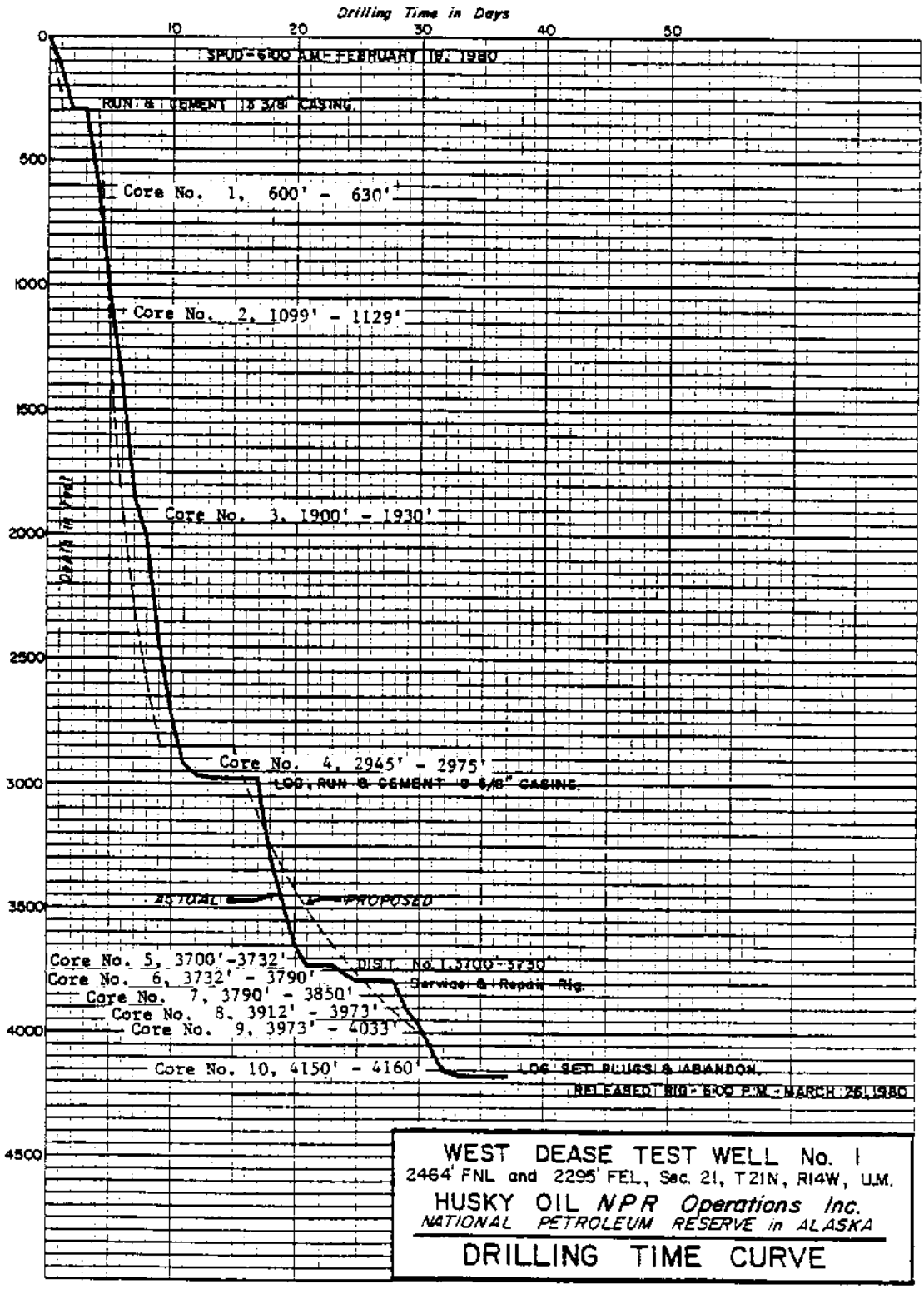
DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
2-28		22						2																Circulating	
2-29		22¼						1¾																Drilling	
3-1		4¼		14¼	¼			2¾									2¼							Tripping	
3-2		¼	3¼	6¾				2	2¾								7¼						1¼	Coring	Core No. 4: 2945' - 2975'
3-3				4¼				2¼	17															POH to Run Logs	Ran Schlumberger Wireline Logs
3-4			½	4½				2	8½	7½													1	Logging	
3-5				2				2		1½	18½													Waiting on Cement	
3-6											5½	15½	3											Nippling Up	
3-7		13		3				½					6										1½	Testing Hydril	
3-8		17¼		5	1¾																			Drilling	
3-9		19	1	3½	½																			Drilling	
3-10		12¾		6¾	½			3									1							Drilling	
3-11			½	7¼	½			9½									3¾						2½	POH with Core	Core No. 5: 3700' - 3732'
3-12				2½				5¼										16½						Drill Stem Testing	DST No. 1
3-13			¾	8½			6½	2¾									3½						2	Working on Hydromatic	

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

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
3-14							12	½									11½							Coring	Core No. 6: 3732' - 3790'
3-15							24																	Working on Drawworks	
3-16							24																	Working on Drawworks	
3-17					10¼	¼		3	3½				3										4	Removing Core from Barrel	
3-18					7				1								14						2	Coring	Core No. 7: 3790' - 3850'
3-19		4			6				2								8						4	Circulating	Core No. 8: 3912' - 3973'
3-20			½	9½													14							Going into Hole w/core Barrel	Core No. 9: 3973' - 4033'
3-21		20½	½	2				1																Drilling	
3-22		3¼	1½	10				2	½								5½						1½	Coring	Core No. 10: 4150' - 4160'
3-23			½	4				2	17½															Logging	Ran Schlumberger Wireline Logs
3-24				9				3	12															Logging	
3-25																			24					Plugging	Set Plugs 1, 2, 3, & 4
3-26	9½											6							6				2½	Laying Down Drill Pipe	Released Rig at 6:00 p.m.
3-27	24																							Rigging Down	
3-28	24																							Rigging Down	

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

DATE	RIG UP/RIG DOWN	DRILLING	REAMING	TRIP	DEV. SURVEY	RIG MAINT.	RIG REPAIR	CIRC. & COND. MUD	LOGGING	CASING & CEMENT	W O C	NIPPLE UP/DOWN BOP	TEST BOP	CHANGE BHA	LOST CIRC.	FISHING	CORING	DST	PLUG BACK	SQUEEZE CEMENT	DIR. WORK	W O MAT./EQUIP.	OTHER	Operations at 6:00 a.m.	Comments
3-29	24																							Rigging Down	
3-30	24																							Rigging Down	
3-31	24																							Rigging Down	Completed Rigging Down
TOTAL HOURS	273½	245½	11¾	152½	7½	-0-	71¾	55¼	58¼	13	47½	33	12	-0-	-0-	-0-	83¼	16½	30	-0-	-0-	-0-	40¾		


Drilling Time in Days
0
10
20
30
40
50
SPUD - 6:00 A.M. - FEBRUARY 19, 1980
RUN & CEMENT 13 3/8" CASING.
Core No. 1, 600' - 630'
Core No. 2, 1099' - 1129'
Core No. 3, 1900' - 1930'
Core No. 4, 2945' - 2975'
LOG, RUN & CEMENT 9 5/8" CASING.
ACTUAL
PROPOSED
Core No. 5, 3700'-3732'
Core No. 6, 3732' - 3790'
Core No. 7, 3790' - 3850'
Core No. 8, 3912' - 3973'
Core No. 9, 3973' - 4033'
DIST. No 1, 3700'-5730'
Service & Repair Rig.
Core No. 10, 4150' - 4160'
LOG SET PLUGS & ABANDON.
RELEASED RIG - 6:00 P.M. - MARCH 26, 1980
Depth in Feet
0
500
1000
1500
2000
2500
3000
3500
4000
4500
WEST DEASE TEST WELL No. 1
2464' FNL and 2295' FEL, Sec. 21, T21N, R14W, 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 101 ft.

WELL West Dease Test Well No. 1 COUNTY North Slope Borough 13-3/8 inch at 288 ft.

CONTRACTOR Brinkerhoff Signal, Inc. LOCATION NPRA SEC 21 TWP 21N RNG 14W 9-5/8 inch at 2970 ft.

STOCK POINT DATE BAROID ENGINEER TOTAL DEPTH ft.

DATE 1980	DEPTH feet	WEIGHT lb/gal	VISCOSITY Sec API / PV	YP	GELS 10 sec / 10 min	pH Strip / Meter	FILTRATION ml API	HTHP / °F	Cake 32nds	FILTRATE ANALYSIS Pf	Mf	Cl ppm	Ca ppm	SAND %	RETORT Solids %	Oil %	Water %	CEC Mud me/ml	REMARKS AND TREATMENT
2/19	120	8.6	51 / 10	22	12/8	8	40		3	.1	.3	1000	120	Tr	2	Tr	98	-	
2/20	230	9.5	57 / 15	32	18/24	8.5	28		4	.1	.3	1350	180	1/4	7	Tr	93	-	
2/21	300		Cleaned Pits																Waited on cement
2/22	288	9.2	35 / 8	7	2/3	9.5	10		1	.3	.7	75000	42000	0	2	0	98	-	Mixed $CaCl_2$
2/23	600	9.5	44 / 10	14	6/11	8.3	14		3	.0	.3	50000	28000	1/4	5	0	95	-	
2/24	1020	9.6	40 / 10	14	5/8	8.3	15		4	.0	.3	39000	22000	1/2	7	0	93	-	
2/25	1380	9.6	40 / 10	12	4/9	8.0	14		4	.0	.3	35000	19600	Tr	7	0	93	-	
2/26	1850	9.8	43 / 11	14	4/9	8.0	13		4	.0	.3	41000	23000	Tr	8	0	92	-	
2/27	2012	9.9	42 / 10	12	4/10	8.0	13		3	.0	.3	45000	25000	Tr	9	0	91	-	
2/28	2438	10.2	40 / 11	14	4/10	8.0	14		4	.0	.3	38000	21000	1/4	11	0	89	-	
2/29	2725	10.1	40 / 10	13	4/11	8.0	9		3	.0	.3	35000	19600	1/4	10	0	90	-	
3/1	2926	10.2	43 / 10	16	4/12	8.0	9		3	.0	.3	41000	22900	Tr	11	0	89	-	
3/2	2970	10.4	54 / 10	28	15/26	8.0	8		3	.0	.3	44000	24600	Tr	12	0	88	-	
3/3	2980	10.5	65 / 20	33	22/31	8.0	7.5		4	.0	.3	44000	24000	Tr	12	0	88	-	
3/4	2980	10.5	65 / 20	33	22/31	8.0	7.5		4	.0	.3	44000	21000	Tr	12	0	88	-	
3/5	2980	10.5	57 / 13	28	15/25	8.0	8.5		3	.0	.3	42000	23500	1/4	12	0	88	-	
3/6	2980	8.9	33 / 5	3	0/3	10	15		1	.3	.9	24500	24500	0	1	0	99	-	
3/7	2980	9.9	34 / 7	5	2/3	10	8		1	.3	.9	108000	61000	0	3	0	97	-	
3/8	3300	10.0	45 / 13	11	3/9	10	5.2		1	.0	.9	68000	38000	1/4	7	0	93	-	
3/9	3485	10.3	50 / 14	16	6/12	9.5	5.8		2	.0	.9	62000	34700	1/4	8	0	92	-	
3/10	3640	10.2	54 / 15	20	6/18	10	6		3	.0	1	62000	34700	1/4	9	0	91	-	
3/11	3710	10.2	48 / 14	13	6/12	10	6		3	.0	1	55000	30800	1/4	9	0	91	-	
3/12	3730	10.2	48 / 13	12	6/10	10	6.2		3	.0	1	55000	30800	1/4	0	0	91	-	Running DST.
3/13	3730	10.3	45 / 12	8	3/10	9.5	7		2	.0	.8	52000	29000	1/4	10	Tr	90	-	
3/14	3965	10.2	42 / 11	3	2/8	10	8.4		2	.3	.9	5000	28000	1/4	10	Tr	90	-	
3/15	3790	10.4	44 / 15	5	2/12	9.5	7.5		2	.1	.8	45200	25312	Tr	11	Tr	89	-	
3/16	3790	10.5	43 / 15	3	2/10	10	7.8		2	.2	.8	44100	24696	Tr	11	Tr	89	-	
3/17	3790	10.5	43 / 13	4	3/13	10	7.5		2	.2	.9	44000	24640	Tr	11	Tr	89	-	
3/18	3795	10.4	48 / 18	7	4/18	10	8		2	.2	.9	41000	22960	Tr	11	Tr	89	-	
3/19	3880	10.4	45 / 15	5	5/17	9.5	8		2	.15	.7	48000	26880	Tr	11	Tr	89	-	
3/20	3970	10.2	50 / 20	15	11/14	9	9.7		2	.1	.6	36000	20160	Tr	11	Tr	89	-	
3/21	4070	10.2	42 / 9	11	3/7	9	9.5		3	.1	.6	41000	22900	1/2	10	Tr	90	-	
3/22	4152	10	41 / 9	11	3/7	9	9.8		3	.1	.3	40000	22400	1/4	9	Tr	91	-	
3/23	4170	10	51 / 12	21	12/20	9	9.4		4	.0	.3	43000	24000	1/4	9	Tr	91	-	
3/24	4170	10	49 / 12	21	12/20	9	9.2		4	.0	.3	40000	22400	1/4	9	Tr	91	-	

DRILLING MUD RECORD

ARCTIC DRILLING SERVICES

COMPANY Husky Oil NPR Operations, Inc. STATE Alaska

WELL West Dease Test Well No. 1 COUNTY North Slope Borough

CONTRACTOR Brinkerhoff Signal, Inc. LOCATION NPRA SEC 21 TWP 21N RNG 14W

STOCK POINT _____ DATE _____ BAROID ENGINEER _____

CASING PROGRAM. 20 inch at 101 ft.
13-3/8 inch at 288 ft.
9-5/8 inch at 2,970 ft.

TOTAL DEPTH _____ ft.

DATE	DEPTH	WEIGHT	VISCOSITY		Yp	GELS	pH	FILTRATION			FILTRATE ANALYSIS				SAND	RETORT			CEC	REMARKS AND TREATMENT
1980	feet	lb/gal	Sec API @ ___ °F	PV @ ___ °F		10 sec / 10 min	Strip Ω Meter Ω	ml API	HTHP @ ___ °F	Cake 32nds	Pm	Pf/Mf	Cl ppm	Ca ppm	%	Solids %	Oil %	Water %	Mud, me/ml	
3/25	4170	10.0	51	12	23	12/20	9.0	9.4		4	.0	.3	39000	21800	1/4	9	Tr	91	–	Plugging.
3/26	2750	10.1	46	12	13	6/15	11.0	10.5		3	.4	2.1	40000	22400	1/4	10	Tr	90	–	Plugging.

BIT RECORD

COMPANY: Husky Oil NPR Operations
CONTRACTOR: Brinkerhoff Signal, Inc.
COUNTY: North Slope Borough
STATE: Alaska
LEASE: National Petroleum Reserve in Alaska
WELL NO: West Dease Test Well
SEC: 21
TOWNSHIP: 21 North
RANGE: 14 West
BLOCK:
FIELD:
TOOL PUSHER:
DRILL PIPE: No. 1
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	FTG.	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. REMD. ETC.	DATE
1	17½	HTC	OSC3A	PR713	14	14	14	295	194	29.75	29.75	6.5	10	90		300	5½		156	9.7	52	2	2	I		
2	12¼	HTC	OSC3A	AA870	11	11	11	600	305	8.5	38.25	35.8	15	120		1300	5½		120	9.5	44	1	1	I		
CH1	8½	ACC	EH St	15689	–	–	–	630	30	4	38.25	7.5	15	60		700	5½		60	9.6	43	G	O	O	D		
RR2	12¼	HTC	OSC3A	AA870	11	11	11	1100	500	12	50.25	41.6	25	100		1400	5½		124	9.7	44	2	2	I		
CH1	8½	ACC	EH St	15689	–	–	–	1130	30	3.5	50.25	8.5	15	60		800	5½		60	9.8	44	G	O	O	D		
RR2	12¼	HTC	OSC3A	AA870	11	11	11	1900	800	33.75	89.0	23.7	25-30	100		1500	5½		120	9.8	44	4	6	I		
CH1	8½	ACC	EH St	15689	–	–	–	1930	30	5.25	89.0	5.7	15	60		800	5½		60	9.8	44	G	O	O	D		
3	12¼	HTC	OSC3A	KV657	11	11	11	2926	1026	67.5	156.5	15.2	30	100		1500	5½		120	10.1	43	3	6	I		
4	12¼	STC	SDS	AK2634	11	11	11	2945	19	2.25	158.75	8.4	30	100		1500	5½		120	10.2	54	2	1	I		
CH1	8½	ACC	EH St	15689	–	–	–	2975	30	9.5	158.75	3.15	20	80		800	5½		60	10.4	54	G	O	O	D		
RR4	12¼	STC	SDS	AK2634	11	11	11	2980	5	.75	159.5	6.6	30	100		1500	5½		120	10.5	65	2	1	I		
5	8½	HTC	X3A	WN836	11	11	11	3346	366	22.25	181.75	16.4	30	85		1700	5½		110	10.2	50	5	5	I		
6	8½	STC	SDT	498NP	11	11	11	3582	236	25	206.75	9.4	30	85		1700	5½		110	10.2	54	6	6	I		
7	8½	HTC	X1G	WD396	11	11	11	3700	118	14.75	22.5	8	30	85		1700	5½		110	10.2	48	5	5	I		
CH1	8½	ACC	EH St	15689	–	–	–	3730	30	4.75	226.25	6.3	15	60		800	5½		60	10.2	48	G	O	O	D		
8	8½	Sec	S44	898705	11	11	11			CLEAN OUT RUN																
CH1	8½	ACC	EH St	15689	–	–	–	3790	60	15	241.25	4	15	70		800	5½		100	10.3	44	G	O	O	D		
CH1	8½	ACC	EH St	15689	–	–	–	3850	60	14	255.25	4.2	15	70		800	5½		100	10.3	44	G	O	O	D		
RR8	8½	Sec	S44	898705	–	–	–	3912	62	4	259.25	15.5	30	75		1500	5½		120	10.3	44	3	3	I		
CH2	8½	ACC	EH St	16799	–	–	–	3972	60	7.5	266.75	8	20	60		1300	5½		90	10.2	44	G	O	O	D		
CH2	8½	ACC	EH St	16799	–	–	–	4033	61	11	277.75	5.5	20	60		1300	5½		90	10.2	44	G	O	O	D		

SMITH REPRESENTATIVE _____ PHONE _____

BIT RECORD

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

LEASE: National Petroleum Reserve in Alaska | WELL NO: West Dease Test Well | SEC: 21 | TOWNSHIP: 21 North | RANGE: 14 West | BLOCK | FIELD

TOOL PUSHER | DAY DRILLER | EVENING DRILLER | MORNING DRILLER

DRILL PIPE: No. 1 | MAKE | SIZE | TYPE | DRILL JOINT | 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	BULL CODE T	B	G	REMARKS FORMATION CIRC. FLUID, ETC.	DATE
RR8	8½	Sec	S44	898750	11	11	11	4150	117	20.5	298.25	5.7	35	70		1500	5½	120	10	41	6	5	I		
CH2	8½	ACC	EH St	16799	-	-	-	4160	10	5.25	303.5	1.9	20	60		1300	5½	80	10	42	G	0	O	D	
9	8½	HTC	XDV	HH168	11	11	11	4170	10	3.25	306.75	3	35	60		1500	5½	120	10	50	1	1	I		

SMITH REPRESENTATIVE _____ PHONE _____

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 for West Dease Test Well No. 1 was programmed as follows: 20" conductor at ±100'; 13-3/8" deep conductor at ±300'; 9-5/8" casing at ±2850'. Actual casing run was 20" at 101'; 13-3/8" at 288'; and 9-5/8" at 2970'. The 9-5/8" annulus was left full of diesel from the top of Plug No. 4 at 2700' to the surface. This was to allow U. S. Geological Survey personnel to take temperature readings in the wellbore in the future.

CASING TALLY
SUMMARY SHEET

DATE: February 19, 1980

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

SUMMARY OF PAGE MEASUREMENTS

	NO. OF JOINTS	FEET	.00'S
PAGE 1	10	414	51
PAGE 2			
PAGE 3			
PAGE 4			
PAGE 5			
PAGE 6			
PAGE 7			
PAGE 8			
PAGE 9			
TOTAL	10	414	51

SUMMARY OF DEPTH CALCULATIONS

		NO. OF JOINTS	FOOTAGE FEET	FOOTAGE .00'S
1	TOTAL CASING ON RACKS	10	414	51
2	LESS CASING OUT (JTS NOS.	3	121	95
3	TOTAL (1 - 2)		293	56
4	SHOE LENGTH		1	54
5	FLOAT LENGTH		2	00
6	MISCELLANEOUS EQUIPMENT LENGTH		--	-
7	TOTAL CASING AND EQUIPMENT FROM CEMENT HEAD (3 + 4 + 5 + 6)		297	10
8	LESS WELL DEPTH (KB REFERENCE)			
9	"UP" ON LANDING JOINT			

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

SUMMARY OF STRING AS RUN

WEIGHT	GRADE	THREAD	MANUFACTURER	CONDITION NEW/USED	LOCATION IN STRING	NO OF JOINTS	FOOTAGE	INTERVAL
					JT NO. THRU NO.			' '
					JT NO. THRU NO.			' '
					JT NO. THRU NO.			' '
					JT NO. THRU NO.			' '
					JT NO. THRU NO.			' '
					JT NO. THRU NO.			' '
					JT NO. THRU NO.			' '

PAGE 1 OF 1

CASING TALLY

DATE: February 19, 1980

FIELD NPRA LEASE & WELL NO. West Dease 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	42	68 (Including Shoe)			
2	42	00			
3	40	26			
4	40	87			
5	40	62			
6	41	07			
7	42	02			
8	42	22			
9	42	13			
0	40	64			
TOTAL A	414	51			

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

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

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

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

TOTAL A	414	51		
TOTAL B				
TOTAL C				
TOTAL D				
TOTAL E				
TOTAL PAGE	414	51		

CASING AND CEMENTING REPORT

WELL NAME West Dease Test Well No. 1

LOCATION National Petroleum Reserve in Alaska

RAN CASING AS FOLLOWS:

7	Jts	13 3/8"	S-95	72#		
	Jts					
	Jts					

Shoe @ 288' Float @ N/A DV @ N/A

Centralizer @ 278', 246', 205', and 164'.

FIRST STAGE

Sx of Cement 700 Type Pmfst Additives None % Excess 150

Preflush 20 Barrels Water Initial Pressure 0

Displacement 2.6 bbls. Final Pressure 0

Plug Down 11:45 AM PM

SECOND STAGE - Stage Collar @ N/A

Sx of Cement _____ Type _____ Additives _____ % Excess _____

Preflush _____ Initial Pressure _____

Displacement _____ bbls. Final Pressure _____

Plug Down _____ AM PM

Well Depth 295' Overall Casing Tally 289.52

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:

CASING TALLY
SUMMARY SHEET

DATE: December 29, 1980

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

SUMMARY OF PAGE MEASUREMENTS

	NO OF JOINTS	FEET	00'S
PAGE 1	50	2131	52
PAGE 2	20	836	69
PAGE 3			
PAGE 4			
PAGE 5			
PAGE 6			
PAGE 7			
PAGE 8			
PAGE 9			
TOTAL	70	2968	21

SUMMARY OF DEPTH CALCULATIONS

		NO. OF JOINTS	FOOTAGE FEET	FOOTAGE .00'S
1	TOTAL CASING ON RACKS	70	2968	21
2	LESS CASING OUT OTS NOS.	–	–	–
3	TOTAL (1 – 2)	70	2968	21
4	SHOE LENGTH		1	75
5	FLOAT LENGTH		2	00
6	MISCELLANEOUS EQUIPMENT LENGTH		–	–
7	TOTAL CASING AND EQUIPMENT FROM CEMENT HEAD (3 + 4 + 5 + 6)		2971	96
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 2 CASING TALLY DATE: February 28, 1980

FIELD NPRA LEASE & WELL NO. West Dease 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	41	54			
2	41	96			
3	42	08			
4	41	33			
5	42	16			
6	42	25			
7	39	90			
8	46	35			
9	40	97			
0	41	91			
TOTAL A	420	45			

JOINT NO	FIRST MEASUREMENT FEET	FIRST MEASUREMENT .00'S	CHECK MEASUREMENT FEET	CHECK MEASUREMENT .00'S	WT GR.
1	42	21			
2	41	81			
3	46	95			
4	46	67			
5	41	67			
6	42	37			
7	46	52			
8	41	70			
9	41	64			
0	41	04			
TOTAL D	432	58			

1	40	38			
2	37	15			
3	41	60			
4	42	15			
5	40	00			
6	42	32			
7	41	87			
8	43	25			
9	43	36			
0	42	34			
TOTAL B	414	42			

1	43	76			
2	41	62			
3	46	27			
4	42	06			
5	41	46			
6	39	77			
7	41	76			
8	34	51			
9	46	35			
0	46	75			
TOTAL E	424	31			

1	42	34			
2	41	88			
3	46	82			
4	46	54			
5	41	78			
6	46	04			
7	46	50			
8	43	26			
9	42	02			
0	42	58			
TOTAL C	439	76			

TOTAL A	420	45		
TOTAL B	414	42		
TOTAL C	439	76		
TOTAL D	432	58		
TOTAL E	424	31		
TOTAL PAGE	2131	52		

PAGE 2 OF 2

CASING TALLY

DATE: February 28, 1980

FIELD NPRA LEASE & WELL NO. West Dease 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	41	52			
2	41	89			
3	40	45			
4	41	23			
5	36	23			
6	42	05			
7	39	38			
8	45	35			
9	42	48			
0	46	00			
TOTAL A	416	58			

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	42	84			
2	44	95			
3	41	56			
4	39	82			
5	41	57			
6	37	49			
7	41	96			
8	42	18			
9	42	84			
0	44	90			
TOTAL B	420	11			

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

1	2	00 (Shoe)			
2	1	75 (Float Collar)			
3					
4					
5					
6					
7					
8					
9					
0					
TOTAL C	3	75			

TOTAL A	416	58		
TOTAL B	420	11		
TOTAL C	3	75		
TOTAL D				
TOTAL E				
TOTAL PAGE	840	44		

CASING AND CEMENTING REPORT

WELL NAME West Dease Test Well No. 1

LOCATION National Petroleum Reserve in Alaska

RAN CASING AS FOLLOWS:

70	Jts	9 5/8"	53.5	Buttress	S-95	Range 3
	Jts					
	Jts					

Shoe @ 2970' Float @ 2926' DV @ _____

Centralizer @ 2960', 2882', 2798', 2715', 2633', 2545', 128', 86', 43'

FIRST STAGE

Sx of Cement 1600 Type Pmfst Additives _____ % Excess _____

Preflush None Initial Pressure 0

Displacement 19.3 bbls. Final Pressure 400

Plug Down 5:30 AM PM

SECOND STAGE - Stage Collar @ _____

Sx of Cement _____ Type _____ Additives _____ % Excess _____

Preflush _____ Initial Pressure _____

Displacement _____ bbls. Final Pressure _____

Plug Down _____ AM PM

Well Depth 2980' Overall Casing Tally 2971.96

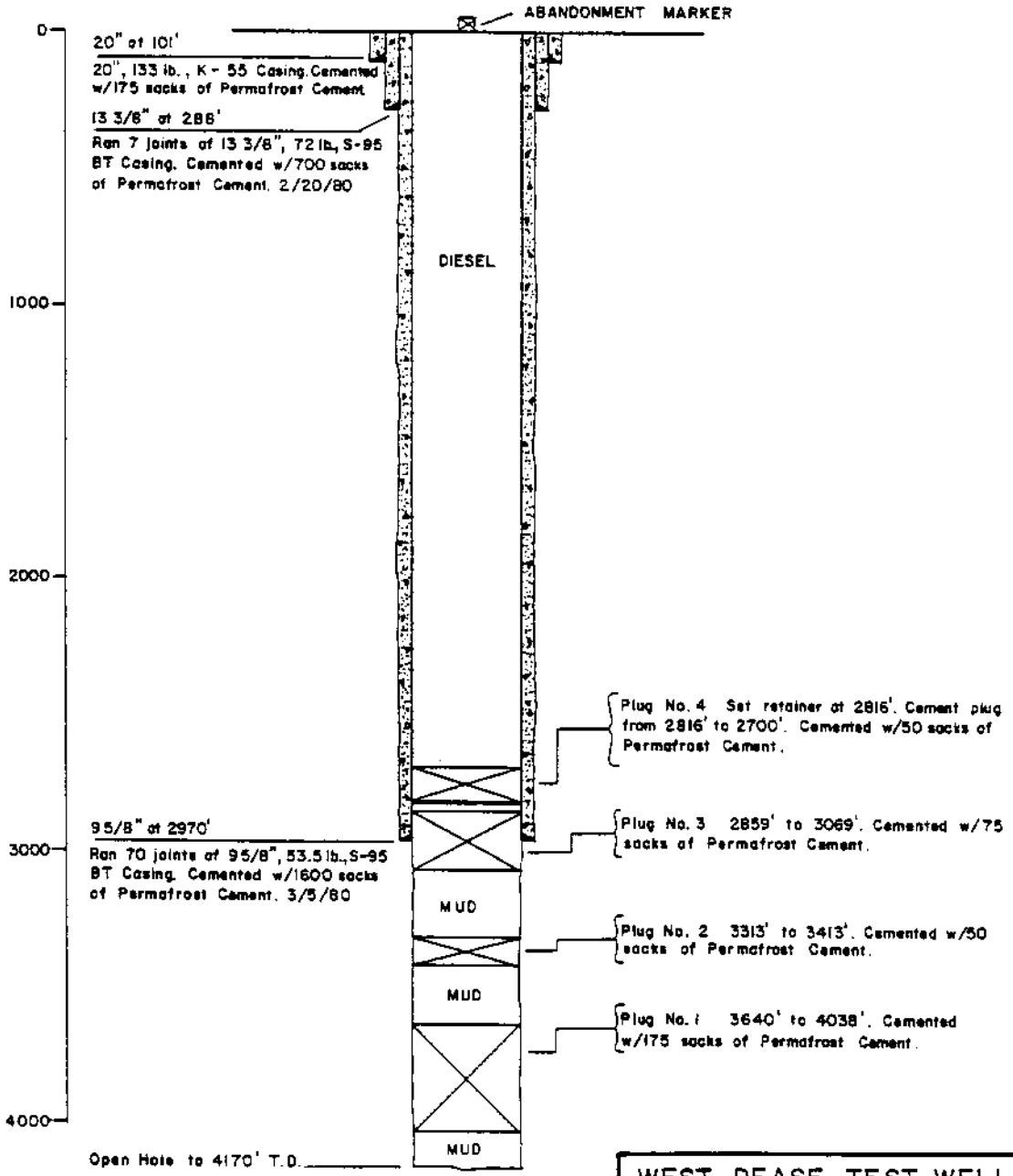
KB to Top of Cut Off Casing _____ Length of Landing Jt Removed _____

Weight Indicator Before Cementing _____ lbs.

Weight Indicator After Slacking Off _____ lbs.

Inches Slacked Off _____

Remarks:

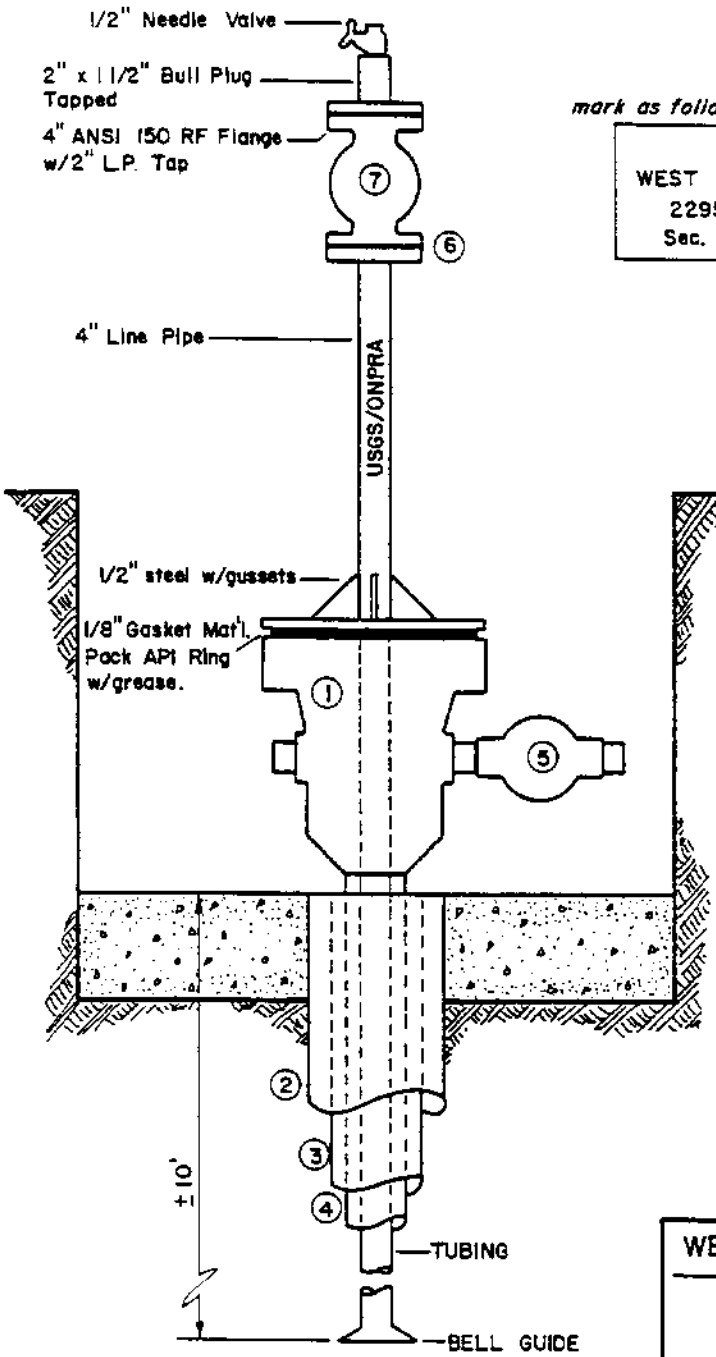


WEST DEASE TEST WELL No. 1

2464' FNL and 2295' FEL
Sec. 21, T2IN, R14W, U.M

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

WELLBORE SCHEMATIC



mark as follows in welded writing on pipe

USGS / ONPRA
WEST DEASE TEST WELL No.1
2295' FEL and 2464' FNL
Sec. 21, T2IN, R14W, U.M.

Part No. *EQUIPMENT LIST*

1. 9 5/8", 3000psi slip-on Head, McEvoy
2. 20" Casing
3. 13 3/8" Casing
4. 9 5/8" Casing
5. 2", 2000 psi L.P. Gate Valve
6. 4" ANSI 150psi RF Flange
7. 4" ANSI 150 psi RF Gate Valve

WEST DEASE TEST WELL No.1

2295' FEL and 2464' FNL
Sec. 21, T2IN, R14W, U.M.

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

ABANDONMENT HEAD

RIG INVENTORY

Draw Works

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

Mast

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

Subbase

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

Rig Matts

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

Traveling Blocks

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

Swivel

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

Bails

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

Rotary Table

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

Mud Tank

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

Shaker

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

Degasser

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

Desander

Pioneer Model S2-12; capacity: 500 GPM.

Desilter

Pioneer Model T8-6; capacity: 500 GPM.

Mud Mixer

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

Hopper

One low pressure mud-mixing hopper.

Generators

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

Boilers

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

Steam Heaters

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

Tongs

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

Indicator

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

Indicator

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

Indicator

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

Mud Box

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

Slips

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

Elevators

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

Kelly

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

Kelly Bushing

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

Pumps

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

Air Compressors

One LeRoi 34C mounted on draw works compound. One Ingersoll Rand Model 71-T2-T3011 TM, driven by 10 HP, 440 volt, 1725 RPM explosion-proof electric motor.

Water Tanks

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

Fuel Tanks

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

Blowout Preventer Equipment

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

Choke Manifold

Three-inch, 3,000 lb., with one 2" OCT adjustable choke; one 2" OCT positive choke and space for automatic choke.

Closing Unit

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

Drill Pipe

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

Drill Collars

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

Subs

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

Forklift

One 966 Caterpillar, equipped with 60-inch forks.

Pipe Racks

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