Methane Hydrate Production from Alaskan Permafrost

Drilling and Coring Operations

Topical Report

January 28, 2003 to March 19, 2004

by

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Disclaimer

Abstract

Natural-gas hydrates have been encountered beneath the permafrost and considered a nuisance by the oil and gas industry for years. Engineers working in Russia, Canada and the USA have documented numerous drilling problems, including kicks and uncontrolled gas releases, in arctic regions. Information has been generated in laboratory studies pertaining to the extent, volume, chemistry and phase behavior of gas hydrates. Scientists studying hydrate potential agree that the potential is great – on the North Slope of Alaska alone, it has been estimated at 590 TCF. However, little information has been obtained on physical samples taken from actual rock containing hydrates.

This gas-hydrate project was a cost-shared partnership between Maurer Technology, Noble Corporation, Anadarko Petroleum, and the U.S. Department of Energy's Methane Hydrate R&D program. The purpose of the project is to build on previous and ongoing R&D in the area of onshore hydrate deposition to identify, quantify and predict production potential for hydrates located on the North Slope of Alaska.

The work scope included drilling and coring a well (Hot Ice No. 1) on Anadarko leases beginning in FY 2003 and completed in 2004. During the first drilling season, operations were conducted at the site between January 28, 2003 to April 30, 2003. The well was spudded and drilled to a depth of 1403 ft. Due to the onset of warmer weather, work was then suspended for the season. Operations at the site were continued after the tundra was re-opened the following season. Between January 12, 2004 and March 19, 2004, the well was drilled and cored to a final depth of 2300 ft.

An on-site core analysis laboratory was built and implemented for determining physical characteristics of the hydrates and surrounding rock. The well was drilled from a new Anadarko Arctic Platform that has a minimal footprint and environmental impact. Final efforts of the project are to correlate geology, geophysics, logs, and drilling and production data and provide this information to scientists developing reservoir models and to research teams for developing future gas-hydrate projects.

No gas hydrates were encountered in this well; however, a wealth of information was generated and has been documented by the project team. This Topical Report documents drilling and coring operations and other daily activities.

Table of Contents

1. Introduction

The Hot Ice gas-hydrate project was a cost-shared partnership between Maurer Technology, Noble Corporation, Anadarko Petroleum, and the U.S. Department of Energy's Methane Hydrate R&D program. The purpose of this project is to plan, design and implement a program that will safely and economically drill/core and produce natural gas from arctic hydrates. This project has documented planning, operations and lessons learned to assist in future hydrate research and field operations to make an objective technical and economic assessment of this promising natural gas reservoir potential.

On February 7, 2004 the Hot Ice No. 1 well was drilled to a total depth of 2300 ft, about 300 ft below the zone where temperature and pressure conditions would permit hydrates to exist (i.e., the hydrate stability zone). Although significant gas shows were encountered in highly porous sandstones, no methane hydrates were found. The continuous coring rig used in the project proved to be a safe and efficient drilling system, with 93% of the core recovered.

The well was drilled from a special low-impact, purpose-built arctic platform (**Figure 1**). Tests were conducted on platform leg stability (see **Appendix C** and **Appendix D**). Details of platform installation and operation were reported by Kadaster and Millheim (2004). This project also made use of a highly capable on-site Mobile Core Laboratory (**Figure 2**) to analyze cores immediately after retrieval from the well. Live data and images were also transmitted from the rig over the internet, which reduced the number of engineers and scientists required to oversee the project. A massive 3D VSP seismic survey was conducted to investigate lateral variations of the potential hydrate reservoir. Results of the VSP and analysis are described in a separate Topical Report.

Figure 1. Arctic Drilling Platform

Field operations at Hot Ice No. 1 commenced on January 18, 2003, with the mobilization of the construction crews. Previously, platform leg loading tests had been conducted in Deadhorse,

Alaska during October-November 2002. Platform installation began on January 29 and was completed on February 26, 2003, taking a total of 28 days versus 20 days planned.

Figure 2. Overhead View of Coring Rig (red rig mast was covered during operations) and Mobile Core Laboratory (four blue modules at bottom)

After TD was reached in February 2004, the well was abandoned. Demobilization of the arctic platform and complete remediation of the site was completed on March 11, 2004.

2. Experimental

2.1 Task Statement

This Topical Report presents results for Task 9 from the hydrate project. Results for other tasks are described in companion Topical Reports and the Final Report. The complete Statement of Work for Task 9 is presented below.

Task 9.0 – Drilling and Coring

The project team shall winterize the drill rig, and mobilize it to Deadhorse and then to the well location. The project team shall drill and core one or more wells from the ice pad or arctic platform.

Subtask 9.1 – Environmental Health and Safety

The project team shall monitor and respond to environmental health and safety concerns, including monitoring and manifesting waste, in order to ensure compliance with regulations specified in permits.

Subtask 9.2 – Drilling and Coring

The project team shall drill and core one or more wells from the ice pad or arctic platform constructed in Subtask 8.2. The project team shall use the Noble Engineering and Development Drill Smart System to allow engineers to monitor and view drilling operations live from Houston.

Subtask 9.3 – Maintain Camp Facilities

The project team shall provide camp facilities to house and feed the crews rotating on a 12/12 shift schedule.

Subtask 9.4 – Transportation of Drilling Supplies

The project team shall transport by trucks and Rolligons personnel, equipment, and supplies used in the drilling operations, including drilling fluids and drilling mud.

Subtask 9.5 – Arctic Platform

The Anadarko Arctic Platform will be constructed and tested in Houston, Texas. The structure will be made of lightweight aluminum. It will be mobilized to the base camp in December where it will be inspected prior to mobilization to the well location. The legs will be tested and put on location as soon as the freeze period begins in January. The legs will be installed into the tundra permafrost and frozen into place. The platform will be mobilized by either helicopter and/or Rolligon from the base camp and assembled in February on the legs at the well location. Environmental monitoring equipment will also be installed.

The drilling area will be 100 x 100 ft (30.5 x 30.5 m) and the base camp will be 70 x 50 ft (21.3 x 15.2 m) connected by a walkway. The rig, equipment and base camp will be installed on the platform by helicopter and/or Rolligon and a crane that will be installed on the platform. After completion of drilling and completion operations, some of the equipment will be demobilized, with the remainder staying until the well testing has been completed. The entire platform will be demobilized to Dead Horse. The platform will be thoroughly inspected by a third party and a post-analysis study will be conducted with recommendations on future operations.

3. Results and Discussion

3.1 Summary Results for Drilling and Coring Tasks

A brief summary of results for each subtask under Task 9 is presented in this section. More detail is provided later in this chapter.

Subtask 9.1 – Environmental Health and Safety

The team monitored and responded to environmental health and safety concerns, including monitoring and manifesting waste, to ensure compliance with regulations specified in permits. The safety record during the operation was excellent. More details are presented in Section 3.6.

Subtask 9.2 – Drilling and Coring

The team drilled the Hot Ice No. 1 well from the innovative Arctic Platform constructed in Subtask 8.2. The team used chilled drilling fluids and monitored the downhole temperature and inclination using a tool provided by Sandia National Lab. The team used the Noble Engineering and Development Drill Smart System to allow engineers to monitor and view drilling operations live from Houston. Because of unseasonably warm weather, the team was unable to complete the drilling program as originally scheduled during the Spring of 2003. The team resumed and completed drilling operations during the Winter 2004 drilling season.

Subtask 9.3 – Maintain Camp Facilities

The team provided camp facilities to house and feed the crews rotating on a 12/12 shift schedule.

Subtask 9.4 – Transportation of Drilling Supplies

For the first drilling season during 2003, no road was constructed to the site. The team transported by trucks and Rolligons personnel, equipment, and supplies that were used in the drilling operations, including drilling fluids and drilling mud. For the winter 2004 season, the team constructed a new ice road to facilitate mobilization of equipment, supplies, and personnel to the Hot Ice No. 1 site to complete drilling and coring operations.

Subtask 9.5 – Arctic Platform

The Anadarko Arctic Platform was constructed as a zero-discharge facility and tested in Houston, Texas. The structure is made of lightweight aluminum. It was mobilized to the base camp in January 2003, and inspected prior to mobilization to the well location in February (**Figure 3**). The legs were tested (see **Appendix C** and **Appendix D**) and put on location as soon as the freeze period began in January. A video of the transportation and construction was provided to the DOE. Legs were installed into the tundra permafrost and frozen into place. The platform can be mobilized by either helicopter and/or Rolligon from the base camp and assembled at the well location. Environmental monitoring equipment was also installed.

Figure 3. Arctic Platform at Hot Ice No. 1

The platform drilling area is 100 x 100 ft (30.5 x 30.5 m) and the base camp is 62.5 x 50 ft (19.1 x 15.2 m) on an adjacent platform. The rig, equipment and base camp were installed on the platform by Rolligon and two cranes. At the conclusion of drilling and completion operations, the equipment was demobilized as designed. After clean-up, there was no adverse environmental impact at the drill site (**Figure 4**). The entire platform was demobilized to Dead Horse, Alaska. It was thoroughly inspected by a third party and a post-analysis study was conducted with recommendations on future operations.

Figure 4. Final Stage of Platform Removal and Site Remediation

3.2 Well Location and Routes to Site

Location of the Hot Ice No. 1 gas-hydrate well is shown in **Figure 5**. This is a map of the Kuparuk River Unit Operating Center (KRU) and outlying well pads, connected by gravel roads. Also shown are the three permitted locations (three Hot Ice wells were originally planned for the program), with the Hot Ice No. 1 well site indicated.

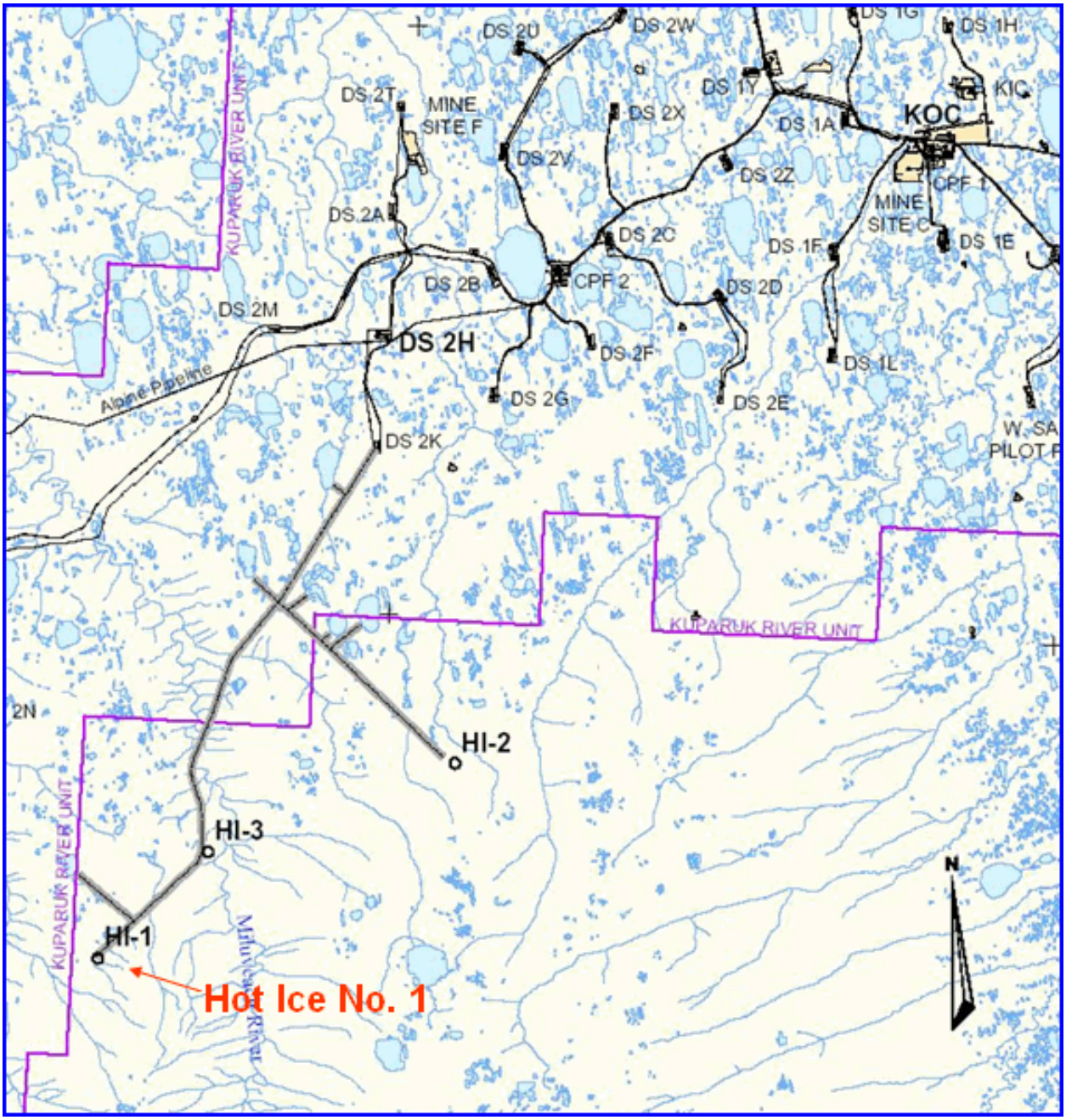


Figure 5. Hot Ice No. 1 Location and 2003 Route

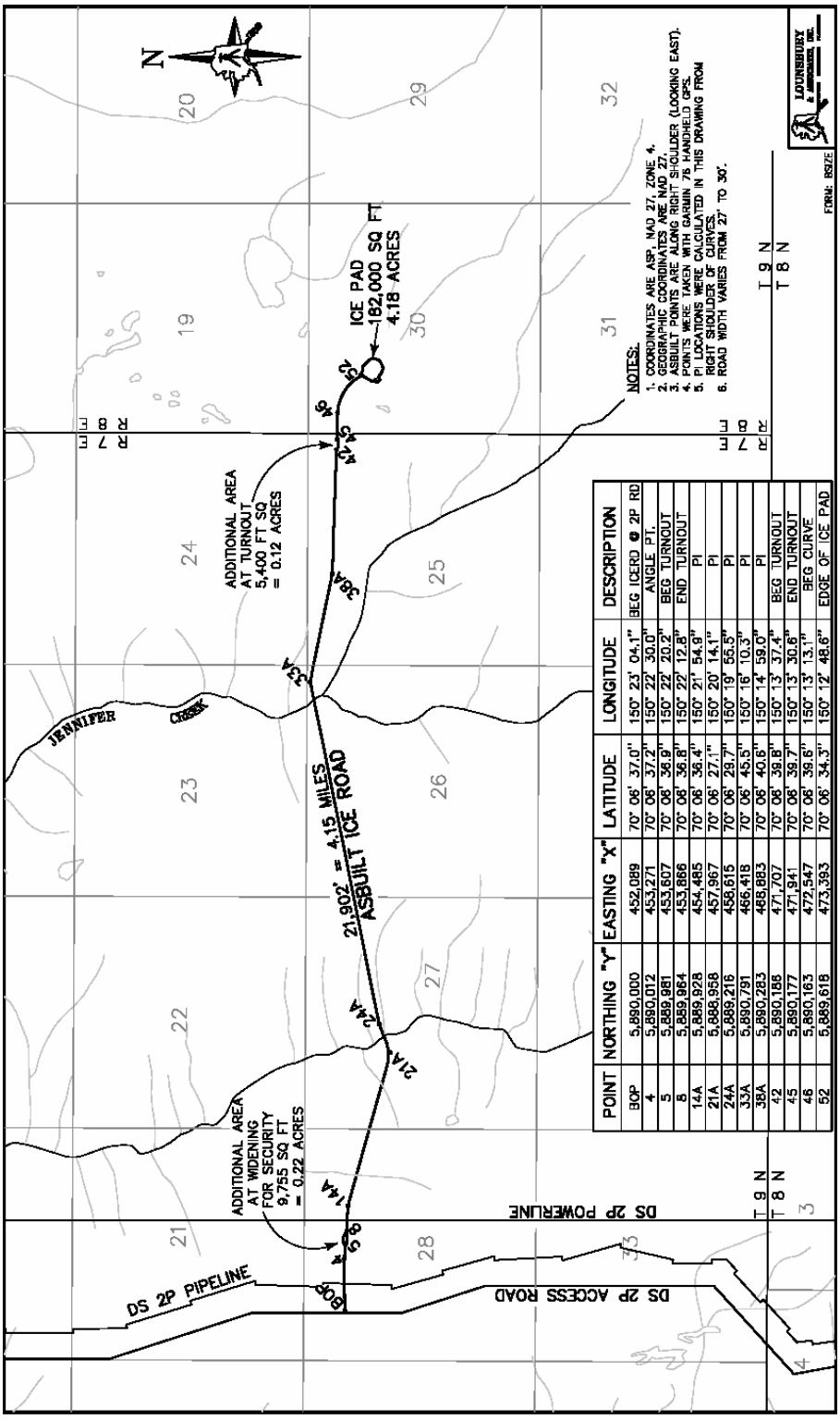
Operations in 2003, including platform construction, topsides assembly, and continuous coring of the well to the intermediate casing point, were conducted “roadless” (without building ice

roads), even though permits were obtained to build ice roads along the route marked on Figure 5 (the heavy lines connecting the Hot Ice locations). All material and personnel were transported over the tundra with Rolligons and Mattrax track equipped pick-up trucks, permitted for use over the tundra. Helicopter trips were limited to medical evacuations (one mild heart attack case occurred) and group visits.

The KRU operator designated the DS-2H well pad as the staging area permitted under the Facilities Sharing Agreement terms. The Hot Ice No. 1 construction camp was established at this staging area and maintained as a supplemental camp for the rest of the 2003 season operations.

The distance from DS-2H to Hot Ice No. 1 was 14 miles, with 12 miles over frozen tundra, starting at the jump-off point at the DS-2K pad. No measurable tundra damage occurred as a result of the 2003 “roadless” operations, demonstrating the viability of such efforts in future locations that may be far removed from the gravel road infrastructure.

The 2004 operations and demobilization of the topsides and platform were carried out over a 4-mile ice road constructed from the Tarn-Meltwater field gravel road to the Hot Ice No. 1 well location. This route involved crossing under a power highline, over the Meltwater-KRU pipeline and over two small creeks (**Figure 6**).



POINT	NORTHING "Y"	EASTING "X"	LATITUDE	LONGITUDE	DESCRIPTION
BOP	5,890,000	452,089	70° 06' 37.0"	150° 23' 04.1"	BEG ICERD @ 2P RD
4	5,890,012	453,271	70° 06' 37.2"	150° 22' 30.0"	ANGLE PT.
5	5,888,981	453,607	70° 06' 36.9"	150° 22' 20.2"	BEG TURNOUT
8	5,889,964	453,866	70° 06' 36.8"	150° 22' 12.8"	END TURNOUT
14A	5,889,928	454,485	70° 06' 36.4"	150° 21' 54.9"	PI
21A	5,888,958	457,967	70° 06' 27.1"	150° 20' 14.1"	PI
24A	5,889,216	458,615	70° 06' 29.7"	150° 19' 55.5"	PI
33A	5,890,791	466,418	70° 06' 45.5"	150° 16' 10.3"	PI
38A	5,890,283	468,883	70° 06' 40.6"	150° 14' 59.0"	PI
42	5,890,186	471,707	70° 06' 39.8"	150° 13' 37.4"	BEG TURNOUT
45	5,890,177	471,941	70° 06' 39.7"	150° 13' 30.8"	END TURNOUT
46	5,890,163	472,547	70° 06' 39.8"	150° 13' 13.1"	BEG CURVE
52	5,889,618	473,393	70° 06' 34.3"	150° 12' 48.6"	EDGE OF ICE PAD

Figure 6. 2004 Ice Road As-Built Survey

The 2004 ice road is shown in **Figures 7** and **8**.

Figure 7. Ice Road after Maintenance Run

Figure 8. Pipeline Crossing on Ice Road

3.3 Wellbore Operations Summary

Figure 9 shows planned and actual wellbore construction sketches. The 7-in. casing was set slightly deeper than planned, based on actual core recovery and field determination of the base of the permafrost (1400 ft versus 1260 ft). Well operations were suspended in 2003 after the 7-in. casing was set and cemented. Also shown in the figure is that final total depth was reached at 2300 ft during 2004 operations, based on site-specific estimate of the base of the hydrate stability zone compared to the pre-spud estimate of 2600 ft. The wellbore did not intersect any hydrates; therefore, no tests were conducted.

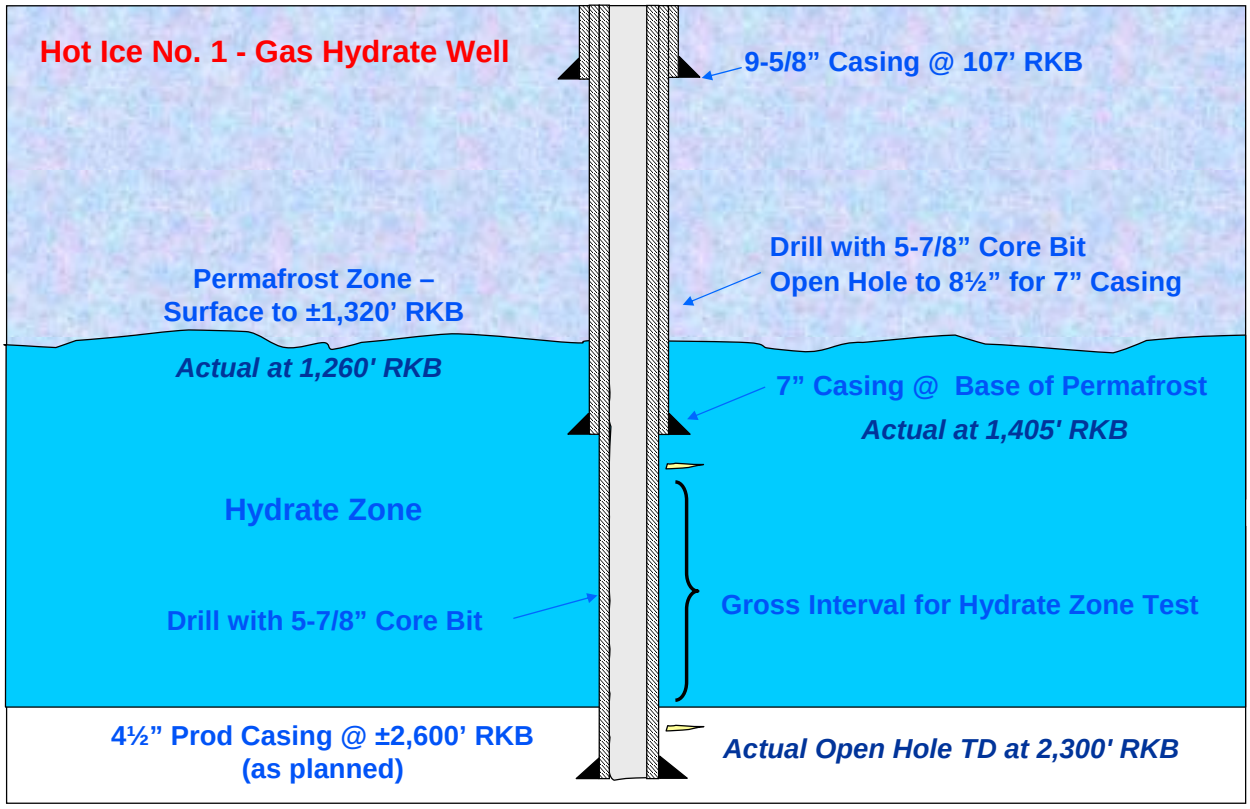


Figure 9. Wellbore Summary

The table below lists key dates during 2003 operations, including the suspension of wellsite operations on April 28, 2003, due to unseasonably warm weather that started thawing the tundra. The 2003 season had a net of 89 field operations days out of 106 gross operational days.

Schedule Highlights for 2003 Operations (Roadless)	
18-Jan-03	Open Deadhorse Office (Tundra open 20 January)
29-Jan-03	Commence Platform Installation
26-Feb-03	Platform Installation Complete (28 vs 20 days)
15-Mar-03	Topsides Installation Complete (17 vs 7 days)
26-Mar-03	Winterization & Structural Bracing (11 vs 0 days)
01-Apr-03	Pre-Spud Preparations Complete (6 vs 3 days)
21-Apr-03	Core to 1405' / Log / Set & Cement 7" (20 vs 15 days)
28-Apr-03	Suspend Field Operations (7 vs 0 days)
04-May-03	Suspend Deadhorse Operations (7 vs 0 days)
Operational Days in 2003: 106 (gross) / 89 (net field days)	

Below is a summary of the key 2004 operational timeline. The office at Deadhorse was re-opened on January 7, 2004. An ice road was built and pre-spud repairs and rig up completed in 20 days. Coring operations commenced on January 29, 2004. The well was cored from 1400 to 2300 ft, the openhole section logged via wireline and 3D VSP operations conducted.

Schedule Highlights for 2004 Operations (Ice Road)	
07-Jan-04	Opened Deadhorse office (Tundra Opening 09-Jan)
12-Jan-04	Start Ice Road - Surveyed Road & Pad & Platform
21-Jan-04	Start Rig-up Activities (Mobilization: 10 vs 9 days)
29-Jan-04	Resume Coring Operations (Rig-Up: 7 vs 8 days)
07-Feb-04	Start WL Logging & VSP Phase (Coring 17.5 vs 17 days)
15-Feb-04	Commence Abandonment & Demobilization Phase
11-Mar-04	Finish Site Remediation (P&A, Demob: 25.5.vs 38 days)
19-Mar-04	Deadhorse Yard & Office Closed (Wrap-up: 8 vs 10 days)
Operational Days in 2004: 67 (gross) / 54 (net field days)	
Cumulative Days of Operation : 173 (gross) / 143 (net field days)	

Well abandonment and equipment demobilization operations commenced on February 15, 2004. After wellsite remediation was complete, the location was abandoned on March 11, 2004. Gross operational days in 2004 were 67 with 54 net days in the field. Over the two seasons, there were a total of 173 gross operational days with 143 net field days.

The Hot Ice No. 1 was plugged and abandoned on February 16-17, 2004. The open hole was cemented back into the intermediate casing and a surface cement plug set from below the depth of the conductor pipe to the ground level. Final wellbore status is summarized schematically in **Figure 10**.

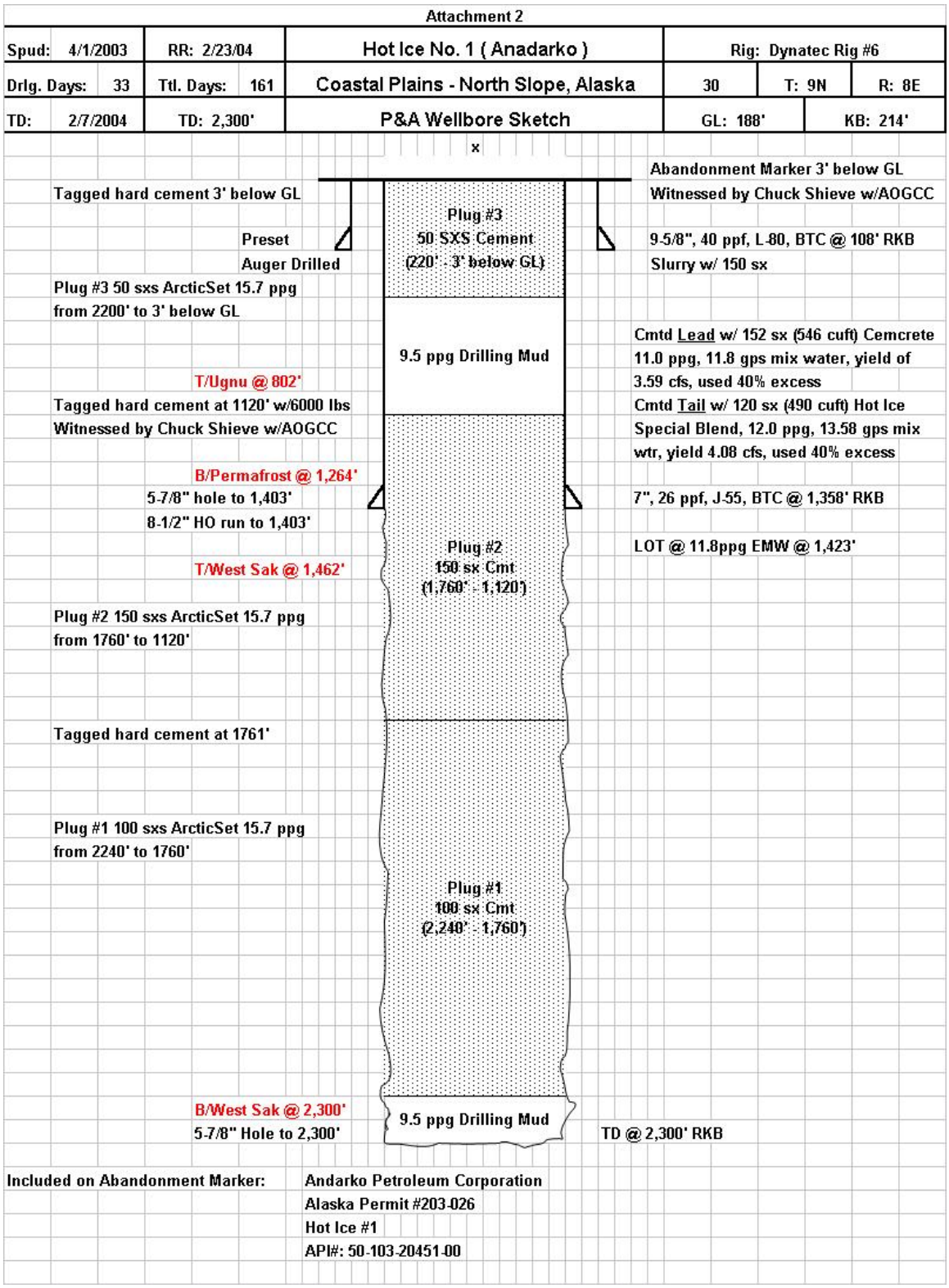


Figure 10. Abandoned Hot Ice No. 1 Wellbore

During the first drilling season, the well was temporarily shut in and the platform closed on May 19, 2003 due to the arrival of warmer weather. Free water was present under and around the platform (**Figure 11**). Melted snow was present around the remainder of the ice pad.

Figure 11. Arctic Platform at Close of 2003 Drilling Season

The platform remained in place and was undisturbed during the off-season. **Figure 12** is a photograph of the site taken on July 18, 2003.

Figure 12. Arctic Platform during Summer (July 18, 2003)

3.4 Analysis of Drilling and Coring Time

As stated, the Hot Ice No. 1 gas-hydrate well was drilled and cored to a total depth of 2300 ft (701 m) during two operating seasons. **Figure 13** is the days versus depth curve for the well, showing a total of 47 days, including the casing setting, well evaluation and plug-back times. Days when the well was suspended (summer 2003 to winter 2004) have been excluded.

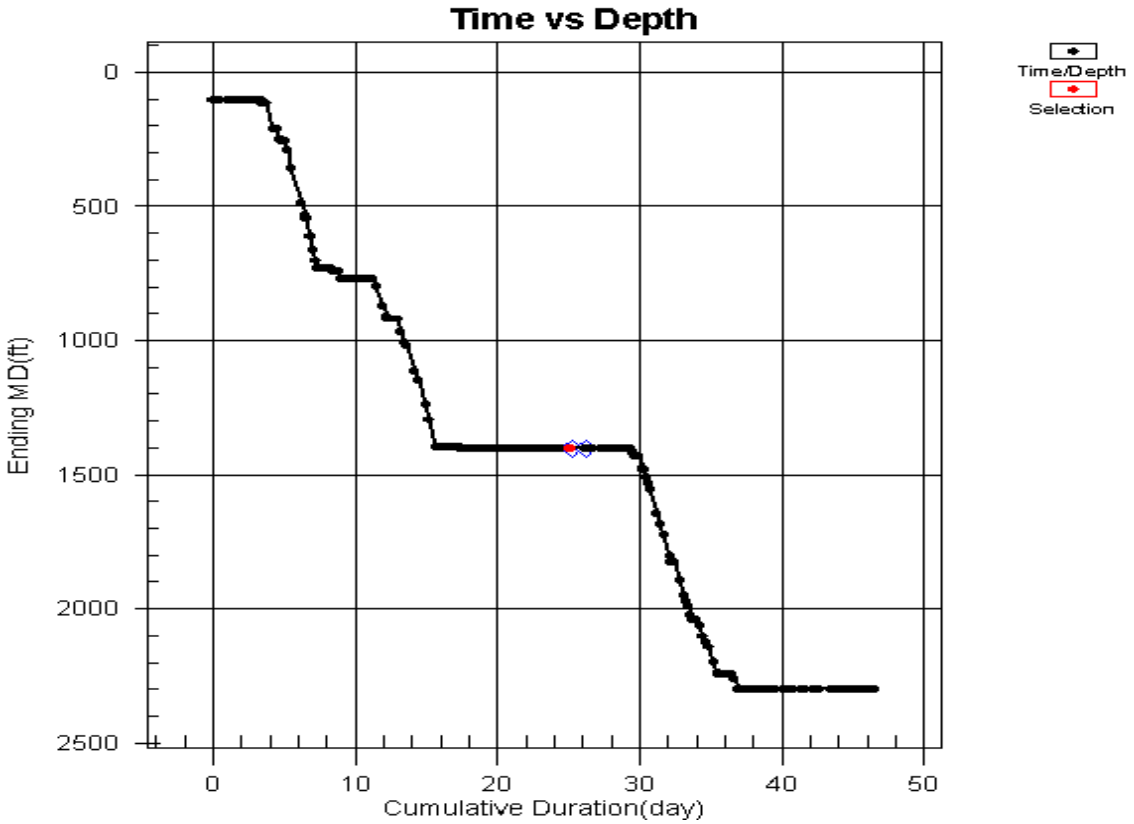


Figure 13. Drilling/Coring Time versus Depth

All activity times are compared in **Figure 14**, including platform construction and topsides installation; coring and evaluation of the well; and dismantling and demobilization of all materials after well abandonment. Rig-up times in 2003 and 2004 account for 54% of total operational days; well coring and evaluation related operations account for 29%; and demobilization time in both seasons consumed 17% of the total time. Initial rig-up times, which account for 43% of total project time, include the learning curve, for the first-ever field installation and usage of the Arctic Platform.

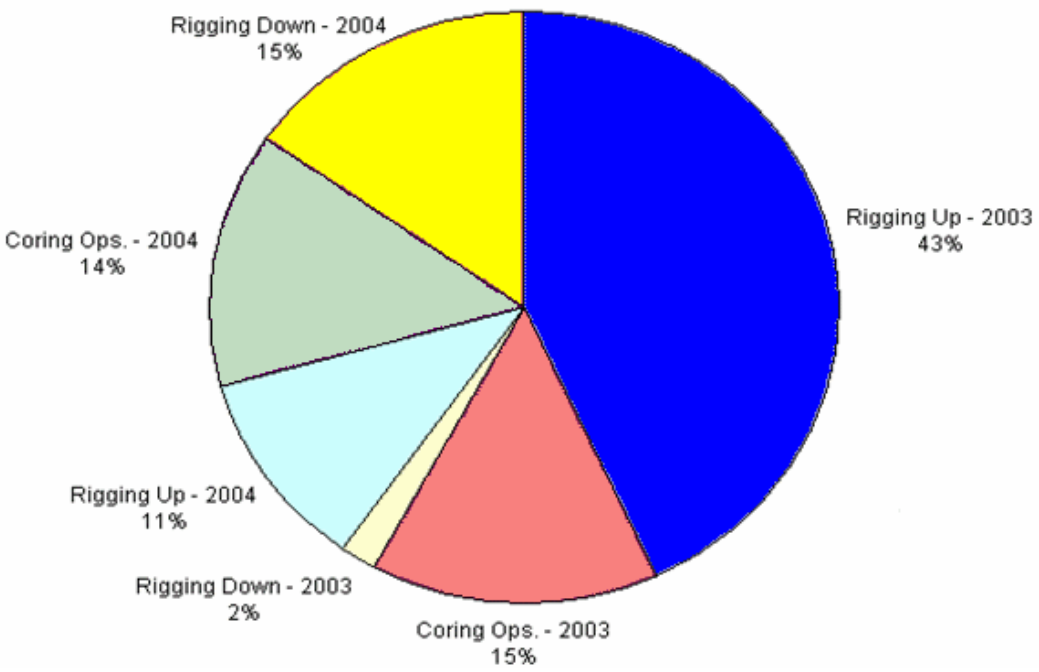


Figure 14. Operations Time Breakdown

Figure 15 summarizes overall trouble time on this Hot Ice No. 1 well, with weather being the most problematic lost time event (as to be expected) at nearly 12.5 days, followed by drilling fluid/solids control problems at 4 days and tool failures at 3 days. Total lost time was about 24 days, half of which were weather-related.

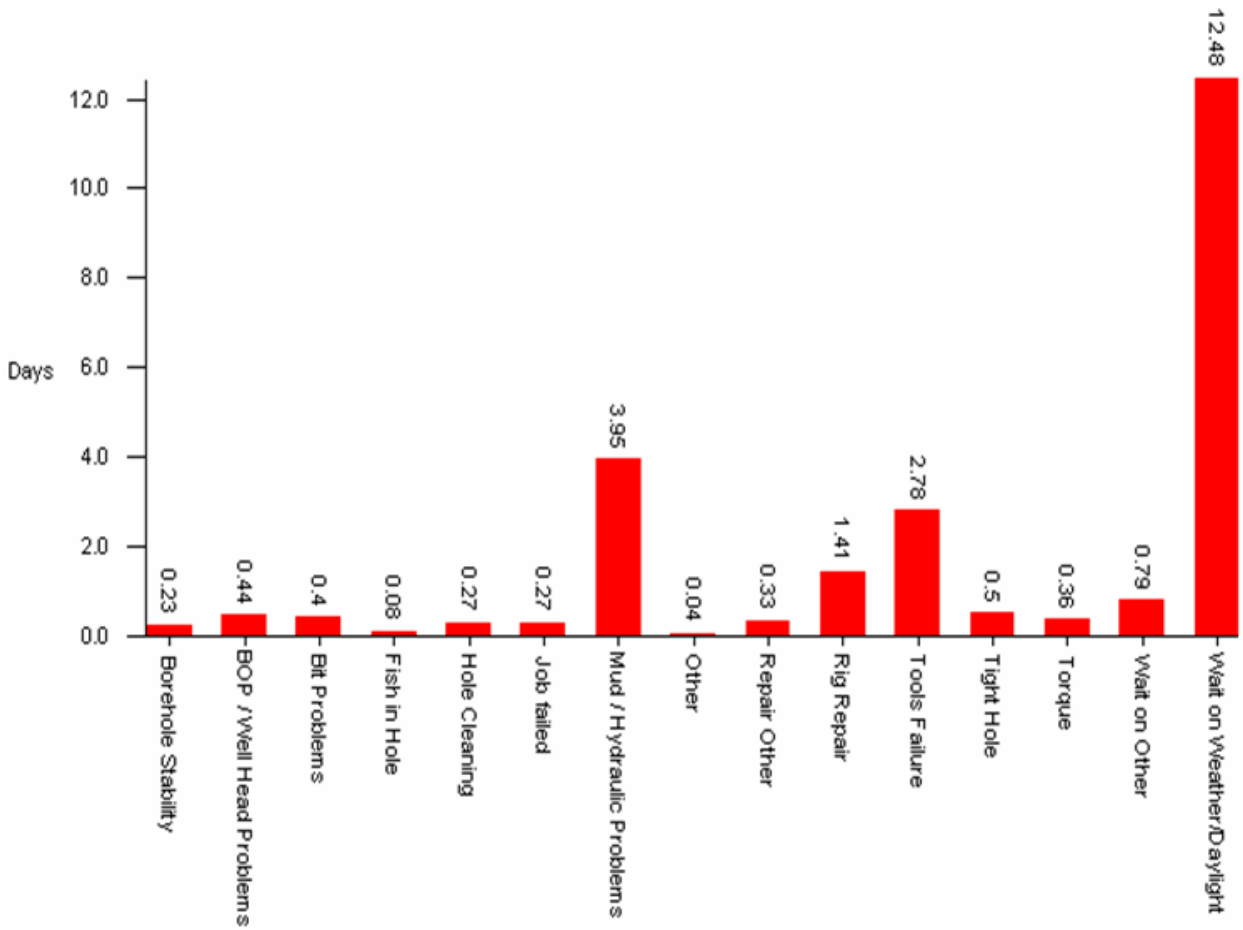


Figure 15. Analysis of Trouble Time

3.5 Drilling and Coring Operations

Noble's wellsite trend-analysis program (DrillGraph®) was used to compare mud temperatures in and out of the wellbore; depth curves, and flow rates. Mud temperatures in and out of the wellbore were intended to remain in the range of 26 to 32°F (-5 to 0°C).

Figure 16 shows activity on April 6, 2003 when drilling solids and mud foaming/freezing problems brought continuous coring to a halt. Well depth progressed from about 700 to 750 ft (213 to 229 m) with mud temperatures fluctuating erratically, from 21° to 35.5°F, with the mud freezing point about 23°F. The root cause of the problems was traced to a slug of solids that migrated into the mud chiller and plugged one of the three separate cooling systems. Constant foaming problems caused by a transfer pump also contributed to freezing of the mud lines.

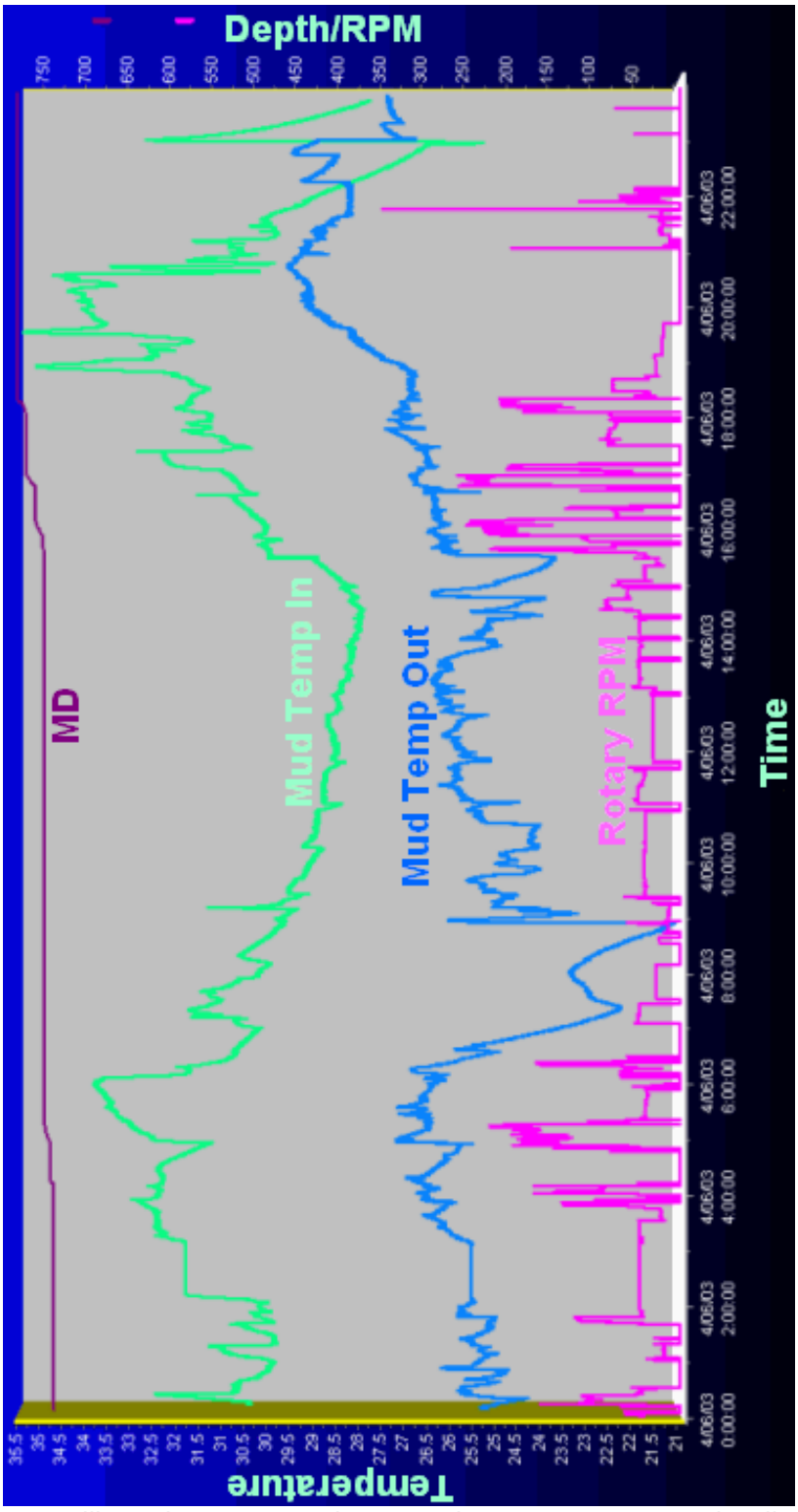


Figure 16. DrillGraph® Data Monitor – Mud Temperature Data (April 6, 2003)

In contrast, **Figure 17** summarizes coring operations on April 12, 2003. All is well at this point. Repairs made to the chiller system and swapping of centrifugal pumps had solved foaming and

freezing problems. Temperatures in and out are in the range of 26-28°F. Continuous coring had progressed from about 1150 to 1300 ft (351 to 396 m).

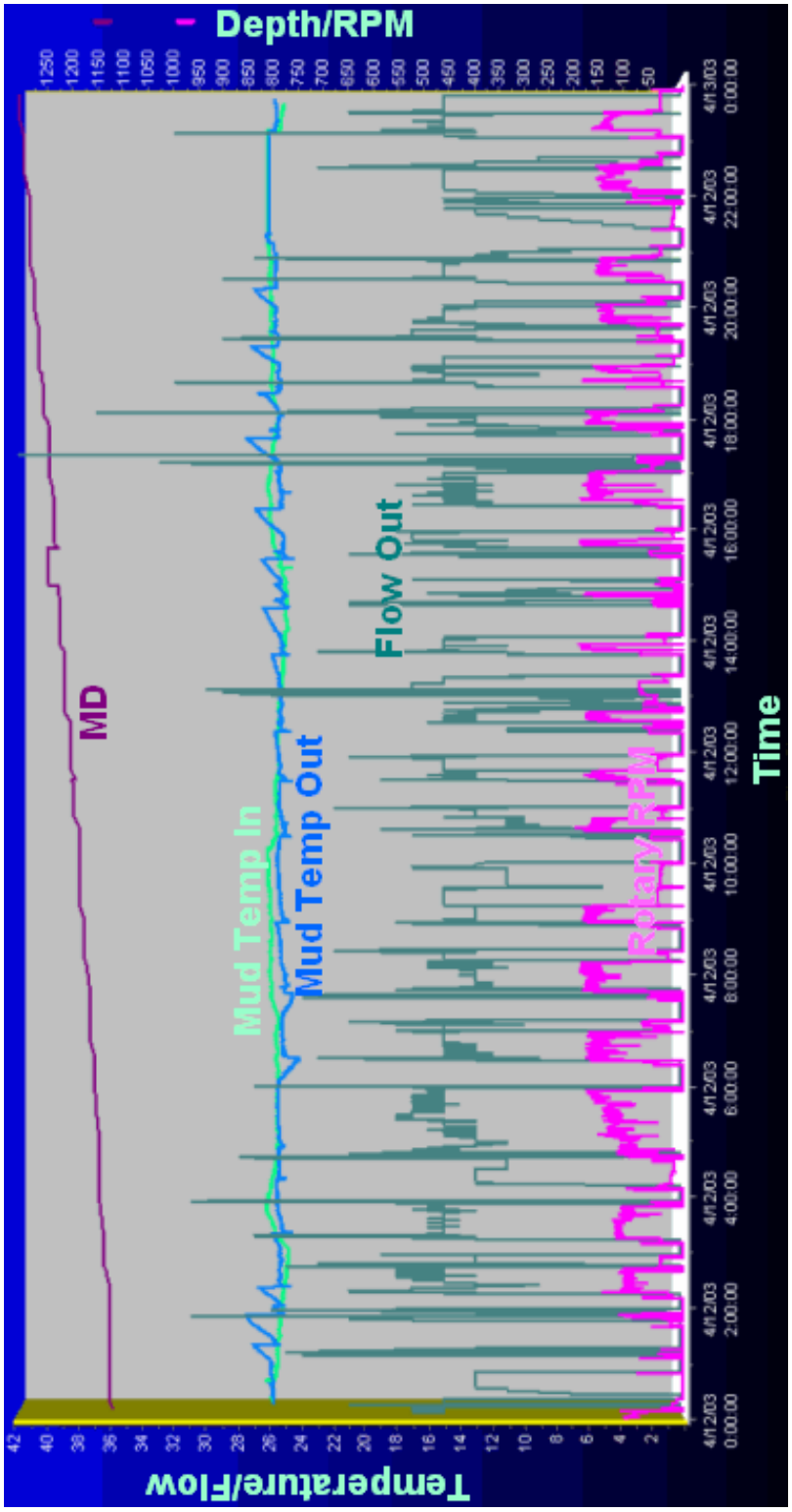


Figure 17. DrillGraph® Data Monitor – Mud Temperature Data (April 12, 2003)

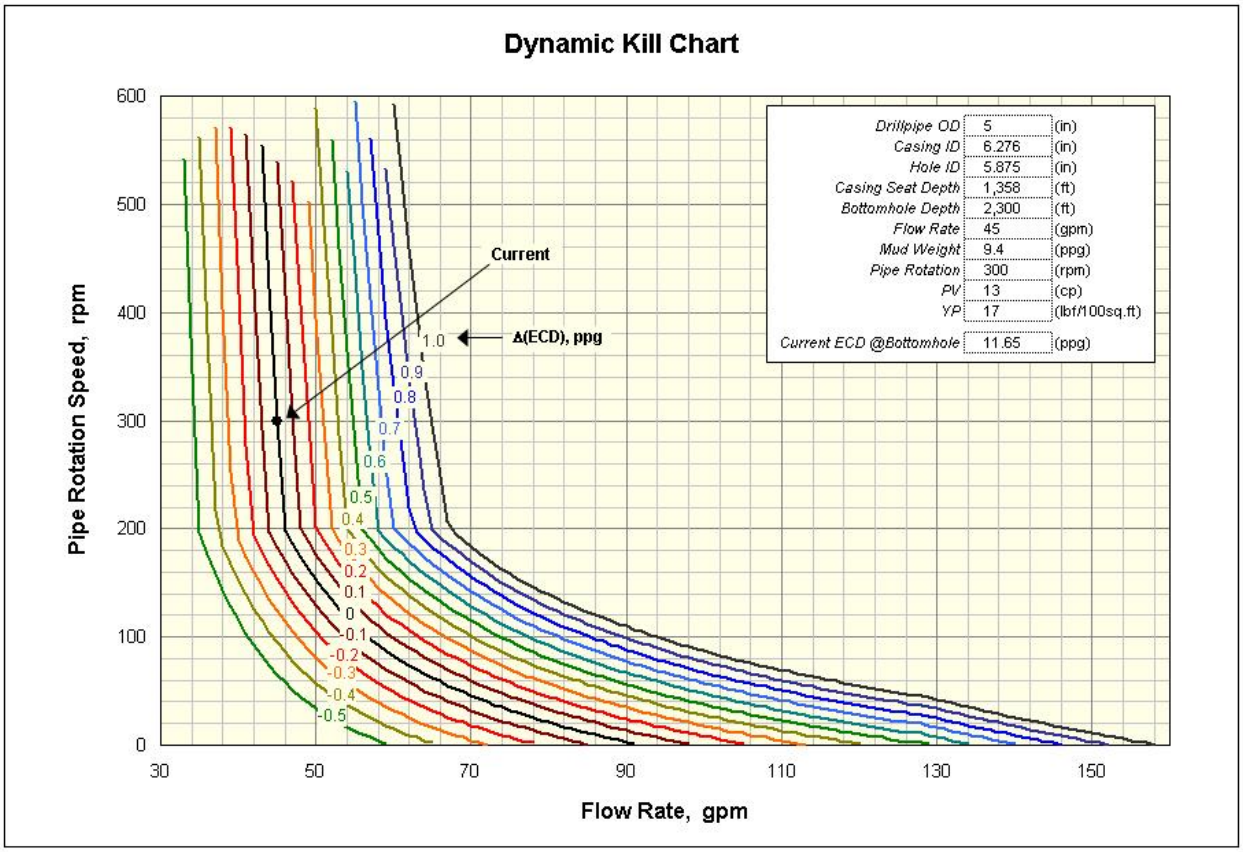
Figure 18 shows removal of the inner split tube from a core recently pulled to the surface and the rig crew assembling the alternate core barrel ready to be dropped into the wellbore when the first core barrel is pulled. **Figure 19** shows various types of core bits on location. The PDC-type core bit shown on the left was used throughout the well.

Figure 18. Removing the Split Tube

Figure 19. Core Bits Available for the Operation

The annulus between the core barrel and casing was relatively slim. Slim annuli can complicate well hydraulics design and well control due to the relatively large pressure drop that occurs in the slim annulus. **Figure 20** shows Dynamic Kill charts prepared for a well control procedure in the event that a well kick situation had occurred. As part of this effort, the team used a first-ever

slim-hole well-control program developed by Maurer Technology. The Hot Ice No. 1 was drilled with managed-pressure drilling procedures. A rotary head was used.



GPM	RPM	ECD (ppg)	
		@ 1358 ft	@ 2300 ft
60	300	11.59	12.69
50	300	11.24	12.13
50	200	11.20	12.08
40	300	10.92	11.62
40	200	10.90	11.58

Figure 20. Dynamic Kill Chart (prepared by Noble Engineering and Development)

All conditions required for the presence or preservation of methane hydrates were encountered; however, no hydrates were encountered. Results of coring analysis are:

- Recovered: 93% of Total Core
- Geological Model : Proved
- Methane Gas: in Place
- Free Water: in Place
- Hydrate Stability Temperature: Yes
- Hydrate Stability Pressure: Yes
- Hydrates in Place: No

HOT ICE #1
GEOLOGICAL MARKERS
March 1, 2004

The following are geological markers or tops that have been identified in core and from logs. Log tops are based on a regional network of correlations. KB = 213.9'

Top of HSZ:	786 MD	- 572 SS
Top of Ugnu:	820 MD	- 606 SS
Base of Permafrost (B/IBPF):	1263 MD	- 1049 SS
Base of Ugnu:	1358 MD	- 1144 SS
Top of West Sak:	1463 MD	- 1249 SS
Base of HSZ:	2026 MD	- 1812 SS
Est. Base of West Sak:	2300 MD	- 2086 SS

3.6 Operational Safety

An excellent HSE (Health, Safety and Environmental) record was maintained during the Hot Ice No. 1 drilling operations. The single reportable spill of ½ gallon of fuel in 2003 involved a light plant falling off the back of a Rolligon. The contractor first aid cases were treated in the field. In summary, operations conducted at Hot Ice No. 1 for two drilling seasons were very safe.

Key Performance Indicators – APC Personnel	2003	2004
Fatalities	0	0
First Aid	0	0
Medical Treatment	0	0
Lost-Time Accidents	0	0
Reportable Spills	1	0
Volume Reportable Spills (gal)	0.5	0

Key Performance Indicators – Contractors	2003	2004
Fatalities	0	0
First Aid	4	4
Medical Treatment	2	0
Lost-Time Accidents	0	0
Hours Worked	~73,000	~30,000

4. Conclusions

The work scope for this project included drilling and coring the Hot Ice No. 1 gas-hydrate well on Anadarko leases beginning in FY 2003 and completed in 2004. During the first drilling season (January 28, 2003 to April 30, 2003) the well was spudded and drilled to a depth of 1403 ft (428 m). Due to the onset of warmer weather, work was then suspended for the season. Operations at the site were continued after the tundra was re-opened the following season. Between January 12, 2004 and March 19, 2004, the well was drilled and cored to a final depth of 2300 ft (701 m).

Daily Drilling Reports were completed by personnel at the rig. **Appendix A** includes reports for the 2003 operations season. **Appendix B** includes reports for the 2004 operations season. Project highlights include:

1. Arctic Platform functioned very successfully as designed.
   - Transported by trucks and Rolligons
   - Assembled on site
   - All equipment was successfully installed on platform
   - Determined that for future operations, connexes can be coupled directly without external bracing
   - Negligible movement of legs throughout life of project (max movement 0.48 in)
   - No damage to tundra under/around the platform
   - Operations were successfully reactivated on the platform after a shut-down period of eight months
   - Topsides and platform were removed and transported to storage as planned
   - 50 of 51 platform legs could be removed by heating (**Figure 21**); one leg was cut off below grade

Figure 21. Vacuuming Platform Leg Holes after Leg Removal

2. “Roadless” operations were proved in 2003. In 2004, operating costs were saved by building four miles of ice road to access the well site.

3. No lost-time injuries were reported.
   - +100,000 staff-hours on site
   - Over 150 different vendors used

4. 93% core recovery achieved; continuously cored from 80 to 2300 ft MD (24 to 701 m) (base of Hydrate Stability Zone).

5. Onsite core analysis was conducted successfully.

6. The team demonstrated continuous coring of permafrost with chilled drilling fluid.

7. Remote viewing was demonstrated along with access to ongoing operations from anywhere at any time.

8. Successfully used a rotating head while coring.

9. Developed a custom slim-hole dynamic kill well-control model.

10. Proved downhole CMR as effective as surface CMR in 2003 (surface CMR was not available in 2004).

11. Onsite CT scan of all core was performed by Lawrence Berkley National Laboratory.

12. Real-time coal desorption tests on coal core samples were performed by USGS in 2003. (Contrary to prediction, no coal found in 2004 drilling.)

13. We conducted the first shallow massive VSP on the North Slope of Alaska.

14. Successfully obtained open-hole logs throughout the wellbore.

15. Conducted pilot test of zero discharge for camp operations (requires further refinement for future operations).

16. Coring system was designed to allow maximum hydrate recovery.

17. Evaluated LBNL hydrate software models.

18. Evaluated other coring systems, including pressure coring systems.

19. Increased core diameter from original plan to minimize hydrate dissociation.

20. Split-barrel stainless steel liners were found to work very well.

21. Obtained good quality core at high recovery rates.

22. Continuous coring achieved 93% success.

23. Operational downtime encountered due to:
    - Foaming of mud
    - Mud temp control
    - Solids control
    - Freezing of mud system

24. Operational downtime problems solved by:
    - Foaming reduced by modifications of circulating systems and equipment
    - Refined regulation of feed mud, solids control, rebuilt chiller system
    - Used finer mesh screens, operated centrifuges judiciously without causing foaming problems
    - Modified mud chemistry – lowered freeze point of mud in 2004 along with better insulation of mud transfer lines

5. References

Ali G. Kadaster, and Keith K. Millheim, 2004: “Onshore Mobile Platform: A Modular Platform for Drilling and Production Operations in Remote and Environmentally Sensitive Areas,” IADC/SPE paper 18740, presented at IADC/SPE 2004 Annual Meeting in Dallas, Texas, March.

Appendix A: Daily Drilling Reports for 2002-2003 Drilling Season

Date: 01/28/03
Rpt. No. 1

Hot Ice Project
Daily Mobilization & Installation Report

Anadarko Petroleum Corporation

From	To	Time	Code	Activity Time Summary
6:00	7:30	1.50		Meet With Catco & Denali To Discuss Mobilizing Equipment To Site.
7:30	15:30	8.00		Load Out Equipment & Prepare to Depart Deadhorse.
15:30	20:30	5.00		Mobilize Following From Deadhorse to DS-2H. Rolligon 90-03 with Texoma 600 Drill Rig. Rolligon 90-11 with Bus & Trailer with Field Fuel Tank. Rolligon 90-18 Tractor Trailer with Supplies.
20:30	0:00	3.50		Offload Excess Supplies, Meet with Lounsbury & Obtain Route Coordinates.
	Total	18.00	Hours	

Equipment	Location
Catco 32 Bed Camp	DS-2H
Catco Loader	DS-2H
Peak Light Plants (2)	DS-2H
Peak Light Plants (2)	Hot Ice
Tioga Heater	DS-2H
Mattracks (2)	DS-2H
RT-85 w/Drill	Hot Ice
RT-85 w/Bus & Fuel Pup	Hot Ice
RT-85 Tractor Trailer	Hot Ice
RT-85 w/Water House	Hot Ice

Personnel In Field	KCC	DS-2H
Anadarko Rep.	2	
Anadarko HSE	1	
Alaska Clean Seas	2	
Catco		7
Catering		3
Denali Drilling		9
Doyon Security	2	
Duane Miller		2
Environmental	2	
Medic		1
Nana Dynatec		2
Peak		
	9	24

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None Reported

Comments: Visitor Steve Freemyer and Environmental Co-coordinators Barb Vanderwende and Laura Barlow arrive at KCC.

Equipment Down:

Date: 01/29/03
Rpt. No. 2

Hot Ice Project
Daily Mobilization & Installation Report

Anadarko Petroleum Corporation

From	To	Time	Code	Activity Time Summary
0:00	3:30	3.50		Mobilize Rolligons (3), Drill Crew (5), Mattracks & Drivers (2), DM&A (1), Client Rep (1) to Hot Ice #1 Location.
3:30	6:00	2.50		Position Drill Over Primary Well Bore & Rig Up to Drill 20" Conductor Hole.
6:00	9:30	3.50		Hydraulics on Rig Froze Up, Return Crews to 2H for Tioga Heater & Tarps.
9:30	13:00	3.50		Wait on Tioga & Tarps to Arrive From Deadhorse.
13:00	15:30	2.50		Mob Crews, Tioga, & Tarps to Site.
15:30	18:30	3.00		Tarp Rig, Set Tioga & Warm Up Rig.
18:30	0:00	5.50		Auger Drill 20" Hole From Surface To 35'
	Total	24.00	Hours	

Equipment	Location
Catco 32 Bed Camp	DS-2H
Catco Loader	DS-2H
Peak Light Plants (2)	DS-2H
Peak Light Plants (2)	Hot Ice
Tioga Heater	DS-2H
Mattracks (2)	DS-2H
RT-85 w/Drill	Hot Ice
RT-85 w/Bus & Fuel Pup	Hot Ice
RT-85 Tractor Trailer	Hot Ice
RT-85 w/Water House	Hot Ice
Tioga Heater	Hot Ice
Peak Loader	Hot Ice

Personnel In Field	KCC	DS-2H
Anadarko Rep.	2	
Anadarko HSE	1	
Alaska Clean Seas	2	
Catco		7
Catering		3
Denali Drilling		9
Doyon Security	2	
Duane Miller		2
Environmental	2	
Medic		1
Nana Dynatec		2
Peak		
	9	24

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: Catco Spill of 2 Gallons Grey Water at DS-2H Pad. Spill Contained on Gravel Pad & Cleanup Complete.

Comments: Visitor Steve Freemyer and Environmental Co-coordinators Barb Vanderwende and Laura Barlow Set Up Field Office In KIC.

Equipment Down: One Mattrack Down Due to Broken Tie Rod Linkage

Daily Water Usage: 18,000 Gallons
Accumalative Water Usage: 18,000 Gallons
Lake Drawn From: MO2114

Date: 01/30/03
Rpt. No. 3

Hot Ice Project
Daily Mobilization & Installation Report

Anadarko Petroleum Corporation

Present Operation: Auger Drill 20" Conductor Hole At 76 Feet

From	To	Time	Code	Activity Time Summary
0:00	3:00	3.00		Drlg to 50' - hit hard spot - frozen gravel. Pulled bit - broke shank plate.
3:00	5:00	2.00		Changed bit.
5:00	10:30	5.50		Ream to bottom with new bit.
10:30	14:00	3.50		Drlg from 50' - 60'.
14:00	20:00	6.00		Repair Catco rolligon trailer - clean up location.
20:00	0:00	4.00		Drlg from 60' - 64'.
	Total	24.00	Hours	

Equipment	Location
Catco 32 Bed Camp	DS-2H
Catco Loader	DS-2H
Catco Pickup (2)	DS-2H
Peak Light Plants (2)	DS-2H
Peak Light Plants (2)	Hot Ice
Tioga Heater	DS-2H
Mattracks (2)	DS-2H
RT-85 w/Drill	Hot Ice
RT-85 w/Bus & Fuel Pup	Hot Ice
RT-85 Tractor Trailer	Hot Ice
RT-85 w/Water House	Hot Ice
Tioga Heater	Hot Ice
Peak Loader	Hot Ice
Engineering House	Hot Ice

Personnel In Field	KCC	DS-2H
Anadarko Rep.	2	
Anadarko HSE		
Alaska Clean Seas	2	
Catco		7
Catering		3
Denali Drilling		9
Doyon Security	2	
Duane Miller		2
Environmental	2	
Medic		1
Nana Dynatec		2
Peak		2
	8	26

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: Catco Spill of 2 Gallons Grey Water at DS-2H Pad. Spill Contained on Gravel Pad & Cleanup Complete.

Comments: Visitor Steve Freemyer Departed AM. Laura Barlow Visited Hot Ice Site.

Equipment Down: One Mattrack Repaired & Operational. Second Mattrack Experienced Same Failure - Repaired.

Daily Water Usage: 39,000 Gallons
Accumalative Water Usage: 57,000 Gallons
Lake Drawn From: MO2114

Date: 01/31/03
Rpt. No. 4

Hot Ice Project
Daily Mobilization & Installation Report

Anadarko Petroleum Corporation

Present Operation: **Auger Drill 20" Hole To 62'**

From	To	Time	Code	Activity Time Summary
0:00	9:30	9.50		Auger Drill 20" Hole From 64' To 80'.
9:30	10:30	1.00		Reposition Rig To #2 (#15) Conductor Hole.
10:30	0:00	13.50		Auger Drill 20" Hole From Surface To 54'.
	Total	24.00	Hours	

Equipment	Location
Catco 32 Bed Camp	DS-2H
Catco Loader	DS-2H
Catco Pickup (2)	DS-2H
Peak Light Plants (2)	DS-2H
Peak Light Plants (2)	Hot Ice
Tioga Heater	DS-2H
Mattracks (2)	DS-2H
RT-85 w/Drill	Hot Ice
RT-85 w/Bus & Fuel Pup	Hot Ice
RT-85 Tractor Trailer	Hot Ice
RT-85 w/Water House	Hot Ice
Tioga Heater	Hot Ice
Peak Loader	Hot Ice
Engineering House	Hot Ice

Personnel In Field	KCC	DS-2H
Anadarko Rep.	2	
Anadarko HSE		
Alaska Clean Seas	2	
Catco		7
Catering		3
Denali Drilling		8
Doyon Security	2	
Duane Miller		2
Environmental	2	
Medic		1
Nana Dynatec		2
Peak Loader Op		2
Peak Crane Op		
	8	25

Accidents/Injuries: Chris Jensen, Dynatec Driver Slipped & Fell On Ice Pad At Location. NLTA.
Correctice Action: Ice Cleats Ordered.

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

Comments: Received 4,300 gal diesel for Catco camp. Repositioned Drill & Made Top 20' In 4 Hr.

Equipment Down: RT85 Rolligon w/ bus and fuel pup.

			Daily	Accum.
Daily Water Usage:	150,000			
Accumalative Water Usage:	207,000	Fuel	1,587	6,187
Lake Drawn From:	MO2114	Potable Water	600	4,000

Date: 02/01/03
Rpt. No. 5

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Prepare to cement conductor pipes #1 & #2**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

From	To	Time	Code	Activity Time Summary
0:00	13:30	13.50		Auger drill 20" conductor hole from 54' to 70'.
13:30	15:30	2.00		Repair bit.
15:30	21:00	5.50		Auger drill 20" conductor hole from 70' to 80' T. D.
21:00	0:00	3.00		Prepare to run 9 5/8" conductor pipe - warm up pipe, remove thread protectors, strap pipe. Held PJSM.
	Total	0.00	Hours	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		7
Peak Light Plants (2)	Hot Ice	Catering		3
Tioga Heater	DS-2H	Denali Drilling		8
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	2	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
Tioga Heater	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Op		
Engineering House	Hot Ice		8	25

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance				
Received				
Days Usage	950		1,005	96,000
Accumulated	4,950		7,192	303,000
On Hand			5,108	

Equipment Down:

Comments:

Date: 02/02/03 **Hot Ice Project**
Rpt. No. 6 **Daily Mobilization & Installation Report**

Present Operation: **Drilling pile hole #8 @ 0600 hrs.**
Completed #1, #4, & #6

Accidents/Injuries: None reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: 2 gal graywater spill at Catco camp on DS2H pad.

From	To	Time	Code	Activity Time Summary
0:00	3:00	3.00		Ran 9 5/8" 40# conductor in H.I.#1 (14) .Set on btm @ 80'.
3:00	6:00	3.00		Ran 9 5/8" 40# conductor in H.I.#2 (15). Set on btm @ 80'. Thread locked and welded connections.
6:00	10:30	4.50		Survey & Chock #1 Conductor In Preparation For Cementing While Waiting On Cement Truck To Arrive On Rolligon
10:30	13:00	2.50		Add 70 Degree Water to Dry Mix, Mix Cement, Pour 5.5 Yards Cement In Annulus Of #1 Conductor, TOC = 13'
13:00	14:00	1.00		Survey & Chock #2 Conductor In Preparation For Cementing
14:00	16:00	2.00		Survey & Mark Pile Hole Numbers 1, 4, 6, 8, 10, & 12
16:00	17:00	1.00		Position Drill Over Pile Hole #1
17:00	18:00	1.00		Drill Pile Hole #1 To 18' Foot Depth, Encountered 4' Ice
18:00	19:00	1.00		Add 70 Degree Water to Dry Mix, Mix Cement, Pour 5.5 Yards Cement In Annulus Of #2 Conductor, TOC = 8'
19:00	20:00	1.00		Finish drilling pile hole #1 to 21' T.D.
20:00	20:30	0.50		Move Drill to pile hole #4.
20:30	0:00	3.50		Drill Pile Hole #4 to 11'.
	Total	**24.00**	**Hours**	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		7
Peak Light Plants (2)	Hot Ice	Catering		3
Tioga Heater	DS-2H	Denali Drilling		8
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	2	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
Tioga Heater	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Op		
Engineering House	Hot Ice		8	25

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,950		5,108	
Received				
Days Usage				78,000
Accumulated	-		-	381,000
On Hand				

Equipment Down:

Comments:
Secondary Containment of Grey Water Under Installation By Catco.

Date: 02/03/03 **Hot Ice Project**
Rpt. No. 7 **Daily Mobilization & Installation Report**

Present Operation: **Drilling pile hole #5.**

Accidents/Injuries: None reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: Liteplant fell off rolligon 1 1/4 miles from Hot Ice #1 - 2 quart spill (gycol, diesel, and oil) to tundra. Clean up complete.

From	To	Time	Code	Activity Time Summary
0:00	18:00	18.00		Drill 20" pile holes # 4,6,8,10,12, and #2.
18:00	23:00	5.00		Bit maintainece.
23:00	0:00	1.00		Move drill to pile hole # 3.
	Total	**0.00**	**Hours**	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (2)	Hot Ice	Catering		3
Tioga Heater	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	2	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
Tioga Heater	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		2
Catco water house	Hot Ice			
Airport Rental Light Plants (2)	Hot Ice			
Airport Rental Tioga Heater	Hot Ice			
Peak 50T Crane	DS-2H			
Engineering House	Hot Ice		8	33

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance				381,000
Received			4,300	
Days Usage	900		1,513	42,000
Accumulated	5,850		7,700	423,000
On Hand			6,550	

Equipment Down:

Comments:

Date: 02/04/03 **Hot Ice Project**
Rpt. No. 8 **Daily Mobilization & Installation Report**

Present Operation: **Drilling pile hole # 18**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

From	To	Time	Code	Activity Time Summary
0:00	0:00	24.00	0	Drill 20" pier holes #3,5,7,9,11,13,and 16.
	Total	**0.00**	**Hours**	

Equipment	Location
Catco 32 Bed Camp	DS-2H
Catco Loader	DS-2H
Catco Pickup (2)	DS-2H
Peak Light Plants (2)	DS-2H
Peak Light Plants (4)	Hot Ice
Tioga Heater	DS-2H
Mattracks (2)	DS-2H
RT-85 w/Drill	Hot Ice
RT-85 w/Bus & Fuel Pup	Hot Ice
RT-85 Tractor Trailer	Hot Ice
RT-85 w/Water House	Hot Ice
Tioga Heater(2)	Hot Ice
Peak Loader	Hot Ice
Catco water house	Hot Ice
Dumpster	HA
Peak 50T Crane	DS-2H
Manlift	DS-2H
Engineering House(2)	Hot Ice

Personnel In Field	KCC	DS-2H
Anadarko Rep.	2	
Anadarko HSE		
Alaska Clean Seas	2	
Catco		9
Catering		3
Denali Drilling		12
Doyon Security	2	
Duane Miller		2
Environmental	1	
Medic		1
Nana Dynatec		2
Peak Loader Op		2
Peak Crane Crew		2
	7	33

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	5,850		6,550	423,000
Received				
Days Usage	700		1,205	66,000
Accumulated	6,550		7,755	489,000
On Hand			5,345	

Equipment Down:

Comments Transport four platform modules to Hot Ice#1.

Date: 02/05/03 **Hot Ice Project**
Rpt. No. 9 **Daily Mobilization & Installation Report**

Present Operation: **Wait on Weather**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

From	To	Time	Code	
0:00	16:30	16.50		Drill 20" pier holes # 17,18, and 19. Cut hole in connex for tioga heater - load connex with frozen sand Stopped drilling and shut down work on Hot Ice location due to blowing snow. No people on Hot Ice location.
16:30	0:00	7.50		Wait on weather. Two rolligons (4 men) left DS-2H for Hot Ice 22:30 hrs to check equipment, fuel, push snow.
	Total	**24.00**	**Hours**	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (4)	Hot Ice	Catering		3
Tioga Heater	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	1	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
Tioga Heater(2)	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		2
Dumpster - Colville	DS-2H			
Manlift	DS-2H			
Catco water house	Hot Ice			
Peak 50T Crane	DS-2H			
Engineering House(2)	Hot Ice		7	33

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	6,550		7,755	489,000
Received				
Days Usage	1,050		1,495	0
Accumulated	7,600		9,250	489,000
On Hand				

Equipment Down:

Comments Catco hauled 4 platform modules to Hot Ice in past 24 hrs.

Date: 02/06/03 **Rpt. No.** 10

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Dig out - push snow and start up equipment**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

From	To	Time	Code	Activity Time Summary
0:00	22:00	22.00		Wait on weather.
22:00	0:00	2.00		Drill crew traveling to Hot Ice to dig out and start work.
	Total	24.00	Hours	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (4)	Hot Ice	Catering		3
Tioga Heater	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	1	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
RT-85 w/ 3500 gal Fuel	Hot Ice			
Peak Loader	Hot Ice			
Dumpster - Colville	DS-2h			
Catco waterhouse	Hot Ice			
Manlift	DS-2H			
Peak 50T crane	DS-2H			
Tioga Heater(2)	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		2
Engineering House(2)	Hot Ice		7	33

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	7,600		3,749	489,000
Received				
Days Usage	1,750		818	
Accumulated	9,350		10,008	489,000
On Hand	3,000		2,931	

Equipment Down:

Comments Catco hauled one load to Hot Ice. Warm-up house
Road to DS-2H is plowed out @ 06:00 hrs.

Date: 02/07/03 **Hot Ice Project**
Rpt. No. 11 **Daily Mobilization & Installation Report**

Present Operation: **Moving drill to pile hole #26**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Dig out. Clear snow off ice pad.
6:00	14:30	8.50		Finished drilling 20" pile hole #19 Drilled # 20 and #21.
14:30	16:30	2.00		Repaired outrigger on drill/rolligon.
16:30	0:00	7.50		Drilled 20" pile holes #22 and #23.
	Total	**24.00**	**Hours**	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (4)	Hot Ice	Catering		3
Heater (1)	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	1	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
RT-85 w/ 3500 gal Fuel	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		2
Dumpster - Colville	DS-2H			
Catco waterhouse	Hot Ice			
Manlift	DS-2H			
Peak 50T crane	DS-2H			
Heater (3)	Hot Ice			
8 Bed Sleeper	DS-2H			
Engineering House(2)	Hot Ice		7	33

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	9,350		2,558	489,000
Received			4,300	
Days Usage	900		1,191	0
Accumulated	10,250		11,199	489,000
On Hand			5,667	

Equipment Down:
#1 Mattrack - Stripped Threads on TieRod Nut. - Repaired After Missing 1 Crew Chg.

Comments: Rolligon hauled 6 platform modules, three heaters, light plant, chocks, plywood, 6 x6 lumber, and 5 piles to Hot Ice location. Brought two heaters not working to 2H. Peak delivered three working heaters and picked up two non working heaters.

Date: 02/08/03 **Hot Ice Project**
Rpt. No. 12 **Daily Mobilization & Installation Report**

Present Operation: **Setting Piles & Wellhead Module #6**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

From	To	Hours	Code	Activity Time Summary
0:00	24:00	24.00		Drill Pile Holes #24, #25, #26, #27, #28, & #29
	Total	**24.00**	**Hours**	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (4)	Hot Ice	Catering		3
Heater (1)	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	1	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
RT-85 w/ 3500 gal Fuel	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		4
Dumpster - Colville	DS-2H			
Catco waterhouse	Hot Ice			
Manlift	DS-2H			
Peak 50T crane	DS-2H			
Heater (3)	Hot Ice			
8 Bed Sleeper	DS-2H			
Engineering House(2)	Hot Ice		7	35

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	9,350		6,040	489,000
Received				
Days Usage	1,000		947	0
Accumulated	11,250		12,146	489000
On Hand	8,350		5,093	

Equipment Down:

Comments:
Rolligon hauled Modules #20, #21, & #6 (Wellhead) to Hot Ice Location.
Rolligon loaded and hauled 50T Crane from 2H to Hot Ice Location, arriving on site at 0100 hrs. 2/9/03.
Mobilized second shift Peak Crane Operator & Oiler to 2H at 1700 hours.

Date: 2/9/2003 **Hot Ice Project**
Rpt. No. 13 **Daily Mobilization & Installation Report**

Present Operation: **Wait On Weather**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

From	To	Hours	Code	Activity Time Summary
0:00	1:00	1.00		Move Drill & Prepare to Set Piles While Waiting On Crane
1:00	10:00	9.00		PJSM. Inatall & Survey In Piles 16, 17, 18, 19, 20, & 21
10:00	11:00	1.00		Remove Deck & Set Module #6 Onto Piles
11:00	12:00	1.00		Install Chocks
12:00	16:00	4.00		Survey Module #6 - Final Survey Indicates Module 2" Offset To the East At Top Of Piles.
16:00	16:30	0.5		Attempt To Adjust Module Using Loader
16:30	18:00	1.5		Remove Chocks & Remove Module From Piles. Checked Module Leg Well Measurements Against Pile Survey Spacing & Obtained Identical Readings
18:00	24:00	6.00		Wait On Weather - Phase III
	Total	**24.00**	**Hours**	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (4)	Hot Ice	Catering		3
Heater (1)	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	1	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
RT-85 w/ 3500 gal Fuel	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		4
Dumpster - Colville	DS-2H			
Catco waterhouse	Hot Ice			
Manlift	Hot Ice			
Peak 50T crane	Hot Ice			
Heater (3)	Hot Ice			
8 Bed Sleeper	DS-2H			
Engineering House(2)	Hot Ice		7	35

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	5,800		5,093	489,000
Received			4,300	
Days Usage	1,000		1,443	0
Accumulated	11,250		12,146	489,000
On Hand	4,800		7,950	

Equipment Down:

Comments:
Denali Crews Elected to Suspend Operations Due to Weather Conditions. Wind Estimated At 30 - 40 MPH. Took 1 3/4 Hour Each Way To & From Site In Mattracks & By the time site crew arrived at 2H Kuparuk had declared Phase III. CW, MW, & 3 Man Lounsbury Survey Crew Traveled to KOC in Mattrack with Kuparuk security

Date: 2/10/2003
Rpt. No. 14

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Wait on Weather With Crews On Site**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

From	To	Hours	Code	Activity Time Summary
0:00	17:00	17.00		Wait on weather
17:00	18:00	1.00		Denali drill crew traveled to Hot Ice.
18:00	0:00	6.00		Two heaters down. Fire heaters and watch equipment. Wait on weather to change.
	Total	**24.00**	**Hours**	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (4)	Hot Ice	Catering		3
Heater (1)	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	1	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
RT-85 w/ 3500 gal Fuel	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		4
Dumpster - Colville	DS-2H	Lounsbury	6	
Catco waterhouse	Hot Ice			
Manlift	Hot Ice			
Peak 50T crane	Hot Ice			
Heater (3)	Hot Ice			
8 Bed Sleeper/ Generator	DS-2H			
Engineering House (2)	Hot Ice			
Air Compressor/Jack Hammer	Hot Ice			
Welding Machine	Hot Ice		13	35

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,800		7,950	489,000
Received			-	
Days Usage	1,000		1,419	0
Accumulated	11,250		12,146	489,000
On Hand	3,800		6,531	

Equipment Down:

Comments:

Date: 2/11/2003
Rpt. No. 15

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Auger Drilling Pile Hole #35**
Setting & Aligning Piles #1, 3, 4, 5

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

From	To	Hours	Code	Activity Time Summary
0:00	9:00	9.00		Wait on weather
9:00	10:00	1.00		Dig Out Around Rolligon Drill
10:00	10:30	0.50		Position Drill Over Pile Hole #30
10:30	13:30	3.00		Auger Drill Pile Hole #30 To 21' Depth
13:30	15:30	2.00		Reposition Drill & Auger Drill Pile Hole #31 To 21' Depth
15:30	18:00	2.50		Reposition Drill & Auger Drill Pile Hole #32 To 21' Depth
18:00	18:30	0.50		Pretour Safety Meeting (Ice Cleats, Frost Bite, Crane Ops)
18:30	22:30	4.00		Reposition Drill & Auger Drill Pile Hole #33 To 21' Depth
22:30	24:00	1.50		Reposition Drill & Auger Drill Pile Hole #34 To 5' Depth
	Total	**24.00**	**Hours**	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (4)	Hot Ice	Catering		3
Heater (1)	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	1	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
RT-85 w/ 3500 gal Fuel	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		4
Dumpster - Colville	DS-2H	Lounsbury	6	
Catco waterhouse	Hot Ice			
Manlift	Hot Ice			
Peak 50T crane	Hot Ice			
Heater (3)	Hot Ice			
8 Bed Sleeper/ Generator	DS-2H			
Engineering House (2)	Hot Ice			
Air Compressor/Jack Hammer	Hot Ice			
Welding Machine	Hot Ice		13	35

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	3,800		7,950	489,000
Received			4,300	
Days Usage	1,000		3,635	0
Accumulated	12,250		15,781	489,000
On Hand	2,800		8,615	

Equipment Down:

Comments:
Concurrent activity - Dig snow out around piles 16 ~ 21, Remove piles 19-20-21, Survey & Align Pile #18, Re-install Pile #21, Survey & Align Same, Align Pile #17, Re-install Pile #20, Survey & Align Same, Survey & Align Pile #16, Re-install Pile #19, Survey & Align Same. Pre-Slurry Bottom 5 Feet of Piles 16 ~21.

Date: 2/12/2003
Rpt. No. 16

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: Thawing Out Rig While Slurrying #16 & #19

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Auger Drill Pile Hole #34 To 21', Reposition Drill & Auger Drill Pile Hole #35 To 7' Depth
6:00	9:00	3.00		Auger Drill Pile Hole #35 To 21' Depth
9:00	17:00	8.00		Reposition Drill & Open Pile Holes #1, #2 & #5 To 24" To Align
17:00	18:00	1.00		Reposition Drill Over Drill Pile Hole #36, Pickup & Set #6 Module
18:00	24:00	6.00		Auger Drill Pile Hole #36, Install Chocks & Shovel Snow Out Of Module #6
	Total	**24.00**	**Hours**	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (4)	Hot Ice	Catering		3
Heater (1)	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	1	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
RT-85 w/ 3500 gal Fuel	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		4
Dumpster - Colville	DS-2H	Lounsbury	6	
Catco waterhouse	Hot Ice			
Manlift	Hot Ice			
Peak 50T crane	Hot Ice			
Heater (3)	Hot Ice			
8 Bed Sleeper/ Generator	DS-2H			
Engineering House (2)	Hot Ice			
Air Compressor/Jack Hammer	Hot Ice			
Welding Machine	Hot Ice		13	35

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	3,800		7,950	489,000
Received				
Days Usage	1,250		1,750	0
Accumulated	12,250		17,531	489,000
On Hand	2,550		6,200	

Equipment Down:

Comments:

Date: 2/13/2003
Rpt. No. 17

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Opening Pile Hole #10 To 24"**
Slurrying Piles 22, 23, 24

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Open Pile #36 To 24", Rig Froze Up, Slurry Piles 17, 18, 20, & 21
6:00	6:30	0.50		Conduct Pretour Safety Meeting
6:30	8:00	1.50		Thaw Rig, Slurry Pile #19
8:00	12:00	4.00		Reposition & Auger Drill Pile Hole #37 To 24", Slurry Pile #16
12:00	18:00	6.00		Reposition & Open Pile Holes 22, 23. 24, & 25 To 24" Slurry Crew Pickup & Set Module #1, Survey & Adjust Horizontal Position With Threaded Load Rings, Survey Good, Install Chocks.
18:00	18:30	0.50		Conduct Pretour Safety Meeting
18:30	22:30	4.00		Reposition & Auger Drill Pile Hole #38 To 24", Slurry Piles 1, 3, 4, & 5
22:30	24:00	1.50		Reposition & Open Pile Hole #6 to 24"
	Total	**24.00**	**Hours**	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (4)	Hot Ice	Catering		3
Heater (1)	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	1	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
RT-85 w/ 3500 gal Fuel	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		4
Dumpster - Colville	DS-2H	Lounsbury	6	
Catco waterhouse	Hot Ice			
Manlift	Hot Ice			
Peak 50T crane	Hot Ice			
Heater (3)	Hot Ice			
8 Bed Sleeper/ Generator	DS-2H			
Engineering House (2)	Hot Ice			
Air Compressor/Jack Hammer	Hot Ice			
Welding Machine	Hot Ice		13	35

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	3,800		6,200	489,000
Received			2,900	
Days Usage	1,250		3,680	0
Accumulated	13,500		21,211	489,000
On Hand	2,550		5,420	

Equipment Down:
Catco Rolligon Used With Water House Demobed To Deadhorse To Repair Broken Aluminum Frame.

Comments:
Set & Survey Piles 22, 23, & 24. Pickup & Land #7 Module. Presently surveying in.

Date: 2/14/2003
Rpt. No. 18

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Setting piles # 27,28 & 29.**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

From	To	Hours	Code	Activity Time Summary
12:00:00 AM	1:00:00 AM	1.00		Reamed #6 pile hole to 24" Set piles #22-23 & 24 to grade
1:00:00 AM	3:30:00 AM	2.50		Move drill to weld wedges on piles #22, 23 & 24. Surveyed in # 22, 23 & 24.
3:30:00 AM	6:00:00 AM	2.50		Reamed pile holes # 8 & 10 to 24". Set Module # 7.
6:00:00 AM	18:00:00 PM	12.00		Installed chocks in module # 7. Slurried pile holes # 22, 23& 24. Reamed pile holes # 10, 12, 7 & 9 to 24".
6:00:00 PM	12:00:00 AM	6.00		Setting and surveying piles # 25, 26, 6 & 7. Ream holes # 11, 13, 27, 29 & 30 to 24"
12:00AM	6:00AM			Set module # 2 and #8
				Finish reaming pile holes # 34. Will move to pile hole # 33.
				Finished slurrying # 7. Crane setting piles # 27, 28, and 29.
	Total	**24.00**	**Hours**	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (4)	Hot Ice	Catering		3
Heater (1)	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	1	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
RT-85 w/ 3500 gal Fuel	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		4
Dumpster - Colville	DS-2H	Lounsbury	6	
Catco waterhouse	Hot Ice			
Manlift	Hot Ice			
Peak 50T crane	Hot Ice			
Heater (3)	Hot Ice			
8 Bed Sleeper/ Generator	DS-2H			
Engineering House (2)	Hot Ice			
Air Compressor/Jack Hammer	Hot Ice			
Welding Machine	Hot Ice		13	35

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	3,800		6,200	489,000
Received			2,900	
Days Usage	1,250		433	0
Accumulated	15,000		21,644	489,000
On Hand	950		4,555	

Equipment Down:
2 lite plants

Comments:

Date: 2/15/2003
Rpt. No. 19

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Setting piles # 27,28 & 29.**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: Spill @ Catco camp on 2h pad. 6 gal gray H2O in containment .25 gal. on ice. 1

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Set module # 2 and # 8.Finish reaming pile hole # 34 to 24".
6:00: AM	7:00	1.00		Move drill to pile hole #33.
7:00: AM	9:00	1.00		Ream pile hole # 34 to 24".
9:00	10:30	2.50		Move rig and drill pile hole #39-24". Slurried piles # 25 & # 26.
10:30	12:30	2.00		Drill # 53 pile hole @ 24". Set # 8 & 9 piles. Set bucket # 3.
12:30	14:00	1.50		Move drill rig to #44 pile hole.Fuel rig. Set #11 & 10 piles. Slurry #
14:00	16:00	2.00		9 pile. Set bucket # 4. Drill # 44 pile hole @ 24". Dump snow out
16:00	18:00	2.00		of bucket # 5 with crane.Move drill rig to pile hole # 43. Thawing sand to continue slurrying piles.
18:00	0:00	6.00		Set Bucket # 5. Drill pile hole # 43, 42 & 41 @ 24".Unable to align piles in holes # 27 and 29.
6:00				Reamed pile hole #27 to 30". Moving rig to # 29 to ream to 30".Aligning pile in # 27 pile hole.Slurrying piles # 8-11-12 Install handrails on east side of modules # 6-7-8. Installing wood deck on # 8.

Total	24.00	Hours

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (4)	Hot Ice	Catering		3
Heater (1)	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	1	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
RT-85 w/ 3500 gal Fuel	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		4
Dumpster - Colville	DS-2H	Lounsbury	6	
Catco waterhouse	Hot Ice			
Manlift	Hot Ice			
Peak 50T crane	Hot Ice			
Heater (3)	Hot Ice			
8 Bed Sleeper/ Generator	DS-2H			
Engineering House (2)	Hot Ice			
Air Compressor/Jack Hammer	Hot Ice			
Welding Machine	Hot Ice		13	35

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	3,800		6,200	489,000
Received			4,300	
Days Usage	1,050		700	0
Accumulated	15,000		25,944	489,000
On Hand	950		7,155	

Equipment Down:
1 Manlift

Comments:

Date: 2/16/2003
Rpt. No. 20

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Setting piles # 27,28 & 29.**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: Spill @ Catco camp on 2h pad. 6 gal gray H2O in containment .25 gal. on ice.

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Ream pile hole# 27 to 30".Rig up on # 29 and ream to 30". Set pile in # 27. Slurry piles # 8-11-12. Install handrails on both ends of modules 6-7-8. Set and install wood decking on# 8.
6:00	15:00	9.00		Move rig and drill # 45 pile hole to 24". Re-align pile # 29.
15:00	16:30	1.50		Set bucket # 9. Hold safety meeting with Laura Barlow and half of
16:30	20:00	7.50		day crew. Second safety meeting with half of nite crew.
20:00	0:00	4.00		Drilled pile hole # 51. Slurried piles # 11-13-27 and 29. Set and survey in piles # 41 and 42.
6:00				Operation @ 06:00 - Drilling pile hole # 46. Pile holes # 41 and 42 drilled on 12.5' centers. Module # 14 has 11' foot center. Plan to finish holes on north side of platform while slurrying back holes # 42 and 43 and redrill on correct centers.
	Total	**28.00**	**Hours**	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (4)	Hot Ice	Catering		3
Heater (1)	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	1	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
RT-85 w/ 3500 gal Fuel	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		4
Dumpster - Colville	DS-2H	Lounsbury	6	
Catco waterhouse	Hot Ice			
Manlift	Hot Ice			
Peak 50T crane	Hot Ice			
Heater (3)	Hot Ice			
8 Bed Sleeper/ Generator	DS-2H			
Engineering House (2)	Hot Ice			
Air Compressor/Jack Hammer	Hot Ice			
Welding Machine	Hot Ice		13	35

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	3,800		7,155	489,000
Received	600		3,500	
Days Usage	600		3,795	0
Accumulated	15,000		29,444	489,000
On Hand	950		7,450	

Equipment Down:
1 Manlift

Comments:

Date: 2/17/2003
Rpt. No. 21

Hot Ice Project
Daily Mobilization & Installation Report

Anadarko Petroleum Corporation

Present Operation: **Moving rig to drill pile hole # 47**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents:

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Attemt to set module # 14. Could not set it as pile holes # 42 and 41 were drilled on 12.5' centers. They need to be on 11' centers. Slurried pile hole # 28. Set piles in pile holes # 30-31-32. Move rig from # 46 (did not drill # 46) to pile hole # 30 to ream it to 30". Rig hyd. oil gelled up and would not operate. Heating rig to thaw oil.
6:00	15:30	9.50		Attemting to thaw rig with heaters. Enclosed rig mast w/ herculite. Dumping snow out of modules.Both fairweather generators down, repaired one, unable to repair second.Ordered one from Peak.
15:30	18:00	2.50		Rig thawed out, ream pile hole # 30 to 30".
18:00	0:00	6.00		Ream pile hole # 32 to 30 ". Drill pile hole # 46 @ 24". drill pile hole # 50. Set and survey piles # 30- 31-32. Set and chocked module # 10. Plugged pile hole # 43 w/ sand slurry.
	Total	**24.00**	**Hours**	

Equipment	Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp	DS-2H	Anadarko Rep.	2	
Catco Loader	DS-2H	Anadarko HSE		
Catco Pickup (2)	DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)	DS-2H	Catco		9
Peak Light Plants (4)	Hot Ice	Catering		3
Heater (1)	DS-2H	Denali Drilling		12
Mattracks (2)	DS-2H	Doyon Security	2	
RT-85 w/Drill	Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup	Hot Ice	Environmental	1	
RT-85 Tractor Trailer	Hot Ice	Medic		1
RT-85 w/Water House	Hot Ice	Nana Dynatec		2
RT-85 w/ 3500 gal Fuel	Hot Ice	Peak Loader Op		2
Peak Loader	Hot Ice	Peak Crane Crew		8
Dumpster - Colville	DS-2H	Lounsbury	6	
Catco waterhouse	Hot Ice			
Manlift	Hot Ice			
Peak 50T crane	Hot Ice			
Heater (3)	Hot Ice			
8 Bed Sleeper/ Generator	DS-2H			
Engineering House (2)	Hot Ice			
Air Compressor/Jack Hammer	Hot Ice			
Welding Machine	Hot Ice		13	39

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	3,800		7,155	489,000
Received	1,700		3,500	1,500
Days Usage	1,500		974	0
Accumulated	15,000		29,444	490,000
On Hand	3,600		6,486	

Equipment Down:
Fairweather generator

Comments: Plugging back pile hole # 42.Will finish drilling last two pile holes today. will keep only one Denali crew to ream pile holes as needed and to redrill # 42 and 43. Will alert Artic catering to stand by to rig up when it is set.

Date: 2/18/2003
Rpt. No. 22

Hot Ice Project
Daily Mobilization & Installation Report

Anadarko Petroleum Corporation

Present Operation: **Install handrails and manhole covers around deck. Lounsbury doing camp platform as-built. RU 150T crane.Slurry piles # 39-40 & 53**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Dril 24" pile hole # 50 & #47. Plugged pile hole #42 Set and survey'd piles # 33 - #40. Slurred piles # 30,31, and 32.
6:00	18:00	12.00		Slurryed holes #33,34,35, and 38.. Set platform modules #11 and #12. Drilled pile holes #48, and #49.
18:00	0:00	6.00		Slurryed piles # 36 & 37. Set module #13. Unload sand from rolligon. Peak rigging up 150T crane.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp		DS-2H	Anadarko Rep.	2	
Catco Loader		DS-2H	Anadarko HSE		
Catco Pickup (2)		DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)		DS-2H	Catco		8
Peak Light Plants (4)		Hot Ice	Catering		3
Heater (1)		DS-2H	Denali Drilling		10
Mattracks (2)		DS-2H	Doyon Security	2	
RT-85 w/Drill		Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup		Hot Ice	Environmental	1	
RT-85 Tractor Trailer		Hot Ice	Medic		1
RT-85 w/Water House		Hot Ice	Nana Dynatec		10
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Loader Op		2
Peak Loader		Hot Ice	Peak Crane Crew		8
Dumpster - Colville		DS-2H	Lounsbury	6	
Catco waterhouse		Hot Ice			
Manlift		Hot Ice			
Peak 50T crane		Hot Ice			
Heater (3)		Hot Ice			
8 Bed Sleeper/ Generator		DS-2H			
Engineering House (2)		Hot Ice			
Air Compressor/Jack Hammer		Hot Ice			
150 Ton Crane		Hot Ice			
85 Ton Crane		Hot Ice			
Welding Machine		Hot Ice		13	44

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	3,800		6,486	489,000
Received	1,650		0	
Days Usage	1,000		3,886	0
Accumulated	16,000		29,444	490,500
On Hand	4,250		2,600	

Equipment Down:

Comments:
Surveyors doing as built on camp platform. Rig waiting on pile holes # 42 & 43 to freeze back. Peak's 150 T crane will be rigged up today. Bottom 5 camp modules on 2H pad. East half of rig platform is up and slurryed. Pile hole #42 is frozen to 3'.

Anadarko Petroleum Corporation

Hot Ice Project
Mobilization & Installation Cost

Date: February 19, 2003 | **$ 58,635 Daily Total** | **$ 1,316,575 Accumulated Total** | **Report #: 23**

Item	Description	Vendor	Information	QTY	RATE	HRS	Daily Cost
1	Hot Ice Drilling Supt.	Contract	1250 per day	3	1250		3,750
2	ACS Tech Fees	ACS	1000 per day	2	1000		2,000
3	EHS Advisor	Hoefler	750 per day	1	750		750
4	Security	Doyon	600 per day	2	600		1,200
5	Soils Engineers	DMA	1200 per day	2	1200		2,400
6	Medic	Fairweather	1000 per day	1	1000		1,000
7	Surveyors	Lounsbury	1000 per day	1	1000		1,000
8	Lodging at Kupark	CPAI	100 per day	7	100		700
9	Company Pickups	Fairweather	100 per day	3	100		300
10	Mobilization/Demobilization	Catco	34 Bed Camp	1			
11	Mobilization/Demobilization	Denali	Texoma 600 Drill	1			
12	Mobilization	Catco	Out Riggers For RD-85 With Drill	1			
13	Mobilization	Catco	Mob-Demob of Kobelco excavator	0			
14	Mobilization	Catco	Gin Poles for RD-85 tractor	0			
15	Construction Base Camp	Catco	34 Bed Camp @ 3,250 Per Day	1	3240		3,240
16	RD-85 with Denali Drill rig	Catco	200 per hour / minimum 4 hour day	1	200	4	800
17	RD-85 with Bus & Fuel Pup	Catco	200 per hour / minimum 4 hour day	1	200	8	1,600
18	RD-105 Tractor & Trailer	Catco	400 per hour / minimum 4 hour day	1	400	8	3,200
19	RD-85 w/3000 gal Water House	Catco	200 per hour / minimum 4 hour day	1	200		
20	RD-85 with 3000 gal Fuel Tank	Catco	200 per hour / minimum 4 hour day	1	200	4	800
21	Base Camp Loader	Catco	966 or Equivelent	1	330		330
22	Pick-Up	Catco	100 per day	1	100		100
23	Foreman	Catco	61 per hour	2	61	12	1,464
24	Operator	Catco	59 per hour	6	59	12	4,248
25	Mechanic	Catco	On Site Mechanic	1	59	12	708
26	Texoma 600 Drill	Denali	2000 per day	1			2,000
27	Driller	Denali	61 per hour	2	61	12	1,464
28	Helper	Denali	59 per hour	6	59	12	4,248
29	Slurry Crew	Denali	59 per hour	4	59	12	2,832
30	Mattracks	Dynatec	Ford F-350 with tracks	2	208		416
31	Mattrack Drivers	Dynatec	350 per day	2	350		700
32	Light Tower	Peak	99 per day	6	99		594
33	Indirect Heater	Peak	300 per day	6	300		1,800
34	Security/Engineering House	Fairweather	150 per day inclusive of gen sets	2	150		300
35	50T Crane (DS-2H)	Peak		1	1150		1,150
	150 Ton Crane)	Peak					
	85 Ton Crane (DS-2H)	Peak					
36	Crane Operator	Peak		1	63	24	1,512
37	Crane Oiler/Rigger	Peak		1	46	24	1,104
38	Trucking	Peak					750
39	Trucking	Carlile					750
40	Loader - Hot Ice	Peak	110 per hr w/ operator	1	110	24	2,640
41	Man Lift	Peak	300 per day	1	300		300
42	Dumpster	Colville		1	100		100
43	8 Bed Sleeper & Gen Set	Arctic Catering		1	450		450
44	Welding Machine	Airport Rental		1	45		45
45	Air compressor / Jack Hammer	Airport Rental		1	190		190
46	Air Fares	Lower 48	1250 per person Lower Forty Eight	0	1250		-
47	Air Fares	Alaska	600 per person Anchorage/Prudhoe B	2	600		1,200
48	Grey Water Disposal	CPAI	?				1,000
49	Potable Water	CPAI	?				1,000
50	Fuel	Nana	2.00 per gallon	1250	2		2,500

Anadarko Petroleum Corporation

Hot Ice Project
Mobilization & Installation Cost

Date: February 20, 2003 | **$ 72,979 Daily Total** | **$ 1,389,554 Accumulated Total** | **Report #: 24**

Item	Description	Vendor	Information	QTY	RATE	HRS	Daily Cost
1	Hot Ice Drilling Supt.	Contract	1250 per day	3	1250		3,750
2	ACS Tech Fees	ACS	1000 per day	2	1000		2,000
3	EHS Advisor	Hoefler	750 per day	1	750		750
4	Security	Doyon	600 per day	2	600		1,200
5	Soils Engineers	DMA	1200 per day	2	1200		2,400
6	Medic	Fairweather	1000 per day	1	1000		1,000
7	Surveyors	Lounsbury	1000 per day	3	1000		3,000
8	Lodging at Kupark	CPAI	100 per day	7	100		700
9	Company Pickups	Fairweather	100 per day	3	100		300
10	Mobilization/Demobilization	Catco	34 Bed Camp	1			
11	Mobilization/Demobilization	Denali	Texoma 600 Drill	1			
12	Mobilization	Catco	Out Riggers For RD-85 With Drill	1			
13	Mobilization	Catco	Mob-Demob of Kobelco excavator	0			
14	Mobilization	Catco	Gin Poles for RD-85 tractor	0			
15	Construction Base Camp	Catco	34 Bed Camp @ 3,250 Per Day	1	3240		3,240
16	RD-85 with Denali Drill rig	Catco	200 per hour / minimum 4 hour day	1	200	4	800
17	RD-85 with Bus & Fuel Pup	Catco	200 per hour / minimum 4 hour day	1	200	8	1,600
18	RD-105 Tractor & Trailer	Catco	400 per hour / minimum 4 hour day	2	400	8	6,400
19	RD-85 w/3000 gal Water House	Catco	200 per hour / minimum 4 hour day	1	200		
20	RD-85 with 3000 gal Fuel Tank	Catco	200 per hour / minimum 4 hour day	1	200	4	800
21	Base Camp Loader	Catco	966 or Equivelent	1	330		330
22	Pick-Up	Catco	100 per day	1	100		100
23	Foreman	Catco	61 per hour	2	61	12	1,464
24	Operator	Catco	59 per hour	6	59	12	4,248
25	Mechanic	Catco	On Site Mechanic	1	59	12	708
26	Texoma 600 Drill	Denali	2000 per day	1			2,000
27	Driller	Denali	61 per hour	2	61	12	1,464
28	Helper	Denali	59 per hour	6	59	12	4,248
29	Slurry Crew	Denali	59 per hour	4	59	12	2,832
30	Mattracks	Dynatec	Ford F-350 with tracks	2	208		416
31	Mattrack Drivers	Dynatec	350 per day	2	350		700
32	Light Tower	Peak	99 per day	6	99		594
33	Indirect Heater	Peak	300 per day	6	300		1,800
34	Security/Engineering House	Fairweather	150 per day inclusive of gen sets	2	150		300
35	50T Crane (DS-2H)	Peak		1	1150		1,150
	150 Ton Crane)	Peak		1	368	12	4,416
	85 Ton Crane (DS-2H)	Peak		1	176	12	2,112
36	Crane Operator	Peak		2	63	24	3,024
37	Crane Oiler/Rigger	Peak		2	46	24	2,208
38	Trucking	Peak					750
39	Trucking	Carlile					750
40	Loader - Hot Ice	Peak	110 per hr w/ operator	1	110	24	2,640
41	Man Lift	Peak	300 per day	1	300		300
42	Dumpster	Colville		1	100		100
43	8 Bed Sleeper & Gen Set	Arctic Catering		1	450		450
44	Welding Machine	Airport Rental		1	45		45
45	Air compressor / Jack Hammer	Airport Rental		1	190		190
46	Air Fares	Lower 48	1250 per person Lower Forty Eight	0	1250		-
47	Air Fares	Alaska	600 per person Anchorage/Prudhoe B	2	600		1,200
48	Grey Water Disposal	CPAI	?				1,000
49	Potable Water	CPAI	?				1,000
50	Fuel	Nana	2.00 per gallon	1250	2		2,500

Date: 2/21/2003
Rpt. No. 25

Hot Ice Project
Daily Mobilization & Installation Report

Anadarko Petroleum Corporation

Present Operation: **Install steel members in deck on module #8**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None reported.

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Clean up location. Monitor pile hole temperatures.
6:00	18:00	12.00		Set camp modules 2,3,4,&5. Set entrance walkway on north side of camp. Rig drilled 10" pilot hole for hole #43. Welding machines down - sent 20" auger in to have 9 5/8" guide welded on.
18:00	0:00	6.00		Take sheet metal stripping out of racks on lower camp units. Transport two camp modules from 2h to Hotice #1.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp		DS-2H	Anadarko Rep.	2	
Catco Loader		DS-2H	Anadarko HSE		
Catco Pickup (2)		DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)		DS-2H	Catco		9
Peak Light Plants (5)		Hot Ice	Catering		3
Heater (1)		DS-2H	Denali Drilling		3
Mattracks (2)		DS-2H	Doyon Security	2	
RT-85 w/Drill		Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup		Hot Ice	Environmental	1	
RT-85 Tractor Trailer		Hot Ice	Medic		1
RT-85 w/Water House		Hot Ice	Nana Dynatec		10
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Loader Op		2
Peak Loader		Hot Ice	Peak Crane Crew		8
Dumpster - Colville		DS-2H	Lounsbury	3	
Catco waterhouse		Hot Ice	Photographer	1	
Manlift		Hot Ice			
Peak 50T crane		Hot Ice			
Heater (5)		Hot Ice			
8 Bed Sleeper/ Generator		DS-2H			
Engineering House (2)		Hot Ice			
150 Ton Crane		Hot Ice			
85 Ton Crane		Hot Ice			
Welding Machine		Hot Ice		11	38

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,000		6,200	492,000
Received	1,700		0	
Days Usage	1,200		905	0
Accumulated	18,600		35,349	492,000
On Hand	4,200		5,295	

Equipment Down:

Comments: Plan forward - Re-drill pile hole #42 and #43. Set piles, modules, and slurry. Continue setting camp.

Date: 2/22/2003
Rpt. No. 26

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Set and suveying piles.**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: Catco had 2-quart hydrolic oil spill on ice pad at Hot Ice #1. Hydrolic hose connector to fuel pump got smashed @ 02:30. Clean up and disposal complete.

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Attempt to bolt lower camp modules together - unable to find bolts and straps. Installed steel member in deck on module # 8.Set entrance walkway on south end of camp.
6:00	18:00	12.00		Drilled 20" pile holes #42 & 43. Set and surveyed pile #43. Set camp generator and heater on drilling platform. Start bolting lower camp modules together Install sheet metal stripping on top of lower camp modules.
18:00	0:00	6.00		Set and survey piles #41 & 42. Set and chalked module #14. Slurried piles #41 & 42. Set and chalked module #15. Slurried Module #15.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp		DS-2H	Anadarko Rep.	2	
Catco Loader		DS-2H	Anadarko HSE		
Catco Pickup (2)		DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)		DS-2H	Catco		9
Peak Light Plants (4)		Hot Ice	Catering		3
Heater (1)		DS-2H	Denali Drilling		3
Mattracks (2)		DS-2H	Doyon Security	2	
RT-85 w/Drill		Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup		Hot Ice	Environmental	1	
RT-85 Tractor Trailer		Hot Ice	Medic		1
RT-85 w/Water House		Hot Ice	Nana Dynatec		10
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Loader Op		2
Peak Loader		Hot Ice	Peak Crane Crew		8
Dumpster - Colville		DS-2H	Lounsbury	6	
Catco waterhouse		Hot Ice	Photographer	1	
Manlift		Hot Ice			
Peak 50T crane		Hot Ice			
Heater (5)		Hot Ice			
8 Bed Sleeper/ Generator		DS-2H			
Engineering House (2)		Hot Ice			
150 Ton Crane		Hot Ice			
85 Ton Crane		Hot Ice			
Welding Machine		Hot Ice		14	38

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,200		5,295	492,000
Received	1,100		4,300	
Days Usage	1,000		905	0
Accumulated	19,600		38,594	492,000
On Hand	4,500		6,350	

Equipment Down:
Catco Rolligon down due to transmission probl
Nite forklift struck corner of camp module # 8, c
cosmetic damage.

Comments: Plan forward - Set remaining piles, modules, and slurry. Set top five camp modules. Continue rigging up / setting in camp generator, water treatment modules, ect.

Date: 2/23/2003
Rpt. No. 27

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Set upper camp modules.**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: Catco had 10 gal. grey water spill on DS-2H pad at catco camp @ 20:30 hrs.- 7 gal on gravel pad, 3 gal in containment. Clean up and disposal complete.

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Set piles # 49,50,51, & # 52. Bolt lower camp skids together. Re-set piles #49,50,51,&# 52(installed chiller) . Elevation off 3".
6:00	18:00	12.00		Set piles # 44, 45,46,47, & 48. Set platform modules 16,17, &18. Slurried pile holes 44,45, & # 52 (w/ chiller). Finish bolting skids together on lower camp modules. Set top camp modules # 6& 7.
18:00	0:00	6.00		Set pile #2. Set platform modules 19 &20 Slurry 46,51,47, & 50.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp		DS-2H	Anadarko Rep.	2	
Catco Loader		DS-2H	Anadarko HSE		
Catco Pickup (2)		DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)		DS-2H	Catco		9
Peak Light Plants (4)		Hot Ice	Catering		3
Heater (1)		DS-2H	Denali Drilling		3
Mattracks (2)		DS-2H	Doyon Security	2	
RT-85 w/Drill		Hot Ice	Duane Miller		2
RT-85 w/Bus & Fuel Pup		Hot Ice	Environmental	1	
RT-85 Tractor Trailer		Hot Ice	Medic		1
RT-85 w/Water House		Hot Ice	Nana Dynatec		10
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Loader Op		2
Peak Loader		Hot Ice	Peak Crane Crew		8
Dumpster - Colville		DS-2H	Lounsbury	6	
Catco waterhouse		Hot Ice	Photographer	1	
Manlift		Hot Ice			
Peak 50T crane		Hot Ice			
Heater (5)		Hot Ice			
8 Bed Sleeper/ Generator		DS-2H			
Engineering House (2)		Hot Ice			
150 Ton Crane		Hot Ice			
85 Ton Crane		Hot Ice			
Welding Machine		Hot Ice		14	38

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,500		6,350	492,000
Received	1,500		0	
Days Usage	1,400		3,350	0
Accumulated	21,000		41,944	492,000
On Hand	4,000		3,000	

Equipment Down:
Catco rolligon down due to transmisson.
May get replacement today. Fairweather gener
down.

Comments: Plan forward - Continue rigging up camp. Install wood deck on platform modules 14,15,16,& 17. Start N.U. BOP's. Set water treatment modules

Date: 2/24/2003
Rpt. No. 28

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Wait on weather**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00				Slurry piles # 48 & 49. Set platform module #21 and slurry pile #2.
	2:30	2.50		5.25" gap between platforms. Released nite survey crew.
2:30	6:00	3.50		Set top camp modules # 8 & 9.
6:00				Cleaned up location, put bolts in upper camp units, set cantilever walkway on camp platform, travco worked on getting power to camp, set decks on modules # 18,19,20,& #21. Loundsbury shooting final as- built. Start setting wood / steel deck on module
	18:00	12.00		#14 and putting up handrails around platform.
18:00	20:00	2.00		Set wood / steel deck on module #14.
20:00	0:00	4.00		Stopped working on platform deck due to high wind. Travco wiring in camp to generator.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp		DS-2H	Anadarko Rep.	2	
Catco Loader		DS-2H	Anadarko HSE		
Catco Pickup (2)		DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)		DS-2H	Catco		9
Peak Light Plants (4)		Hot Ice	Catering		3
Heater (1)		DS-2H	Denali Drilling		
Mattracks (2)		DS-2H	Doyon Security	2	
RT-85 w/Drill		Hot Ice	Duane Miller		1
RT-85 w/Bus & Fuel Pup		Hot Ice	Environmental	1	
RT-85 Tractor Trailer		Hot Ice	Medic		1
RT-85 w/Water House		Hot Ice	Nana Dynatec		10
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Loader Op		2
Peak Loader		Hot Ice	Peak Crane Crew		8
Dumpster - Colville		DS-2H	Lounsbury	3	
Catco waterhouse		Hot Ice	Travco		1
Manlift		Hot Ice	Artic Catering		1
Peak 50T crane		Hot Ice	AK Telecom		2
Heater (5)		Hot Ice			
8 Bed Sleeper/ Generator		DS-2H			
Engineering House (2)		Hot Ice			
150 Ton Crane		Hot Ice			
85 Ton Crane		Hot Ice			
Welding Machine		Hot Ice		10	38

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,000		3,000	492,000
Received	1,200		0	
Days Usage	1,200		1,200	0
Accumulated	22,200		43,144	492,000
On Hand	4,100		8,000	

Equipment Down:
APC camp generator - fuel leak, halon system popped off, louvor control not working

Comments: Continue setting wood deck and handrails. Power to camp.
Set water treatment and communication modules on platform.

Date: 2/25/2003
Rpt. No. 29

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Digging Out & Setting Wood/Steel Decks**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00	4:30	4.50		Travco hooking up 500 kw gen. set to camp. Camp powered uo at 03:30. Gen developed diesel drip. Pressure on Halon extinguisher released. Shut down generator.
4:30	14:00	9.50		Wait on weather. Artic catering securing parts from Deadhorse and delivering them to Hotice # 1. Continue to wait on high winds.
14:00	20:00	6.00		Travco & Arctic Catering To Hotice #1 with Halon & Fuel Filter Connection materials to make necessary repairs to generator set.
20:00	24:00	4.00		Generator On Line & Camp Warming Up. Dynatec Night Shift Waiting On Weather While Monitoring Generator Operation.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp		DS-2H	Anadarko Rep.	2	
Catco Loader		DS-2H	Anadarko HSE		
Catco Pickup (2)		DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)		DS-2H	Catco		9
Peak Light Plants (4)		Hot Ice	Catering		3
Heater (1)		DS-2H			
Mattracks (2)		DS-2H	Doyon Security	2	
RT-85 w/Drill		Hot Ice	Duane Miller		
RT-85 w/Bus & Fuel Pup		Hot Ice	Environmental	1	
RT-85 Tractor Trailer		Hot Ice	Medic		1
RT-85 w/Water House		Hot Ice	Nana Dynatec		10
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Loader Op		2
Peak Loader		Hot Ice	Peak Crane Crew		8
Dumpster - Colville		DS-2H	Lounsbury		
Catco waterhouse		Hot Ice	Travco		1
Manlift		Hot Ice	Artic Catering		2
Peak 50T crane		Hot Ice	AK Telecom		2
Heater (5)		Hot Ice			
8 Bed Sleeper/ Generator		DS-2H			
Engineering House (2)		Hot Ice			
150 Ton Crane		Hot Ice			
85 Ton Crane		Hot Ice			
Welding Machine		Hot Ice		7	38

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,000		8,000	492,000
Received	1,460		-	
Days Usage	1,200		950	0
Accumulated	23,400		44,094	492,000
On Hand	4,260		7,050	

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.

Comments: Todays' Activities Plan to Continue setting wood deck and handrails.
Set water treatment and communication modules on platform. Install 9 5/8" Riser.

Date: 2/26/2003
Rpt. No. 30

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Digging Out & Setting Wood/Steel Decks**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Monitor Generator While Wait On Weather
6:00	13:00	7.00		Set Alaska Telecom Communications Module & Sattilite Dish, Set Grey Water Treatment Unit
13:00	24:00	11.00		Wait On Weather, Adjust Wood/Steel Placement On #8 Module Connecting Grey Water Lines On Camp
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp		DS-2H	Anadarko Rep.	2	
Catco Loader		DS-2H	Anadarko HSE		
Catco Pickup (2)		DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)		DS-2H	Catco		9
Peak Light Plants (4)		Hot Ice	Catering		3
Heater (1)		DS-2H	Doyon Security	2	
Mattracks (2)		DS-2H	Duane Miller		
RT-85 w/Drill		Hot Ice	Environmental	1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Medic		1
RT-85 Tractor Trailer		Hot Ice	Nana Dynatec		10
RT-85 w/Water House		Hot Ice	Peak Loader Op		2
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Crane Crew		8
Peak Loader		Hot Ice	Lounsbury		
Dumpster - Colville		DS-2H	Travco		1
Catco waterhouse		Hot Ice	Artic Catering		3
Manlift		Hot Ice	AK Telecom		2
Peak 50T crane		Hot Ice			
Heater (5)		Hot Ice			
8 Bed Sleeper/ Generator		DS-2H			
Engineering House (2)		Hot Ice			
150 Ton Crane		Hot Ice			
85 Ton Crane		Hot Ice			
Welding Machine		Hot Ice		7	39

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,260		7,050	492,000
Received	850		-	
Days Usage	2,600		2,700	0
Accumulated	26,000		46,794	492,000
On Hand	2,510		4,350	

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.

Comments: Todays' Activities Plan to Continue setting wood deck and handrails. BOP's, Starter Flange, & Casing Head Enroute From Deadhorse To 2H, Will Install Riser & Nipple Up Next Weather Window. Fuel & Water Storage Conex's Enroute From Deadhorse to 2H/Hot Ice.

Date: 2/27/2003
Rpt. No. 31

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Testing Well Head & Setting Wood/Steel Decks**
Completion of Accommodations Setting

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Monitor Generator While Wait On Weather
6:00	12:00	6.00		Set Potable Water System Skid
12:00	18:00	6.00		Install 9 5/8" Riser, Rough Cut Same, Final Cut & Prep
18:00	24:00	6.00		Install & Weld 9 5/8" SOW Transition Nipple
	Total	24.00	Hours	

Equipment		Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp		DS-2H	Anadarko Rep.	2	
Catco Loader		DS-2H	Anadarko HSE		
Catco Pickup (2)		DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)		DS-2H	Catco		9
Peak Light Plants (4)		Hot Ice	Catering		3
Heater (1)		DS-2H	Doyon Security	2	
Mattracks (2)		DS-2H	Duane Miller		
RT-85 w/Drill		Hot Ice	Environmental	1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Medic		1
RT-85 Tractor Trailer		Hot Ice	Nana Dynatec		10
RT-85 w/Water House		DS-2H	Peak Loader Op		2
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Crane Crew		8
Peak Loader		Hot Ice	Lounsbury		
Dumpster - Colville		DS-2H	Travco		1
			Artic Catering		3
Manlift		Hot Ice	AK Telecom		2
Peak 50T crane		Hot Ice	APC Visitors	3	
Heater (5)		Hot Ice			
8 Bed Sleeper/ Generator		DS-2H			
Engineering House (2)		Hot Ice			
150 Ton Crane		Hot Ice			
85 Ton Crane		Hot Ice			
Welding Machine		Hot Ice		10	39

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,260		7,050	492,000
Received	850		-	
Days Usage	2,600		2,700	0
Accumulated	26,000		46,794	492,000
On Hand	2,510		4,350	

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.

Comments: Received Drill Rig, Water Conex, Fuel Conex.
Shipped Three Water Houses & One Fairweather Warm Up Shack back to DS-2H.

Date: 2/28/2003
Rpt. No. 32

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Working on deck**

Accidents/Injuries: None Reported

Safety: Crews conducting Pretour Safety Meetings. S Freemyer conducted safety meeting with crane operators.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Transiton Nipple Insulated & Cooling, Set Four Laboratory Units
6:00	18:00	12.00		Test Wellhead, Failed, Reweld & Tested, Install wood decking on Modules 15 & 16, Installing Riser Seal Assembly, Install North Accommodation Second Level Landing
18:00	24:00:00	6.00		Setting wood and steel decking on 16- 17 and finish 14. Transport potable water truck from 2h. Fill potable system with 3800 gal. water. Clean up around edge of location. Remove spacer from core labs.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp		DS-2H	Anadarko Rep.	2	
Catco Loader		DS-2H	Anadarko HSE		
Catco Pickup (2)		DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)		DS-2H	Catco		9
Peak Light Plants (4)		Hot Ice	Catering		3
Heater (1)		DS-2H	Doyon Security	2	
Mattracks (2)		DS-2H	Duane Miller		
RT-85 w/Drill		Hot Ice	Environmental	1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Medic		1
RT-85 Tractor Trailer		Hot Ice	Nana Dynatec		10
RT-85 w/Water House		DS-2H	Peak Loader Op		2
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Crane Crew		8
Peak Loader		Hot Ice	Lounsbury		
Dumpster - Colville		DS-2H	Travco		1
			Artic Catering		3
Manlift		Hot Ice	AK Telecom		2
Peak 50T crane		Hot Ice	APC Visitors	3	
Heater (5)		Hot Ice			
8 Bed Sleeper/ Generator		DS-2H			
Engineering House (2)		Hot Ice			
150 Ton Crane		Hot Ice			
85 Ton Crane		Hot Ice			
Welding Machine		Hot Ice		10	39

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,260		7,050	492,000
Received	1,300		-	
Days Usage	1,300		1,000	
Accumulated	27,300		46,794	492,000
On Hand	4,000		6,900	

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.

Comments: **Charge and pickle potable water system for 24 hrs.**

Date: 3/1/2003
Rpt. No. 33

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Nipple up BOP**

Accidents/Injuries: None Reported

Safety:

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00	9:00	9.00		Install Wood/Steel Decks, Filled Lake Water Tank & Chlorinated Potable Water System. Pressured Up Accommodation Water System, Repaired Leaks, Charged & Pickled Water System For 24 Hour Period Commencing at 0200 Hours.
9:00	12:00	3.00		Repositioned Alaska Telecom Equipment & Set Core Storage Unit
12:00	18:00	6.00		Conducted Prejob Heavy Lift Safety Meeting, Set 40' Generator, Set 40' Potable, 40' Fuel Units. Nipped Up Tubing Spool, Mud Cross & Double Rams. Tested Tubing Spool Metal Seal To 1,000 psi. Install Access Stairway To Accommodations.
18:00	18:30	0.50		Pretour Safety Meeting
18:03	0:00	5.50		Set transformer on platform. Set gen. daytank on platform. Continue to nipple up BOP. Work on camp water system.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp		DS-2H	Anadarko Rep.	2	
Catco Loader		DS-2H	Anadarko HSE		
Catco Pickup (2)		DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)		DS-2H	Catco		9
Peak Light Plants (4)		Hot Ice	Catering		3
Heater (1)		DS-2H	Doyon Security	2	
Mattracks (2)		DS-2H	Duane Miller		
RT-85 w/Drill		Hot Ice	Environmental	1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Medic		1
RT-85 Tractor Trailer		Hot Ice	Nana Dynatec		10
RT-85 w/Water House		DS-2H	Peak Loader Op		2
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Crane Crew		8
Peak Loader		Hot Ice	Lounsbury		
Dumpster - Colville		DS-2H	Travco		1
			Artic Catering		3
Manlift		Hot Ice	AK Telecom		2
Peak 50T crane		Hot Ice	APC Visitors	3	
Heater (5)		Hot Ice			
8 Bed Sleeper/ Generator		DS-2H			
Engineering House (2)		Hot Ice			
150 Ton Crane		Hot Ice			
85 Ton Crane		Hot Ice			
Welding Machine		Hot Ice		10	39

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,000		7,050	492,000
Received	800		-	
Days Usage	900		1,400	
Accumulated	28,100		46,794	492,000
On Hand	4,000		5,500	

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.

Comments: **Pump pickled water from potable tank through camp to grey water tank.**

Date: 3/2/2003
Rpt. No. 34

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Installing rotating head.**

Accidents/Injuries: None Reported

Safety:

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Continue to nipple up BOP. Wind to high to use crane.Work on camp water unit.
6:00	18:00	12.00		Modify diesel tank door to clear AT dish skid. Clean kitchen in camp while waiting on wind.
18:00	24:00	6.00		Install Choke & Kill Line Valves on BOPE, Install Rotating Head **Cranes Resumed Operations At 0400 Hrs.**
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp		DS-2H	Anadarko Rep.	2	
Catco Loader		DS-2H	Anadarko HSE		
Catco Pickup (2)		DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)		DS-2H	Catco		9
Peak Light Plants (4)		Hot Ice	Catering		3
Heater (1)		DS-2H	Doyon Security	2	
Mattracks (2)		DS-2H	Duane Miller		
RT-85 w/Drill		Hot Ice	Environmental	1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Medic		1
RT-85 Tractor Trailer		Hot Ice	Nana Dynatec		10
RT-85 w/Water House		DS-2H	Peak Loader Op		2
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Crane Crew		8
Peak Loader		Hot Ice	Lounsbury		
Dumpster - Colville		DS-2H	Travco		1
			Artic Catering		3
Manlift		Hot Ice	AK Telecom		2
Peak 50T crane		Hot Ice	APC Visitors	3	
Heater (5)		Hot Ice			
8 Bed Sleeper/ Generator		DS-2H			
Engineering House (2)		Hot Ice			
150 Ton Crane		Hot Ice			
85 Ton Crane		Hot Ice			
Welding Machine		Hot Ice		10	39

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,000		5,500	492,000
Received	-		6,926	3,000
Days Usage	1,400		4,526	
Accumulated	28,100		53,720	495,000
On Hand	5,500		7,900	

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.

Comments: **Filling water tank with lake water.**

Date: 3/3/2003
Rpt. No. 35

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Enclosing lower ends of camp units.**

Accidents/Injuries: None Reported

Safety:

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Finish installing rotating head.Wind died down, started crane work @ 04:00. Set aluminum spacers for cellar on platform. Dowell pins and holes in spacers do not line up.
6:00	18:00	12.00		Cut off aluminum pins, install spacers. Set lower sub base skid and attach sides. Set and center sub base. Set andh ook up two 500 k gen sets.
18:00	0:00	6.00		Set third 500k gen. set on top of grey water tank. Set incinerator on platform. Catco delivered groceries for camp. Set groceries on deck and put in cooler and freezer. Arctic catering staff are in camp and camp will be opened today.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H
Catco 32 Bed Camp		DS-2H	Anadarko Rep.	2	
Catco Loader		DS-2H	Anadarko HSE		
Catco Pickup (2)		DS-2H	Alaska Clean Seas	2	
Peak Light Plants (2)		DS-2H	Catco		9
Peak Light Plants (4)		Hot Ice	Catering		3
Heater (1)		DS-2H	Doyon Security	2	
Mattracks (2)		DS-2H	Duane Miller		
RT-85 w/Drill		Hot Ice	Environmental	1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Medic		1
RT-85 Tractor Trailer		Hot Ice	Nana Dynatec		10
RT-85 w/Water House		DS-2H	Peak Loader Op		2
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Crane Crew		8
Peak Loader		Hot Ice	Lounsbury		
Dumpster - Colville		DS-2H	Travco		1
			Artic Catering		3
Manlift		Hot Ice	AK Telecom		2
Peak 50T crane		Hot Ice	APC Visitors	3	
Heater (5)		Hot Ice			
8 Bed Sleeper/ Generator		DS-2H			
Engineering House (2)		Hot Ice			
150 Ton Crane		Hot Ice			
85 Ton Crane		Hot Ice			
Welding Machine		Hot Ice		10	39

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,000		5,500	492,000
Received	-		6,926	3,000
Days Usage	1,400		4,526	
Accumulated	28,100		53,720	495,000
On Hand	5,500		7,900	

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.

Comments: **Northern testing lab passed water samples and potable water system is ready for camp operation.**

Date: 3/4/2003
Rpt. No. 36

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Preparing to set reserve mud unit,**

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour. Pre-job safety meeting for heavy lift of rig unit.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00	6:00	6.00		Install wood and insulation on east side of lower camp modules 1, 2, & 3 for freeze protection.
6:00	24:00:00	18.00		Start drill and warm hydraulic system. Install jack legs. Set drill on platform. Install cross-bracing and leg clamps. Repair/replace left rear track on MatTrack unit #1. Electricians installing cable trays and connecting 3 rd gen. set. Run power to incinerator and start-up same.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H	Hotice
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2
Catco Loader		DS-2H	Anadarko HSE	1		
Catco Pickup (2)		DS-2H	Alaska Clean Seas			1
Peak Light Plants (2)		DS-2H	Catco		9	
Peak Light Plants (4)		Hot Ice	Global Catering		3	
Heater (1)		DS-2H	Doyon Security	2		
Mattracks (2)		DS-2H	Duane Miller			
RT-85 w/Drill		Hot Ice	Environmental	1		
RT-85 w/Bus & Fuel Pup		Hot Ice	Medic			1
RT-85 Tractor Trailer		Hot Ice	Nana Dynatec		6	5
RT-85 w/Water House		DS-2H	Peak Loader Op		2	
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Crane Crew		8	
Peak Loader		Hot Ice	Lounsbury			
Dumpster - Colville		DS-2H	Travco			
			Arctic Catering		1	6
Manlift		Hot Ice	AK Telecom		2	
Peak 50T crane		Hot Ice	APC Visitors			
Heater (5)		Hot Ice	Precision Power			5
8 Bed Sleeper/ Generator		DS-2H				
Engineering House (2)		Hot Ice				
150 Ton Crane		Hot Ice				
85 Ton Crane		Hot Ice				
Welding Machine		Hot Ice		4	31	20

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	4,000		7,019	495,000
Received	7,500		4,300	6,000
Days Usage	3,400		6,524	
Accumulated	35,600		57,020	501,000
On Hand	8,100		4,795	

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.

Comments: **Start up camp kitchen. Move 20 people from Catco and KCC camps to HOTICE camp.**

Date: 3/5/2003
Rpt. No. 37

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Prepare to set set mud tank section**

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Set core handling unit. Adjust positioning with fuel storage conex for angle iron tab alignments.
6:00:00	18:00:00	12.00		Worked on fuel lines. Covered rig with canvas and run heater hoses to keep equip. warm. Work on parts house to prepare for lift. Compl. cable trays and ran 240VAC to Alaska Telecom. Alaska Telecom installing gai-tronics and data pts. in Drlg. office. Set MGS unit. Noted conflict with MGS outlets and deck opening
18:00:00	24:00:00	6.00		Reposition MGS unit and open up deck section to accept mud line "U" tube. Reset doghouse. Realign for final positioning on fuel storage conex, core handling unit, and reserve mud storage. Clean out snow and vacuum snow out of instrumentation in lab modules.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H	Hotice
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2
Catco Loader		DS-2H	Anadarko HSE			
Catco Pickup (2)		DS-2H	Alaska Clean Seas			1
Peak Light Plants (2)		DS-2H	Catco		9	
Peak Light Plants (4)		Hot Ice	Global Catering		3	
Heater (1)		DS-2H	Doyon Security	2		
Mattracks (2)		DS-2H	Duane Miller			
RT-85 w/Drill		Hot Ice	Environmental	1		
RT-85 w/Bus & Fuel Pup		Hot Ice	Medic			1
RT-85 Tractor Trailer		Hot Ice	Nana Dynatec		6	5
RT-85 w/Water House		DS-2H	Peak Loader Op		2	
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Crane Crew		8	
Peak Loader		Hot Ice	Lounsbury			
Dumpster - Colville		DS-2H	Travco			
			Arctic Catering			7
Manlift		Hot Ice	AK Telecom		2	
Peak 50T crane		Hot Ice	APC Visitors			
Heater (5)		Hot Ice	Precision Power			5
8 Bed Sleeper/ Generator		DS-2H	MatTrack		2	
Engineering House (2)		Hot Ice				
150 Ton Crane		Hot Ice				
85 Ton Crane		Hot Ice				
Welding Machine		Hot Ice		3	32	21

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	8,100		7,019	501,000
Received			-	3,000
Days Usage	3,400		2,400	
Accumulated	35,600		59,420	504,000
On Hand	4,200		5,405	

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.

Comments: **Started up vaporizor. De-bugging and adjusting.**
On location for placement on platform: (6) 20' spacer conexes, Mud storrage conex, 20' waste mud conex, ACS unit, drilling office, Dynatec mud pumps, mud chillers, tioga heaters, Dynatec workshop and parts house units, one load of angle iron, Swaco centrifuges and choke equipment.
To be shipped from 2H: Dowell pumps

Date: 3/6/2003
Rpt. No. 38

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Rigging up to set 50-ton crane on deck.**

Accidents/Injuries: Housekeeper complained of headache at the end of shift after using a shower cleanser. Given bed rest and told not to use that cleanser any more.

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Move heaters and light towers on deck to clear area for mud pump section. Lay plywood and set mud pump unit.
6:00:00	18:00:00	12.00		Set MI Mud Tank, Mud Chemical Conex, Drill Cool Lower Conex, Dowell Cement Unit/House/Silo & Low Pressure Air Compressor, Waste Mud Conex, ACS Conex. Electricians Wiring 3rd Gen Set In Parallel, Connect Alaska Telecom With 240 Circuit, Pull Cable To Laboratory
18:00:00	24:00:00	6.00		Set Swaco mud cleaning equipment on mud tank section. Unload rolligons. Move light tower on deck. Set 40' drilling office. Rig fall protection to set 20' waste mud unit. Clear deck of non-essential materials.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H	Hotice
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2
Catco Loader		DS-2H	Anadarko HSE			
Catco Pickup (2)		DS-2H	Alaska Clean Seas			1
Peak Light Plants (2)		DS-2H	Catco		9	
Peak Light Plants (4)		Hot Ice	Global Catering		3	
Heater (1)		DS-2H	Doyon Security	2		
Mattracks (2)		DS-2H	Duane Miller			
RT-85 w/Drill		Hot Ice	Environmental	1		
RT-85 w/Bus & Fuel Pup		Hot Ice	Medic			1
RT-85 Tractor Trailer		Hot Ice	Nana Dynatec		2	9
RT-85 w/Water House		DS-2H	Peak Loader Op		2	
RT-85 w/ 3500 gal Fuel		Hot Ice	Peak Crane Crew		8	
Peak Loader		Hot Ice	Lounsbury			
Dumpster - Colville		DS-2H	Travco			
			Arctic Catering			7
Man lift		Hot Ice	AK Telecom		2	
Peak 50T crane		Hot Ice	APC Visitors			
Heater (5)		Hot Ice	Precision Power			5
8 Bed Sleeper/ Generator		DS-2H	Mattrack			
Engineering House (2)		Hot Ice	VECO			3
150 Ton Crane		Hot Ice	GBR			2
85 Ton Crane		Hot Ice				
Welding Machine		Hot Ice		3	26	30

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	8,100		5,405	504,000
Received			4,300	-
Days Usage	3,400		2,400	
Accumulated	35,600		68,020	504,000
On Hand	4,200		7,305	

Equipment Down: **59**

R-200 Fire Suppressant System On Single Generator Set.

Comments: **Gary Schultz w/ Alaska DNR toured location with Laura Barlow**
Received mud tank top sections and "I" beams for pipe shed.
VECO steel workers and GBR welders on location this PM.
Catco changing out fuel hauler unit for repairs.

Date: 3/7/2003 **Rpt. No.** 39

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Staging Mud-Gas Seperator piping on deck.**

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported **0**

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Rig fall protection for second story conex lifts. Position manlifts. Set waste mud conex. Re-rig fall protection and set Dynatec warehouse unit.
6:00:00	18:00:00	12.00		Pick 50-ton crane and set on deck. Set top section on Swaco mud tanks. Set Dynatec workshop. Lay down non-skid wakways on select deck areas. Begin erecting angle iron conex stack bracing. Welders working on walkways and stairs.
18:00:00	24:00:00	6.00		Set handrails around top of mud tank top section. Set miscel. equip. on deck. Install hand rails around top of mud tank top sections. Bolt up new mud suction strainers to pump suction piping. Set Swaco vac unit and power panel on mud tank top section. Set Tioga heater on east end of mud tank top section.
	Total	**24.00**	**Hours**	

Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (2)		DS-2H
Peak Light Plants (2)		DS-2H
Peak Light Plants (4)		Hot Ice
Heater (1)		DS-2H
Mattracks (2)		DS-2H
RT-85 w/Drill		Hot Ice
RT-85 w/Bus & Fuel Pup		Hot Ice
RT-85 Tractor Trailer		Hot Ice
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak Loader		Hot Ice
Dumpster - Colville		DS-2H
D6 Dozer		Hot Ice
Manlift		Hot Ice
Peak 50T crane		Hot Ice
Heater (5)		Hot Ice
8 Bed Sleeper/ Generator		DS-2H
Engineering House (2)		Hot Ice
150 Ton Crane		Hot Ice
50 Ton Crane		Hot Ice
Welding Machine		Hot Ice

Personnel In Field	KCC	DS-2H	Hot Ice
Anadarko Rep.			2
Anadarko HSE			
Alaska Clean Seas			1
Catco		9	
Global Catering		3	
Doyon Security	2		
Duane Miller			
Environmental	1		
Medic			1
Nana Dynatec		2	9
Peak Loader/Cat Op		3	
Peak Crane Crew		6	
Lounsbury			
Travco			
Arctic Catering			7
AK Telecom		1	
APC Visitors			1
Precision Power			5
MatTrack			
VECO			4
GBR			4
Swaco			1
	3	24	35

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	8,100		5,405	504,000
Received		Shp. 3000		6,000
Days Usage	3,400		2,400	
Accumulated	35,600		63,720	510,000
On Hand	4,200	6,000	3,005	

Equipment Down: **62**
R-200 Fire Suppressant System On Single Generator Set.

Comments: **Feathering out snow piles around location w/ PEAK D-6.**
Hauled 3000 gal. grey water from Hot Ice to 2H.
Move 82-ton crane from 2H back to PEAK Base.
****Added 6000 gal to water usage, corrections to 2/9 & 2/21.**
Vaporizor shut down for nozzle repairs.

Date: 3/8/2003
Rpt. No. 40

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Check MGS "U" tube piping clearance**
Install Conex Structural Steel

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Stage piping and materials for MGS and mud tanks. Set walkway non-skid sections. Build temp. stair landing. Stage MGS piping on deck.
6:00:00	18:00:00	12.00		Erecting conex anchoring steel. Work on hook up of Swaco solids removal equip. Arrange and stack excess equipment around location. Pull wiring and energize lab, drlg. office, core lab. Remove pile clips & clean ice pad under platforms. Organized Dynatec workshop. Installed stair to drlg office, unpacked shipment of safety equipment & office supplies.
18:00:00	24:00:00	6.00		Work on mud tank piping and solids removal equip. Set up backhaul area for material returns. Assist lab techs for lab setup. Unload rolligon.
	Total	**24.00**	**Hours**	

Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (2)		DS-2H
Peak Light Plants (4)		Hot Ice
Heater (1)		DS-2H
Mattracks (2)		DS-2H
RT-85 w/Drill		
RT-85 w/Bus & Fuel Pup		Hot Ice
RT-85 Tractor Trailer		Hot Ice
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak Loader		Hot Ice
Dumpster - Colville		DS-2H
D6 Dozer		
Manlift		Hot Ice
Peak 50T crane		Hot Ice
Heater (5)		Hot Ice
8 Bed Sleeper/ Generator		DS-2H
Engineering House		Hot Ice
150 Ton Crane		Hot Ice
Welding Machine		Hot Ice

Personnel In Field	KCC	DS-2H	Hot Ice
Anadarko Rep.			2
Anadarko HSE			
Alaska Clean Seas			1
Catco		7	
Global Catering		3	
Doyon Security	2		
Duane Miller			
Environmental	1		
Medic			1
Nana Dynatec		2	9
Peak Loader/Cat Op		3	
Peak Crane Crew		4	
Lounsbury			
Travco			
Arctic Catering			7
AK Telecom			1
APC Visitors			1
Precision Power			5
MatTrack			
VECO			4
GBR			4
PTS			2
Swaco			1
	3	19	38

Consumables	Potable	Grey	Fuel	Lake MO2115
Previous Balance	8,100	6,000	3,005	510,000
Received		Shp. 3000	4,300	-
Days Usage	3,400	1,500	2,060	
Accumulated	35,600	6,000	68,020	510,000
On Hand	4,200	4,500	5,245	

60

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.

Comments: **Completed feathering out snow piles around location w/ PEAK D-6.**
Hauled 3000 gal. grey water from Hot Ice to 2H.
Cat graded area for heliport.
Released one Catco heavy haul rolligon and one RD-85 carring bus. Working days only.
Released night Peak crane crew.

Anadarko Petroleum Corporation

Hot Ice Project
Mobilization & Installation Cost

Date: March 9, 2003 | **$ 53,405 Daily Total** | **Report #: 41**
$ 2,598,463 Accumulated Total

Item	Description	Vendor	Information	QTY	RATE	HRS	Daily Cost
1	Hot Ice Drilling Supt.	Contract	1250 per day	2	1250		2,500
2	ACS Tech Fees	ACS	1000 per day	1	1000		1,000
3	EHS Advisor	Hoefler	950 per day	1	950		950
4	Security	Doyon	600 per day	2	600		1,200
5	Soils Engineers	DMA	1200 per day	0	1200		-
6	Medic	Fairweather	1000 per day	1	1000		1,000
7	Surveyors	Lounsbury	1000 per day	0	1000		-
8	Lodging at Kupark	CPAI	100 per day	3	100		300
9	Company Pickups	Fairweather	100 per day	2	100		200
10	Mobilization/Demobilization	Catco	34 Bed Camp	1			
11	Mobilization/Demobilization	Denali	Texoma 600 Drill	1			
12	Mobilization	Catco	Out Riggers For RD-85 With Drill	1			
13	Mobilization	Catco	Mob-Demob of Kobelco excavator	0			
14	Mobilization	Catco	Gin Poles for RD-85 tractor	0			
15	Construction Base Camp	Catco	34 Bed Camp @ 3,250 Per Day	1	3250		3,250
16	RD-85 with Denali Drill rig	Catco	200 per hour / minimum 4 hour day	0	200		-
17	RD-85 with Bus & Fuel Pup	Catco	200 per hour / minimum 4 hour day	1	200	4	800
18	RD-105 Tractor & Trailer	Catco	400 per hour / minimum 4 hour day	1	400	12	4,800
19	RD-85 w/3000 gal Water House	Catco	200 per hour / minimum 4 hour day	1	200	4	800
20	RD-85 with 3000 gal Fuel Tank	Catco	200 per hour / minimum 4 hour day	1	200	4	800
21	Base Camp Loader	Catco	966 or Equivelent	1	330		330
22	Pick-Up	Catco	100 per day	1	100		100
23	Foreman	Catco	61 per hour	1	61	12	732
24	Operator	Catco	59 per hour	4	59	12	2,832
25	Mechanic	Catco	On Site Mechanic	1	59	12	708
26	Texoma 600 Drill	Denali	2000 per day				
27	Driller	Denali	61 per hour				-
28	Helper/Slurry Crew	Denali	59 per hour				-
29	Swaco Solids System	Swaco	Daily rate @ $4230	1	4230	1	4,230
30	Mattracks	Dynatec	Ford F-350 with tracks	2	208		416
31	Mattrack Drivers	Dynatec	350 per day	2	350		700
32	Light Tower	Peak	99 per day	6	99		594
33	Indirect Heater	Peak	300 per day	5	300		1,500
34	Security/Engineering House	Fairweather	150 per day inclusive of gen sets	2	150		300
35	50T Crane (Hot Ice)	Peak		1	1150		1,150
36	150 Ton Crane	Peak		1	314	12	3,768
37	82 Ton Crane (DS-2H)	Peak		0	176	4	-
38	Crane Operator	Peak		1	63	12	756
39	Crane Oiler/Rigger	Peak		2	46	12	1,104
40	Iron Work	VECO		4	50	12	2,400
41	Field Welders	GBR		4	50	12	2,400
42	Trucking	Peak		0	750		-
43	Dynatec crew	Dynatec		9	39.44	12	4,260
44	Trucking	Carlile		2	750		1,500
45	Loader - Hot Ice	Peak	110 per hr w/ operator	1	110	24	2,640
46	Man Lift	Peak	300 per day	2	300		600
47	Dumpster	Colville		1	100		100
48	8 Bed Sleeper & Gen Set	Arctic Catering		1	450		450
49	Welding Machine	Airport Rental		1	45		45
50	Air compressor / Jack Hammer	Airport Rental		1	190		190
51	Air Fares	Lower 48	1250 per person Lower Forty Eight	0	1250		-
52	Air Fares	Alaska	600 per person Anchorage/Prudhoe B	0	600		-
53	Grey Water Disposal	CPAI	?				1,000
54	D6 Dozer	Peak	150 Per Hour w/ operator	0	150		-
55	Potable Water	CPAI	?				1,000
56	Fuel	Nana	2.00 per gallon	0	2		-

Anadarko Petroleum Corporation

Hot Ice Project
Mobilization & Installation Cost

Date: March 10, 2003 | **$ 71,465 Daily Total** | **$ 2,669,928 Accumulated Total** | **Report #: 42**

Item	Description	Vendor	Information	QTY	RATE	HRS	Daily Cost
1	Hot Ice Drilling Supt.	Contract	1250 per day	2	1250		2,500
2	ACS Tech Fees	ACS	1000 per day	1	1000		1,000
3	EHS Advisor	Hoefler	950 per day	1	950		950
4	Security	Doyon	600 per day	2	600		1,200
5	Soils Engineers	DMA	1200 per day	0	1200		-
6	Medic	Fairweather	1000 per day	1	1000		1,000
7	Surveyors	Lounsbury	1000 per day	0	1000		-
8	Lodging at Kupark	CPAI	100 per day	3	100		300
9	Company Pickups	Fairweather	100 per day	2	100		200
10	Mobilization/Demobilization	Catco	34 Bed Camp	1			
11	Mobilization/Demobilization	Denali	Texoma 600 Drill	1			
12	Mobilization	Catco	Out Riggers For RD-85 With Drill	1			
13	Mobilization	Catco	Mob-Demob of Kobelco excavator	0			
14	Mobilization	Catco	Gin Poles for RD-85 tractor	0			
15	Construction Base Camp	Catco	34 Bed Camp @ 3,250 Per Day	1	3250		3,250
16	RD-85 with Denali Drill rig	Catco	200 per hour / minimum 4 hour day	0	200		-
17	RD-85 with Bus & Fuel Pup	Catco	200 per hour / minimum 4 hour day	0	200	4	-
18	RD-105 Tractor & Trailer	Catco	400 per hour / minimum 4 hour day	1	400	8	3,200
19	RD-85 w/3000 gal Water House	Catco	200 per hour / minimum 4 hour day	1	200	4	800
20	RD-85 with 3000 gal Fuel Tank	Catco	200 per hour / minimum 4 hour day	1	200	4	800
21	Base Camp Loader	Catco	966 or Equivelent	1	330		330
22	Pick-Up	Catco	100 per day	1	100		100
23	Foreman	Catco	61 per hour	1	61	12	732
24	Operator	Catco	59 per hour	4	59	12	2,832
25	Mechanic	Catco	On Site Mechanic	1	59	12	708
26							
27							-
28	Mud Chiller	Drill Cool	Labor @ 500/d	2	500	1	1,000
29	Swaco Solids System	Swaco	Daily rate @ $4230 incl labor	1	4230	1	4,230
30	Mattracks	Dynatec	Ford F-350 with tracks	2	208		416
31	Mattrack Drivers	Dynatec	350 per day	2	350		700
32	Light Tower	Peak	99 per day	6	99		594
33	Indirect Heater	Peak	300 per day	5	300		1,500
34	Security/Engineering House	Fairweather	150 per day inclusive of gen sets	2	150		300
35	50T Crane (Hot Ice)	Peak		1	1150		1,150
36	150 Ton Crane	Peak		1	314	12	3,768
37	82 Ton Crane (DS-2H)	Peak		0	176	4	-
38	Crane Operator	Peak		1	63	12	756
39	Crane Oiler/Rigger	Peak		2	46	12	1,104
40	Iron Work	VECO		4	50	12	2,400
41	Field Welders	GBR		4	50	12	2,400
42	Trucking	Peak		0	750		-
43	Dynatec crew	Dynatec		9	39.44	12	4,260
44	Trucking	Carlile		1	750		750
45	Loader - Hot Ice	Peak	110 per hr w/ operator	1	110	24	2,640
46	Man Lift	Peak	300 per day	2	300		600
47	Dumpster	Colville		1	100		100
48	8 Bed Sleeper & Gen Set	Arctic Catering		1	450		450
49	Welding Machine	Airport Rental		1	45		45
50	Air compressor / Jack Hammer	Airport Rental		1	190		190
51	Air Fares	Lower 48	1250 per person Lower Forty Eight	2	1250		2,500
52	Air Fares	Alaska	600 per person Anchorage/Prudhoe B	1	600		600
53	Grey Water Disposal	CPAI	?				1,000
54	D6 Dozer	Peak	150 Per Hour w/ operator	0	150		-
55	Potable Water	CPAI	?				1,000
56	Fuel	Nana	2.00 per gallon	8555	2		17,110

Date: 3/11/2003
Rpt. No. 43

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Continue rig up and construction of platform equipment.**

Accidents/Injuries: Medivac employee to Anchorage @ 1100 hrs for health reasons-no injury

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: 2-quart diesel spill in #3 Gen. module. Fully contained and cleaned up. No discharge to environment.

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Cut & install covers over deck troughs. Spot third layer conexes. Spot Drill Cool heat exchanger unit. Fix gaps in walkway by water treatment units.
6:00:00	18:00:00	12.00		Continue installing conex steel bracing.Test platform fueling system, OK. Fuel all rig operating fuel tanks. Set Drill Cool HEX, 2-3rd level conexes. Wire imersion heaters in wtr storage. Work on 480 trans. Install platform access steps. Install handrail on deck stairways. Installing com.systems in Drilling office unit. Repair shipping damage on Tioga heater.
18:00:00	24:00:00	6.00		Cut hole in trip tank conex floor and install MGS "U" tube. Build cover for deck opening by MGS. Straighten BOP stack beneath rig floor by tensioning with come-alongs..
	Total	**24.00**	**Hours**	

Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (2)		DS-2H
Peak Light Plants (4)		Hot Ice
Heater (1)		DS-2H
Heater (5)		Hot Ice
Mattracks (2)		DS-2H
RT-85 w/Drill		
RT-85 w/Bus & Fuel Pup		Hot Ice
RT-85 Tractor Trailer		Hot Ice
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak Loader		Hot Ice
Dumpster - Colville		DS-2H
D6 Dozer		
Manlift (2)		Hot Ice
Peak 50T crane		Hot Ice
8 Bed Sleeper/ Generator		DS-2H
Engineering House		Hot Ice
150 Ton Crane		Hot Ice
Welding Machine		Hot Ice
Fairweather Shack		Hot Ice

Personnel In Field	KCC	DS-2H	Hot Ice
Anadarko Rep.			2
Anadarko HSE			
Alaska Clean Seas			1
Catco		6	
Global Catering		3	
Doyon Security	2		
Duane Miller			
Environmental	1		
Medic			1
Nana Dynatec		2	9
Peak Loader/Cat Op		3	
Peak Crane Crew		4	
Lounsbury			
Noble			2
Arctic Catering			6
AK Telecom			2
APC Visitors			
Precision Power			4
Drill Cool			2
VECO			4
GBR			4
PTS			0
SWACO			1
	3	18	38

Consumables	Potable	Grey	Fuel	Lake MO167
Previous Balance	6,400	3,000	3,005	5,000
Received	500		9,307	2,100
Days Usage	2,100	1,700	3,870	
Accumulated	35,600	6,000	95,634	7,100
On Hand	3,650	4,700	16,700	

59

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.
Peak loader has broken pin on Balderson head. Unable to install bucket until repaired.

Comments: **Medivac Arctic Catering employee with sever chest pains. ERA chopper from Platform to Deadhorse then continued to Anchorage on Alaska Airlines. Incident report and critique to be prepared.**

Date: 3/12/2003
Rpt. No. 44

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Continue rig up and construction of platform equipment.**

Accidents/Injuries: None reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None reported

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Change door swing on MGS unit. Reposition walkway between mud tanks and mud pumps. Install handrails
6:00:00	18:00:00	12.00		Set conex 373. Continue steel work. Set cross-beam over rig. Complete main stairway to platform. Power to reserve mud conex. Warm hydraulic system on rig, prep to raise mast. Peak serviced their equip. Noble installing DrillSmart systems. Continue working on Swaco and Drill Cool systems. Serviced MatTrack units. Work on #2 fuel hose reel/possibly bad nozzle.
18:00:00	24:00:00	6.00		Warm rig hydraulics. Raise mast. Prep to set mast stiff legs.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H	Hot Ice
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2
Catco Loader		DS-2H	Anadarko HSE			
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1
Peak Light Plants (2)		DS-2H	Catco		6	
Peak Light Plants (4)		Hot Ice	Global Catering		3	
Heater (1)		DS-2H	Doyon Security	2		
Heater (5)		Hot Ice	Duane Miller			
Mattracks (2)		DS-2H	Environmental	1		
RT-85 w/Drill			Medic			1
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		2	9
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		2	
RT-85 w/Water House		DS-2H	Peak Crane Crew		3	
RT-85 w/ 3500 gal Fuel		Hot Ice	Lounsbury			
Peak Loader		Hot Ice	Noble			2
Dumpster - Colville		DS-2H	Arctic Catering			6
D6 Dozer			AK Telecom			1
Manlift (2)		Hot Ice	APC Visitors			
Peak 50T crane		Hot Ice	Precision Power			4
8 Bed Sleeper/ Generator		DS-2H	Drill Cool			2
Engineering House		Hot Ice	VECO			4
150 Ton Crane		Hot Ice	GBR			4
Welding Machine		Hot Ice	PTS			0
Fairweather Shack		Hot Ice	SWACO			2
				3	16	38

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance				7,100
Received				2,000
Days Usage	1,616	1,700	1,400	
Accumulated	35,600	7,700	95,634	9,100
On Hand	4,000	4,000	10,757	

57

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.

Comments: **Consumable status is just for Hot Ice Platform starting 3/12/03.**
Water from Lake M0167 from opening on 3/9/03.
Fuel On Hand does not include individual component engine day tanks.

Date: 3/13/2003
Rpt. No. 45

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Continue rig up and construction of platform equipment.**

Accidents/Injuries: None reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: Est. 560 gallon lake water spill. Filter bonnet not properly tightened. 360 gallons contained in Bucket 21. Remaining 200 gallons on ice pad.

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Attached rig still legs on mast. Clear deck of some unused material. Stage new materials on deck.
6:00:00	18:00:00	12.00		Set BOP accumulator on deck and position beneath jack legs. Continue erecting steel. Continue Drill Smart, Swaco, & Schlumberger hookups. Install access stair north side of camp platform. Set Conexes 372 & 371. Clean up pot.water spill out of Bucket 21. Drilling crew change--Arriving crew did not arrive due to airport closure for high winds in Anchorage. Continue pulling 208 wiring and terminating at specific modules.
18:00:00	24:00:00	6.00		Dry watch equipment and facilities..All crews working days.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2	-22
Catco Loader		DS-2H	Anadarko HSE				Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	SW-17
Peak Light Plants (2)		DS-2H	Catco		6		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security	2			
Heater (5)		Hot Ice	Duane Miller				
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Drill			Medic			1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		1	5	
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		1		
RT-85 w/Water House		DS-2H	Peak Crane Crew		4		
RT-85 w/ 3500 gal Fuel		Hot Ice	Lounsbury				
Peak Loader		Hot Ice	Noble			2	
Dumpster - Colville		DS-2H	Arctic Catering			6	
D6 Dozer			AK Telecom			1	
Manlift (2)		Hot Ice	APC Visitors				
Peak 50T crane		Hot Ice	Precision Power			4	
8 Bed Sleeper/ Generator		DS-2H	Drill Cool			2	
Engineering House		Hot Ice	VECO			4	
150 Ton Crane		Hot Ice	GBR			3	
Welding Machine		Hot Ice	PTS			0	
Fairweather Shack		Hot Ice	SWACO			2	
				3	15	33	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance		8,000		9,100
Received		shp 3000		1,500
Days Usage	1,616	1,263	1,400	
Accumulated	35,600	8,963	95,634	10,600
On Hand	23,075	6,263	14,666	

Equipment Down: **51**

R-200 Fire Suppressant System On Single Generator Set.

Comments:

Date: 3/14/2003
Rpt. No. 46

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Continue rig up and construction of platform equipment.**

Accidents/Injuries: None reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None reported

From	To	Hours	Code	Activity Time Summary
0:00:00				Dry watch equipment and facilities..All crews working days.
	6:00:00	6.00		Set conexes 451 & 471. Set wireline logging unit and generator.
6:00:00				Continue erecting steel system. Continue with electrical installation. Repipe fuel systems in generator modules. Work on Swaco vac system and cuttings auger. mounting Drill Smart cameras. Surveyors shot level checks on deck & measured KB to GL of 26'. Thawed ice/snow and recovered 200 gal. wtr from Bucket 21. Completed north stairway on camp.
	18:00:00	12.00		
18:00:00				Dry watch equipment and facilities..All crews working days.
	24:00:00	6.00		
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2	22
Catco Loader		DS-2H	Anadarko HSE	2			Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	SW-6
Peak Light Plants (2)		DS-2H	Catco		6		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security	2			
Heater (5)		Hot Ice	Duane Miller				
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Drill			Medic			1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		2	8	
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/Water House		DS-2H	Peak Crane Crew		4		
RT-85 w/ 3500 gal Fuel		Hot Ice	Alaska Dream			5	
Peak Loader		Hot Ice	Noble			2	
Dumpster - Colville		DS-2H	Arctic Catering			6	
D6 Dozer			AK Telecom			1	
Manlift (2)		Hot Ice	APC Visitors			1	
Peak 50T crane		Hot Ice	Precision Power			4	
8 Bed Sleeper/ Generator		DS-2H	Drill Cool			0	
Engineering House		Hot Ice	VECO			4	
150 Ton Crane		Hot Ice	GBR			3	
Welding Machine		Hot Ice	PTS			0	
Fairweather Shack		Hot Ice	SWACO			1	
				5	17	39	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	24,641	6,263	14,666	10,600
Received	1,900	shp 3000		3,000
Days Usage	1,803	1,805	720	
Accumulated	35,600	10,768	96,354	13,600
On Hand	24,738	5,068	13,946	

61

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.

Comments: **Loundsbury crew shot levels on deck/legs. Measured 26' KB to Ground. Released two Peak light towers: R-647 & R-865.**

Date: 3/15/2003
Rpt. No. 47

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: **Continue rig up and construction of platform equipment.**

Accidents/Injuries: None reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None reported

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Dry watch equipment and facilities..All crews working days.
6:00:00	18:00:00	12.00		Continue erecting steel. Assemble steel for mast cover base beams and layout for winterizing construction. Work on 480 transformer. Continue rigging up Swaco systems. Work on Tioga elec. hookup. Begin assembly of winterizing system. Work on Drill Smart hookup. Construct secondary containment at grey water transfer point. Remove leaking outrigger on 150-ton crane and ship to Peak base for repairs. Connect mud pump exhaust pipes. Complete heating & pumping lake water out of #21 bucket. Closed out with 1/2" water remaining.
18:00:00	24:00:00	6.00		Dry watch equipment and facilities..All crews working days.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2	
Catco Loader		DS-2H	Anadarko HSE	2			**Wind**
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	
Peak Light Plants (2)		DS-2H	Catco		6		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security	2			
Heater (5)		Hot Ice	Duane Miller				
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Drill			Medic			1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		2	8	
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/Water House		DS-2H	Peak Crane Crew		4		
RT-85 w/ 3500 gal Fuel		Hot Ice	Alaska Dream			5	
Peak Loader		Hot Ice	Noble			1	
Dumpster - Colville		DS-2H	Arctic Catering			6	
D6 Dozer			AK Telecom			1	
Manlift (2)		Hot Ice	APC Visitors			1	
Peak 50T crane		Hot Ice	Precision Power			4	
8 Bed Sleeper/ Generator		DS-2H	Drill Cool			0	
Engineering House		Hot Ice	VECO			4	
150 Ton Crane		Hot Ice	GBR			3	
Welding Machine		Hot Ice	PTS			0	
Fairweather Shack		Hot Ice	SWACO			1	
				5	17	38	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	2,900	6,263	13,946	13,600
Received	1,600	shp 3000		3,000
Days Usage	843	843	720	
Accumulated	36,443	11,611	96,354	16,600
On Hand	3,657	2,911	13,093	

Equipment Down: **60**

R-200 Fire Suppressant System On Single Generator Set.

Comments:

Date: 3/16/2003
Rpt. No. 48

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: Continue rig up and construction of platform equipment.

Accidents/Injuries: None reported

Safety: Pre-job safety meetings at the start of each tour. Scheduled fire drill at 1300 hrs., postponed same due to malfunction of alarm panel. Problem resolved and alarm panel tested at 1900 hours.

Environmental Incidents: Grey water spill during transfer. Outlet pipe from grey water unit broke. All contained in secondary containment on ice pad. Est. 30 gallons spilled. Cleaned up.

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Dry watch equipment and facilities..All crews working days.
6:00:00				Move Generator Day Tank To Allow Access To Mandoor on D/S Unit Continue erecting steel. Assemble pipe rack area roof sections. Shut down power & changed locknuts on #1 & #2 Generators. Pulled 480 cable to drill cool units. Completed mud pump exhaust. Replaced outrigger on 150T crane & resumed crane ops at 1330 hrs. Removed Wire Line Logging Unit & Generator From Platform. Continue with mud piping systems. Sealed containment at mud pump door. Received vaporizer parts and place vaporizer on line. Remove Tower Support Beams from structure and reassemble on ground. Commence assembly of lower tower ring.
	18:00:00	12.00		
18:00:00	24:00:00	6.00		Dry watch equipment and facilities..All crews working days.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2	-12
Catco Loader		DS-2H	Anadarko HSE				Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	9-NE
Peak Light Plants (2)		DS-2H	Catco		6		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security	2			
Heater (5)		Hot Ice	Duane Miller				
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Drill			Medic			1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		2	8	
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/Water House		DS-2H	Peak Crane Crew		4		
RT-85 w/ 3500 gal Fuel		Hot Ice	Alaska Dream			5	
Peak Loader		Hot Ice	Noble			1	
Dumpster - Colville		DS-2H	Arctic Catering			6	
D6 Dozer			AK Telecom			1	
Manlift (2)		Hot Ice	APC Visitors				
Peak 50T crane		Hot Ice	Precision Power			4	
8 Bed Sleeper/ Generator		DS-2H	Drill Cool				
Engineering House		Hot Ice	VECO			4	
150 Ton Crane		Hot Ice	GBR			3	
Welding Machine		Hot Ice	PTS				
Fairweather Shack		Hot Ice	SWACO			1	
				3	17	37	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance			13,093	16,600
Received	900	shp 3000		3,000
Days Usage	1,389	1,389	1,933	
Accumulated	38,639	13,000	98,287	19,600
On Hand	3,750	4,000	11,160	

Equipment Down: 57

R-200 Fire Suppressant System On Single Generator Set.

Comments:

150T Crane Out of Service from 1600 hours 3/15 until 1330 hours 3/16 due to broken hydraulic line in outrigger. Removed outrigger, sent to Peak shop in Deadhorse where it was repaired and returned to worksite where it was itstalled. Letters of accommodation and awards presented to personnel involved in removal/installation of outrigger without one drop of hydraulic fluid being spilled.

Date: 3/17/2003
Rpt. No. 49

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: Continue rig up and construction of platform equipment.

Accidents/Injuries: Foreign body in eye-medical treatment. VECO ironworker. Removed particle & rust ring. Returned to work.

Safety: Pre-job safety meetings at the start of each tour. Two heater trunk lines caught fire from cutting slag falling from work above. Immediately extinguished fire. Cleaned up/minor damage.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Dry watch equipment and facilities..All crews working days.
6:00:00	18:00:00	12.00		Continue erecting steel; hammering up all bolts, weld bridge crane beam to main outboard support beam, erect end walls. Assembling winterizing system; pipe shed roof ready to set. Pull 408 cable, work on terminations for mud solids equip. Est. 60% on elec. Swaco: work on vac system; hoses to chiller; trip tank lines. Est. 85% compl. Mounting Gai-tronics units & Drill Smart equip. Welders working on steel system; mud lines, stairways. Start rig & raised monkey board. Prep work on flowline. Place safety signage. Relocate radio antennas at 2H- radio com. significantly improved.
18:00:00	24:00:00	6.00		Dry watch equipment and facilities..All crews working days.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2	-13
Catco Loader		DS-2H	Anadarko HSE				Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	NE- 2
Peak Light Plants (2)		DS-2H	Catco		6		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security	2			
Heater (5)		Hot Ice	Duane Miller				
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Drill			Medic			1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		2	8	
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/Water House		DS-2H	Peak Crane Crew		4		
RT-85 w/ 3500 gal Fuel		Hot Ice	Alaska Dream			5	
Peak Loader		Hot Ice	Noble			1	
Dumpster - Colville		DS-2H	Arctic Catering			6	
D6 Dozer			AK Telecom			1	
Manlift (2)		Hot Ice	APC Visitors				
Peak 50T crane		Hot Ice	Precision Power			4	
8 Bed Sleeper/ Generator		DS-2H	Drill Cool				
Engineering House		Hot Ice	VECO			4	
150 Ton Crane		Hot Ice	GBR			4	
Welding Machine		Hot Ice	PTS				
Fairweather Shack		Hot Ice	SWACO			1	
				3	17	38	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance		4,000	11,160	19,600
Received	1,400	shp 3000	1,206	3,000
Days Usage	1,277	1,277	1,450	
Accumulated	38,639	13,000	99,737	22,600
On Hand	4,350	2,823	10,916	

2H=5600

Equipment Down: 58

R-200 Fire Suppressant System On Single Generator Set.

Comments: Vaporizor operating.

Date: 3/18/2003
Rpt. No. 50

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: Continue rig up and construction of platform equipment.

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: One quart glycol spill on plaform deck. Fully contained & cleaned up.
Drip leak from radiator drain valve-repaired.

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Dry watch equipment and facilities..All crews working days.
6:00:00	18:00:00	12.00		Completed pulling 480 cable and continue terminations. Assembling mast sock frame. Checked placement of west end roof covers. Work on flowline/Mircomotion installation. Prep to set 9 5/8" csg pup for cellar seal. Continue work on Swaco, pulling and making up hoses. Work on stairways and handrails. Receive 50' crane boom extension. Work on end walls and east end roof section.
18:00:00	24:00:00	6.00		Dry watch equipment and facilities..All crews working days.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2	-21
Catco Loader		DS-2H	Anadarko HSE				Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	SW-5
Peak Light Plants (2)		DS-2H	Catco		6		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security	2			
Heater (5)		Hot Ice	Duane Miller				
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Drill			Medic			1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		2	9	
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/Water House		DS-2H	Peak Crane Crew		4		
RT-85 w/ 3500 gal Fuel		Hot Ice	Alaska Dream			5	
Peak Loader		Hot Ice	Noble			1	
Dumpster - Colville		DS-2H	Arctic Catering			4	
D6 Dozer			AK Telecom			1	
Manlift (2)		Hot Ice	APC Visitors				
Peak 50T crane		Hot Ice	Precision Power			4	
8 Bed Sleeper/ Generator		DS-2H	Drill Cool				
Engineering House		Hot Ice	VECO			4	
150 Ton Crane		Hot Ice	GBR			4	
Welding Machine		Hot Ice	PASON			1	
Fairweather Shack		Hot Ice	SWACO			1	
				3	17	38	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance				22,600
Received	1,250		-	3,000
Days Usage	1,406	1,406	1,450	
Accumulated	40,045	13,000	101,187	25,600
On Hand	2,100	2,100	7,313	

2H=4900

58

Equipment Down:
R-200 Fire Suppressant System On Single Generator Set.

Comments: Returned 2 light towers and one heater to Peak.
Nabors Canada toured platform.
Arctic Catering crew change--one person short.

Date: 3/19/2003
Rpt. No. 51

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: Continue rig up and construction of platform equipment.

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.
First aid incident, foreign particle in welder's helper eye. He was wearing safety glasses and face shield. Goggles are now being used with face shields when cutting aluminum.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Dry watch equipment and facilities..All crews working days.
6:00:00	18:00:00	12.00		Erect derrick sock framework. Continue rattling bolts on conex connectors. Welders working on flowline, installing Micro Motion meter, putting up hangers for communiction system and installing walkways. Add 50' boom section to 150 ton crane. Set and torqued up second 9 5/8" conductor. Started one Tioga heater and put heat on the second.Run 480 volt cable to reserve mud pump and waste mud pump # 1. Run 208 volt cable to waste mud pump unit. Completed power to mud solids unit..
18:00:00	24:00:00	6.00		Dry watch equipment and facilities..All crews working days.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2	-26
Catco Loader		DS-2H	Anadarko HSE				Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	WSW 4
Peak Light Plants (2)		DS-2H	Catco		6		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security	2			
Heater (5)		Hot Ice	Duane Miller				
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Drill			Medic			1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		2	9	
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/Water House		DS-2H	Peak Crane Crew		4		
RT-85 w/ 3500 gal Fuel		Hot Ice	Alaska Dream			5	
Peak Loader		Hot Ice	Noble			1	
Dumpster - Colville		DS-2H	Arctic Catering			5	
D6 Dozer			AK Telecom			1	
Manlift (2)		Hot Ice	APC Visitors				
Peak 50T crane		Hot Ice	Precision Power			4	
8 Bed Sleeper/ Generator		DS-2H	Drill Cool				
Engineering House		Hot Ice	VECO			4	
150 Ton Crane		Hot Ice	GBR		2	4	
Welding Machine		Hot Ice	PASON			1	
Fairweather Shack		Hot Ice	SWACO			1	
				3	19	39	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance			7,313	25,600
Received	1,250		-	3,000
Days Usage	1,150	1,036	1,615	
Accumulated	40,045	13,000	102,802	28,600
On Hand	2,100	2,100	5,698	

2H=4900

Equipment Down: 61

R-200 Fire Suppressant System On Single Generator Set.

Comments: Grey water ph is 6.8. Vaporizer rate between 800 and 1100 gal. per day.

Anadarko Petroleum Corporation

Hot Ice Project
Mobilization & Installation Cost

Date: March 20, 2003 | **$ 98,866 Daily Total** | **$ 3,386,165 Accumulated Total** | **Report #: 52**

Item	Description	Vendor	Information	QTY	RATE	HRS	Daily Cost
1	Hot Ice Drilling Supt.	Contract	1250 per day	2	1250		2,500
2	ACS Tech Fees	ACS	1000 per day	1	1000		1,000
3	EHS Advisor	Hoefler	950 per day	1	950		950
4	Security	Doyon	600 per day	2	600		1,200
5	Soils Engineers	DMA	1200 per day	0	1200		-
6	Medic	Fairweather	1000 per day	1	1000		1,000
7	Surveyors	Lounsbury	1000 per day	0	1000		-
8	Lodging at Kupark	CPAI	100 per day	3	100		300
9	Company Pickups	Fairweather	100 per day	2	100		200
10	Mobilization/Demobilization	Catco	34 Bed Camp	1			
11	Mobilization/Demobilization	Denali	Texoma 600 Drill	1			
12	Mobilization	Catco	Out Riggers For RD-85 With Drill	1			
13	Mobilization	Catco	Mob-Demob of Kobelco excavator	0			
14	Mobilization	Catco	Gin Poles for RD-85 tractor	0			
15	Construction Base Camp	Catco	34 Bed Camp @ 3,250 Per Day	1	3250		3,250
16	RD-85 with Denali Drill rig	Catco	200 per hour / minimum 4 hour day	0	200		-
17	RD-85 with Bus & Fuel Pup	Catco	200 per hour / minimum 4 hour day	0	200	4	-
18	RD-105 Tractor & Trailer	Catco	400 per hour / minimum 4 hour day	1	400	12	4,800
19	RD-85 w/3000 gal Water House	Catco	200 per hour / minimum 4 hour day	1	200	4	800
20	RD-85 with 3000 gal Fuel Tank	Catco	200 per hour / minimum 4 hour day	1	200	4	800
21	Base Camp Loader	Catco	966 or Equivelent	1	330		330
22	Pick-Up	Catco	100 per day	1	100		100
23	Foreman	Catco	61 per hour	1	61	12	732
24	Operator	Catco	59 per hour	4	59	12	2,832
25	Mechanic	Catco	On Site Mechanic	1	59	12	708
26	Winterizing Const.	Ak. Dream	Field installation@$850/man/day	7	4250		29,750
27	Drill Smart	Noble	Daily rate @ $3000	1	3000	1	3,000
28	Mud Chiller	Drill Cool	Labor @ 500/d	0	500	1	-
29	Swaco Solids System	Swaco	Daily rate @ $4230 incl labor	1	4230	1	4,230
30	Mattracks	Dynatec	Ford F-350 with tracks	2	208		416
31	Mattrack Drivers	Dynatec	350 per day	2	350		700
32	Light Tower	Peak	99 per day	1	99		99
33	Indirect Heater	Peak	300 per day	3	300		900
34	Security/Engineering House	Fairweather	150 per day inclusive of gen sets	0	150		-
35	50T Crane (Hot Ice)	Peak		1	1150		1,150
36	150 Ton Crane	Peak		1	314	12	3,768
37	82 Ton Crane (DS-2H)	Peak		0	176		-
38	Crane Operator	Peak		2	63	12	1,512
39	Crane Oiler/Rigger	Peak		2	46	12	1,104
40	Iron Work	VECO		3	50	12	1,800
41	Field Welders	GBR		5	80	12	4,800
42	Trucking	Peak		0	750		-
43	Dynatec crew	Dynatec		9	39.44	12	4,260
44	Trucking	Carlile		2	750		1,500
45	Loader - Hot Ice	Peak	110 per hr w/ operator	2	110	12	2,640
46	Man Lift	Peak	300 per day	3	300		900
47	Dumpster	Colville		1	100		100
48	PVT System	Pason	Est. daily rate for labor	2	800	1	1,600
49	Welding Machine	Airport Rental		1	45		45
50	Air compressor / Jack Hammer	Airport Rental		1	190		190
51	Air Fares	Lower 48	1250 per person Lower Forty Eight	2	1250		2,500
52	Air Fares	Alaska	600/person Anch/Prudhoe Bay	3	600		1,800
53	Grey Water Disposal	CPAI	?	0	1000		-
54	D6 Dozer	Peak	150 Per Hour w/ operator	0	150		-
55	Potable Water	CPAI	?	0	1000		-
56	Fuel	Nana	2.00 per gallon	4300	2		8,600

Date: 3/21/2003
Rpt. No. 53

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: Continue rig up and construction of platform equipment.

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Dry watch equipment and facilities..All crews working days.
6:00:00	12:00:00	6.00		Safety stand down and safety meeting with all personnel and APC HSE Co-ordinator.
12:00:00	18:00:00	6.00		Move derrick sock structure on base plate to orient man door to the south. Attach fabric to derrick sock structure.Work on mount for Drill-Smart an pit volume totalizer. Work on mud line for Micromotion flow meter. Work on stairs/walkway for company man's office. Continue bolting together conexes. Swaco @ 95%; electrical at 90%; welding at 60%.
18:00:00	24:00:00	6.00		Dry watch equipment and facilities..All crews working days.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC/other	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2	
Catco Loader		DS-2H	Anadarko HSE				**Wind**
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	
Peak Light Plants (2)		DS-2H	Catco		6		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security		2		
Heater (5)		Hot Ice	Schlumberger/Core	2			
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Drill			Medic			1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		2	8	
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/Water House		DS-2H	Peak Crane Crew		4		
RT-85 w/ 3500 gal Fuel		Hot Ice	Alaska Dream			5	
Peak Loader		Hot Ice	Noble			1	
Dumpster - Colville		DS-2H	Arctic Catering			5	
D6 Dozer			CorPro/PTS	1	5	1	
Manlift (2)		Hot Ice	APC Visitors			1	
Peak 50T crane		Hot Ice	Precision Power			3	
8 Bed Sleeper/ Generator		DS-2H	Drill Cool				
Engineering House		Hot Ice	VECO			3	
150 Ton Crane		Hot Ice	GBR		2	5	
Welding Machine		Hot Ice	PASON			1	
Fairweather Shack		Hot Ice	SWACO			1	
				4	26	38	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	3,689	4,116	6,124	31,600
Received	1,701	vap 900	3,124	3,000
Days Usage	1,437	1,700	799	
Accumulated	41,482	14,700	103,601	34,600
On Hand	4,388	4,900	8,449	

Equipment Down: **68**

2H=3400

Comments: **Safety stand-down from 0600 to 1200 with focused safety topics presented.**
Preparing to break tour on 3/22. Adding night crane crew and moving one welding crew to nights.
Doyon Security moving to 2H camp.

Date: 3/22/2003
Rpt. No. 54

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: Continue rig up and construction of platform equipment.

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Dry watch equipment and facilities.
6:00:00				Worked on flowline
				Continue to work on Derrick Sock
				Assisted in lab rig-up
				Back hauling excess equipment & material to 2-H
				Set West end roof section
				Set Westside winterization between rig and Conex
	18:00:00	12.00		Heat trace raw water tank lines
18:00:00				Hold pre-job safety meeting. Continue working on heat ducting.
				Set in steps beside beaver slide on drillers side.
				Set in steps on east side of rig.
	24:00:00	6.00		Welder working on flow line valve.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC/other	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2	-26 F
Catco Loader		DS-2H	Anadarko HSE				Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	WSW 11
Peak Light Plants (2)		DS-2H	Catco		6		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security		2		
Heater (5)		Hot Ice	Schlumberger/Core	1	2		
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Drill			Medic			1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		2	9	
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/Water House		DS-2H	Peak Crane Crew		6		
RT-85 w/ 3500 gal Fuel		Hot Ice	Alaska Dream			5	
Peak Loader		Hot Ice	Noble			1	
Dumpster - Colville		DS-2H	Arctic Catering			5	
D6 Dozer			CorPro/PTS		5		
Manlift (2)		Hot Ice	APC Visitors			2	
Peak 50T crane		Hot Ice	Precision Power			2	
8 Bed Sleeper/ Generator		DS-2H	Drill Cool			2	
Engineering House		Hot Ice	VECO			3	
150 Ton Crane		Hot Ice	GBR		2	4	
Welding Machine		Hot Ice	PASON			1	
Fairweather Shack		Hot Ice	SWACO			1	
				2	30	39	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	4,388	4,900	8,449	34,600
Received	1,450	vap 900	-	3,000
Days Usage	1,251	1,700	1,242	
Accumulated	42,932	14,700	103,601	37,600
On Hand	4,388	5,096	7,207	

2H=7400

Equipment Down: 71

Comments: Broke tour today. Working night drilling crew, one crane crew, and one welding crew.

Anadarko Petroleum Corporation

Hot Ice Project
Mobilization & Installation Cost

Date: March 23, 2003 | **$ 84,058 Daily Total** | **Report #: 55**
$ 3,631,055 Accumulated Total

Item	Description	Vendor	Information	QTY	RATE	HRS	Daily Cost
1	Hot Ice Drilling Supt.	Contract	1250 per day	2	1250		2,500
2	ACS Tech Fees	ACS	1000 per day	1	1000		1,000
3	EHS Advisor	Hoefler	950 per day	1	950		950
4	Security	Doyon	600 per day	2	600		1,200
5	Soils Engineers	DMA	1200 per day	0	1200		-
6	Medic	Fairweather	1000 per day	1	1000		1,000
7	Surveyors	Lounsbury	1000 per day	0	1000		-
8	Lodging at other camps	KCC/PBH	100 per day	2	100		200
9	Company Pickups	Fairweather	100 per day	2	100		200
10	Mobilization/Demobilization	Catco	34 Bed Camp	1			
11	Mobilization/Demobilization	Denali	Texoma 600 Drill	1			
12	Mobilization	Catco	Out Riggers For RD-85 With Drill	1			
13	Mobilization	Catco	Mob-Demob of Kobelco excavator	0			
14	Mobilization	Catco	Gin Poles for RD-85 tractor	0			
15	Construction Base Camp	Catco	34 Bed Camp @ 3,250 Per Day	1	3250		3,250
16	RD-85 with Denali Drill rig	Catco	200 per hour / minimum 4 hour day	0	200		-
17	RD-85 with Bus & Fuel Pup	Catco	200 per hour / minimum 4 hour day	0	200	4	-
18	RD-105 Tractor & Trailer	Catco	400 per hour / minimum 4 hour day	1	400	12	4,800
19	RD-85 w/3000 gal Water House	Catco	200 per hour / minimum 4 hour day	1	200	4	800
20	RD-85 with 3000 gal Fuel Tank	Catco	200 per hour / minimum 4 hour day	1	200	4	800
21	Base Camp Loader	Catco	966 or Equivelent	1	330		330
22	Pick-Up	Catco	100 per day	1	100		100
23	Foreman	Catco	61 per hour	1	61	12	732
24	Operator	Catco	59 per hour	4	59	12	2,832
25	Mechanic	Catco	On Site Mechanic	1	59	12	708
26	Winterizing Const.	Ak. Dream	Field installation@$850/man/day	5	850	1	4,250
27	Drill Smart	Noble	Daily rate @ $3000	1	3000	1	3,000
28	Mud Chiller	Drill Cool	Labor @ 500/d	2	500	1	1,000
29	Swaco Solids System	Swaco	Daily rate @ $4230 incl labor	1	4230	1	4,230
30	Mattracks	Dynatec	Ford F-350 with tracks	2	208		416
31	Mattrack Drivers	Dynatec	350 per day	2	350		700
32	Light Tower	Peak	99 per day	1	99		99
33	Indirect Heater	Peak	300 per day	3	300		900
34	Security/Engineering House	Fairweather	150 per day inclusive of gen sets	0	150		-
35	50T Crane (Hot Ice)	Peak		1	1150		1,150
36	150 Ton Crane	Peak		1	314	12	3,768
37	82 Ton Crane (DS-2H)	Peak		0	176		-
38	Crane Operator	Peak		2	63	12	1,512
39	Crane Oiler/Rigger	Peak		3	46	12	1,656
40	Iron Work	VECO		3	50	12	1,800
41	Field Welders	GBR		6	80	12	5,760
42	Trucking	Peak		0	750		-
43	Dynatec crew	Dynatec		9	39.44	12	4,260
44	Trucking	Carlile		2	750		1,500
45	Loader - Hot Ice	Peak	110 per hr w/ operator	1	110	12	1,320
46	Man Lift	Peak	300 per day	3	300		900
47	Dumpster	Colville		1	100		100
48	PVT System	Pason	Est. daily rate for labor	1	800	1	800
49	Welding Machine	Airport Rental		1	45		45
50	Air compressor / Jack Hammer	Airport Rental		1	190		190
51	Air Fares	Lower 48	1250 per person Lower Forty Eight	2	1250		2,500
52	Air Fares	Alaska	600/person Anch/Prudhoe Bay	3	600		1,800
53	Grey Water Disposal	CPAI	?	0	1000		-
54	D6 Dozer	Peak	150 Per Hour w/ operator	0	150		-
55	Potable Water	CPAI	?	0	1000		-
56	Fuel	Nana	2.00 per gallon	9000	2		18,000

Date: 3/24/2003
Rpt. No. 56

Hot Ice Project
Daily Mobilization & Installation Report

Present Operation: Continue rig up and construction of platform equipment.

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour. Conducted camp fire drill at 1900 hrs. Headcount revealed 3 people short at muster. All were working and did not hear alarm. Although advised of the drill, were instructed to respond only if they heard the alarm/announcement

Environmental Incidents: 10 gallon lake water spill when putting water into pit system. Contained on deck. 1 gallon heat exchange fluid while transferring to Drill Cool unit. Valve not fully seated. All contained within unit. Cleaned up.

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Ship grey water to 2H pad. Receive one roligon with lab. equipment and new beams for sock base from 2H. Set x-ray equipment on the platform, cover and heat. Welder working on handrails and walkways.
6:00:00	18:00:00	12.00		Hold PJSM with day crew.Drill holes in beams for derrick sock base. Set beams in on conexes for derrick sock.Set derrick sock and bolt in place. Set top on derrick sock and secure. Pump one load of warm lake water into pits. Tranfer Drill cool fluid from totes to unit. Prepare downhole coring tools. Rig up core laydown equipment. Install longer sandline for core retrieval. Completed flowline micromotion replacement spool. Brace mudline micromotion unit.
18:00:00	24:00:00	6.00		Hold PJSM with night crew. Install block 90 on HCR valve. Hold fire drill for all personnel. Hook up 5000 psi hose to block 90 on HCR valve. Welder working on mounts for crane wire cable.
	Total	**18.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC/other	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			2	-24
Catco Loader		DS-2H	Anadarko HSE				Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	calm
Peak Light Plants (2)		DS-2H	Catco		6		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security		2		
Heater (5)		Hot Ice	Schlumberger/Core		2	1	
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Drill			Medic			1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		2	9	
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/Water House		DS-2H	Peak Crane Crew		6		
RT-85 w/ 3500 gal Fuel		Hot Ice	Alaska Dream			5	
Peak Loader		Hot Ice	Noble			1	
Dumpster - Colville		DS-2H	Arctic Catering			5	
D6 Dozer			CorPro/PTS		5		
Manlift (2)		Hot Ice	MI Drilling Fluids			1	
Peak 50T crane		Hot Ice	Precision Power			2	
8 Bed Sleeper/ Generator		DS-2H	Drill Cool			2	
Engineering House		Hot Ice	Control Craft			1	
150 Ton Crane		Hot Ice	GBR		2	4	
Welding Machine		Hot Ice	PASON			1	
Fairweather Shack		Hot Ice	SWACO			2	
				1	30	38	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	4,388	5,800	8,911	37,600
Received	1,224	shp.3000	-	3,000
Days Usage	1,592	1,120	1,313	
Accumulated	44,524	16,696	103,601	40,600
On Hand	4,515	3,920	7,598	

Equipment Down: Vaporizor down with control problems

69

2H 6555

Comments: Prepare to rig down 150-ton crane.
VECO iron workers released.
Adding 4 roustabout labor 3/25 for rigup.

Date: 3/25/2003
Rpt. No. 57

Hot Ice Project
Daily Mobilization & Installation Repor

Present Operation: Continue rig up and construction of platform equipment.

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Pick up 5000 psi hose and hook up to check valve for kill line. Work on mounts for cable on electric crane. Put up handrails. Set Koomey lines on deck and heat.
6:00:00	18:00:00	12.00		Build table and install for geology trailer.Install sheave on sandline to clear conex. Alaska Dreams covering openings at east side of derrick sock. Install mounts for electric crane cable on I beams. Lay ply wood on deck for lab techs. Moved X-ray machine around platform with crane. Installed X-ray machine in lab. Rig down 150 ton crane and moving crane components to 2H by rolligon. Mechanic put new seals in fuel transfer pump. Swaco tested all of the mud equipment, no leaks everything running well.
18:00:00	24:00:00	6.00		Install cable for electric line on pipe shed crane. Move excess clips from pipe shed. Welder installing angle iron between shaker house and catwalk, installing handrail on stairs to rig floor.
	Total	**18.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC/other	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			3	-28
Catco Loader		DS-2H	Anadarko HSE	0			Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	5 ssw
Peak Light Plants (2)		DS-2H	Catco		6		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security		2		
Heater (5)		Hot Ice	Schlumberger/Core		0	3	-2
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Drill			Medic			1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		2	9	
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/Water House		DS-2H	Peak Crane Crew		6		
RT-85 w/ 3500 gal Fuel		Hot Ice	Alaska Dream			2	-2
Peak Loader		Hot Ice	Noble			1	
Dumpster - Colville		DS-2H	Arctic Catering			5	
D6 Dozer			CorPro/PTS		3	2	5
Manlift (2)		Hot Ice	MI Drilling Fluids			1	
Peak 50T crane		Hot Ice	Precision Power			2	
8 Bed Sleeper/ Generator		DS-2H	Drill Cool			2	-1
Engineering House		Hot Ice	Control Craft			1	-1
150 Ton Crane		Hot Ice	GBR		2	4	-4
Welding Machine		Hot Ice	PASON			1	-1
Fairweather Shack		Hot Ice	SWACO			2	-1
		Hot Ice	Veco		4		
				1	30	40	-7

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	4,515	3,920	7,598	40,600
Received	1,224		-	3,000
Days Usage	1,758	1,666	1,527	
Accumulated	44,524	16,696	103,601	43,600
On Hand	3,816	5,586	6,071	

2H 5750

Equipment Down: 71
Vaporizor down with control problems

Comments: **150 ton crane rigged down, being shipped to 2H**
Rig enclosed except for west pipe shed doors.

Date: 3/26/2003
Rpt. No. 58

Hot Ice Project
Daily Mobilization & Installation Repor

Present Operation: Continue rig up and construction of platform equipment.

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.
Safety Orientation for visitors

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Complete heater duct work to pipe shed, chipped ice from deck,cleared pipe shed, installed hand rail adjacent to beaver slide, welded deck clips mounted choke panel
6:00:00	18:00:00	12.00		Hook up kill line. Install seal on secondary conductor. Started rig and free hydraulic system. Continue housekeeping for visitors. Uncrated and placed AQMS in drilling control room. Wired and tested overhead crane, Mix KCL water. Back load and haul excess equipment to 2H pad. (see manifest.) Alaska Dreams sealing mast enclosures openings. Install ACS platform and ladder.
18:00:00	24:00:00	6.00		Move welding machines out of pipe shed. Set GBR welder on the platform. Aircraft Rentals machine will be returned to Deadhorse. Move Tioga heater to south side of pipe shed. Clean snow from pipe rack area. Install gate in handrail in front of pipe shed. Assemble pipe rack out of 3" x 12"s.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC/other	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.	9	1	4	-23
Catco Loader		DS-2H	Anadarko HSE	0			Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	calm
Peak Light Plants (2)		DS-2H	Catco		6		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security		2		
Heater (5)		Hot Ice	Schlumberger/Core		0	3	
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Drill			Medic			1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		2	9	
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/Water House		DS-2H	Peak Crane Crew		6		
RT-85 w/ 3500 gal Fuel		Hot Ice	Alaska Dream			2	
Peak Loader		Hot Ice	Noble			1	
Dumpster - Colville		DS-2H	Arctic Catering			5	
D6 Dozer			CorPro/PTS		3	2	
Manlift (2)		Hot Ice	MI Drilling Fluids			1	
Peak 50T crane		Hot Ice	Precision Power			2	
8 Bed Sleeper/ Generator		DS-2H	Drill Cool			2	
Engineering House		Hot Ice	Control Craft			1	
150 Ton Crane		Hot Ice	GBR		2	4	
Welding Machine		Hot Ice	PASON				
Fairweather Shack		Hot Ice	SWACO			2	
		Hot Ice	Veco		4		
				10	31	40	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	4,515	3,920	6,071	43,600
Received	1,224		2,000	3,000
Days Usage	1,758	1,575	1,610	
Accumulated	44,524	18,271	105,601	46,600
On Hand	3,752	5,586	7,313	

Equipment Down: 81

Vaporizor down with control problems

Transferred 6,500 gals GW to mud pits.

2H 5350

Comments:
Loaded 75 Joints 5" (134) Core Rod Into Pipe Rack Area.

Date: 3/27/2003
Rpt. No. 59

Hot Ice Project
Daily Mobilization & Installation Repor

Present Operation: **Continue rig up and construction of platform equipment.**

Accidents/Injuries: **None Reported**

Safety: **Pre-job safety meetings at the start of each tour.**

Environmental Incidents: **Spill one quart of KCL water onto ice from shaker house. Clean and dispose of same.**

0

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Finish installing catwalk and cut and isntall wood for pipe racks. Pick up 75 joints of 5" CHD-134 drill rod. Set core pusher in pipe shed.Set walkways on east side of platform. Welder and helper worked on Micromotion flow line sensor. Control Craft and electrician worked on M/M wiring. Mechanic, helpers and electrician worked on AQMS installation. 35%. Install ply wood decking around APC lab. Install mud standpipe bleed piping.Install mud bucket piping. Load two loads of materials and ship to 2H pad. Electrician pulled and connected electricity to waste mud conex.
6:00:00	18:00:00	12.00		Welder secured free standing stair toDynatec warehouse.Recieve and install Pipe shed doors. ABS on board conducting certification survey. Install five quick release escape ladders.
18:00:00	24:00:00	6.00		Finish putting up pipe shed doors.Install block 90s and spools in choke line.(5000#) Check x-seal. Hook up Dowell air compressor to rig air. Put heat on accumulator.
	Total	24.00	**Hours**	

Equipment		Location	Personnel In Field	KCC/other	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.		1	4	-25
Catco Loader		DS-2H	Ak Telecom	0	2		Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	SE 9
Peak Light Plants (2)		DS-2H	Catco		5		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security		2		
Heater (5)		Hot Ice	Schlumberger/Core		0	3	
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Drill			Medic			1	
RT-85 w/Bus & Fuel Pup		Hot Ice	Nana Dynatec		2	9	
RT-85 Tractor Trailer		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/Water House		DS-2H	Peak Crane Crew		2		
RT-85 w/ 3500 gal Fuel		Hot Ice	Alaska Dream			2	
Peak Loader		Hot Ice	Noble/ABS		1	1	
Dumpster - Colville		DS-2H	Arctic Catering			5	
D6 Dozer			CorPro/PTS		4	2	
Manlift (2)		Hot Ice	MI Drilling Fluids			1	
Peak 50T crane		Hot Ice	Precision Power			2	
8 Bed Sleeper/ Generator		DS-2H	Drill Cool			2	
Engineering House		Hot Ice	Control Craft			1	
150 Ton Crane		Hot Ice	GBR		2	4	
Welding Machine		Hot Ice	PASON		1		
Fairweather Shack		Hot Ice	SWACO			2	
		Hot Ice	Veco		4		
				1	31	40	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	3,752	5,586	7,313	46,600
Received			1,278	3,000
Days Usage			2,573	
Accumulated	44,524	20,427	105,601	49,600
On Hand	3,816	2,156	8,591	

2H 8105

Equipment Down: 72

Vaporizor down with control problems

Comments:

Date: 3/28/2003
Rpt. No. 60

Hot Ice Project
Daily Mobilization & Installation Repor

Present Operation: Continue rig up and construction of platform equipment.

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents:

0

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Finish hooking up choke line.Rig up mud bucket line. Set remote Koomey panel on rig floor. Set test pump in pipe shed to warm up. Set test plugs and wear rings in pipe shed. Weld escape ladders on platform. Make up kelly valve. Insulates cracks.
6:00:00	18:00:00	12.00		Welder installing MGS vent line clamps. Mount bracket for BOP remote station. Function test BOP-blind rams-pipe rams-annular preventer-HCR. Control line at accumulator leaked, repaired same. Ran AQMS tubing sample lines to modules 1 thru 5. RIH w/ 6 jts. core rod to bottom. 107' RKB. Install 4 3/4" rubber on rotating head. Circ. mud lines,solids control system,lower Drill Cool,trip tank, rig mud manifold,down hole and flow line. Ship excess material and GBR welding truck to 2H.Electrician worked onM/M and 480 circuit to waste mud conex.
18:00:00	24:00:00	6.00		Circulate hole. Repair swivel. Hook up controls to choke panel.Clean strainer in mudline to Drill cool. Ciculate hole. Tighten leaks on mud manifold.
	Total	24.00	**Hours**	

Equipment		Location	Personnel In Field	KCC/other	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep./ABS		1	5	-25
Catco Loader		DS-2H	Alask Telecom	0	2		Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	SE 9
Peak Light Plants (2)		DS-2H	Catco		5		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security		2		
Heater (5)		Hot Ice	Schlumberger/Core			3	
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Bus & Fuel Pup			Medic			1	
RT-85 Tractor Trailer		Hot Ice	Nana Dynatec		2	9	
RT-85 w/Water House		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/ 3500 gal Fuel		DS-2H	Peak Crane Crew		2		
Peak Loader		Hot Ice	Alaska Dream		2		
Dumpster - Colville		Hot Ice	Noble			1	
Manlift (2)		DS-2H	Arctic Catering			5	
Peak 50T crane			CorPro/PTS			6	
150 Ton Crane		Hot Ice	MI Drilling Fluids			1	
Welding Machine		Hot Ice	Precision Power			2	
			Drill Cool			2	
			Control Craft			1	
			GBR		3		
			PASON			1	
			SWACO			2	
			Veco				
				1	24	40	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	3,816	2,156	8,591	49,600
Received				3,000
Days Usage	2,721	1,568	1,988	
Accumulated	46,952	21,995	105,601	52,600
On Hand	3,943	3,724	6,603	
			2H 4000	

Equipment Down: 65

Vaporizor down with control problems

Comments:

Anadarko Petroleum Corporation

Hot Ice Project
Mobilization & Installation Cost

Date: March 29, 2003 | **$ 67,602 Daily Total** | **$ 4,126,588 Accumulated Total** | **Report #: 61**

Item	Description	Vendor	Information	QTY	RATE	HRS	Daily Cost
1	Hot Ice Drilling Supt.	Contract	1250 per day	2	1250		2,500
2	ACS Tech Fees	ACS	1000 per day	1	1000		1,000
3	EHS Advisor	Hoefler	950 per day	1	950		950
4	Security	Doyon	600 per day	2	600		1,200
5	Soils Engineers	DMA	1200 per day	0	1200		-
6	Medic	Fairweather	1000 per day	1	1000		1,000
7	Surveyors	Lounsbury	1000 per day	0	1000		-
8	Lodging at other camps	KCC/PBH	100 per day	1	100		100
9	Company Pickups	Fairweather	100 per day	2	100		200
10	Mobilization/Demobilization	Catco	34 Bed Camp	1			
11	Mobilization/Demobilization	Denali	Texoma 600 Drill	1			
12	Mobilization	Catco	Out Riggers For RD-85 With Drill	1			
13	Mobilization	Catco	Mob-Demob of Kobelco excavator	0			-
14	Mobilization	Catco	Gin Poles for RD-85 tractor	0			-
15	Construction Base Camp	Catco	34 Bed Camp @ 3,250 Per Day	1	3250		3,250
16	RD-85 with Denali Drill rig	Catco	200 per hour / minimum 4 hour day	0	200		-
17	RD-85 with Bus & Fuel Pup	Catco	200 per hour / minimum 4 hour day	0	200	4	-
18	RD-105 Tractor & Trailer	Catco	400 per hour / minimum 4 hour day	1	400	12	4,800
19	RD-85 w/3000 gal Water House	Catco	200 per hour / minimum 4 hour day	1	200	4	800
20	RD-85 with 3000 gal Fuel Tank	Catco	200 per hour / minimum 4 hour day	1	200	12	2,400
21	Base Camp Loader	Catco	966 or Equivelent	1	330		330
22	Pick-Up	Catco	100 per day	1	100		100
23	Foreman	Catco	61 per hour	1	61	12	732
24	Operator	Catco	59 per hour	3	59	12	2,124
25	Mechanic	Catco	On Site Mechanic	1	59	12	708
26	Winterizing Const.	Ak. Dream	Field installation@$850/man/day	2	850	1	1,700
27	Drill Smart	Noble	Daily rate @ $3000	1	3000	1	3,000
28	Mud Chiller	Drill Cool	Labor @ 500/d	2	500	1	1,000
29	Swaco Solids System	Swaco	Daily rate @ $4230 incl labor	1	4230	1	4,230
30	Mattracks	Dynatec	Ford F-350 with tracks	2	208		416
31	Mattrack Drivers	Dynatec	350 per day	2	350		700
32	Light Tower	Peak	99 per day	1	99		99
33	Indirect Heater	Peak	300 per day	3	300		900
34	Security/Engineering House	Fairweather	150 per day inclusive of gen sets	0	150		-
35	50T Crane (Hot Ice)	Peak		1	1150		1,150
36	150 Ton Crane	Peak		1	314		-
37	82 Ton Crane (DS-2H)	Peak		0	176		-
38	Crane Operator	Peak		1	63	12	756
39	Crane Oiler/Rigger	Peak		1	46	12	552
40	Iron Work	VECO		0	50	12	-
41	Field Welders	GBR		2	80	12	1,920
42	Trucking	Peak		1	750		750
43	Dynatec crew	Dynatec		9	39.44	12	4,260
44	Trucking	Carlile		2	750		1,500
45	Loader - Hot Ice	Peak	110 per hr w/ operator	1	110	24	2,640
46	Man Lift	Peak	300 per day	2	300		600
47	Dumpster	Colville		1	100		100
48	PVT System	Pason	Est. daily rate for labor	1	800	1	800
49	Welding Machine	Airport Rental		0	45		45
50	Air compressor / Jack Hammer	Airport Rental		1	190		190
51	Air Fares	Lower 48	1250 per person Lower Forty Eight	0	1250		-
52	Air Fares	Alaska	600/person Anch/Prudhoe Bay	1	600		600
53	Grey Water Disposal	CPAI	?	2	1000		2,000
54	D6 Dozer	Peak	150 Per Hour w/ operator	0	150		-
55	Potable Water	CPAI	?	2	1000		2,000
56	Fuel	Nana	2.00 per gallon	0	2		-
57	Mud Engineer	MI	$1000 per day	1	1000		1,000
58	Other Labor	various	Swaco, Control Craft (3/24)/VECO	2	1000		2,000
59	Lab Specialists	CPro/LBL/Schl		9	1000		9,000
60	Helicopter Services	ERA		0	2000		-
61	Mud Products / Consumables	MIDF		1	1500		1,500

Date: 3/30/2003
Rpt. No. 62

Hot Ice Project
Daily Mobilization & Installation Repor

Present Operation: Rigging up to run 7" scab liner, prep to spud

Accidents/Injuries: None Reported, AOGCC Inspector (John S.) witnessed BOPE Test

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00:00	6:00:00	6.00		Repair leaks on Mircomotion and mud manifold valves.Circulate hole.
6:00:00	6:30:00	0.50		Conduct Prejob Safety Meeting.
6:30:00	10:00:00	3.50		Makeup Top Drive Assembly & Conduct Preliminary Test of TIW Valves Test Lower
10:00:00	15:00:00	5.00		& Upper TIW Valves to 250/3000psi. Standpipe valve to 250/3000 psi. Rig Down Top
15:00:00				Drive Test Assembly, Set Test Plug & Test Annular 250 psi. 3000psi. Test Failed.
	18:00:00	3.00		Pull Test Plug and change test seal.
18:00:00				Conduct pre job safety meeeting on rig floor.Finish cleaning and replacing rubber on lower test plug. Test annular preventer to 250/3000 psi. Test outside kill line valve to 250/3000 psi. Test choke line valve to 250/3000 psi. Test pipe rams to 250/3000 psi. test inside kill line valve to 250/3000 psi. Test HCR valve to 250/30001 psi. Test Blind rams to 250/3000 psi.Test kill line check valve to 250/3000psi. Open HCR
	24:00:00	6.00		valve and choke line valve, fill choke manifold with mud. Start pressure testing choke valves.
	Total	24.00	**Hours**	

Equipment		Location	Personnel In Field	KCC/other	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			4	-12
Catco Loader		DS-2H	Alask Telecom				Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	ese5
Peak Light Plants (2)		DS-2H	Catco		5		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security		2		
Heater (5)		Hot Ice	Schlumberger/Core			3	
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Bus & Fuel Pup			Medic			1	
RT-85 Tractor Trailer		Hot Ice	Nana Dynatec		2	9	
RT-85 w/Water House		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/ 3500 gal Fuel		DS-2H	Peak Crane Crew		2		
Peak Loader		Hot Ice	AOGCC			1	
Dumpster - Colville		Hot Ice	Noble			1	
Manlift (2)		DS-2H	Arctic Catering			6	
Peak 50T crane		Hot Ice	CorPro/PTS			6	
150 Ton Crane		Hot Ice	MI Drilling Fluids			1	
Welding Machine		Hot Ice	Precision Power			2	
			Drill Cool			1	
			Control Craft			1	
			GBR		2		
			PASON			1	
			SWACO			2	
			Veco				
				1	18	40	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	3,943	3,724	6,603	52,600
Received	2,250	3,922	2,414	3,000
Days Usage	2,000	1,568	497	
Accumulated	49,516	21,995	105,601	55,600
On Hand	4,115	6,272	8,520	

59

Equipment Down:
Vaporizor down with control problems

Mattrack #2 returned from repair shop and placed back in service.

2H 3417

Comments:
Backloaded and shipped two Rolligon loads of construction materials from Hot Ice Site to 2H Pad.
Completed setting of Dura-Mats on South side of accommodations.
Electricians continue installing flood lights.

Date: 3/31/2003
Rpt. No. 63

Hot Ice Project
Daily Mobilization & Installation Repor

Present Operation: Coring @ 114'

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

From	To	Hours	Code	Activity Time Summary
0:00	1:00	1.0		Prssure test Kill line check valve, inside choke valve, HCR valve, six choke manifold valves, and accumulator pressures250/3000 psi. per AOGCC.
1:00	6:00	5.0		Clean excess equipment from pipe shed. Load 7" csg. and csg. hanger in pipe shed. Make up hanger and RIH. Measurement from top of hanger to RKB 14.67.
6:00	6:30	0.5		Pre- job safety meeting.
6:30	12:00	5.5		Run scab liner. 5 joints of 26# J 55 7" csg.and csg. hanger. RKB to BTM. 107.3'. RKB to hanger -14.67', hanger-1.95', KB-1.55' jt #1-21.51', jt #2-21.56', jt #3-20.65', jt#4-19.18', jt#5-5.21'. Total Length=106.3'.
12:00	16:00	4.0		RIG UP.
16:00	18:00	2.0		P/U core barrel and install data logger into inner tube.
18:00	20:00	2.0		Pre spud meeting with all personnel.
20:00	24:00:00	4.0		Fix hydraulic leak, work on Pason equipment,Test lubricator to 250 psi. Stab Rotating head. Ream ice @ ground level,RIH to bottom107.3'. Circulate.
	Total	**24.00**	**Hours**	

Equipment		Location	Personnel In Field	KCC/other	DS-2H	Hot Ice	Temp.
Catco 32 Bed Camp		DS-2H	Anadarko Rep.			4	-17
Catco Loader		DS-2H	Alask Telecom				Wind
Catco Pickup (1)		DS-2H	Alaska Clean Seas			1	ESE 10
Peak Light Plants (2)		DS-2H	Catco		5		
Peak Light Plants (4)		Hot Ice	Global Catering		3		
Heater (1)		DS-2H	Doyon Security		2		
Heater (5)		Hot Ice	Schlumberger/Core			3	
Mattracks (2)		DS-2H	Environmental	1			
RT-85 w/Bus & Fuel Pup			Medic			1	
RT-85 Tractor Trailer		Hot Ice	Nana Dynatec		2	9	
RT-85 w/Water House		Hot Ice	Peak Loader/Cat Op		2		
RT-85 w/ 3500 gal Fuel		DS-2H	Peak Crane Crew		2		
Peak Loader		Hot Ice	AOGCC				
Dumpster - Colville		Hot Ice	Noble			1	
Manlift (2)		DS-2H	Arctic Catering			5	
Peak 50T crane		Hot Ice	CorPro/PTS			6	
150 Ton Crane		Hot Ice	MI Drilling Fluids			1	
Welding Machine		Hot Ice	Precision Power			1	
			Drill Cool			1	
			Control Craft			1	
			GBR		2		
			PASON			1	
			SWACO			2	
			Veco		4		
				1	22	37	

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	4,115	6,272	8,520	55,600
Received	1,250	1,250	4,000	3,000
Days Usage	1,818	2,450	603	
Accumulated	50,766	23,245	105,601	58,600
On Hand	4,166	3,528	7,917	

Equipment Down: 60
Vaporizor down with control problems

2H 7800

Comments:

Date: 4/1/2003
Rpt. No. 64

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Coring @ 213'

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

From	To	Hours	IADC Code	Activity Time Summary
0:00	1:00	1.0	6	Trip in to 107.3' KB
1:00	3:30	2.5	5	Circ. and cond. mud
3:30	4:00	0.5	4	Cut core from 107.3' to 114.3'. Spud time @ 0325 hrs., 4/1/03
4:00	12:30	8.5	1	Rig up mud box, prep. lubricator, clean rig floor. Calibrate Pason pump sensor, wireline sensor.
12:30	23:00	10.5	4	Core from 114.3' to 212.8'.
23:00	23:30	0.5	4	Attempt to pull core. Core retrieving line parted.
23:30	0:00	0.5	6	POOH to repair core retrieving line.
				NOTE: Cored 105.5' and recovered 102.9' (97.5% recovery)
				Predominately clay, w/coal stringers, minor sand & congl. stringers
	Total	**24.00**	**Hours**	

Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (3)		
Mattracks (2)		
RT-85 Tractor Trailer		Hot Ice
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		
Peak Loader		
Dumpster - Colville		
Manlift (1)		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Personnel In Field	KCC/other	DS-2H	Hot Ice	Temp.
Anadarko Rep.			4	-1
USGS			1	Wind
Alaska Clean Seas			1	SSE-16
Catco		5		
Global Catering		3		
Doyon Security		2		
Schlumberger/Core			3	
Environmental	1			
Medic			1	
Nana Dynatec		2	9	
Peak Loader/Cat Op				
Peak Crane Crew		2		
AOGCC				
Noble			1	
Arctic Catering			5	
CorPro/PTS			6	
MI Drilling Fluids			1	
Precision Power			2	
Drill Cool			1	
Control Craft			1	
GBR		2		
PASON			1	
SWACO			2	
Veco		4		
	1	20	39	

Daily Mud Report	Time of day	
Mud properties @	1200	2300
MW	**9.0**	**9.0**
Funnel Visc.	**62.0**	**57.0**
PV	**14.0**	**15.0**
YP	**26.0**	**27.0**
F/L	**9.2**	**8.0**
Flowline Temp.	**28.0**	**30.0**
pH	**7.0**	**7.0**
Chlorides(mg/l)/Ca++	**63000/160**	**59000/240**
% CaCl		

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	4,166	3,528	7,917	58,600
Received	2,148			3,000
Days Usage	1,990	2,156	746	
Accumulated	52,756	25,401	106,347	61,600
On Hand	4,324	5,684	7,171	

Equipment Down: 60
Vaporizer down with control problems

2H 7042

Comments: Spudded at 0325 hrs on 4/1/03.

Date: 4/2/2003
Rpt. No. 65

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Coring @ 359'

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

From	To	Hours	IADC Code	Activity Time Summary
0:00	2:00	2.0	6	POOH. Repair core retrieval line. Check bit, OK. RIH to
2:00	6:00	4.0	6	Work on Bean pump, No flow, Blow down lines, Circ intermittently
6:00	10:00	4.0	4	Core From 214' to 252'
10:00	12:00	2.0	6	Drill Cool Plate Exchanger Froze Up, Circ & Cool W/Fin Fan Unit
12:00	13:00	1.0	4	Core From 252' to 255'
13:00	20:00	7.0	5	Circulate & Condition Foaming Mud - & Chill Same
20:00	0:00	4.0	4	Core from 255' to 291'. Intermittant pump suction problems-Bean pump loosing prime. Total core cut past 24 hours: 77'. Recovered 77' (100%) Predominately sandstone with interbedded mudstone and occasional ice lenses.
	Total	**24.00**	**Hours**	

Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temperature		
Depth	Inclination	Temp	Time	In	Out
NO	DATA				
			1800	32.6	33.9
			2000	30	30
			2400	26	25.5

Temp.
4
Wind
WSW-7

Daily Mud Report	Time of day	
Mud properties @	1500	2330
MW	**9.1**	**9.1**
Funnel Visc.	**43.0**	**45.0**
PV	**13.0**	**12.0**
YP	**15.0**	**16.0**
F/L	**8.6**	**7.6**
Flowline Temp.	**36.0**	**31.0**
pH	**7.0**	**7.0**
Chlorides(mg/l)/Ca++	**62000/240**	**60000/240**
%KCL	**11.0**	**11.0**
Freeze Point	**22°F**	**22°F**

Chemicals Mixed
DefoamX 60 gal
Green-cide 5 gal

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	4,324	5,684	7,171	61,600
Received	2,311	ship 2400		3,000
Days Usage	2,120	1,518	994	
Accumulated	54,876	26,919	106,347	64,600
On Hand	4,515	4,802	6,177	

Equipment Down:
Vaporizer down with control problems

2H 6650

Comments: Anadarko day tour via chopper.

Date: 4/3/2003
Rpt. No. 66

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Coring @ 533'

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

From	To	Hours	IADC Code	Activity Time Summary
0:00	6:00	6.0	4	Coring from 291' to 359' Cleaned suction screen, coal flakes.
6:00	0:00	18.0	4	Coring from 359' to 488'. Lost about 10' of core between 372' and 385. Very sandy and friable. Tried basket catcher but no improvement in recovery. Cored 197' and recovered 167.9' (85% recovery) Predominately sandy silt to about 450' changing to conglomerate with sand & silt stringers. Occasional thin ice lenses. Changing shaker screens frequently to minimize mud loss. Currently at 175 over 50 mesh.
	Total	**24.00**	**Hours**	

Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temperature		
Depth	Inclination	Temp	Time	In	Out
			0:00	26	25.5
			6:00	27.5	27.2
			12:00	31	27
			18:00	27.2	26.8
			24:00:00	26.3	24.8

Temp.	
6	
Wind	
WSW-14	

Rotary	140-160
WOB	est 500#
Flow(gpm)	30-40

Daily Mud Report	Time of day	
Mud properties @	10:00	23:00
MW	**9.1**	**9.2**
Funnel Visc.	**45.0**	**45.0**
PV	**12.0**	**11.0**
YP	**17.0**	**17.0**
F/L	**7.8**	**6.2**
Flowline Temp.	**31.0**	**29.0**
pH	**7.0**	**7.0**
Chlorides(mg/l)/Ca++	**61000/240**	**59000/240**
%KCL	**11.0**	**11.0**
Freeze Point	**22.0**	**22.0**

Chemicals Mixed

DeFoamX 20 gal.
Greencide 5 gal.

Ambient freezing test on mud:
slushy below +21°F

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	4,515	4,802	6,177	64,600
Received	2,085	ship 2205	2,400	3,000
Days Usage	2,403	1,911	1,690	
Accumulated	54,876	28,830	108,037	67,600
On Hand	4,197	5,096	6,887	

Equipment Down:

2H 2365

Comments: **Schlumberger onsite preping for receiving cement.**
Photographers onsite.

Date: 4/4/2003
Rpt. No. 67

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Rig repair. Repair hydraulic control hose rack in mast. Guide roller jumped track
Repair work started @0215. Lost prime in charge pump to DrillCool. Aerated mud.

Accidents/Injuries: None Reported (Blowing down mud lines to prevent freezing.)

Safety: Pre-job safety meetings at the start of each tour.
Kick/BOP drills on each tour

Environmental Incidents: None Reported

Current Depth (0600)	732'
Footage This Report	217'

From	To	Hours	IADC Code	Activity Time Summary
0:00	6:00	6.00	4	Coring From 488' To 533' Run single shot survey at 504'.
6:00	7:00	1.00	4	Core From 533' To 547'
7:00	8:00	1.00	5	Circulate & Condition Mud
8:00	13:45	5.75	4	Core From 547' To 614' - Circulate B/U Prior To Pulling Core
13:45	14:30	0.75	5	Circulate & Condition Mud - Flow Check Well
14:30	18:00	3.50	4	Core From 614' To 665' - Circulate B/U Prior To Pulling Core
18:00	0:00	6.00	4	Core from 665' to 705'. Circ. B/U after each core.
				Kick drill while drilling--695' (2230hrs) performed dynamic kill
				procedure (60 gpm & 200 rpm)(ECD incr. calc. 0.85 ppg)
				Cut 217'; recovered 211.9' (97.6%)
				Gravel with interbedded silts and sands with some coal.
				Last 50' predominately sand with interbedded silts and gravel.
				Cumulative recovery of 559.7' (93.8%)
	Total	24.00	Hours	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. MicroM		
Depth	Inclination	Temp	Time	In	Out
504'	1/2°		0:00:00	26.3	24.8
			6:00	26.4	25.0
			12:00	25.8	24.4
			18:00	25.6	25.3
			24:00:00	26.0	24.0

Temp.
-4
Wind
SW-6

Daily Mud Report	Time of day	
Mud properties @	11:00	22:00
MW	9.1+	9.1+
Funnel Visc.	45.0	45.0
PV	12.0	13.0
YP	20.0	16.0
F/L	6.4	6.6
Flowline Temp.	26.0	25.0
pH	7.0	7.0
Chlorides(mg/l)/Ca++	55000/280	54000/240
%KCL	11.0	11.0
Freeze Point	22.0	22.0

Chemicals Mixed
DefoamX 100 gal

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	4,197	5,096	6,887	64,600
Received	1,992	ship2303	3,700	3,000
Days Usage	1,674	1,568	1,605	
Accumulated	56,550	30,398	107,952	67,600
On Hand	4,515	4,361	8,982	

Equipment Down:
Vaporizer down with control problems

2H 2536

Comments:
Received 600 cubic feet blended cement in silo.
Conducted BOP drill - 45 seconds.

Date: 4/5/2003
Rpt. No. 68

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Coring @ 742

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.
Actuated BOP rams on trip out.

Environmental Incidents: None Reported

Current Depth (0600)	742
Footage This Report	27'
Total Well Footage Cored	596.5
Total Well Core Recovered	585.4
Core Recovery Percentage	98.1%

From	To	Hours	IADC Code	Activity Time Summary
0:00	2:30	2.50	4	Coring From 705' To 732'
2:30	6:00	3.50	8	Rig Repair. Roller on hydraulic hose rack jumped guide track in derrick. Circulate while repairing. Lost charge pump suction to DrillCool unit. Blow down mud lines to prevent freezing.
6:00	8:30	1.50	8	Continue Repair Rig, Establish circulation loop of surface equipment Attempt to Circulate Down Core String - No GO
8:30	9:00	0.50	4	Attempt to retrieve inner core barrel - No Go - Parted Wire line
9:00	14:00	5.00	6	Pull Out Of Hole With Wet String - Continuous Surface Circ Loop
14:00	15:30	1.50	6	Remove Inner Core Barrel - Reason Stuck & Couldn't Circulate was Small Rocks & Sand Packed Between Inner & Outer Barrel.
15:30	16:00	0.50	6	Make Up New PDC Bit & Reaming Shell. Function Tested Blind Rams, Circ In Kill Line & Out Choke Line, Blow Down Same.
16:00	19:00	3.00	21	Clean Rig Floor & Well Cellar With Steam Washer & Vacuum Sys.
19:00	20:00	1.00	6	RIH to 296'. Pulled inner barrel, tight. POH to 96' to circ & cool mud
20:00	22:15	2.25	5	Circ. & cond. mud. Cool surface mud system.
22:15	0:00	2.75	6	RIH at 650'. Broke circ. at 400'.0
				Past 24 hrs.: Cored 26' & recover 25.7' (98.8%) Sandstone & gravel
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			0:00:00	26.3	24.8
			6:00		
			12:00		
			18:00		
			24:00:00	30.5	25.0

Temp.
-14
Wind
SW-4

Daily Mud Report	Time of day	
Mud properties @	9:00	23:00
MW	**9.2**	**9.2**
Funnel Visc.	**44.0**	**44.0**
PV	**14.0**	**13.0**
YP	**16.0**	**15.0**
F/L	**7.0**	**8.0**
Flowline Temp.	**31.0**	**31.0**
pH	**7.0**	**7.0**
Chlorides(mg/l)/Ca++	**55000/320**	**53000/280**
%KCL	**11.0**	**11.0**
Freeze Point	**22.0**	**22.0**

Chemicals Mixed	
DefoamX	100 gal
Greencide	5 gal
Bicarb	1 sx
KCl	56 sx

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	4,515	4,361	8,982	64,600
Received	1,992	ship2300		3,000
Days Usage	1,674	1,589	1,320	
Accumulated	56,550	31,989	109,272	67,600
On Hand		3,650	7,662	

Equipment Down: Vaporizer down with control problems

2H 1950

Comments:
Jim Weimer of Schlumberger Wire line division visited rig site to access lubricator requirements for the completion phase.
Chuck Scheve of AOGCC granted verbal approval to continue coring surface hole in lieu of BOP test due 4/6/03.

Date: 4/6/2003
Rpt. No. 69

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Rigging up to test BOPs/working on mud system configuration.
Report period--23 hours/Daylight Savings Change

Accidents/Injuries: None Reported

Current Depth (0600)	773'
Footage This Report	41'

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	637.5'
Total Well Core Recovered	617.7
Core Recovery Percentage	96.9%

Environmental Incidents: Spilled 10 oz. drilling mud on 2H pad when sample fell out of pickup and container broke. Cleaned up.

From	To	Hours	IADC Code	Activity Time Summary
0:00	0:30	0.50	3	Ream from 650' to 724'
0:30	1:30	1.00	21	Change rotating head element.
1:30			5	Circ. & cond. mud at 724'. Clean Swaco strainer. Thaw DrillCool
	3:45	2.25		HEX. Set clocks ahead 1 hour/daylight savings change.
3:45	4:00	0.25	3	Ream from 724' to 732'.
4:00	6:00	2.00	4	Core from 732' to 742'
6:00	7:00	1.00	6	Pull back to 595' - Tight - Pipe Stuck Briefly
7:00	12:00	5.00	5	Circulate & Condition/Chill Mud
12:00	16:00	4.00	3	Ream/Stage To Bottom While Conditioning Mud
16:00	18:30	2.50	4	Core From 742' to 773'
18:30			5	Circ & cond mud. Loosing prime on charge pumps. Getting large
	21:00	2.50		amounts of cuttings/formation over shaker.
21:00	21:30	0.50	3	Tight hole coming off bottom. Back ream 2 joints to free pipe.
21:30	0:00	2.50	21	Trip out of hole to test BOPs and repair mud system.
				Cored 41'; recovered 32.3' (78.8%). Mudstone, sandstone, some congl., ss w/ tarlike dead oil 761'-767'
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys		
Depth	Inclination	Temp

Mud Surface Temp. Micro		
Time	In	Out
0:00:00	30.5	25.6
6:00	34.0	26.2
12:00	28.4	25.8
18:00	31.8	27.1
24:00:00	n/a	n/a

Temp.	
-15	
Wind	
SE-14	

Daily Mud Report	Time of day	
Mud properties @	10:00	23:00
MW	**9.2**	**9.2**
Funnel Visc.	**43.0**	**42.0**
PV	**14.0**	**14.0**
YP	**18.0**	**13.0**
F/L	**8.0**	**7.6**
Flowline Temp.	**31.0**	**29.0**
pH	**7.0**	**7.0**
Chlorides(mg/l)/Ca++	**56000/400**	**55000/400**
%KCL	**11.0**	**11.0**
Freeze Point	**22.0**	**22.0**

Chemicals Mixed

DefoamX	105 gal.
Bicarb.	50 lbs

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	4,833	2,181	7,662	76,600
Received	3,435	ship 2156	3,053	
Days Usage	2,067	956	1,272	
Accumulated	58,617	32,945	110,544	76,600
On Hand	3,434	3,381	9,443	

Equipment Down: Vaporizer down with control problems

2H 5500

Comments:
West Side Tioga Heater Relocated to top of Dynatec Workshop & Operating.
Air Compressor Installation Complete and Operating.

Date: 4/7/2003
Rpt. No. 70

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Testing BOPs

Accidents/Injuries: Electrician cut hand. Sent to KOC Medical for stitches. Returned to work, not an LTA

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None reported

Current Depth (0600)	773'
Footage This Report	0
Total Well Footage Cored	637.5'
Total Well Core Recovered	617.7
Core Recovery Percentage	96.9%

From	To	Hours	IADC Code	Activity Time Summary
0:00	6:00	6.00	21	Clean floor. Wash down BOPs. Vac out cellar box. PU wear bushing retrieving tool. Pull wear bushing. Make up BOP test plug.
6:00	13:30	7.50	5	Condition mud. Modify mud lines and centrifugal pumps. Warm BOPs to prepare for test.
13:30	18:00	4.50	15	Test BOPs. Lines freezing. Clear fluids from lines and thaw valves. Test Annular, pipe rams, inner & outer kill and choke line valves to 250 psi and 3000 psi.
18:00	23:00	5.00	15	Redirect hot air ducts to heat specific parts of BOPs. Lines freezing. Continue making mud system modifications. Clean pits.
23:00	0:00	1.00	15	Testing choke manifold. Test manifold, vlvs. 4,5,&6 to 250 psi OK. Prep to test to 3000.
	Total	24.00	Hours	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			0:00:00		
			6:00		
			12:00		
			18:00		
			24:00:00		

Temp.
-18

Wind
ENE-15

Daily Mud Report	Time of day	
Mud properties @	9:00	23:00
MW	9.3	9.2
Funnel Visc.	41.0	39.0
PV	13.0	14.0
YP	15.0	13.0
F/L	8.0	8.2
Flowline Temp.	34.0	50.0
pH	7.0	7.0
Chlorides(mg/l)/Ca++	54000/400	51000/400
%KCL	11.0	10.0
Freeze Point	22.0	22.0

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	3,434	3,381	9,443	76,600
Received	3,614	ship 2156	3,053	3,740
Days Usage	3,587	2,205	1,278	
Accumulated	63,724	35,150	111,822	80,340
On Hand	3,434	3,332	8,165	

Equipment Down: Vaporizer down with control problems

2H 6400

Comments: DOE personnel toured platform. Flew to locn via chopper. Working on mud system changes in trip tank and pit areas to improve on centrifugal pump operation. Clean pits. Rebuild mud system.

Date: 4/8/2003
Rpt. No. 71

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Coring @ 801'

Accidents/Injuries: None Reported

Current Depth (0600)	801'
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	637.5'
Total Well Core Recovered	617.7
Core Recovery Percentage	96.9%

Environmental Incidents: 1 gallon of mud spilled at 2H-came out of vent line line on Catco guzzler tank. Cleaned up.

From	To	Hours	IADC Code	Activity Time Summary
0:00			21	Test BOPs. Thaw test pump lines and manifold. Test plug would not hold. Change seal and reset. Setting on 7" mandrel hanger. Build mud vol. Pump in with Bean pump to get initial charge. Tst plug holding. Tst choke manifold, choke valves 4, 5, &6 to
	6:00	6.00		250/3000, OK. Tst choke vlvs 1, 2, &3 to 250/3000, OK.
6:00			21	Test Blind Rams, IKV, ICV 250/3000 Retrieve Wear Bushing, Test LTIW, UTIW, Standpipe 250/3000 Test Mud Manifold, IKV, OKV 250/1500
	12:30	6.50		Blow Down Lines & Rig Down Test Equipment
12:30	17:00	4.50	5	Condition Mud
17:00	18:00	1.00	6	Pickup BHA & Trip In Hole To Shoe. Ream ice below cellar to grnd.
18:00	21:30	3.50	5	Circ & cond mud at shoe. Chill mud system to 26 deg.
21:30	22:00	0.50	6	RIH to 236'. Break circ. Staging in hole.
22:00	22:15	0.25	5	Circ & cond mud at 236,
22:15	22:30	0.25	6	RIH to 508'. Break circ.
22:30	23:15	0.75	5	Circ & cond mud at 508'.
23:15	24:00:00	0.75	6	Wash and ream from 704' to 724', precautionary.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			0:00:00	n/a	n/a
			6:00	n/a	n/a
			12:00	n/a	n/a
			18:00	30.0	29.0
			24:00:00	28.0	26.0

Temp.
-16

Wind
calm

Daily Mud Report	Time of day	
Mud properties @	23:00	
MW	9.1	
Funnel Visc.	37.0	
PV	9.0	
YP	8.0	
F/L	8.6	
Flowline Temp.	28.0	
pH	7.0	
Chlorides(mg/l)/Ca++	53000/400	
%KCL	10.0	
Freeze Point	22.0	

Chemicals Mixed	
Greencide	5 gal.
KCl	95 sx
FloPro	140 bbl

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	3,434	3,332	8,165	80,340
Received	4,547	ship 0		2,236
Days Usage	6,430	1,666	1,278	
Accumulated	70,154	36,816	113,100	82,576
On Hand	1,749	4,998	6,887	

Equipment Down: Vaporizer down with control problems

2H 7300

Comments: BLM & ADNR visited on separate tours.
Received 140 bbls new mud from MI. Shipped 50 bbls old mud back to MI.

Date: 4/9/2003
Rpt. No. 72

Hot Ice Project
Daily Drilling Report

Operation @ 0600: POOH With Plugged Core Barrell - Wet String

Accidents/Injuries: None Reported

Current Depth (0600)	921
Footage This Report	140'

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	804'
Total Well Core Recovered	743.6'
Core Recovery Percentage	92.5%

Environmental Incidents: 20 gallon potable water spill @ Hot Ice. Hose connection failed. Repaired.

From	To	Hours	IADC Code	Activity Time Summary
0:00	1:30	1.50	3	Reaming from 724' to 772'. (fill last 20' top bottom)(TD correction from 773' to 772'.)
1:30	6:00	4.50	4	Coring from 772' to 801'. Circ 2X coring pmp rate for 10 min. after each core. Some fill.
6:00	18:00	12.00	4	Coring from 801' to 872', Hard/Firm Clay.
18:00	0:00	6.00	4	Coring from 872' to 912'. Cored 140'; recovered 125.9' (89.9%) Predominately (67%) mudstone with 33% sandstone. One 3' coal bed.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			0:00:00	28.0	26.0
			6:00	27.8	25.6
			12:00	26.2	25.7
			18:00	26.6	24.8
			24:00:00	29.0	28.0

Temp.
-8

Wind
calm

Daily Mud Report	Time of day	
Mud properties @	8:00	22:00
MW	**9.1**	**9.1**
Funnel Visc.	**37.0**	**37.0**
PV	**9.0**	**10.0**
YP	**9.0**	**11.0**
F/L	**10.0**	**10.2**
Flowline Temp.	**28.0**	**29.0**
pH	**7.0**	**7.0**
Chlorides(mg/l)/%KCl	**52000/10**	**51000/10**
%Sand	**1.00**	**0.75**
Freeze Point	**22.0**	**22.0**

Chemicals Mixed	
DefoamX	5 gal
KCl	4 sx
Flo-Vis L	15 gal.

Consumables	Hot Ice Potable	Hot Ice Grey	Hot Ice Fuel	Lake MO167
Previous Balance	1,749	4,998	6,887	82,576
Received	4,431	ship 2156	2,946	6,995
Days Usage	2,810	1,666	1,278	
Accumulated	72,964	38,482	114,378	89,571
On Hand	3,370	2,695	8,662	

Equipment Down: Vaporizer down with control problems

2H 6500

Comments:

Date: 4/10/2003
Rpt. No. 73

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Coring @ 1010'

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

Current Depth (0600)	1010'
Footage This Report	57
Total Well Footage Cored	861
Total Well Core Recovered	793.8
Core Recovery Percentage	92.1%

From	To	Hours	IADC Code	Activity Time Summary
0:00	1:00	1.00	4	Coring from 912' to 921'.
1:00	3:00	2.00	5	Circ & cond mud. Mud getting warm. DrillCool HEX freezing off.
3:00			3	Back reaming. Reduced circ rate due to high mud temp. Hole tight.
	4:30	1.50		Unable to pull inner barrel. Released overshot. Prep to POOH.
4:30	9:30	5.00	6	Continue POH - Wet String
9:30	11:00	1.50	21	Clean Rig Floor & Cellar - Install Flow Meter To Drill Cool
11:00	12:00	1.00	6	RIH To Shoe
12:00	14:30	2.50	5	Circulate & Chill Mud From 32° to 28°F.
14:30	15:30	1.00	6	RIH To 830' - Tagged Fill
15:30	17:30	2.00	6	Wash & Ream To Bottom - Surface To Surface Lag Test Resulted In 32 Bbls Vs 25 Calculated Hole Volume - Hole Equal 6.55" Average
17:30			6	Install Inner Core Barrel. Attempt to work over previous core.
	18:30	1.00		No recovery.
18:30	0:00	5.50	4	Coring from 921' to 969'. Cored 57', recovered 50.2'. (88.1% rececovery) sandstone, mudstone, and coal.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys		
Depth	Inclination	Temp

Mud Surface Temp. Micro		
Time	In	Out
0:00:00	29.0	28.0
6:00	29.8	pits
12:00	32.0	32.0
18:00	27.0	25.0
24:00:00	27.9	25.5

Temp.
-15

Wind
ENE-5

Daily Mud Report	Time of day	
Mud properties @	8:00	23:00
MW	9.2	9.1
Funnel Visc.	38.0	38.0
PV	9.0	9.0
YP	10.0	10.0
F/L	12.0	11.6
Flowline Temp.	27.0	26.0
pH	7.0	7.0
Chlorides(mg/l)/Ca++	49000/400	51000/360
%KCL	10.0	10.0
Freeze Point	22.0	22.0

Chemicals Mixed	
DefoamX	120 gal
Greencide	5 gal
KCl	17 sx
FloVis	5 gal

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	3,370	2,695	5600	8,662	89,571
Received	4,791	ship 2205	3521		4,209
Days Usage	1,905	1,715	2881	1,527	
Accumulated	74,869	40,197		115,905	93,780
On Hand	2,735	3,185	6240	7,135	

2H 7870

Equipment Down:
Vaporizer not in service-replumbing
AQMS System

Comments:

Date: 4/11/2003
Rpt. No. 74

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Coring @ 1147'

Accidents/Injuries: None Reported

Current Depth (0600)	1147'
Footage This Report	144'
Total Well Footage Cored	1006'
Total Well Core Recovered	930.3'
Core Recovery Percentage	92.5%

Safety: Pre-job safety meetings at the start of each tour. Pit gain incident @ 0600 served as dynamic kill drill (both crews).

Environmental Incidents: Mud spray on ice pad @ Hot Ice; DrillCool HEX head rupture--Cleaned up.

From	To	Hours	IADC Code	Activity Time Summary
0:00	6:00	6.00	4	Coring from 969' to 1010'
6:00			4	Flow Check Well - Noted 25 Bbl. Gain From 4:45-6:00 - Wash
	6:30	0.50		Water Left On After Cleaning Swaco Centrifuge
6:30	7:00	0.50	4	Retrieve Core
7:00	9:00	2.00	4	Core From 1010' To 1020'
9:00	10:00	1.00	10	Survey At 998' - 3/4 Degree
10:00	0:00	14.00	4	Core From 1020' To 1113'.
				Cored 144'; recovered 136.5' (94.8% recovery)
				Predominately mudstone with sandstone, occasional coal streaks
	Total	24.00	Hours	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
998'	3/4 deg.		0:00:00	27.9	25.5
			6:00	27.8	26.0
			12:00	26.6	25.7
			18:00	26.6	25.6
			24:00:00	26.1	25.8

Temp.
-10
Wind
E-28

Daily Mud Report	Time of day	
Mud properties @	4:00	23:00
MW	9.0	9.2
Funnel Visc.	38.0	38.0
PV	8.0	9.0
YP	10.0	11.0
F/L	14.0	17.0
Flowline Temp.	25.0	26.0
pH	7.0	7.0
Chlorides(mg/l)/Ca++	48000/400	52000/440
%KCL	10.0	10.0
Freeze Point	22.0	22.0

Chemicals Mixed	
FloVis	25 lbs
DefoamX	40 gal
KlaGard	5 gal
Greencide	5 gal
Lecithin	55 gal
KCl	74 sx

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	2,735	3,185	6240	7,135	93,780
Received	4,621	ship 2352	4207	2,840	5,100
Daily Usage	3,103	2,793	2607	1,739	
Cumulative Usage (est.)	77,972	42,990	34982	117,644	98,880
On Hand	1,590	2,744	7840	8,236	

2H 7300

Equipment Down:
DrillCool FinFan HEX-ruptured head
AQMS System

Comments:

Date: 4/12/2003
Rpt. No. 75

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Coring @ 1354'

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

Current Depth (0600)	1354'
Footage This Report	182'
Total Well Footage Cored	1188'
Total Well Core Recovered	1099.4'
Core Recovery Percentage	92.5%

From	To	Hours	IADC Code	Activity Time Summary
0:00	6:00	6.00	4	Coring from 1113' to 1147'
6:00	18:00	12.00	4	Core From 1147' To 1240'
18:00	0:00	6.00	4	Core from 1240' to 1295'.
				Cored 182'; recovered 169.1'. (92.9% recovery)
				50/50 alternating mudstone & sandstone
	Total	24.00	Hours	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			0:00:00	26.1	25.8
			6:00	25.6	25.4
			12:00	25.3	25.4
			18:00	25.8	25.6
			24:00:00	25.4	25.7

Temp.
4
Wind
ESE-20

Daily Mud Report	Time of day	
Mud properties @	9:00	22:30
MW	9.2	9.2
Funnel Visc.	38.0	38.0
PV	10.0	9.0
YP	10.0	12.0
F/L	20.0	18.0
Flowline Temp.	26.0	26.0
pH	7.5	7.0
Chlorides(mg/l)/Ca++	52000/480	51000/480
%KCL	10.0	10.0
Freeze Point	23.5	22.0

Chemicals Mixed	
Soda Ash	2 sx
KCl	57 sx
FloVis	40 gal.

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	1,590	2,744	7840	8,236	98,880
Received	5,470	vap. 1219	3244	3,160	4,800
Daily Usage	2,226	2,003	5128	1,349	
Cumulative Usage (est.)	80,198	44,993	40110	118,993	103,680
On Hand	4,834	3,528	5956	9,940	
				2H 3450	

Equipment Down:
DrillCool FinFan HEX-ruptured head
AQMS System

Comments: Phase 2 conditions
MicroMotion tech onsite

Date: 4/13/2003
Rpt. No. 76

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Picking up Hole-opening BHA

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.
"Man Down" drill--11 minutes from stretcher to heliport

Environmental Incidents: None Reported

Current Depth (0600)	1400'
Footage This Report	105'
Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1
Core Recovery Percentage	92.7%

From	To	Hours	IADC Code	Activity Time Summary
0:00	11:00	11.00	4	Coring from 1295' to 1400'. Determined 7" casing point @ 1400'
11:00	12:30	1.50	5	Circ & cond mud
12:30	16:00	3.50	6	Trip out.
16:00	21:00	5.00	21	Pull wear bushing. Rig up floor to pull 7" scab liner. Pull and lay down scab liner. Cut weld at each joint.
21:00	22:30	1.50	22	Clean floor and cellar area.
22:30	0:00	1.50	23	Remove flowline micromotion unit. Disconnect wiring. Remove conponents. Re-sheaving Swaco charge pumps.
				Cored 105'; recovered 98.7' (94%)
				sandstone (very unconsolidated), last 42' was mudstone
	Total	24.00	Hours	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			0:00:00	25.4	25.7
			6:00	27.4	26.4
			12:00	27.5	27.6
			18:00	n/a	n/a
			24:00:00	n/a	n/a

Temp.
24
Wind
calm

Daily Mud Report	Time of day	
Mud properties @	6:00	23:00
MW	9.3	9.2
Funnel Visc.	38.0	38.0
PV	11.0	10.0
YP	11.0	13.0
F/L	20.0	20.0
Flowline Temp.	26.0	40.0
pH	7.0	7.0
Chlorides(mg/l)/Ca++	51000/640	50000/600
%KCL	10.0	10.0
Freeze Point	22.0	22.0

Chemicals Mixed	
FloVis	1 sx
DefoamX	50 gal
Greencide	5 gal
KCl	65 sx

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	4,834	3,528	5956	9,940	103,680
Received	4,429	vap/shp 2958	3677		5,100
Daily Usage	2,470	2,223	1977	1,633	
Cumulative Usage (est.)	82,668	47,216	42087	119,826	108,780
On Hand	3,116	2,793	7656	8,307	

2H 8000

Equipment Down:
DrillCool FinFan HEX-ruptured head
AQMS System
MatTrack unit-radiator hose

Comments:

Date: 4/14/2003
Rpt. No. 77

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Completing 12 stand Short Trip. Washing to bottom.

Accidents/Injuries: None Reported

Current Depth (0600)	1400'
Footage This Report	

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

Environmental Incidents: 1 gallon drilling mud @ Hot Ice. Floor drainage between buckets. Stopped source. Cleaned up.

From	To	Hours	IADC Code	Activity Time Summary
0:00	3:30	3.50		Remove MicroMotion flow meter. Nipple up flowline spool. Rig up beaverslide.
3:30	6:00	2.50		Set drill collars and mud motor in pipe shed. Pick up long ware bushing and run.
6:00	9:00	3.00	6	Lay Down Wear Bushing R/Tool, Clean Rig Floor, Modify Bit Breaker
9:00	11:30	2.50	6	Make Up BHA - Bit, Mtr, FS, 4 x 6.5" DC, XO = 104.37'
11:30	18:00	6.50	3	Open Hole To 8.5" From 107' To 1087'
18:00	0:00	6.00	3	Open hole from 1087' to 1270'. Considerable torque from 1185' to 1270'. Appears to have rocks beside the BHA. Requires several reaming runs per connection to clear hole.
				BHA: 8 1/2" bit; Daily DM100 mud motor; float sub; 4 - 6 1/2" DC; Crossover to 134 drill pipe. Overall length: 104.37'
Total		**24.00**	**Hours**	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys		
Depth	Inclination	Temp

Mud Surface Temp. Micro		
Time	In	Out
0:00:00	static	n/a
6:00	static	n/a
12:00	30.9	n/a
18:00	30.8	n/a
24:00:00	30.9	n/a

Temp.
18

Wind
SSE-20

Daily Mud Report	Time of day	
Mud properties @	7:00	22:30
MW	9.2	9.4
Funnel Visc.	38.0	39.0
PV	12.0	11.0
YP	13.0	15.0
F/L	19.0	18.0
Flowline Temp.	static	29.0
pH	7.0	7.0
Chlorides(mg/l)/Ca++	52000/560	49000/660
%KCL	10.0	10.0
Freeze Point	23.0	23.0

Chemicals Mixed	
DeFoamX	220 gal
KCl	67 sx
FloVis	30 gal

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	3,116	2,793	7656	8,307	108,780
Received	5,405	vap/shp 2852	5042	3,195	4,200
Daily Usage	1,390	1,250	3482	1,491	
Cumulative Usage (est.)	84,058	48,466	45569	121,317	112,980
On Hand	3,084	2,695	9216	10,011	

2H 7550

Equipment Down:
DrillCool FinFan HEX-ruptured head
AQMS System

Comments:

Date: 4/15/2003
Rpt. No. 78

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Logging with SOS sonic log.

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

Current Depth (0600)	1403
Footage This Report	3
Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

From	To	Hours	IADC Code	Activity Time Summary
0:00	2:45	2.75	3	Open hole from 1270' to 1400'. Considerable torque and drag to 1335'.
2:45	3:00	0.25	2	Drill to 1403'. Additional 3' of hole for 7" casing rathole.
3:00	3:30	0.50	5	Circ & cond mud.
3:30			6	POH> Short trip 12 stands (to 923'). Had to pump first 4 stands out.
	5:00	1.50		Tight hole.
5:00			6	RIH 10 stands. Wash last 4 joints to bottom. Fill and tight
	6:00	1.00		on the last two joints.
6:00	8:30	2.50		Circulate & Condition - Pumped 25 Bbl. Sweep
8:30	14:00	5.50		POH - Pump & Backream From 1403 - 1240
14:00	15:00	1.00		Clean floor and remove slip system.
15:00	16:30	1.50		Rig Up Wire Line Logging Tools
16:30	18:30	2.00		Run Schlumberger logs: PEX suite from 1357' to 107' KB.
18:30	0:00	5.50		Stabilizer on logging tool hanging on shoe @ 107', trying to work past shoe.
				BHA: 8 1/2" bit; Daily DM100 mud motor; float sub; 4 - 6 1/2" DC; Crossover to 134 drill pipe. Overall length: 104.37'
	Total	24.00	Hours	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			0:00:00	30.9	n/a
			6:00	static	n/a
			12:00	static	n/a
			18:00	static	n/a
			24:00:00	static	n/a

Temp.
18
Wind
SW-7

Daily Mud Report	Time of day	
Mud properties @	8:00	23:00
MW	9.5	9.2
Funnel Visc.	44.0	43.0
PV	12.0	9.0
YP	18.0	15.0
F/L	15.0	18.0
Flowline Temp.	29.0	40.0
pH	7.0	7.0
Chlorides(mg/l)/Ca++	55000/640	51000/660
%KCL	10.5	10.0
Freeze Point	22.0	23.0

Chemicals Mixed

KCl 25 sx

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	3,084	2,695	9216	10,011	112,980
Received	3,392	vap/shp 2900	1572		2,600
Daily Usage	1,195	1,075	2706	1,597	
Cumulative Usage (est.)	85,253	49,541	48275	122,914	115,580
On Hand	4,643	1,764	8082	8,414	

Equipment Down:
DrillCool FinFan HEX-ruptured head
AQMS System
Drill Cool Plate Exchanger

2H 6400

Comments: Lost stand-off blade on PEX logging tool while pulling past bottom of conductor.
Sonic log went to TD of 1345'.

Date: 4/16/2003
Rpt. No. 79

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Pressure testing DrillCool exchanger

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

Environmental Incidents: 150 gal pot water spill on deck-all in bucket 17
2 cup glycol spill from Schlumberger unit-Cleaned up

From	To	Hours	IADC Code	Activity Time Summary
0:00	7:00	7.00	11	Running Schlumberger wireline logs. Had difficulty getting PEX tool to re-enter conductor casing. Finally retrieved tool. Lost one stand-off blade (teflon composite). Ran Sonic log from 1354' to 107' KB.
7:00	18:00	11.00		Run CMR log from 1340' to 107' KB. CMR telemetry was intermittent and loggers had to overlap about every 200'. log quality is reported to be good.CMR tool hanging up in conductor, work CMR through conductor. Rig down SOS
18:00	22:00	4.00		Wait on Drill Cool personnel to arrive from Deadhorse to repair Drill Cool units.
22:00	0:00	2.00		Drill Cool personnel repairing Drill Cool units.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			0:00:00	static	n/a
			6:00	static	n/a
			12:00	static	n/a
			18:00	static	n/a
			24:00:00	static	n/a

Temp.
14
Wind
E-2

Daily Mud Report	Time of day	
Mud properties @	9:00	22:30
MW	9.2	9.1
Funnel Visc.	38.0	37.0
PV	7.0	6.0
YP	12.0	13.0
F/L	NC	20.0
Flowline Temp.	60.0	on bank
pH	7.0	7.0
Chlorides(mg/l)/Ca++	59000/680	53000/640
%KCL	11.6	10.0
Freeze Point	21.9	23.0

Chemicals Mixed	
DEFOAMX	6
GR-CIDE	1

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	4,643	1,764	8,082	8,141	115,580
Received	3,392	vap/shp 3252	4,545		5,769
Daily Usage	1,764	1,588	1,213	1,360	
Cumulative Usage (est.)	85,822	50,054	46,782	122,677	121,349
On Hand	2,035	196	11,414	6,781	

Equipment Down:
DrillCool FinFan HEX-ruptured head
AQMS System
Drill Cool Plate Exchanger

2H 5769

Comments: DrillCool Plate&Frame exchanger being repaired. Critical plates deformed but repaired. Had to reuse gaskets. Air testing to 20 psi at 0515. Appears to be holding. Pit temp currently 68 deg.

Date: 4/17/2003
Rpt. No. 80

Hot Ice Project
Daily Drilling Report

Operation @ 0600: POOH to run 7" csg.

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

Current Depth (0600)	1403
Footage This Report	0
Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

From	To	Hours	IADC Code	Activity Time Summary
0:00	5:00	5.00		Repair DrillCool plate & frame heat exchanger. Straighten plates as required. Reuse gaskets. Considerable sand and mud solids in the exchanger.
5:00	7:00	2.00		Pressure test Plate & Frame exchanger with air to 20 psi. OK
7:00	12:30	5.50		Chilling mud below 32 deg. with Drill Cool.
12:30	15:00	2.50		RIH with mud motor and 6 1/2" drill collars while chilling pits.
15:00	18:00	3.00		Wash and ream to 1260'. Pit mud temp at 26 deg.
18:00	0:00	6.00		Swaco mud pump on trip tank lost pressure, remove rocks from pump, circulate through degasser to get air out of mud.Attempt to ream to bottom,Swaco pump losing pressure, shaker screens loading up with sand. Change out screens. Reaming @ 1340'.
	Total	24.00	Hours	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			0:00:00	static	n/a
			6:00	static	n/a
			12:00	34 pit	n/a
			18:00	27.0	n/a
			24:00:00	27.5	n/a

Temp.
14

Wind
SE-2

Daily Mud Report	Time of day	
Mud properties @	9:00	23:00
MW	9.2	9.1
Funnel Visc.	35.0	39.0
PV	5.0	10.0
YP	12.0	16.0
F/L	NC	NC
Flowline Temp.	75 pits	27.0
pH	7.0	7.0
Chlorides(mg/l)/Ca++	58000/680	54000/640
%KCL	11.4	10.0
Freeze Point	22.0	22.0

Chemicals Mixed	
DEFOAMX	11
GR-CIDE	2
FLO VIS L	1

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	2,035	196	11,414	6,781	121,349
Received	4,071	vap/shp 744	1,848	3,586	4,860
Daily Usage	2,223	2,001	1,918	1,243	
Cumulative Usage (est.)	88,045	52,055	48,700	123,920	126,209
On Hand	2,035	2,107	11,344	9,124	

Equipment Down:
AQMS System

2H 5850

Comments: Considerable amount of cuttings/sloughing in hole.
Lisa Woolam w/ G. V. Jones did sanitary survey on water treatment system.

Date: 4/19/2003
Rpt. No. 82

Hot Ice Project
Daily Drilling Report
Corrected

Operation @ 0600: Prep to set 7" emergency csg hanger

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

Current Depth (0600)	1403
Footage This Report	0
Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

From	To	Hours	IADC Code	Activity Time Summary
0:00	8:00	8.00		Run 7" csg. Casing stopped at 1370'.
8:00	13:00	5.00		Attempt to circulate. Hole packing off, reduce flow rate and work casing until full circulation restored.PJSM irculate while rigging up to cement
13:00	15:00	2.00		Pump 5 bbls wtr. Test lines to 200 psi. OK. Pump 30 bbls. mud push spacer. Drop btm plug. Pump 92 bbl. lead slurry, 11 ppg CemCRETE. Pump tail slurry, 80 bbls 12 ppg Hot Ice Special blend. Drop top plug. Displace with 5 bbl wtr followed by 46.4 bbl. 9.3 ppg inhibited KCL brine @ 4 bpm. Max circ. pressure 355 psi. Full returns throughout job. Reciprocate csg. 3' strokes. Bumped plug with 762 psi. Check floats- held OK. Cmt. to surface on last 40 bbls. of displacement. CIP @ 14:53, 4/19/03.
15:00	18:00	3.00		Rig down Schlumberger and ship cmt contam. mud for disposal.
18:00	0:00	6.00		Clean rig floor and cellar-wait on cement
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			24:00:00	26.0	26.0

Temp.
6
Wind
SE-6

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW	**9.2**	**9.1**
Funnel Visc.	**41.0**	**39.0**
PV	**12.0**	**12.0**
YP	**17.0**	**18.0**
F/L	**NC**	**NC**
Flowline Temp.	**26.0**	**WOC**
pH	**7.0**	**8.0**
Chlorides(mg/l)/Ca++	**56000/720**	**56000/960**
%KCL	**11.0**	**11.0**
Freeze Point	**22.4**	**22.0**

Chemicals Mixed	
Sodium-bi	11
DEFOMX	6
SAPP	28

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	4,675	3,038	10,494	8,591	128,509
Received	3,376		1,525		4,075
Daily Usage	1,851	1,666	6,773	1,739	
Cumulative Usage (est.)	89,896	53,721	55,473	125,659	132,584
On Hand	4,007	4,704	5,246	6,852	

Equipment Down:
AQMS System
DrillCool HEX

2H 4000

Comments: **Mobilizing 150-ton crane to Hot Ice today**
Rigging down lab/Xray

Date: 4/20/2003
Rpt. No. 83

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Suspension Operations

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

Current Depth (0600)	1403
Footage This Report	0
Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

From	To	Hours	IADC Code	Activity Time Summary
0:00	3:00	3.00		WOC. Clean and straighten tools on rig. Clean cellar. Install 5" rams.
3:00	6:00	3.00		Nipple down stack to pick up and set casing slips.
6:00	10:00	4.00		Wait on 7" casing spear. Casing collar preventing slips from going in landing area. Release tension on casing and remove joint above slip area. Install slips.
10:00	12:00	2.00		Run 7" spear. Engage stub. Pull tension and set slips.
12:00	21:00	9.00		Dress stub. Attempt to run casing packoff. Would not go. Redress stub. Modify junk ring on packoff assembly. Run packoff and tighten lockdown screws. Set down BOP and Hammer up bolts. Test packoff to 3250 psi. for ten minutes-OK
21:00	0:00	3.00		Nipple up rotating head. Clean cement from flow line and nipple up. Test csg to 500 psi for five minutes-OK.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
14
Wind
E-4

Daily Mud Report	Time of day	
Mud properties @	23:00	
MW	9.3	
Funnel Visc.	28.0	
PV	Surplus	
YP	in	
F/L	Pits	
Flowline Temp.	To	
pH	be	
Chlorides(mg/l)/Ca++	Disposed	
%KCL	10.0	
Freeze Point	23.0	

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	4,007	4,704	5,246	6,852	132,584
Received	3,816		2,165		2,600
Daily Usage	1,651	1,486	2,165	1,314	
Cumulative Usage (est.)	91,547	55,207	57,908	126,973	135,184
On Hand	3,498	4,704	5,246	5,538	

Equipment Down:
AQMS System
DrillCool HEX

2H 3400

Comments: Mobilizing crane to Hot Ice. Moved crane unit & outrigger boxes. Move boom & counterweights today.

Date: 4/21/2003
Rpt. No. 84

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Preparing to remove 50-ton crane from deck
Suspension operations

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

Environmental Incidents: 2 gallon pot. water spill. Hose connection failed. Contained & cleaned up.

From	To	Hours	IADC Code	Activity Time Summary
0:00	2:30	2.50	6	RIH open ended to 220'. Reverse out mud with compressed air to 220' KB.
2:30	6:00	3.50	21	Clear tools and equipment from rig floor and store.
6:00	18:00	12.00	1	RD tools for suspension. Drain rig day fuel tank to wellbore from 220' to 45' KB. (19' below ground level). Closed blind rams. Depressure Koomey (isolated bottles keeping 1000 psi on bladders) Remove control hoses between Koomey and BOP stack. General suspension activities on platform. Backhaul excess mud material & 7" casing and tools. Hauling and rigging up 150-ton crane.
18:00	19:30	1.50		Finish rigging up crane, Thawing water line to mud pits.
19:30	23:00	3.50		Set Koomy lines off platform and box for shipping.Packing and inventorying equipment to be shipped to Deadhorse.
23:00	0:00	1.00		Rolligon returned from 2-H with mud house, load with 115 bbbls. mud and ship to 2-H.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
12
Wind
calm

Daily Mud Report	Time of day	
	NA	NA
MW	Unloading	Pits
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	3,498	5,390	5,246	5,538	135,184
Received	2,071		764		
Daily Usage	1,307	1,176	4,308	1,633	
Cumulative Usage (est.)	92,854	56,383	62,216	127,292	135,184
On Hand	4,070	6,566	1,702	3,905	

2H 2850

Equipment Down:
AQMS System
DrillCool HEX & Plate & Frame

Comments: As of 0600, hauled total of 280 bbls mud from pits fir disposal at DS4 G&I.

Date: 4/23/2003
Rpt. No. 86

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Suspension operations

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

Current Depth (0600)	1403
Footage This Report	0
7" Casing Shoe	1367'
Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

From	To	Hours	IADC Code	Activity Time Summary
0:00	0:00	24.00		Continue shipping 150 ton crane to 2-H. Clean mud tanks and Drill Cool and ship residue to 2-H. Remove escape ladders and place inside pipe shed.Continue cleaning and storing hoses. Drain, clean and fill pumps with anti-freeze. Remove & Rack remaining Dura-Mats, send same to 2H. Pickup & Store loose items off deck. Remove & Store Tioga Ducting in Rig Enclosure.
	Total	24.00	Hours	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
13
Wind
N-7

Daily Mud Report	Time of day	
	NA	NA
MW	Pits	Empty
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	3,024	5,000	852	3,145	135,184
Received	1,293		0	-	-
Daily Usage	1,837	1,370	852	560	
Cumulative Usage (est.)	96,528	59,123	63,920	128,612	135,184
On Hand	2,480	6,370	0	2,585	

Equipment Down:

2H 5200

Comments: Released Dynatec drilling rig @ 00:00 hrs.

Date: 4/24/2003
Rpt. No. 87

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Suspension operations

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

Current Depth (0600)	1403
Footage This Report	0
7" Casing Shoe	1367'
Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

From	To	Hours	IADC Code	Activity Time Summary
0:00	24:00	24.00		Pickup & Store loose items off deck. Changed Oil On #1 & #2 Generator Sets. Install Roof Caps On Accommodation. Secure/Weld Straps On Conex Doors. Remove North Stairway From Accommodation. Backload and Ship Four Loads to 2H. Offload Excess Groceries & Ship 3 Pallets To 2H/Deadhorse. Pack & Store Safety Equipment, Office Equipment, Etc. Demob 50 Ton Crane.
Total		**24.00**	**Hours**	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
13
Wind
N-7

Daily Mud Report	Time of day		Chemicals Mixed
	NA	NA	
MW	Pits	Empty	
Funnel Visc.			
PV			
YP			
F/L			
Flowline Temp.			
pH			
Chlorides(mg/l)/Ca++			
%KCL			
Freeze Point			

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	2,480	6,370	0	2,585	135,184
Received	2,375	(3,305)	0	3,326	-
Daily Usage	1,993	2,374	-	1,509	
Cumulative Usage (est.)	98,677	60,127	63,920	130,121	135,184
On Hand	2,862	5,439	0	4,402	

Equipment Down:

2H 4100

Comments: Gary Schultz of DNR Conducted Site Inspection and Gave Verbal Approval.
Stated He Would Follow-up With An Email To Bob.
Loaded Trailers & Hauled Three Loads From 2H to Deadhorse.

Date: 4/25/2003
Rpt. No. 88

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Suspension operations

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

Current Depth (0600)	1403
Footage This Report	0
7" Casing Shoe	1367'
Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

From	To	Hours	IADC Code	Activity Time Summary
0:00	24:00	24.00		Pickup & Store loose items off deck. Secure/Weld Straps On Conex Doors. Backload and Ship Manlift & Waste Bin To 2H. Tear Out 18 Mats From Snow Ramp & Ship To 2H. Board Up Accommodations Windows, Remove Satellite TV Dish. Pack & Store Safety Equipment, Office Equipment, Etc. Hauled Aluminum Welding Machines, Spare Duck Ponds, Peak Heater Hoses & Office Supplies to 2H In Mattrack - 3 Trips. Demobbed Loader to 2H. Hauled 2 Loads Grey Water to 2H.
	Total	24.00	Hours	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Peak Light Plants (1)		DS-2H
Heater (1)		Hot Ice
Mattracks (2)		DS-2H
RD-105 Tractor & Trailer		DS-2H
RT-85 Tractor Trailer		DS-2H
RT-85 w/Water House		DS-2H
RT-85 w/ 3500 gal Fuel		Hot Ice
Peak 50T crane		Hot Ice
Welding Machine		Hot Ice

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
35
Wind
SW-5

Daily Mud Report	Time of day	
	NA	NA
MW	Pits	Empty
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	2,862	5,439	0	4,402	135,184
Received	2,068	(3,554)	0		-
Daily Usage	1,655	2,035	-	852	
Cumulative Usage (est.)	100,332	7,474	63,920	130,973	135,184
On Hand	3,275	3,920	0	3,550	

Equipment Down:

2H-4169

Comments: Peak Loader Released & Offsite Enroute to 2H @ 2100 hours.
Catco 90-14 & 90-18 Rolligons Released & Offsite Enroute to 2H @ 2100 Hours.

Date: 4/27/2003
Rpt. No. 90

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Suspension Operations

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

Current Depth (0600)	1403
Footage This Report	0
7" Casing Shoe	1367'
Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

From	To	Hours	IADC Code	Activity Time Summary
0:00	24:00	24.00		Clean Kitchen Grease Trap. Shut Down Camp Water Supply & Drain All Lines. Pump Out Grey Water Lift Station & Vacuum Dry. Disconnect Emergency Lighting & Alarm Panel Battries. Shut Down Generator Power & Preserve Generators. (Reference Generator Startup Procedure In Activation Folder, "Desiccant Installed In Air Intakes & Exhaust Discharge Pipe Sealed") Secure Camp & Support Unit Doors, Elevate Stair, Demob Shut Down Personnel To 2H At 1800 Hours.
Total		**24.00**	**Hours**	

Rental Equipment		Location
Catco 32 Bed Camp		DS-2H
Catco Loader		DS-2H
Catco Pickup (1)		DS-2H
Mattracks (2)		DS-2H

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
28
Wind
NE- 20

Daily Mud Report	Time of day	
	NA	NA
MW	Pits	Empty
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	1,113	931	0	3,550	135,184
Received		(2,044)	0		-
Daily Usage	1,113	1,113	-	(741)	
Cumulative Usage (est.)	103,607	65,437	63,920	131,114	135,184
On Hand	0	0	0	4,291	0

Equipment Down:

2H-2800

Comments: **Shipped Remainder of Equipment From 2H to Deadhorse.**
Note: Total Fuel Inclusive Of Day Tanks As Per Consumable Sheet Attached.

Date: 4/28/2003
Rpt. No. 91

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Suspension Operations

Accidents/Injuries: None Reported

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: None Reported

Current Depth (0600)	1403
Footage This Report	0
7" Casing Shoe	1367'
Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

From	To	Hours	IADC Code	Activity Time Summary
0:00	24:00	24.00		Demob Personnel to Deadhorse Airport Load Mattracks & Deliver To Peak Light Vehicle Shop, For Service And Installation Of Tires. Observe Catco Demobilization Of Canning River Camp. Conduct Inspection & General Cleanup Of 2H Pad. Assist Deadhorse Warehouse With Material Disposition.
	Total	24.00	Hours	

Rental Equipment		Location
Catco 32 Bed Camp		DEMOB
Catco Loader		DEMOB
Catco Pickup (1)		DEMOB
Mattracks (2)		Deadhorse

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
28
Wind
NE- 20

Daily Mud Report	Time of day	
	NA	NA
MW	Pits	Empty
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	1,113	931	0	3,550	135,184
Received		(2,044)	0		-
Daily Usage	1,113	1,113	-	882	
Cumulative Usage (est.)	103,607	65,437	63,920	132,737	135,184
On Hand	0	0	0	2,668	0

Equipment Down:

2H-3200

Comments: Attempting To Sign Off 2H Pad Today.

Date: 4/29/2003
Rpt. No. 92

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Suspension Operations

Accidents/Injuries: None Reported

Safety:

Environmental Incidents: None Reported

Current Depth (0600)	1403
Footage This Report	0
7" Casing Shoe	1367'
Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

From	To	Hours	IADC Code	Activity Time Summary
6:00	18:00	12.00		Inspect & Sign Off On CPAI DS2H Staging Pad Received One Mattrack From Peak Light Vehicle Shop Pack, Ship, & Distribute Material From Deadhorse Warehouse Company Man & ACS Technician Departed Deadhorse
	Total	12.00	Hours	

Rental Equipment		Location
Mattracks (2)		Deadhorse

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
32
Wind
NE- 20

Daily Mud Report	Time of day	
	NA	NA
MW	Pits	Empty
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	1,113	931	0	3,550	135,184
Received		(2,044)	0		-
Daily Usage	1,113	1,113	-	882	
Cumulative Usage (est.)	103,607	65,437	63,920	132,737	135,184
On Hand	0	0	0	2,668	0

Equipment Down:

2H-3200

Comments: **CPAI DS2H Staging Pad Signed Off At 1000 Hours By Tara Essary & Jeff Smith Of CPAI, Craig Watson & Victor Wylagala Representing Anadarko.**

Date: 4/30/2003
Rpt. No. 93

Hot Ice Project
Daily Drilling Report

Operation @ 0600: Suspension Operations

Accidents/Injuries: None Reported

Safety:

Environmental Incidents: None Reported

Current Depth (0600)	1403
Footage This Report	0
7" Casing Shoe	1367'
Total Well Footage Cored	1293'
Total Well Core Recovered	1198.1'
Core Recovery Percentage	92.7%

From	To	Hours	IADC Code	Activity Time Summary
6:00	18:00	12.00		Received One Mattrack From Peak Light Vehicle Shop Pack, Ship, & Distribute Material From Deadhorse Warehouse Dynatec Driver Depart on PM Flight.
	Total	12.00	Hours	

Rental Equipment		Location
Mattracks (2)		Deadhorse

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
32
Wind
NE- 20

Daily Mud Report	Time of day	
	NA	NA
MW	Pits	Empty
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake MO167
Previous Balance	1,113	931	0	3,550	135,184
Received		(2,044)	0		-
Daily Usage	1,113	1,113	-	882	
Cumulative Usage (est.)	103,607	65,437	63,920	132,737	135,184
On Hand	0	0	0	2,668	0

Equipment Down:

2H-3200

Comments:

Appendix B: Daily Drilling Reports for 2003-2004 Drilling Season

Date: 1/12/2004
Rpt. No. 1

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Ice Road Construction - Deadhorse Set-up

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: None Reported

From	To	Hours	IADC Code	Activity Time Summary
				Lake K209 open, Water house set & profiling complete Ice road pioneered .3 miles, construction 50% complete .2 miles 3080 Bbls water 210 yds ice chips 8 man crew, additional crew anticipated in near future Note: Power line elevation is 29.7' AGL, need to adjust for ice road Note: Daily costs reflect standby obligations from Jan. 01, 2004 to present as well as Drlg. Supt & ECT time in Anchorage
Total		**0.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (2)	Dynatech	Deadhorse
Pickup Trucks (3)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
-5
Wind
5 - 10

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	
MW			
Funnel Visc.			
PV			
YP			
F/L			
Flowline Temp.			
pH			
Chlorides(mg/l)/Ca++			
%KCL			
Freeze Point			

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance					840	-
Received					3,080	210
Daily Usage						
Cumulative Usage (est.)					3,920	210
On Hand						

Equipment Down:

Comments: **Craig Watson in Anchorage**
Barb Vanderwende in Anchorage
Ali Kadaster in Anchorage

Date: 1/13/2004
Rpt. No. 2

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Ice Road Construction - Deadhorse Set-up

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: None Reported

From	To	Hours	IADC Code	Activity Time Summary
				Continued road pioneeering to 1st stream crossing (PI #3) Ice road pioneered .9 miles, construction 70% complete .2 miles 4,235 Bbls water 90 yds ice chips 10 man crew, additional crew anticipated in near future Expect 6 additional workers by end of tour on 1/14/04
Total		**0.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (2)	Dynatech	Deadhorse
Pickup Trucks (3)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
-5 / -20
Wind
5 - 10

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water - Bbls)	Lake K209 (ice chips - yds)
Previous Balance					3,920	210
Received					4,235	90
Daily Usage						
Cumulative Usage (est.)					8,155	300
On Hand						

Equipment Down:

Comments: Craig Watson in Anchorage
Barb Vanderwende in Anchorage
Ali Kadaster in Anchorage

Date: 1/14/2004
Rpt. No. 3

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Ice Road Construction - Deadhorse Set-up

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: None Reported

From	To	Hours	IADC Code	Activity Time Summary
				Continued road pioneeering past 1st stream crossing (PI #4) Ice road pioneered .9 miles, construction 80% complete .8 miles 6,195 Bbls water 1,050 yds ice chips 22 man crew, full contingency
Total		0.00	Hours	

Rental Equipment		Location
Pickup Trucks (2)	Dynatech	Deadhorse
Pickup Trucks (3)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
-15 / -25	
Wind	
0 - 10	

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209	Lake K209 (ice chips - yds)
Previous Balance					8,155	300
Received					6,195	1,050
Daily Usage						
Cumulative Usage (est.)					14,350	1,350
On Hand						

Equipment Down:

Comments: Craig Watson in Anchorage
Barb Vanderwende in Anchorage
Ali Kadaster in Anchorage

Date: 1/15/2004
Rpt. No. 4

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Ice Road Construction - Deadhorse Set-up

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: None Reported

From	To	Hours	IADC Code	Activity Time Summary
				Continued road pioneeering past 1st stream crossing Ice road pioneered 2.8 miles, construction 80% complete 1.7 miles 9,030 Bbls water 1,080 yds ice chips 19 man crew, full contingency Lab Units Arrived in Deadhorse NED Drill Smart Equipment Arrived in Deadhorse Mud Chiller Fluid Arrived in Deadhorse Drill Cool Misc. Arrived in Deadhorse
Total		**0.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (2)	Dynatech	Deadhorse
Pickup Trucks (3)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
-20 / -40
Wind
0 - 10

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance					14,350	1,350
Received					9,030	1,080
Daily Usage						
Cumulative Usage (est.)					23,380	2,430
On Hand						

Equipment Down:

Comments: Craig Watson in Anchorage
Barb Vanderwende in Anchorage
Ali Kadaster in Anchorage

Date: 1/16/2004
Rpt. No. 5

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Ice Road Construction - Deadhorse Set-up

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: None Reported

From	To	Hours	IADC Code	Activity Time Summary
				Continued road pioneeering past 1st stream crossing Ice road pioneered 3.4 miles, construction 80% complete 3.0 miles Continue work on pipeline ramp & security guard shack pad Pipeline crossing 75% complete Hauling hot water to thaw out equipment 9,415 Bbls water 930 yds ice chips 20 man crew, full contingency Send two Dynatec trucks and Mattracks back to SLC
Total		**0.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
-20 / -40
Wind
0 - 10

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance					23,380	2,430
Received					9,415	930
Daily Usage						
Cumulative Usage (est.)					32,795	3,360
On Hand						

Equipment Down:

Comments: Craig Watson in Anchorage
Barb Vanderwende in Anchorage
Ali Kadaster in Anchorage

Date: 1/17/2004
Rpt. No. 6

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Ice Road Construction - Deadhorse Set-up

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: None Reported

From	To	Hours	IADC Code	Activity Time Summary
				Continued road pioneeering past 1st stream crossing Ice road pioneered 0.7 miles, construction 80% complete 3.7 miles Continue work on pipeline ramp & move security guard shack Maintenance on completed sections of road. 9,385 Bbls water 720 yds ice chips 21 man crew, full contingency
Total		0.00	Hours	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
-20 / -30
Wind
10 - 15

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance					32,795	3,360
Received					9,385	720
Daily Usage						
Cumulative Usage (est.)					42,180	4,080
On Hand						

Equipment Down:

Comments: Craig Watson in Anchorage
Barb Vanderwende in Anchorage
Ali Kadaster in Anchorage

Date: 1/18/2004
Rpt. No. 7

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Ice Road Construction - Deadhorse Set-up

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: None Reported

From	To	Hours	IADC Code	Activity Time Summary
				Constuction of ice road to Hot Ice #1 location is in to location and 90% complete. One generator running at camp. Continue to move snow away from platform. Guard shack is in place with Gen running. 7,350 Bbls water 150 yds ice chips 21 man crew, full contingency Snow drift around Platform 4' North Side 8' West Side 18" average on deck No snow under platform
	Total	**0.00**	**Hours**	

Rental Equipment		**Location**
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
5 Light Plants	GBR	Hot Ice #1
1 Security Guard Shack	Arctic Cater	Hot Ice #1
1 Gen Set	Peak	Hot Ice #1
4 Heater	2GBR/2Veco	Hot Ice #1
2 welding units	GBR	Hot Ice #1

Data Logger Surveys			**Mud Surface Temp. Micro**		
Depth	**Inclination**	**Temp**	**Time**	**In**	**Out**

Temp.
-18 / -24
Wind
10 - 20

Daily Mud Report	**Time of day**	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	**Hot Ice Potable**	**Hot Ice Grey**	**Main Wtr. Storage**	**Hot Ice Fuel**	**Lake K209 (water-Bbls)**	**Lake K209 (ice chips - yds)**
Previous Balance					42,180	4,080
Received					7,350	150
Daily Usage						
Cumulative Usage (est.)					49,530	4,230
On Hand						

Equipment Down:

Comments:

Date: 1/19/2004
Rpt. No. 8

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Ice Road Construction - Deadhorse Set-up

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: None Reported

Drilling Supervisors: C. Watson, D. Thompson, R. Wall, T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
				Constuction of ice road to Hot Ice #1 location is in to location and 100% complete. Continue crushing / packing / watering snow on pad and enlarging pad. Two generators been tested and running on one. Weather Station is running. Approximately 50% of snow removed from platform. n/a Bbls water n/a yds ice chips 21 man crew, full contingency
Total		**0.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
5 Light Plants	GBR	Hot Ice #1
1 Security Guard Shack	Arctic Cater	Hot Ice #1
1 Gen Set	Peak	Hot Ice #1
4 Heater	2GBR/2Veco	Hot Ice #1
2 welding units	GBR	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
-20 / -25	
Wind	
10 - 15	

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	
MW			
Funnel Visc.			
PV			
YP			
F/L			
Flowline Temp.			
pH			
Chlorides(mg/l)/Ca++			
%KCL			
Freeze Point			

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance					49,530	4,230
Received					8,425	0
Daily Usage						
Cumulative Usage (est.)					57,955	4,230
On Hand						

Equipment Down:

Comments:

Date: 1/20/2004
Rpt. No. 9

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Ice Road Construction - Deadhorse Set-up

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: None Reported

Drilling Supervisors: C. Watson, D. Thompson, R. Wall, T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
				Constuction of ice road to Hot Ice #1 location is in to location and 100% complete. Continue crushing / packing / watering snow on pad and enlarging pad. Ice Pad 80% Complete. Pipeline Crossing 100% Complete. n/a Bbls water n/a yds ice chips 21 man crew, full contingency Phase I Weather In Field Conducted Prespud Meeting In Deadhorse. 480 Volt Transformer Operational Two Tiogas Operational - Heating Enclosure Incinerator Operational Telephone Intercom Operational Water Process Sytem Ready To Receive Potable Water
Total		**0.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
5 Light Plants	GBR	Hot Ice #1
1 Security Guard Shack	Arctic Cater	Hot Ice #1
1 Gen Set	Peak	Hot Ice #1
4 Heater	2GBR/2Veco	Hot Ice #1
2 Welding Units	GBR	Hot Ice #1
2 Man Lifts	Airport Rntls	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
-15 / -20
Wind
15 / 25

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance					57,955	4,230
Received					9,500	0
Daily Usage						
Cumulative Usage (est.)					67,455	4,230
On Hand						

Equipment Down:

Comments:

Date: 1/21/2004
Rpt. No. 10

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Ice Road Construction - Deadhorse Set-up

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: None Reported

Drilling Supervisors: C. Watson, D. Thompson, R. Wall, T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
				Constuction of ice road to Hot Ice #1 location is in to location and 100% complete. Continue crushing / packing / watering snow on pad, enlarging pad, and flooding under platform. Ice Pad 80% complete. Working on helipad. Pipeline Crossing 100% Complete. n/a Bbls water 0 yds ice chips 19 man ice construction crew Mtg w/ CPAI in KRU, review operations and contacts. CPAI (2) toured platform Continuing platform rig up and preparation. Delivered water to potable system to prepare for state certification. Started filling fuel tankage on board. Continue snow removal on platform. Broke tour with crews. DrillCool started repairs & modifications to Mud Chiller. Ali Kadaster to Houston.
Total		**0.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Gen Set (1)	Peak	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
Welding Units (2)	GBR	Hot Ice #1
Man Lifts (2)	Airport Rntls	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
-15 / -25
Wind
15 / 20

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	
MW			
Funnel Visc.			
PV			
YP			
F/L			
Flowline Temp.			
pH			
Chlorides(mg/l)/Ca++			
%KCL			
Freeze Point			

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance					67,455	4,230
Received					10,675	150
Daily Usage						
Cumulative Usage (est.)					78,130	4,380
On Hand						

Equipment Down:

Comments:

Date: 1/22/2004
Rpt. No. 11

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Ice Road Construction - Deadhorse Set-up

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: None Reported

Drilling Supervisors: C. Watson, T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
				Heliport and heliport lights are 100% complete. Location is 100% constructed including deflectors Platform snow removal 80% complete. All 4 Heaters are working in pipe rack area and accumulator room - thawing out Water system has been circulated, will be sent in 1/23/04 for test n/a Bbls water 0 yds ice chips 18 man ice construction crew Dura Base 80% installed on north side Telephones, e-mail, and internet operable. 4 light plants running Delivered water to potable system to prepare for state certification. Should move majority of personnel from KCC to rig camp. Swaco 25% rigged up DrillCool 20% rigged up Flowline 0%
Total		**0.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Gen Set (1)	Peak	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
Welding Units (2)	GBR	Hot Ice #1
Man Lifts (2)	Airport Rntls	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
-15 / -25	
Wind	
15 / 20	

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance					79,380	4,380
Received					n/a	0
Daily Usage						
Cumulative Usage (est.)					#VALUE!	4,380
On Hand						

Equipment Down:

Comments:

Date: 1/23/2004
Rpt. No. 12

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Lift and set Swaco Vac unit

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: None Reported

Drilling Supervisors: C. Watson, T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
				Pressured up potable water system and hyperchlorinated the system and flushed same. Performed on-site test of the treated water from Kuparuk - OK. Acquire and delivered potable water sample to Deadhorse for coliform analysis.
				Completed laying Dura-base mats on North Side & lay liner 50% complete of Dura-base mats on West Side
				Crane arrived @ Guard Shack at 1230 hrs and under power lines at 1330 hrs. Crane on-site at 1400 hrs.
15:00	17:00	2.00		Safety Meeting. Rig-up crane and install North ladder on camp
17:00	18:30	1.50		Installed DrillCool 10' Repair Container
18:30	19:00	0.50		Set Lab Units 1 & 2.
19:00	20:00	1.00		Safety Meeting with Night Crew.
20:00	22:30	2.50		Set Lab Units 3 & 4 and set in Refer Unit. Refuel crane & S/D.
22:30	24:00	1.50		Removing snow from walk ways & re-route heat duct to Swaco unit
				Place 8 cones each for North and South Muster Points
				Swaco 40% rigged up / DrillCool 30% Rigged up / Flowline 15%
Total		**9.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Man Lifts (2)	Airport Rntls	Hot Ice #1
Heaters (4)	2GBR/1Veco	Hot Ice #1
Welding Units (2)	GBR	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
-20 / -30	
Wind	
5 / 15	

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance					79,380	4,380
Received					n/a	0
Daily Usage						
Cumulative Usage (est.)					#VALUE!	4,380
On Hand						

Equipment Down:

Comments:

Date: 1/24/2004
Rpt. No. 13

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Offload Mauer X-ray equipment

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: None Reported

Drilling Supervisors: C. Watson, T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	0600	6.00		Removing snow and ice from walk ways. Finish laying out cones for muster points.
0600	1800	12.00		Lift and set Swaco Vac unit. Move and reset heaters on deck to maximize heat efficiency and best utilize the heat ducts available. Continue to rig up DrillCool and Flowline / flowmeters. Set liquid mud and various other containers, supplies and equipment. Continue heat up and chip out ice from Swaco tanks.
1800	2400	6.00		S/D crane operations. Continue to heat up, chip out and remove ice from Swaco tanks. Offload various equipment for Mauer Eng. Continue to heat working area and inspect / check equipment. Make PM pass w/966 to gravel road & back to prevent high drifts. @ ~7PM received a call from NTL informing us that the coliform analysis did not pass inspection. Thus a second hyperchlorinated treatment must be performed and a potable water system sample sent to lab for coliform analysis.
				Swaco 60% rigged up / DrillCool 40% Rigged up / Flowline 30%
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Man Lifts (2)	Airport Rntls	Hot Ice #1
Heaters (4)	2GBR/1Veco	Hot Ice #1
Welding Units (2)	GBR	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
-10 / -25	
Wind	
15 / 25	

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance					79,380	4,380
Received					-	0
Daily Usage						
Cumulative Usage (est.)					79,380	4,380
On Hand						

Equipment Down:

Comments:

Date: 1/25/2004
Rpt. No. 14

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: R/U Swaco, DrillCool & Flowline; heat drilling work area

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.
Robert Achenbach was the weekly winter of the ICE program.

Environmental Incidents: None Reported

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Drilling Supervisors: C. Watson, T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	0600	6.00		Finish chipping and removing ice from Swaco tank bottom. Clean tank bottom. Ready to take on drilling mud. Continue to heat rig and inspect / check equipment & subs, repair as required.
0600	1800	12.00		Resume crane operations. Offload various supplies and equipment including MI's mud products. Continue to check // inspect rig. Continue to r/u Swaco, DrillCool, labs, DrillSmart and flow line. Backload Plywood, crane outrigger footings, fluid Tote's, high pressure washer, and various shipping boxes and containers.
1800	2400	6.00		Continue to check tools and subs. Attempt to take on drill water, severe leak on 3"OD x 4" nipple discharging from tank, will take on drill water 1/26. Continue to heat drill area and applying heat to gas degasser to melt ice. Hyper chlorinated the potable water tank and pumping / filter system. Performed on-site test of the potable water from Kuparuk - ok. Acquired and delivered potable water sample to DH for coliform anal. Swaco 75% rigged up / DrillCool 60% Rigged up / Flowline 50%
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Man Lifts (2)	Airport Rntls	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
Welding Units (2)	GBR	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
-10 / -22
Wind
10 / 20

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance					79,380	4,380
Received					-	0
Daily Usage						
Cumulative Usage (est.)					79,380	4,380
On Hand						

Equipment Down:

Comments: Released crane for demob back to Deadhorse at 6PM 1/25/04. Notify KCC Electrician at 7PM (voice mail).

Date: 1/26/2004
Rpt. No. 15

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Continue to rig up, check and repair equipment & heat rig

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: 2 gals of sewage on ice pad at Guard Shack

Drilling Supervisors: C. Watson, T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	0600	6.00		Continue to heat rig and inspect / check subs, repair as required. Take on mud for Swaco pill take for drilling out. Work on thawing out degasser. Disassemble drill water manifold. Layout accumulator lines - discovered lines had wrong fitting going to accumulator unit - order fittings.
0600	1800	12.00		Completed laying out Dura-base on west side and install 250' of 10" x10' berms along North and West side. Installed derrick racking platform and escape line. Connected and function tested BOP / accumulator lines. Picked up loose material around ice pad and to DH. Completed modifying flow line. Replaced one bad valve in Gray water tank. Took on 275 bbls of drilling mud and treated same. Continue to apply heat to Gas buster.
1800	2400	6.00		Work on Swaco Vac system. Continue to heat Gas Buster. Continue to inspect tools and prepare coring equipment. Noble 60% rigged up (installed 2 of 6 cameras). Swaco 85% rigged up / DrillCool 75% Rigged up / Flow line 90%
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Man Lifts (2)	Airport Rntls	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
Welding Units (2)	GBR	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			In the Pits @2000 hrs		70.0

Temp.
-5 / -15
Wind
10 / 15

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		9.3
Funnel Visc.		37.0
PV		4.0
YP		4.0
F/L		21.0
Flowline Temp.		n/a
pH		7.0
Chlorides(mg/l)/Ca++		68000.0
%KCL		
Freeze Point		

Chemicals Mixed

Received 275 bbls of 9.3 ppg Flo-Pro mud, mud was ariated in pits
Defoamer X, 5 gal bkts 8 buckets

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance					79,380	4,380
Received					-	0
Daily Usage						
Cumulative Usage (est.)					79,380	4,380
On Hand						

Equipment Down:

Comments: Expect to hear results today of our potable water samples sent to NTL.

Date: 1/27/2004
Rpt. No. 16

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Trip out of the hole to test BOP's with State Man.

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: No reportable incidents.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Drilling Supervisors: C. Watson, R. Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600	6.00		Continue to heat rig and inspect / check subs, repair as required. Continue to heat gas buster. Potable water system leaked through ball valve. Pump water out of bucket to Grey tank.
0600	1800	12.00		Thaw out gas buster. Drill out ice in BOP stack. Rig up rotating head Commission rig @ 1700 Hrs.to drill out the ice in the Bop's. Installed Handrails around Heater on D/S House.
1800	2400	6.00		Rig up pipe spinner for making connections. Take potable water on board. Swaco Vac system up and running. Trip in the hole, cleaned out ice @ 188' , then clear down to 900' MD Set up more heater hoses in the cellar. Rod threads all require descaling. Very rusty since last season. Noble 100% (5 cameras) / AQMS 90% / DrillCool 90% / Swaco 90% Flow Line Mods 100% / Fluid Measurement 50%
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Man Lifts (2)	Airport Rntls	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
Welding Units (2)	GBR	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			In the Pits @2000 hrs		70.0

Temp.	
10 to 20	below F.
Wind	
10 / 15	mph/ West

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		**9.3**
Funnel Visc.		**39.0**
PV		**5.0**
YP		**4.0**
F/L		**20.0**
Flowline Temp.		**62.0**
pH		**7.0**
Chlorides(mg/l)/Ca++		**68000.0**
%KCL		
Freeze Point		**8 deg F**

Chemicals Mixed
no chemicals mixed.

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	4,500	4,500	0	9,547	79,380	4,380
Received	7,600	(4,000)	9,310	-	-	0
Daily Usage	4,400		0	1,124		
Cumulative Usage (est.)	22,500		0		79,380	4,380
On Hand	7,700	500	9,310	8,423		

Equipment Down:

Comments: Passed water test. Potable water system up and running.
Ran 2 more heat ducts, off heater on top of pit system.

Date: 1/28/2004
Rpt. No. 17

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Drilling casing equipment

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Environmental Incidents: No reportable incidents.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Drilling Supervisors: C. Watson, R. Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0100	1.00		Set up two more blower hoses in cellar.
0100	0200	1.00		Trip in to 1202' MD. all pipe out of the derrick
0200	0300	1.00		Pick up 20 foot rods out of pipe shed, down to 1320' MD.
0300	0400	1.00		Tag cement @ 1304' MD. Circulate cement out. 70Gpm, 100Rpm.
0400	0600	2.00		Trip out of the hole.
0600	0700	1.00		Clean rig floor and set up to test.
0700	1800	11.00		Test Bop stack with State Man John Crisp. Door seals on blind rams blind flange,blinds and inner valves, outer valves,pipe rams,choke maifold, pipe rams, swaco choke manifold,annular
1800	2000	2.00		Casing test to 1500 psi for 30 minutes, test kelly hose to 1200 psi.
2000	2200	2.00		test floor safety valve. Unable to chart due to wash out in needle valve of test pump. Visually verified 3000 psi with State Man.
2200	2400	2.00		Rig down test pump, set wear bushing. Blow down kelly.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Man Lifts (1)	Airport Rntls	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
Welding Units (2)	GBR	Hot Ice #1

Data Logger Surveys		
Depth	Inclination	Temp

Mud Surface Temp. Micro		
Time	In	Out
In the Pits @2000 hrs		70.0

Temp.	
10 to 30	below F.
Wind	
5 / 10	mph/ West

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	no chemicals mixed.
MW		**9.3**	
Funnel Visc.		**39.0**	
PV		**5.0**	
YP		**4.0**	
F/L		**20.0**	
Flowline Temp.		**62.0**	
pH		**7.0**	
Chlorides(mg/l)/Ca++		**68000.0**	
%KCL			
Freeze Point		**14 deg F**	

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	7,700	4,500	9,310	8,423	79,380	4,380
Received	-	(4,000)	0	-	-	0
Daily Usage	3,948	1,558	234	1,680		
Cumulative Usage (est.)	22,500		0		79,380	4,380
On Hand	3,752	2,058	9,075	6,743		

Equipment Down:

Comments: Requested variance from State to drill out using hand held gas detectors versus the Radoil system.
Still needs calibrating.

Date: 1/29/2004
Rpt. No. 18

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600: Drilling casing equipment

Accidents/Injuries: None Reported

Current Depth (0600)	1403
Footage This Report	0

Safety: Pre-job safety meetings at the start of each tour.

Total Well Footage Cored	0
Total Well Core Recovered	0
Core Recovery Percentage	0.0%

Environmental Incidents: Manlift fuel spill. Estimated 1 gallon.
Leak in the fuel line. All cleaned up.

Drilling Supervisors: C. Watson, R. Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0200	2.00		Pick up drill bit, put new rubber on rotating head
0200	0300	1.00		Set rotating head in place, drill ice wedge at ground line.
0300	0400	1.00		Trip 80 feet in. Hit another ice wedge. Prepare to pump. 4" line froze trip out. Change hoses out.
0400	0430	0.50		Trip in the hole reaming through ice @ 50',
0430	0500	0.50		Mud lines in cellar by return tank and vortex pump all froze up. Trip
0500	0700	2.00		Take all the lines apart and thaw with weed burner, and heat duct
0700	1100	4.00		Thawed lines out and constructed the wind wall. Very good addition.
1100	1430	3.50		Trip in the hole to 1304'. tag cement.
1430	1500	0.50		Drill cement to 1312'.
1500	1530	0.50		Drill float collar to 1314'.
1530	1700	1.50		Drill cement and shoe @ 1358'., Clean hole down to 1398'
1700	2100	4.00		circulate hole clean,and change out mud.
2100	2400	3.00		clean pits and use Peak 200 BBl vac truck to empty all totes. Shipped 120 BBls of mud to pad 3 for disposal. 94% mud,5% diesel,1% pea gravel.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Man Lifts (1)	Airport Rntls	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
Welding Units (2)	GBR	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			In the Pits @2000 hrs		70.0

Temp.	
10 to24	below F.
Wind	
10 / 15	mph/ West

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		**9.3**
Funnel Visc.		**39.0**
PV		**5.0**
YP		**4.0**
F/L		**20.0**
Flowline Temp.		**62.0**
pH		**7.0**
Chlorides(mg/l)/Ca++		**68000.0**
%KCL		
Freeze Point		**14 deg F**

Chemicals Mixed
no chemicals mixed.

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	4,141	2,058	9,075	6,743	79,380	4,380
Received	2,671		0	4,000	-	0
Daily Usage	1,470	1,470	709	1,967		
Cumulative Usage (est.)	26,445		0		79,380	4,380
On Hand	5,088	3,528	8,366	8,776		

Equipment Down:

Comments:

Date: 1/30/2004
Rpt. No. 19

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600:Coring

Accidents/Injuries: None Reported

Current Depth 24:00 hrs	1413
Footage This Report	10

Safety: Core Retrieval & Handling Procedures

Total Well Footage Cored	10
Total Well Core Recovered	10
Core Recovery Percentage	100.0%

Environmental Incidents:

Drilling Supervisors: C. Watson, R. Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0100	1.00		Finish cleaning out totes, and pits.
0100	0200	1.00		Circulate new mud around, clean hole out to TD. 1403'
0200	0400	2.00		Pull back into casing, chill mud down from 70* F to 50* F
0400	0530	1.50		Circ. 500 Gpm through chiller, 40 Gpm down hole. 50* F to 43* F
0530	06:00	0.50		Pre-tour Safety Meeting
0600	0800	2.00		chill mud down to 26* F
0800	1000	2.00		trip out with tricone bit.
1000	1200	2.00		Out of Hole pick up core assembly
12:00	14:00	2.00		TIH
14:00	1730	3.50		Circulate & Calibrate Meters & Instrumentation
17:30	18:00	0.50		Pre-tour Safety Meeting
18:00	21:00	3.00		Work on 4" flowline loop, removing gravel & sediment
21:00	22:30	1.50		Circulate & Calibrate Meters & Instrumentation
22:30	2300	0.50		Make 3 conncections ream to bottom.
2300	2400	1.00		Core - 35 Gpm - 150 Rpm - 4k Wob.(1403 - 1413)
Total		**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Man Lifts (1)	Airport Rntls	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
			In the Pits @2000 hrs		27.0

Temp.	
15 to 25	below F.
Wind	
5 / 10	mph/ Northwest

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		**9.3**
Funnel Visc.		**38.0**
PV		**5.0**
YP		**8.0**
F/L		**19.0**
Flowline Temp.		**25.0**
pH		**7.0**
Chlorides(mg/l)/Ca++		**89000.0**
%KCL		
Freeze Point		**14.0**

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	5,088	3,528	8,366	8,776	79,380	4,380
Received	-	(4,000)	0	4,000	-	0
Daily Usage	1,908	1,452	1,086	1,615		
Cumulative Usage (est.)	26,445		0		79,380	4,380
On Hand	3,180	980	7,280	7,161		

Equipment Down:

Comments:

Date: 1/31/2004
Rpt. No. 20

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600:Coring

Accidents/Injuries: None Reported

Current Depth 24:00 hrs	1512
Footage This Report	99

Safety: Core Retrieval & Handling Procedures was covered again.

Total Well Footage Cored	109
Total Well Core Recovered	89
Core Recovery Percentage	81.0%

Environmental Incidents:

Drilling Supervisors: C. Watson, R. Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0100	1.00		Circulate, pull core #1(this season) drop next inner core.
0100	0200	1.00		Ream to bottom, tight, clay in the first core.
0200	0245	0.75		Core #2 recovered 2' Cement.
0245	0345	1.00		Go back down for the rest, no core.
0345	0415	0.50		Circulate for FIT.
0415	0445	0.50		FIT to 12.8 ppg
0445	0600	1.25		Core #3 1423' to 1431' 1hr. / Retrieve 7.1'.
0600	0730	1.50		Core to 1433' / Retrieve 4.4' Core
0730	0830	1.00		Perform F.I.T. Test - Leak Off Equal to 11.8 ppg mud.
0830	1200	3.50		Circ & Cond While Obtaining AOGCC Approval To Proceed.
1200	1830	6.50		Core From 1433' To 1475'
1830	1930	1.00		core from 1475' to 1485'
1930	2130	2.00		Parted the overshot rod.Build a fishing swedge.Pull out fish & core.
2130	2400	2.50		Core from 1485' to 1512'.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys		
Depth	Inclination	Temp

Mud Surface Temp. Micro		
Time	In	Out
0000	25.6	26.0
0600	25.0	25.5
1200	28.0	26.0
1800	26.0	25.0
2100	27.0	24.0

Temp.	
19 to 23	below F.
Wind	
5 / 15	mph/ Northwest

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		**9.3**
Funnel Visc.		**40.0**
PV		**8.0**
YP		**12.0**
F/L		**17.0**
Flowline Temp.		**25.0**
pH		**7.5**
Chlorides(mg/l)/Ca++		**84000.0**
%KCL		
Freeze Point		**14.0**

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	3,180	980	7,280	7,161	79,380	4,380
Received	3,362			4,250	-	0
Daily Usage or made	1,900	1,568	48	1,793		
Cumulative Usage (est.)	29,807				79,380	4,380
On Hand	4,642	2,548	7,231	9,618		

Equipment Down:

Comments:
Appoval obtained from Winton Aubert (AOGCC Anchorage) to proceed with coring well with an 11.8 ppg shoe test.
At the core depth of 1485', we pulled a broken overshot rod out, minus the overshot and core. The Tool Pusher built

Date: 2/1/2004
Rpt. No. 21

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST:Coring @ 1705'

Accidents/Injuries: None Reported

Current Depth 24:00 hrs	1688
Footage This Report	176

Safety: Tie off lines for safety harnesses were discussed.

Total Well Footage Cored	285
Total Well Core Recovered	256
Core Recovery Percentage	90.0%

Environmental Incidents: none reported.

Drilling Supervisors: C. Watson, R. Wall

From	To	Hours	IADC Code	Activity Time Summary
00.00	0245	2.75		Coring - 30 Gpm - 150 Rpm - 4 to 7 k Wob.(1512 to 1531)
0245	0300	0.25		Circulate, wait on Geology. Ice crystals , no hydrates. (1521 to 1531)
0300	0600	3.00		Coring - 30 Gpm - 150 Rpm - 4 to 7 k Wob.(1531 to 1555')
0600	1800	12.00		Coring - 30 Gpm - 150 Rpm - 4 to 7 Wob. (1555' to 1645'.)
1800	2400	6.00		Coring - 30 Gpm - 150 Rpm - 4 to 7 Wob. (1645' to 1688')
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
1501	2 °	29.7 °	0000	25.0	26.0
1541	2.2 °	28.8 °	200	25.0	26.0
1590	3.5 °	30 °	500	25.3	26.0
1627	3.4 °	31.8 °	1100	25.8	25.0
1669	1.8°	31.2°	2100	25.6	23.1
			2400	25.8	22.5

Temp.
18 to 30 below F.
Wind
10/ 20 mph/ Northwest

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	1 greencide can
MW		**9.4**	4 flovis cans
Funnel Visc.		**43.0**	2 KCL
PV		**6.0**	
YP		**11.0**	
F/L		**6.0**	
Flowline Temp.		**22.0**	
pH		**9.1**	
Chlorides(mg/l)/Ca++		**85000.0**	
%KCL			
Freeze Point		**14.0**	

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	5,024	2,156	7,231	9,618	79,380	4,380
Received	-			-	-	0
Daily Usage or made	1,399	1,372	415	1,545		
Cumulative Usage (est.)	31,206				79,380	4,380
On Hand	3,625	3,528	6,816	8,073		

Equipment Down:

Comments: **10 GPM = 75 psi / 35 GPM = 110 psi / 70 Gpm = 160 psi. hole depth 1683'.**
Dynamic well kill pump rates.

Date: 2/2/2004
Rpt. No. 22

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST:Coring @ 1846'

Accidents/Injuries: None Reported

Safety: Hard hat safety was covered.

Environmental Incidents: none reported.

Current Depth 24:00 hrs	1826
Footage This Report	138
Total Well Footage Cored	424
Total Well Core Recovered	388
Core Recovery Percentage	92.0%

Drilling Supervisors: C. Watson, R. Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600	6.00	4	Coring - 35 Gpm - 160 Rpm - 4 to 8 k Wob. (1688' to 1726')
0600	1530	9.50	4	Coring - 45/60 Gpm - 160 Rpm - 4 to 8 k Wob. (1726' to 1806')
1530	1630	1.00	21	Transfer Drill Fluid From Vacuum Totes Back To Shaker/Active Sys
1630	1800	1.50	4	Coring - 45/60 Gpm - 160 Rpm - 4 to 8 k Wob. (1806' 1826')
1800	2000	2.00	5	Circulate a sweep surface to surface, plus another bottoms up.
2000	2045	0.75	6	Trip into casing to put new flow meter in loop.
2045	2100	0.25	5	circulate / then blow all plumbing down to Swaco, and pump room.
2100	2230	1.50	22	Install new flow loop meter with Control Craft.
2230	2330	1.00	6	Trip back to bottom.
2330	2400	0.50	8	Ream 120 feet to bottom. Hole in great shape.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
1698	2.6º	32.9º	0000	25.0	23.0
1726	2.7º	30.8º	200	25.7	23.5
1816	3.4º	34.2º	400	26.3	25.8
			1000	26.0	24.5
			1800	27.5	25.0

Temp.	
18 to 30	below F.
Wind	
10/ 20	mph/ Northwest

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	20 KCL 50 lb. sxs
MW		**9.4**	5 defoam 5 gal cans.
Funnel Visc.		**43.0**	2 flovis 5 gal cans.
PV		**6.0**	
YP		**14.0**	
F/L		**7.0**	
Flowline Temp.		**21.0**	
pH		**9.1**	
Chlorides(mg/l)/Ca++		**93000.0**	
%KCL			
Freeze Point		**14.0**	

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	3,625	3,528	6,816	8,073	79,380	4,380
Received	2,925	4,410		4,190	-	0
Daily Usage or made	1,527	882	994	1,685		
Cumulative Usage (est.)	32,733				79,380	4,380
On Hand	5,025	10	5,822	9,758		

Equipment Down:

Comments: New flow loop meter appears to be working.

Date: 2/3/2004
Rpt. No. 23

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST:Coring @ 2023'.

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	1993
Footage This Report	167

Safety: Jewelry and rotating equipment, safety topic.

Total Well Footage Cored	591
Total Well Core Recovered	541
Core Recovery Percentage	92.0%

Environmental Incidents: NO spills.

Drilling Supervisors: R. Wall / D. Thompson

From	To	Hours	IADC Code	Activity Time Summary
0000	0930	9.50	4	Coring - 55 Gpm - 4 to 7 Wob - 300 Rpm - (1826' to 1895').
0930	1730	8.00	4	Coring - 55 Gpm - 4 to 7 Wob - 300 Rpm - (1895' to 1953')
1730	2000	2.50	4	Coring - 60 Gpm - 4 to 10k Wob - 300 Rpm - (1953 to 1973').
2000	2100	1.00	5	Circulate - work on shaker - jammed inner barrel - transfer mud
2100	2400	3.00	4	Coring - 58 Gpm - 6 to 10k Wob - 300 Rpm - (1973 to 1993').
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
1854	2.3º	31.8 º	0130	25.8 º	21 º
1880	3.2º	32.6º	600	25.9 º	21º
1915	2.9º	33.2º	1000	24.6º	19.2º
1953	2.3º	33.7º	1630	26.3º	23.3º
			2130	27.7º	26.3º
			2330	25.8º	26.9º

Temp.
25 to 32º below F.

Wind
2 / 5 mph/ West

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		**9.5**
Funnel Visc.		**45.0**
PV		**7.0**
YP		**17.0**
F/L		**7.4**
Flowline Temp.		**25.0**
pH		**8.9**
Chlorides(mg/l)/Ca++		**86000.0**
%KCL		
Freeze Point		**14.0**

Chemicals Mixed
18 KCL
1 Defoam X
1 Flo Vis L
1 Greencide.

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	5,025	10	5,822	9,758	79,380	4,380
Received	-	-		-	-	0
Daily Usage or made	1,464	2,146	710	1,895		
Cumulative Usage (est.)	34,197				79,380	4,380
On Hand	3,561	2,156	5,112	7,863		

Equipment Down:

Comments:

Date: 2/4/2004
Rpt. No. 24

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST:Coring @ 2121'.

Accidents/Injuries: No accidents or injuries.

Safety: Fishing for broken wireline was covered with rig crews.

Environmental Incidents: NO spills.

Current Depth 24:00 hrs	2102
Footage This Report	99
Total Well Footage Cored	699
Total Well Core Recovered	641
Core Recovery Percentage	92.0%

Drilling Supervisors: R. Wall / D. Thompson

From	To	Hours	IADC Code	Activity Time Summary
0000	0300	3.00	4	Coring - 55 Gpm - 4 to 7 Wob - 300 Rpm - (1993' to 2023').
0300	0500	2.00	4	Coring - 55 Gpm - 4 to 7 Wob - 300 Rpm - (2023' to 2039').
0500	0530	0.50	4	Coring, pulling the core out. Pulled tight. Wire line parted.
0530	0630	1.00	5	Circulate prior to pulling out of hole.
0630	0700	0.50	5	Line up pumps on trip tank to circulate across top of hole.
0700	0800	1.00	6	POOH 21 stds. to 1250' while circulating across top hole. Hole took proper fill. Trip for broken wire line.
0800				PJSM Splice wireline. Retrieve inner tube. Strip off worn wireline.
	1200	4.00	9	Install 3000' of new wireline.(Rig repair)
1200	1300	1.00	6	RIH to 2020'
1300	1330	0.50	5	Pump down inner barrel. Ream to bottom.
1330	1800	4.50	4	Coring -55 Gpm-4 to 7K Wob-300Rpm-(2039' to 2065').
1800	2400	6.00	4	Coring - 55 Gpm - 4 to 10k Wob - 300 Rpm - (2065' to 2102').
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
1993	1º	32.7º	100	26.8º	26.5º
2023	2.5º	33.5º	400	27º	27º
2066	1.1º	29.5º	2000	24.7º	29.4º
2092	2.7º	34.2º	2300	27.5º	28.1º

Temp.
15 to 25º below F.

Wind
2 / 5 mph/ West

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	21 KCL
MW		**9.4**	5 Defoam X
Funnel Visc.		**44.0**	1 drum of clay gaurd
PV		**7.0**	
YP		**14.0**	
F/L		**9.6**	
Flowline Temp.		**25.0**	
pH		**8.8**	
Chlorides(mg/l)/Ca++		**81000.0**	
%KCL			
Freeze Point		**14.0**	

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	3,561	2,156	5,112	7,863	79,380	4,380
Received	2,480	-		3,740	-	0
Daily Usage or made	1,208	1,176	1,136	1,530		
Cumulative Usage (est.)	35,405				79,380	4,380
On Hand	4,833	3,332	3,976	10,073		

Equipment Down:

Comments: **Picking up a night roustabout to help with house keeping, fueling, mud totes etc. Hauled away 22 cubic yards of used mud and cuttings to G&I plant. 40% mud 10.5 ppg & 60% cuttings. loaded up two Super Sucker trucks.**

Date: 2/5/2004
Rpt. No. 25

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST:circulating @ 2246(Broken wireline.)

Accidents/Injuries: No accidents or injuries.

Safety: Cold weather travel was discussed, including operating around heavy equipment, and the 'Phase Conditions', across the field.

Environmental Incidents: NO spills.

Current Depth 24:00 hrs	2240
Footage This Report	138
Total Well Footage Cored	837
Total Well Core Recovered	780
Core Recovery Percentage	93.0%

Drilling Supervisors: R. Wall / D. Thompson

From	To	Hours	IADC Code	Activity Time Summary
0000	0415	4.25	4	Coring - 40 Gpm - 200 Rpm - 4 to 7 Wob (2102' to 2129'.)
0415	0500	0.75	5	Circ. check out leak in Bean pumps. Clean up pump room, transfer tank room.
0500	1000	5.00	4	Coring - 40 Gpm - 200 Rpm - 4 to 7 Wob (2129' to 2146')
1000	1800	8.00	4	Coring 30/40 Gpm- 200/250 Rpm (2146' to 2200) Building mud.
1800	2400	6.00	4	Coring - 35 to 40 Gpm - 200 to 300 Rpm - 4/10k Wob (2200' to 2240').
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
2129	1.7º	34.5º	500	25.4º	25.7º
2210	2.1º	36.9º	2000	26.1º	24.9º
			2400	26.5º	26.9º

Temp.	
15 to 25º	below F.
Wind	
2 / 5	mph/ West

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	150 sxs KCl
MW		**9.6**	3 - 5 gal cans DeFoamX
Funnel Visc.		**53.0**	15 sxs Dual-Flo
PV		**8.0**	1 - 5 gal can FloVis L
YP		**16.0**	2 sxs Soda Ash
F/L		**6.8**	
Flowline Temp.		**27.0**	
pH		**9.6**	
Chlorides(mg/l)/Ca++		**94000.0**	
%KCL			
Freeze Point		**13.0**	

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	4,833	3,332	3,976	10,073	79,380	4,380
Received	-	2,254	7,600		-	0
Daily Usage or made	1,717	1,666	2,100	1,825		
Cumulative Usage (est.)	35,405				79,380	4,380
On Hand	3,116	2,744	8,153	8,248		

Equipment Down:

Comments: 100% recovery the last 24 hours.

Date: 2/6/2004
Rpt. No. 26

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Coring . 2256

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2246
Footage This Report	6

Safety: Personal hygene. Hand washing.Rig camps and viruses.

Total Well Footage Cored	843
Total Well Core Recovered	786
Core Recovery Percentage	93.0%

Environmental Incidents: NO spills.

Drilling Supervisors: R. Wall / D. Thompson

From	To	Hours	IADC Code	Activity Time Summary
0000	0200	2.00	4	Coring - 35 Gpm - 250 Rpm - 7k Wob - (2240 to 2246'.)
0200	0315	1.25	5	Circulate - broken wireline - on bottom. circ. BU. blow dn.
0315	0800	4.75	6	Trip out of hole.
0800	0900	1.00	6	Lay down core and core barrel.Inner barrel was jammed.
0900	1100	2.00	21	Wash rig and BOP stack.
1100	1930	8.50	15	Test Bop's.
1930	2130	2.00	21	Splice new wireline. spool it on.Pick up core assembly
2130	2400	2.50	6	Trip in. Drill ice wedge at ground line. Trip to shoe.Service rig.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
2246	1.4°	38°	100	26°	26°

Temp.	
10 to 20º	below F.
Wind	
2 / 5	mph/ West

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	2 - 5 gal can Greencide
MW		**9.6**	1 - 5 gal cans DeFoamX
Funnel Visc.		**48.0**	
PV		**7.0**	
YP		**13.0**	
F/L		**7.0**	
Flowline Temp.		**27.0**	
pH		**9.7**	
Chlorides(mg/l)/Ca++		**88000.0**	
%KCL			
Freeze Point		**14.0**	

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	3,116	2,744	8,153	8,248	79,380	4,380
Received	-	-	0		-	0
Daily Usage or made	1,781	1,568	1,063	1,690		
Cumulative Usage (est.)	37,185				79,380	4,380
On Hand	1,335	4,312	7,090	6,458		

Equipment Down:

Comments:

Date: 2/7/2004
Rpt. No. 27

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: @ wireline logging with Schlumberger

Accidents/Injuries: No accidents or injuries.

Safety: Fire extinguishers.

Environmental Incidents: NO spills.

Current Depth 24:00 hrs	2300
Footage This Report	54
Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: R. Wall / D. Thompson

From	To	Hours	IADC Code	Activity Time Summary
0000	0130	1.50	6	Trip to bottom
0130	0400	2.50	4	Coring - 35 Gpm - 300 Rpm - 4 to 7 Wob - (2246 to 2261'.)
0400	1200	8.00	4	Coring - 35 Gpm - 300 Rpm - 4 to 7 Wob - (2261' to 2299')
1200	1330	1.50	4	Core (2299' to 2300') TD Pump high vis pill.
1330	1400	0.50	4	Retrieve core
1400	1500	1.00	4	Rig up and run inclination survey.
1500	1800	3.00	6	POOH
1800	2400	6.00	11	Rig up and run in with Schlumberger logs. Run #1 Platform express.
	Total	24.00	Hours	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out
2300	1°	34°	300	27°	28°
			1200	27°	28°

Temp.	
22 to 35	below F.
Wind	
5 to 15	mph/ SW

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	7 sxs KCL
MW		9.5	2 - 5 gal Greencide
Funnel Visc.		49.0	1 - 5 gal FloVis L
PV		8.0	
YP		13.0	
F/L		7.6	
Flowline Temp.		27.0	
pH		9.5	
Chlorides(mg/l)/Ca++		86000.0	
%KCL			
Freeze Point		14.0	

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	1,335	4,312	7,090	6,458	79,380	4,380
Received	3,911	-	0	3,756	-	0
Daily Usage or made	1,049	1,078	532	1,824		
Cumulative Usage (est.)	38,234				79,380	4,380
On Hand	4,197	5,390	6,558	8,389		

Equipment Down:

Comments:

Date: 2/8/2004
Rpt. No. 28

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: @ Rigging down schlumberger

Accidents/Injuries: No accidents or injuries.

Safety: Reviewed our abandon platform drill from the day before.

Environmental Incidents: NO spills.

Current Depth 24:00 hrs	2300
Footage This Report	0
Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: R. Wall / D. Thompson

From	To	Hours	IADC Code	Activity Time Summary
0000	0100	1.00	11	Wireline log Platform express. Caliper log shows 6 to 7 inch hole size.
0100	0500	4.00	11	Wireline log run #2 Sonic logs/ with gamma ray.
0500	0600	1.00	11	Rig down SOS sonic log tools.
0600	1200	6.00	11	Rigging up to run SOS CMR log on drill pipe.Run #3
1200	1330	1.50	11	Run in hole with drill pi[pe to 600'. Circ.
1330	1500	1.50	9	Fan blade broke on Dynatec rig engine. Repair same.
1500	1600	1.00	11	Run in hole with drill pipe to 1250'.
1600	1800	2.00	11	Rig up and run side entry sub. Pump down SOS wet connect. Latch up and test all tools.
1800	1830	0.50	11	Pre job safety meeting with Schlumberger.
1830	2400	5.50	11	Tubing conveyed wire line run CMR.
				Trip to bottom, make a 200 foot repeat log, trip out.
	Total	24.00	Hours	

Rental Equipment	Location
Pickup Trucks (5)	Deadhorse
Passenger Van (1)	Deadhorse
Light Plants (5)	Hot Ice #1
Security Guard Shack (1)	Hot Ice #1
Heaters (4)	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
38 to 40	below F.
Wind	
5 to 15	mph/ SW

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		9.5
Funnel Visc.		49.0
PV		8.0
YP		16.0
F/L		7.8
Flowline Temp.		30.0
pH		9.5
Chlorides(mg/l)/Ca++		85000.0
%KCL		
Freeze Point		14.0

Chemicals Mixed

none.

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	4,197	5,390	6,558	8,389	79,380	4,380
Received	2,226	4,508	0	3,756	-	0
Daily Usage or made	1,526	1,372	425	1,824		
Cumulative Usage (est.)	39,760				79,380	4,380
On Hand	4,897	2,254	6,133	8,389		

Equipment Down:

Comments:

Date: 2/9/2004
Rpt. No. 29

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Picking up 3.5" rods for cement job.

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Phase 2 conditions in effect starting @ 1800hrs.
Discuss operating the over head crane in the high winds.

Environmental Incidents: NO spills.

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: R. Wall / D. Thompson

From	To	Hours	IADC Code	Activity Time Summary
0000	0400	4.00	11	In the casing by 00:01 hrs. Pull out probe, retrack wireline, trip out
0400	0500	1.00	11	Lay down all the Schlumberger CMR tools.
0500			6	Trip in the hole with 5" rods and core barrel. to circulate the hole clean
	0900	4.00	6	and come out laying the rods down.
0900	1600	7.00	5	Circulate at 2300'
1600	2100	5.00	6	POOH laying down 5" drill pipe into the pipe shed.
2100			6	Pick up 3.5" rods . 10 foot joints out of tub. Run in the hole and rack
	2400	3.00	6	back in the derrick for the cement P & A job.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
22 to 20	below F. 50 below wind chill.
Wind	
15 to 25	mph/ E Gusts to 40 mph/ Phase 2.

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	2 - 5 gal cans Greencide
MW		**9.5**	
Funnel Visc.		**46.0**	
PV		**7.0**	
YP		**14.0**	
F/L		**7.8**	
Flowline Temp.		**30.0**	
pH		**9.5**	
Chlorides(mg/l)/Ca++		**83000.0**	
%KCL			
Freeze Point		**15.0**	

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	4,897	2,254	6,133	9,617	79,380	4,380
Received	-	-	0	-	-	0
Daily Usage or made	1,272	1,176	355	1,826		
Cumulative Usage (est.)	41,032				79,380	4,380
On Hand	3,625	3,430	5,778	7,791		

Equipment Down:

Comments:

Date: 2/10/2004
Rpt. No. 30

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Running in the hole with VSP tubing.

Accidents/Injuries: No accidents or injuries.

Safety: Discussed accident on a rig. Safety harnesses and moving parts.

Environmental Incidents: NO spills.

Current Depth 24:00 hrs	2300
Footage This Report	0
Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: R. Wall / D. Thompson

From	To	Hours	IADC Code	Activity Time Summary
0000	0130	1.50	6	Picking up 3.5" HQ rod, 25 in the hole.
0130	0400	2.50	6	Picked 199 from outside into the pipe shed.
0400	1400	10.00	6	Pick up 3.5" HQ rod and stand back in derrick.
1400	1500	1.00	6	Pick up VSP cable with 50t crane and set in pipe rack.
1500	1800	3.00	6	Pick up 3.5" HQ rod and stand back in derrick.
1800			5	Run 400' of 3.5" HQ in and Circulate while all the VSP folks show up
	2100	3.00	5	and we conducted numerous safety and operations meetings.
2100	2400	3.00	5	Circulate / bring all the equipment into the pipe from outside for the VSP science project.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
10 to 15	below F. 50 below wind chill.
Wind	
15 to 45	mph/ E Gusts to 50 mph/ Phase 2.

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	13 - 5 gal can DeFoamX
MW		**9.4**	
Funnel Visc.		**45.0**	
PV		**7.0**	
YP		**12.0**	
F/L		**7.2**	
Flowline Temp.		**30.0**	
pH		**9.4**	
Chlorides(mg/l)/Ca++		**82000.0**	
%KCL			
Freeze Point		**15.0**	

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	3,625	3,430	5,778	7,791	79,380	4,380
Received	2,289	4,018		4,125	-	0
Daily Usage or made	1,081	980	461	2,440		
Cumulative Usage (est.)	42,113				79,380	4,380
On Hand	4,833	392	5,317	9,476		

Equipment Down:

Comments:

Date: 2/11/2004
Rpt. No. 31

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST:

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety:

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: NO spills.

Drilling Supervisors: R. Wall / D. Thompson

From	To	Hours	IADC Code	Activity Time Summary
0000	0100	1.00	6	Monitor well for 30 minutes, trip out with 10 stands.
0100	0530	4.50	1	Rig up VSP equipment.
0530	0600	0.50	11	Running in the hole with VSP logging tools and 1 5/8" tubing.
0600	0630	0.50	11	Prejob safety meeting with Paulson
0630	0800	1.50	11	Laydown VSP Tools
0800	2100	13.00	5	Trip in to 220ft and circulate 10GPM Wait on PGS / Weather delay
2100	2400	3.00	5	Circulate / Wait on weather .
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
10 to 15	below F. 50 below wind chill.
Wind	
15 to 45	mph/ E Gusts to 50 mph/ Phase 3.

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	
MW		**9.4**	5 - 5 gal cans DeFoamX
Funnel Visc.		**41.0**	
PV		**6.0**	
YP		**13.0**	
F/L		**8.0**	
Flowline Temp.		**51.0**	
pH		**9.3**	
Chlorides(mg/l)/Ca++		**76000.0**	
%KCL			
Freeze Point		**16.0**	

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	4,833	392	5,317	9,476	79,380	4,380
Received					-	0
Daily Usage or made	1,081	1,372	780	1,474		
Cumulative Usage (est.)	42,113				79,380	4,380
On Hand	3,752	1,764	4,537	8,002		

Equipment Down:

Comments:

Date: 2/12/2004
Rpt. No. 32

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: VSP data acquisition

Accidents/Injuries: No accidents or injuries.

Safety: Discussed an electrical fatality report from Egypt.

Environmental Incidents: NO spills.

Current Depth 24:00 hrs	2300
Footage This Report	0
Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: R. Wall / D. Thompson

From	To	Hours	IADC Code	Activity Time Summary
0000	0030	0.50	5	Freeze protect top 160 feet of annulus for VSP
0030	0100	0.50	6	Trip out from 160'. Blow the rig down.
0100	0500	4.00	11	Rig up and tripping in with VSP assembly/ array/ on 1.66" Paulsson tubing.10 geophones in the hole.
0500	1900	14.00	11	Tripping in with VSP system. Pressure test every 20 geophones
1900	2030	1.50	11	Set Paulsson reel on the ground. Fuel the rig / before placing the reel next to the logging trailer.
2030	2400	3.50	11	Logging with VSP system.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
Manlifts (2)	Airport Rntls	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
10 to 15	below F. 50 below wind chill.
Wind	
15 to 45	mph/ E Gusts to 50 mph/ Phase 3.

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	40 sxs KCl
MW		**9.4**	2 - 5 gal cans FloVis L
Funnel Visc.		**41.0**	
PV		**6.0**	
YP		**13.0**	
F/L		**7.8**	
Flowline Temp.		**NA**	
pH		**9.1**	
Chlorides(mg/l)/Ca++		**86000/140**	
%KCL			
Freeze Point		**14.0**	

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	3,752	1,764	4,537	8,002	79,380	4,380
Received	2,226			4,147	-	0
Daily Usage or made	890	686	283	3,660		
Cumulative Usage (est.)	43,194				79,380	4,380
On Hand	5,088	2,450	4,254	8,493		

Equipment Down:

Comments:

Date: 2/13/2004
Rpt. No. 33

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: VSP data acquisition

Accidents/Injuries: No accidents or injuries.

Safety: Discussed rabies and arctic foxes.

Environmental Incidents: NO spills.

Current Depth 24:00 hrs	2300
Footage This Report	0
Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: R. Wall / D. Thompson

From	To	Hours	IADC Code	Activity Time Summary
0000	0200	2.00	11	Calibrating the VSP system 220 feet off bottom.
0200	0430	2.50	11	Trip to bottom with array / close annular preventor around sub. pressure up to 100psi. Begin data acquisition.
0430	2400	19.50	11	Data acquisition.
	Total	24.00	Hours	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
10 to 20	below F. 50 below wind chill.
Wind	
15 to 45	mph/ E Gusts to 50 mph

Phase 3 on Pads/Phase 2 on roads

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		9.4
Funnel Visc.		41.0
PV		6.0
YP		13.0
F/L		7.8
Flowline Temp.		NA
pH		9.1
Chlorides(mg/l)/Ca++		86000/140
%KCL		
Freeze Point		14.0

Chemicals Mixed

2 - 5gal. Defoam X
1- 50 lb. bg soda ash

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	5,088	2,450	4,254	8,493	79,380	4,380
Received				1,000	-	0
Daily Usage or made	1,654	1,568	71	2,614		
Cumulative Usage (est.)	44,848				79,380	4,380
On Hand	3,434	4,018	4,183	6,879		

Equipment Down:

Comments: Fuel received today is held for PGS. storage only.

Date: 2/14/2004
Rpt. No. 34

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: VSP data acquisition/tripping out with tools.

Accidents/Injuries: No accidents or injuries.

Safety: Discussed BOP test, pinch points, changing rams

Environmental Incidents: NO spills.

Current Depth 24:00 hrs	2300
Footage This Report	0
Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: R. Wall / D. Thompson

From	To	Hours	IADC Code	Activity Time Summary
0000	0500	5.00	11	Data acquisition
0500	0600	1.00	11	Bleed off pressure from the Paulsson tubing. Open bag. burst pressure disc. Verify with clean diesel.
0600	0700	1.00	11	Pressure up on tubing to verify rupture disc as ruptered. Trip out with VSP equipment.
0700	0830	1.50	11	Set Paulson Cable reel in pipe shed.
0830	1130	3.00	11	POOH with VSP tubing.
1130	1230	1.00	11	Circulate tubing @ 6 gpm @ 200 psi.
1230	2000	7.50	11	POOH with VSP tubing. taking 6 to 10 minutes per geophone.
2000	2100	1.00	15	Test Bop's./ Test all 3 gas detection stations. Cellar/rig floor/shakers.
2100	2200	1.00	15	Warm up test pump with hot air duct. Prepare wash down gun for cleaning the stack.
2200	2400	2.00	11	Logging tools pulling wet, slow trip out. Burst disc appears to not allow drainage.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
10 to 20	below F. 50 below wind chill.
Wind	
15 to 45	mph/ E Gusts to 50 mph

Phase 3 on Pads/Phase 2 on roads

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		**9.4**
Funnel Visc.		**41.0**
PV		**6.0**
YP		**13.0**
F/L		**7.8**
Flowline Temp.		**NA**
pH		**9.1**
Chlorides(mg/l)/Ca++		**86000/140**
%KCL		
Freeze Point		**14.0**

Chemicals Mixed

2 - 5gal. Defoam X
1- 50 lb. bg soda ash

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	3,434	4,018	4,183	6,879	79,380	4,380
Received	2,671	3,822	4,969	3,671	-	0
Daily Usage or made		1,372	100	2,618		
Cumulative Usage (est.)	44,848				79,380	4,380
On Hand	4,897	1,568	9,252	7,932		

Equipment Down:

Comments:

Date: 2/15/2004
Rpt. No. 35

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: P & A cement job.

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Discussed plug and abandonment proceedure with Dowell

Environmental Incidents: NO spills.

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: R. Wall / D. Thompson

From	To	Hours	IADC Code	Activity Time Summary
0000	0500	5.00	11	Tripping out wet with VSP 1.66" EUE string. All gas detection testing complete, and the test pump ready.
0500	0600	1.00	11	Out of the hole, crate up geophones, bladders, VSP equipment
0600	0800	2.00	11	Safety meeting / begin BOP test / lower VSP reel to ground level and place inside Paulsson conex with forklift.
0800	1200	4.00	15	BOP test / thaw out lines / changing pipe rams
1200	1600	4.00	15	Bop test / door seals leak / pump froze up / thaw out / test plug rubber leak / fix everything.
1600	1800	2.00	15	BOP test / Annular / inner kill valve / inner choke valve / pipe ram / outer kill valve / HCR choke / choke valves 1,2,3 on Swaco manifold. Hydraulic choke / manual choke / valves 4,5,6, on Swaco manifold. Blind ram / inner choke / inner kill valves./ Complete test. TIW valves / Standpipe valve / Mud maniflod. / All tests complete
1800	2100	3.00	1	Rig down test pump / pull test plug / make a mule shoe joint.
2100	2200	1.00	5	Trip in 200 feet to circulate out freeze protect fluid.
2200	2400	2.00	6	Trip to bottom
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
20 to 30	below F. 50 below wind chill.
Wind	
10 to 15	mph/ W

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	
MW		**9.4**	
Funnel Visc.		**41.0**	
PV		**6.0**	
YP		**13.0**	
F/L		**7.8**	
Flowline Temp.		**NA**	
pH		**9.1**	
Chlorides(mg/l)/Ca++		**86000/140**	
%KCL			
Freeze Point		**14.0**	

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	3,434	1,568	9,252	7,932	79,380	4,380
Received	-	-	1,985	3,629	-	0
Daily Usage or made	1,209	1,176	126	2,076		
Cumulative Usage (est.)	46,057				79,380	4,380
On Hand	3,688	2,744	10,918	9,476		

Equipment Down:

Comments:

Date: 2/16/2004
Rpt. No. 36

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Cleaning Mud Pits and breakout DP.

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Discussed plug and abandonment proceedure with Dowell

Environmental Incidents: NO spills.

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: R. Wall / T. Tirlia / D. Thompson / C. Watson

From	To	Hours	IADC Code	Activity Time Summary
0000	0130	1.50	6	RIH to 2240'
0130	0300	1.50	5	Circ & cond the mud / rig up Dowell and Peak trucks to cement.
0300	0315	0.25	5	Conduct Pre job safety meeting.
0315	0400	0.75	18	Plug #1 - Pump 100 sxs (16.5 bbls), 15.7 ppg ArcticSet cement plug from 2240 to 1760' (without pipe). CIP at 0400 hrs 2/16/04.
0400	0600	2.00	18	POOH 16 stds. Circ & condition the mud / watch for cement - ok
0600	0800	2.00	18	Lay down 12 stands of drill pipe.
0800	0830	0.50	18	Trip in and tag cement at 1761'. Hard.
0830	1130	3.00	18	Plug #2 - Pump 150 sxs (25 bbls), 15.7 ppg ArcticSet cement plug from 1760 to 1120' (without pipe). CIP at 1130 hrs 2/16/04.
1130	1600	4.50	18	POOH to 880'. Circ & cond while waiting on cement.
1600	1800	2.00	18	RIH tag cement at 1120'. Set 6000 lbs witnessed by Chuck Shieve w/Alaska Oil & Gas
1800	2300	5.00	18	POOH laying down drillpipe. Rack back 220'. L/D mule shoe. RIH to 220'. Convert mule shoe to wash joint while circulating.
2300	2400	1.00	18	Plug #3 - Pump 50 sxs (8 bbls), 15.7 ppg ArcticSet cement plug from 220 to 3' below GL (30' without pipe). CIP at 0015 hrs 2/17/04.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
31 to 34	below F. 60 below wind chill.
Wind	
15 to 25	mph/ W

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	10 SXS of SAPP
MW		**9.4+**	Inv. adjustment Greenside
Funnel Visc.		**51.0**	
PV		**7.0**	
YP		**11.0**	
F/L		**8.4**	
Flowline Temp.		**NA**	
pH		**11.8**	
Chlorides(mg/l)/Ca++		**80000/2200**	
%KCL			
Freeze Point		**15.0**	

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	3,688	2,744	10,918	9,476	79,380	4,380
Received	2,035	-	1,772		-	0
Daily Usage or made	1,081	1,078	3,970			
Cumulative Usage (est.)	47,138				79,380	4,380
On Hand	4,642	3,822	8,720			

Equipment Down:

Comments:

Date: 2/17/2004
Rpt. No. 37

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: R/D Kill Line

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Discussed communication and heavy lifts

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: One spill (Non Reportable) - see comments

Drilling Supervisors: C. Watson / T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000				Plug #3 - Finishing pumping 50 sxs (8 bbls), 15.7 ppg ArcticSet
	0030	0.50	18	cement plug f/220 to 3' below GL (30' wo/pipe). CIP@ 0015 hr 2/17/04.
0030				POOH laydown 10 stands of drillpipe. Pick up one joint & RIH on 1 std
				to 30' (3' below GL). Circ 25 bbls of mud across stack at high rates
				POOH & P/U wash joint. RIH to 30' and circulate w/wtr across stack.
	0230	2.00	18	Function rams & annular. Unload hole from 30' with air.
0230	0300	0.50	1	POOH laying down and offload contaminated fluid
0300				Cleaning all lines, pits and breakout all 3 1/2" drill pipe stands & set
	0700	4.00	1	in drill pipe shipping container
0700				RIH w/3 1/2" Pipe, Tag Firm Cement at 35', Lay Down 2 jts. 3 1/2",
	0800	1.00	1	Install Rotating Head, P/U 1 jt. 5", RIH to 34' & Unload Hole W/Air.
0800	1500	7.00	1	Offload 3 1/2" & 5" Pipe Into Pipe Tubs. Cleaning Mud Tanks Etc.
1500	2400	9.00	1	Continue cleaning mud pits. Pressure wash rig floor, BOP stack and
				cellar. Offloaded 10 pallets drilling fluid chemcials & 2 mud totes onto
				pad. Break down and install shipping doors on labs. Finish offloading
				5" drillpipe into pipe tub. Back load mud chemicals & totes to Dead-
				horse. NED continue to R/D equipment. Rig electrician disconnect
	Total	**24.00**	**Hours**	power to testing pump & R/D AQMS. R/D escape line.

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
32 to 41	below F.
Wind	
light	mph/ W

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	4,642	3,822	8,720	7,862	79,380	4,380
Received		4,010			-	0
Daily Usage or made	1,590	1,658	4,963	1,826		
Cumulative Usage (est.)	48,728				79,380	4,380
On Hand	3,052	1,470	3,757	6,036		

Comments:
Steve Schmitz w/ADOG visited the location, he was impressed with the clean operations.
While backing loading barite, Forklift driver accidently punctured 3 sxs of barite which was located on matts northside of platform

Date: 2/18/2004
Rpt. No. 38

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0100 AST: Broke Tour - Night Crew is shifting back to Days - continue to R/D

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Reviewed spill incidents and discussed permit requirements

Environmental Incidents: One Spill (Non Reportable) see comments.

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: C. Watson / T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	2400	24.00	1	R/D pump manifold and kill lines. R/D accumulator lines and store in box container. Nipple down BOP's but did not remove all studs. Heat cellar, chip ice and cleanout cellar. R/D remote station accumulator panel. Back load and send to Deadhorse 4 lab units, 5" pipe tube, 3 1/2" pipe tube, 1 1/2" square tubing, and misc plastic and steel pipe. Finish R/D NED, Pason and AQMS and pack same. Back load onto flat bed Cold Storage unit, DrillCool Service Conex, NED Smart rig components, Pason equipment & AQMS gas detection 5" pipe tube, Grey flight case,Berkley X-Ray unitand bottle racks. Continue to rig down Swaco Solids Control equipment. Clean pipe storage area and lab area. Apply heat to choke and kill lines to store in box. Back load choke & kill targets. Night crew will switch to day operations starting 2/18.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
0 to 40	below F.
Wind	
0 to 3	mph

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	3,052	1,470	3,757	6,036	79,380	4,380
Received	3,288			3,288	-	0
Daily Usage or made				2,095		
Cumulative Usage (est.)	48,728				79,380	4,380
On Hand			3,757	7,229		

Comments:
Potable water tank backed flowed during disconnect at the end of filling operations, 20 gals of potable water on dura-mat.

Date: 2/19/2004
Rpt. No. 39

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600 AST: Continue to remove Conex Support Structure & Winterization

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Permits / Communication / Cold Temps

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: C. Watson / T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	2400	24.00	1	Night crew switched to day operations at 0000 hrs 2/19/01. Palletize and offload Swaco Equipment onto Trailer #7. Load 3 Boxes Pason equipment onto Trailer #6. Disconnect Power From Tioga Htrs, Air Comp, Swaco Equipment, Winterization Enclosure Lights, Load Choke & Kill Hoses into box, Preserve & Palletize Target Blocks. Disassemble Flow Line Meters & Flow Line. Remove 2 Tioga Heaters & Air Comp From Top of Dynatec Workshop. Rig down and move out V-Door and Catwalk. Back load onto pad all heater hoses, Veco Heater and Sullair compressor. Finish N/D mud manifold. Back load Swaco equipment onto trailer - 2 mud tanks, 1 cuttings tank, screens container, control panel, 2 pallets of hoses, and accum lines, and 1 test pump. Alaska Dreams removed swinging doors to pipe storage area, 2 roof and 2 wall modules. Commence disassemble of roof modules.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (2)	Airport Rntls	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
20 to 42	below F.
Wind	
0 to 3	mph

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance			3,757	7,229	79,380	4,380
Received					3,600	0
Daily Usage or made	1,590	1,700	65	1,193		
Cumulative Usage (est.)	51,069				82,980	4,380
On Hand	3,999	4,116	3,692	6,036		

Catchup

Comments:

Date: 2/20/2004
Rpt. No. 40

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600 AST: Continue to remove Conex Support Structure & Winterization

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Overhead Lifts / Communication / Permits

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: C. Watson / T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	2400	24.00	1	Disassemble and back load 7.5T Hoist and H-Beam from pipe storage area. Continue to disassemble and place on timbers 2 x 16' (4x6') door frame uprights, 3 x 40' roof beams, 4 x 12' intermediate beams, and 6 sets of angle iron uprights. R/D, lift and layout silo from main structure. Continue to clean and police platform and pad. ConocoPhilips escorted 150T crane past high power lines at10:30 am 2-20-04. Crane arrived on location at 11:30am. Rigged up extension on 150T crane. Rig down and lay out tower silo base frame, roof on east end, roof section from tower base. Disassemble tower roof and hatch. Remove fittings from trip tank room. Backload control craft equipment. Disconnect power from Schlumberger Unit and Electrician shop. Disconnect power and cut cable from PP-2. Disconnect power, cut cable from waste tank 1, water tank LP, bridge crane, koomey, reserve pump 1&2, waste tank pump 1, and waste tank LP.
	Total	**24.00**	**Hours**	Veco Iron Works **10%** Alaska Dreams - Rig Down **90%** Disassemble **40%** Load **5%**

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (2)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
20 to 42	below F.
Wind	
5 to 15	mph

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	3,990	4,116	3,692	6,036	82,980	4,380
Received	2,400	4,500		539	1,050	0
Daily Usage or made	1,290	1,658	3,692	1,451		
Cumulative Usage (est.)	52,359				84,030	4,380
On Hand	5,100	1,274	0	5,124		

Comments: Due to the cold conditions on the slope the 150T crane did not depart Deadhorse until 0515 hrs on 2/20 due to hydraulic problems and a leaking seal. The crane was originally suppose to be on location AM 2/19.
A water release (NR) occurred while taking on potable water as water spray was observed from the potable water line inlet.
An EH&S report will follow on 2-21-04.

Date: 2/21/2004
Rpt. No. 41

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600 AST: Remove Conex Support Structure & Disassemble Winterization

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Overhead Lifts / Communication / Permits / Weather

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: C. Watson / T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	2400	24.00	1	Remove two east wall panels and one under towel wall panel. Disassemble Eastside roof and tower wind break. Commence loading container and dispose of trash and scrap metal from winterization. Removed nine pairs x 14' and three pairs x 8' angle iron uprights on Southside. Removed two intermediate x 12' on roof. Remove 3 pairs container connection clamps. Backload and haul Swaco equal including Mud Pit Roof Caps, Shale Shaker, 2 x Centrifuges, Solids Control Power Panel, and Active Mud Pit. Back load an assortment of angle iron for supporting structure. Cleaned out two 20' containers that was sent from Deadhorse. Placed the handrails in one container and aluminum decking in one container and the second container is now empty (to be filled). Placed in conex 6 ea 20" heater trunks, 3 ea 20" elbows, 4 ea 20" Y's, 20 ea 12" heater trunks and 3 ea Y's. Veco Iron Works **15%**
Total		**24.00**	**Hours**	Alaska Dreams - Rig Down **100%** Disassemble **70%** Load **50%**

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (2)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
15 to 25	below F.
Wind	
15 to 30	mph

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	5,100	4,116	0	5,124	84,030	4,380
Received						0
Daily Usage or made	1,036	1,960		1,123		
Cumulative Usage (est.)	53,395				84,030	4,380
On Hand	4,064	2,156	0	4,001		

Comments: Due to high winds, working at high heights and potential slippery conditions, the 50T crane and Iron Workers stopped work at 1:30 PM and 3:00 PM respectively.

Date: 2/22/2004
Rpt. No. 42

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600 AST: Start Removing Conex on 3rd Level

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Overhead Lifts / Communication / Walking on Pad

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: C. Watson / T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	2400	24.00	1	Disassembled tower silo and base frame. Load winterization into 40' container. Stack wall elements (1 east wall, 1 under tower, 1 west wall, and 2 tower lids. Backload container and elements & send to DH. Remove 4 x 20' conex's (Storage Space), 1 x 40' APC Potable Water Storage conex, and 2 x 40' Dynatec Workshop and Warehouse. Remove 3 x14' angle iron uprights, 4 x 40' I-Beams, 8 x 4' angle upright sets, 4 x 6' angle iron diagonal sets, and 3 x 14' intermediate beams. Offload grating next to DrillCool / Swaco. Offload Schlumberger compressor, ACS pit liners, and Transformer 480. Remove cable from Tioga Heater. Disconnect power and cut cable loose from reserve pump LP and X-Ray LP. Disconnect power, cut and remove cable from waste tank #2, Dynatec Parts container, and Clean Sea's container. Load onto trailer and ship to DH 1 x 40' Water Storage Conex, 4 x 8' box, and office supplies. Load onto trailers for shipment to DH 1x40' Dynatec Workshop & 1 Parts WH, 1x40' Winterization conex, 5 winterization panels & 2x20' conex. Veco Iron Works **40%** Alaska Dreams - Rig Down **100%** Disassemble **100%** Load **100%**
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (2)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
15 to 25	below F.
Wind	
15 to 30	mph

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	4,064	2,156	0	4,001	84,030	4,380
Received						0
Daily Usage or made	1,270	1,078		1,404		
Cumulative Usage (est.)	54,665				84,030	4,380
On Hand	2,794	3,234	0	2,597		

Comments: Snow blower to arrive 2-20-02 PM to maintain road and pad to prevent severe snow drifting.

Date: 2/23/2004
Rpt. No. 43

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600 AST: Continue to remove conex's

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Overhead Lifts / Communication / Walking on Pad

Environmental Incidents: No Spills

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: C. Watson / T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	2400	24.00	1	Released Alaska Dreams winterization crew. Removed 17 pairs of 14' angle iron uprights and 17 pairs of 8' angle iron uprights. Removed 2 eac 40' I-Beams and 1 ea 12' I-Beam. Disassembled both East and West 4th story framing structure. Remove and backload DrillCool Chiller's 1 &2, Conex's APC-008 Mud Chemical Dry Storage, APC-009 Toolpusher/Driller Office, APC-007 Degaser/Choke Manifold, APC-001 Spacer Spool. Remove and set on pad for office package APC-015 and APC-016 Electrical Package Backload elevated work platform with stairways, 8' stairs with landing and handrails, and small walkway. Prepare and heat rig to laydown mast. Laydown mast at 1800 hrs. Effective **1800 hrs 2-23-04** Dynatec on Standby rig rate. Disconnect power, cut and remove cable from front and back stairs and bullrails outlets. Pick up cones around location, clean out blue conex and police location.
	Total	**24.00**	**Hours**	Veco Iron Works Job **80%** Electrical: **52%**

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (2)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1

Data Logger Surveys		
Depth	Inclination	Temp

Mud Surface Temp. Micro		
Time	In	Out

Temp.	
15 to 25	below F.
Wind	
15 to 30	mph

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	2,754	3,234	0	2,597	84,030	4,380
Received	3,500	4,116				0
Daily Usage or made	1,282	1,200		1,123		
Cumulative Usage (est.)	54,665				84,030	4,380
On Hand	4,972	630	0	1,474		

Comments:

Date: 2/24/2004
Rpt. No. 44

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600 AST: Layout BOP's

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Trip Hazards / Look Up / Crane Acticity

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: C. Watson / T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	2400	24.00	1	Removed and backload the following conex's 1) 20' Spacer Spare APC-004, 2) 20' Waste Fluid Storage, 3) 20' Core Handling Unit APC-006, 4) 40' Reserve Mud Storage (APC-003), 5) 40' Dynatec Mud Pump unit, and 6) 20' Waste Tank (APC-005). Removed and set on pad the following conex's: 7) 20' Spacer Spare (APC-012), 8) Company Man Office (APC-010), 9) ACS Storage Unit, and 10) Diesel Storage Tank (APC-002). Rig down and move off Dynatec Drilling Rig. Removed legs and set on pad. Removed and backload Dynatec Substructure and work basket with legs, stairs, V-door and misc tools and parts. Removed and backloaded Weatherford Accumulator. Lay liner & berm containment of Diesel Storage tank. Move Diesel Storage tank in containment. Set up Company Drilling office. Pull cables from trays and place cable in boxes. Connect to Diesel Storage container. Backload 1 Veco Heater, Peak Ramp, Stairs w/platform, 1 escape ladder, pile end caps.
	Total	**24.00**	**Hours**	Veco Iron Works Job **100%** Electrical: **60%**

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (3)	1GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (2)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
15 to 25	below F.
Wind	
10 to 20	mph

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	4,972	630	0	1,474	84,030	4,380
Received	-					0
Daily Usage or made	816	644		1,050		
Cumulative Usage (est.)	55,481				84,030	4,380
On Hand	4,156	1,274	0	424		

Comments:

Released Veco Iron Works at 3PM 2-24-04. Leon Lynch w/ADNR visited site. Good Visit.
Expected to receive fuel late 2-24-04, cost and volumes not included on today's report.

Date: 2/25/2004
Rpt. No. 45

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600 AST: Continue to Clear Deck, Offload Generator

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Trip Hazards / Crane Acticity / End of Hitch

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: C. Watson / T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	2400	24.00	1	Finish N/D 13 5/8" annular, 13 5/8" double rams, drilling spool, w/three manuals and 1 HCR valves and backload onto flatbed. Cutoff 9 5/8" & 7" and loadout same w/13 5/8" WH. Cut 2nd conudctor and loadout same. Backload 6" x 11" 5k DSA and tool box. Backload Dowell cement unit and enclosure. Loadout 8 pallets of Pile Setting Jacks, 2 pallets of Artic Platform Aluminum pcs, 1 x vertical ladder, 1 bundle of fiberglass grading and 2 bundles of plywood. Finishing loading out Weatherford equipment, Accumulator unit, Remote station, 13 5/8" annular, 13 5/8" Double Ram, Drilling Spool 1 x 6" x 11" DSA, 2 sets of ram blocks, and misc tools and equipment Back load Dowell Bulk Silo. Backload the remaining I-Beams and angle iron. Disconnect telecoms on platform, pickup and layout. Install telecoms and power to Company Man's office, telecoms unit and electrician's workshop. Clean and police location. Conduct prejob safety meeting prior to cleaning deck. Shovel and clean Deck with Bobcat.
	Total	**24.00**	**Hours**	Clean Deck: **40%** Electrical: **80%**

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (3)	1GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (2)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1

Data Logger Surveys		
Depth	Inclination	Temp

Mud Surface Temp. Micro		
Time	In	Out

Temp.	
15 to 25	below F.
Wind	
5 to 10	mph

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	4,284	1,274	0	424	84,030	4,380
Received	-			3,730		0
Daily Usage or made	1,104	980		1,066		
Cumulative Usage (est.)	56,873				84,030	4,380
On Hand	3,180	2,254	0	3,088		

Comments:
Joe Edwards w/CPAI witnessed two loads (Rig and Dowell enclosure unit) passing under the power lines as required.

Date: 2/26/2004
Rpt. No. 46

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600 AST: Clean deck on Northside & Remove Steel/Wooden Planks

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Plank Removal / Crane Acticity / Trip Hazards

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: C. Watson / T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	2400	24.00	1	Clean snow off deck. Backload misc material off deck. Remove and backload 80 each 6"x6 3/4"x12' 2" metal square planks for platform decking. Remove and backload 84 each 6"x12"x12' 2" wood wooden planks. Disconnect and offload 20' Generator, 40' Generator, Grey Water Unit Potable Water Unit and Diesel Day Tank. Prepare Liner and berm for Diesel tank. Reconnect the 40' generator, Grey Water Unit, Potable Water and Day Tank on the Duramat (Northside). Clean location. Note: 20' Generator was loaded on flatbed to be transferred to DH.
	Total	**24.00**	**Hours**	Clean Deck: **80%** Electrical: **90%**

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (3)	1GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (2)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1

Data Logger Surveys

Depth	Inclination	Temp

Mud Surface Temp. Micro

Time	In	Out

Temp.	
15 to 25	below F.
Wind	
0 to 5	mph

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	3,180	2,254	0	4,154	84,030	4,380
Received	-					0
Daily Usage or made						
Cumulative Usage (est.)	56,873				84,030	4,380
On Hand						

Comments:
Disconnected power at 8am and reconnected at 1:15pm. Two Nordic Drilling Representatives visited the camp @ 1200 hrs.

Date: 2/27/2004
Rpt. No. 47

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0600 AST: Finishing Cleaning deck & Remove Steel/Wooden Planks

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - End of Hitch / Crane Acticity / Trip Hazards

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: C. Watson / T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	2400	24.00	1	Clean snow off deck. Backload small misc material off deck. Remove and backload 8 each 6"x6 3/4"x12' 2" metal square planks for platform decking. Remove and backload 84 each 6"x12"x12' 2" wooden planks. Remove remaining 18 each wooden planks and set on side of pad. Remove electrical cable trays from drilling platform. Remove and backload handrails from North, West & 1/2 of South sides of drilling platform. Pack conex with handrails and electrical trays. Remove and backload Module Tops from Module's #21, 20, 19, 18, 13. Remove and backload west row of Modules, # 21, 20, 19, 18, 17, 16 15, & 14.
	Total	**24.00**	**Hours**	Clean Deck: **100%** Electrical: **95%**

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (3)	1GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (2)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
20 to 40	below F.
Wind	
0 to 5	mph

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	2,035	-	0	2,457	84,030	4,380
Received	2,035					0
Daily Usage or made	890	1,372		842		
Cumulative Usage (est.)	57,763				84,030	4,380
On Hand	3,180	1,372	0	1,615		

Comments:

Date: 2/28/2004
Rpt. No. 48

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Laying down Pile #29 (Total 5)

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - End of Hitch / Crane Acticity / Trip Hazards / Weather

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: C. Watson / T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	2400	24.00	1	Remove remaining handrails and backload into conex. Remove and backload Module Tops from Module's #12, 11, 10, 9, 6, 7. Remove and backload east row of Modules, # 13, 12, 11, 10, 9, 6, 7, and 8. Disconnect and remove cable for phone system. Attempt to remove piles: Remove the following piles: Pile #49, circ for 1 hr 30 mins w/200ºF lake water, hold 6000 lbs Ten. Pile #42, circ for 1 hr 40 mins w/200ºF lake water, hold 6000 lbs Ten. Pile #52, circ for 3 hr 25 mins w/200ºF lake water, hold 10,000 lbs Ten. Pile #50, circ for 1 hr 25 mins w/200ºF lake water, hold 10,000 lbs Ten. Attempt to circ on pile's 41 & 43 with no success - Frozen. Attempt to blow air through the line in piles: 44, 34, 46, 47 and 48 with no success. Piles Pulled: 4/52 -**7.7%**
	Total	**24.00**	**Hours**	Piles Completely Frozen: 2/ 52; Piles Check w/air: 5/52

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (3)	1GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (2)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
20 to 40	below F.
Wind	
5 to 10	mph

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	3,180	1,372	0	1,957	84,030	4,380
Received	2,035			2,000		0
Daily Usage or made	2,258	2,009		1,251		
Cumulative Usage (est.)	60,021				84,030	4,380
On Hand	2,957	3,381	0	2,706		
				Correction		

Comments:
Dynatec crew departed the slope today at 1300 hrs. Cost includes Module cleaning & updated Washbay charges.

Date: 2/29/2004
Rpt. No. 49

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: R/U to circ Pile #24 (Total Piles Pulled 19)

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Moving out of Camp / Crane Acticity / New hazards

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: C. Watson / T. Tirlia

From	To	Hours	IADC Code	Activity Time Summary
0000	2400	24.00	1	Remove the following 13 piles: Pile #19, circ for 1 hr 30 mins w/200ºF lake water, hold 10,000 lbs Ten. Pile #18, circ for 1 hr 35 mins w/200ºF lake water, hold 10,000 lbs Ten. Pile #28, circ for 45 mins w/200ºF lake water, hold 15,000 lbs Ten. Pile #32, circ for 55 mins w/190ºF lake water, hold 20,000 lbs Ten. Pile #35, circ for 50 mins w/190ºF lake water, hold 15,000 lbs Ten. Pile #38, circ for 1 hr w/200ºF lake water, hold 12,000 lbs Ten. Pile #40, circ for 1 hr w/190ºF lake water, hold 15,000 lbs Ten. Pile #37, circ for 1 hr 35 mins w/190ºF lake water, hold 15,000 lbs Ten. Pile #34, circ for 1 hr 35 mins w/195ºF lake water, hold 12,000 lbs Ten. Pile #31, circ for 1 hr 40 mins w/190ºF lake water, hold 18,000 lbs Ten. Pile #29, circ for 50 mins w/195ºF lake water, hold 20,000 lbs Ten. Pile #17, circ for 1 hr 30 mins w/190ºF lake water, hold 18,000 lbs Ten. Pile #20, circ for 40 mins w/200ºF lake water, hold 18,000 lbs Ten. Piles that can not be circ with air we run 1/2" steel line in & circ to ice. Preparing camp for move. R/D weather station, area flood lights, Helipad lights and top floor emergency lights. R/D top floor outside walkways and stairways. Piles Pulled: 17/51 **33.3%**
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (3)	1GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
20 to 40	below F.
Wind	
5 to 10	mph

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	
MW			
Funnel Visc.			
PV			
YP			
F/L			
Flowline Temp.			
pH			
Chlorides(mg/l)/Ca++			
%KCL			
Freeze Point			

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	2,957	3,381	0	2,706	84,030	4,380
Received						0
Daily Usage or made	1,304	1,176		1,251		
Cumulative Usage (est.)	6,125				84,030	4,380
On Hand	1,653	4,557	0	1,455		

Comments:

Approximately 5 mins is needed to warm up the pipe and remove any ice plugs. We continue to check each pile with air to see if there are any plugs.

Date: 3/1/2004
Rpt. No. 50

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Pulling pile # 27

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Moving out of Camp / Crane Acticity / New hazards

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: C. Watson / D. Thompson & T. Tirlia / R. Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	2400	24.00	1	Remove the following piles: Pile #21, circ for 35 mins w/200ºF lake water, hold 13,500 lbs Ten. Pile #23, circ for 1 hr w/200ºF lake water, hold 20,000 lbs Ten. Pile #26, circ for 50 mins w/200ºF lake water, hold 11,000 lbs Ten. Pile #24, circ for 30 mins w/200ºF lake water, hold 12,000 lbs Ten. Pile #25, circ for 50 mins w/200ºF lake water, hold 8,500 lbs Ten. slick Pile #22, circ for 45 mins w/200ºF lake water, hold 22,000 lbs Ten. Pile #16, circ for 1 hr 10 mins w/195ºF lake water, hold 17,000 lbs Ten. Pile #41, circ for 20 mins w/200ºF lake water, hold 9,500 lbs Ten. Pile #43, circ for 1 hr. 40 mins. w/ 200º lake water, pulled with crane and loader. Pile #44, circ. for 1hr. 40 mins. w/ 200º lake water, hold 22,000 lbs. Pile #45, circ. for 50 mins. w/ 200º lake water, hold 9,000 lbs. Pile #46, circ. for 50 mins. w/ 200º lake water, hold 20,000 lbs. Pile #47, circ. for 45 mins. W/ lake water. still circ. @ report time.
	Total	**24.00**	**Hours**	Piles Pulled: ??/51 - ??%

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (3)	1GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
20 to 40	below F.
Wind	
5 to 10	mph

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	1,653	4,557	0	2,082	84,030	4,380
Received						0
Daily Usage or made				1,041		
Cumulative Usage (est.)	6,125				84,030	4,380
On Hand			0	1,041		

Comments:

Date: 3/2/2004
Rpt. No. 51

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Waiting on Weather

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Moving out of Camp / Crane Acticity / New hazards

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: C. Watson / D. Thompson & T. Tirlia / R. Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600	6.00	1	Remove the following piles: Pile #47, circ for 45 mins w/200ºF lake water, hold 9,000 lbs Ten. Pile #48, circ for 35 mins w/200ºF lake water, hold 9,000 lbs Ten. Pile #27, circ for 35 mins w/200ºF lake water, hold 9,500 lbs Ten. Pile #30, circ for 60 mins w/200ºF lake water, hold 24,000 lbs Ten. Work on piles #33 & #36, both remain frozen, unable to pull.
0600	2400	18.00		SD WO Weather Wind picking up. Release Little Red Services and crane crew. Waiting on fuel truck, road grader, and snow blower. Crew change out to Kuparuk by convoy. All personnel accounted for at Kuaparuk and 8 personnel on location through the night.
	Total	**24.00**	**Hours**	Piles Pulled: 35/51 - ??%

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	2GBR/2Veco	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1
Contractor trucks (2)	Various	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
20 to 40	below F.
Wind	
30 to 40	mph

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	1,653	4,557	0	2,082	84,030	4,380
Received						0
Daily Usage or made				1,041		
Cumulative Usage (est.)	6,125				84,030	4,380
On Hand			0	1,041		

Comments:

Date: 3/3/2004
Rpt. No. 52

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Waiting on weather.

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Clearing pad, uncovering equipment snowed in, restablishing where all the gear is located.

Environmental Incidents: No Spills

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: D.Thompson/R.Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600			Waiting on weather. 40 Mph winds, By 0200 Hrs a snow blower arrived. Then @ 0330 the fuel truck came in escorted by a forklift, and all the generators and light plants, trucks, and cranes were topped off. The storm continued with the whole field going to phase 2.
0600	1500			Keeping Ice road open with snowblower and blade.Convoy out night crews. Convoy in day crews. Clean snow from generator engines. Peak mechanic repaired Peak forklift. GBR replaced light plant.Return GBR heater to Deadhorse.
1500	1800			Wind died down, Peak cleaning snow from pad. Phase One.
1800	2400			Began taking bolts out from Camp Complex, in preparation to dismantle. Continue snow removal.
				4 VSM collars covered with snow at end of VSM,s
Total		**24.00**	**Hours**	No piles pulled today. 1 to 13 below camp. in place. 14,15,39,2 IN.

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	1GBR/2Veco/	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
10 to 20	below F.
Wind	
15 to 20	mph ENE

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	1,653	4,557	0	910	84,030	4,380
Received				772		0
Daily Usage or made				248		
Cumulative Usage (est.)	6,125				84,030	4,380
On Hand	0	1,862	0	1,620		

Comments:

Date: 3/4/2004
Rpt. No. 53

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Fire watch, waiting on the trucks to return for more loads.

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Crane safety, rigging and hand signals.

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: D.Thompson/R.Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600		1	Dismantle lower camp modules, by removing tie down bolts in preparation to hoist off with crane.Covering windows with plywood.
0600	0800			PJSM Put heat on 150T crane clutches. Shut down incinerator.Remove bolts from lower walkways on camp.
0800	1400			Blade and Blower on location. Begin snow removal from pad.Shut down Heliport lights, Remove heliport lights and box up for transport.Remove bottom walkway on north side of camp. Loading VSM's on Carlile. Remove bottom walkway on south side of camp.
1400	1445			PJSM Put heat on 150T crane clutches. Shut down incinerator.Remove
1445	1600			Lifting off upper camp units and set on trailers.
1600	2400			Lifting off lower camp units and set on trailers. Transport camp units to GSI pad at Deadhorse.
				10 loads hauled out, all going to GSI pad, one mile out side Deadhorse.
Total		**24.00**	**Hours**	No piles pulled today. 1 to 13 below camp. in place. 14,15,39,2 IN.

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	1GBR/2Veco/	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys		
Depth	Inclination	Temp

Mud Surface Temp. Micro		
Time	In	Out

Temp.	
22.00	below F.
Wind	
5 to 15	mph WNW

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	1,862	0	1,620	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)	6,125				84,030	4,380
On Hand			0			

Comments:

Date: 3/5/2004
Rpt. No. 54

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Steaming out VSM's

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Working with pressurized steam

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: D.Thompson/R.Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600	6.00	1	Fire watch, clear snow from equipment. Fuel up trucks, cranes.
0600				Cranr crew prepare to lift off camp buckets. Clean snow from pad. Lift off buckets #5 #4 and #3. Bucket #2 frozen to VSM . Melting ice from bucket and VSM. Prep incenerator, Gen set,and fuel and water tanks for loading. Ship out two camp units. Transfer fuel from storage tank and incenerator to Peak fuel truck.Start picking up Dura-mats. Lift off buckets #2 and #1. Deck buckets for shipping.Steamer Unit on Location, steaming on VSM #53 2 Hrs. lay down #53
	1800			
1800	2100			Re Rig steam lines, schedule 40 pipe too light. Welds too big to fit down into the 3/4 string designed to help with draw the VSM's.
2100	2200			Steam VSM #2. Pull 9,500 lbs.
2200	2300			Steam VSM #3. Pull 9,500 lbs.
2300	2400			Steam VSM #5 Pull 9,500 lbs.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	1GBR/2Veco/	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys		
Depth	Inclination	Temp
Temp.		
30.00	below F.	
Wind		
10mph	NE	

Mud Surface Temp. Micro		
Time	In	Out

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	1,862	0	1,620	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)	6,125				84,030	4,380
On Hand			0			

Comments:

Date: 3/6/2004
Rpt. No. 55

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Steaming out VSM's

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Working with pressurized steam

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: D.Thompson/R.Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0100		1	Steam VSM # 7, Pull with 10,000 lbs. Using the 50 ton crane.
0100	0200			Steam VSM # 9, Pull with 10,000 lbs.
0200	0330			Steam VSM # 11, Pull with 10,000 lbs.
0330	0500			Steam VSM # 13, Pull with 10,000 lbs.
0500	0600			Steam VSM # 12, Pull with 10,000 lbs.
0600	1500			Steam and Pull VSM,s # 10-8-6-4-1-39 .
1500	1800			Work on VSM # 36. No movement.
				Ship out six Carlile trucks to Deadhorse with two camp units,one gen.
				house, Water treatment house, Grey water house, camp walkways,
1800	2400			Fire watch.
	Total	24.00	Hours	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	1GBR/2Veco/	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys		
Depth	Inclination	Temp

Mud Surface Temp. Micro		
Time	In	Out

Temp.	
30.00	below F.
Wind	
10mph	NE

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)	6,125				84,030	4,380
On Hand			0			

Comments: Unable to remove VSM # 36. It will be cut off 3 feet below grond level

Date: 3/7/2004
Rpt. No. 56

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Steaming out VSM's

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Working with pressurized steam

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: D.Thompson/R.Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600	6.00	1	Fire watch at Hot Ice, Crew of 8 in Deadhorse Hotel
0600	1800	12.00		Continue to rig down, and abandon the Hot Ice Pad. Fill holes with gravel. Plant grass seed in each hole. On the GSI site, grade pad to level with road grader, and grinder. Place rig mats down to create foot print of camp.
1800	2400	6.00		Fire watch, both locations.
	Total	24.00	Hours	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	1GBR/2Veco/	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
27 to 45	below F. 80 below windchill
Wind	
5 to 15	mph NW

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	
MW			
Funnel Visc.			
PV			
YP			
F/L			
Flowline Temp.			
pH			
Chlorides(mg/l)/Ca++			
%KCL			
Freeze Point			

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)	6,125				84,030	4,380
On Hand			0			

Comments: Unable to remove VSM # 36. It will be cut off 3 feet below grond level

Date: 3/8/2004
Rpt. No. 57

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Fire watch.

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Crane safety, and lifting.

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: D.Thompson/R.Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600	6.00	1	Fire watch both locations.
0600	1200			GSI site: Finish setting timbers on top of rig mats, to establish the foot print for the rig camp.
1200	1800			Set all 10 camp units in place.
1800	2400			No activity at GSI.
				Hot Ice:
0000	0600			Fire watch.
0600	0930			Clear pad and load trailers.
0930	1300			Steam out VSM holes to 6 feet deep. Suck out water.
1300	1800			Weld plate on conductor 3 feet below ground level. Abandonment marker. Chuck Shevie with AOGCC witness.
				Filled in VSM holes with gravel from original auger drilling. Remove all cooling lines, and monitoring lines. Dug out and cut off VSM #36. three feet below ground level.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	1GBR/2Veco/	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
27 to 33	below F. 60 below windchill
Wind	
5 to 15	mph NW

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)	6,125				84,030	4,380
On Hand			0			

Comments: Unable to remove VSM # 36. It will be cut off 3 feet below grond level

Date: 3/9/2004
Rpt. No. 58

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Fire watch.

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Daily Safety Meeting - Pinch points, and cold weather work gloves, and mittens, hand warmers.

Environmental Incidents: No Spills

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: D.Thompson/R.Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600			No activity at GSI. Fire watch at Hot Ice. Two work sites still in action.
0600				GSI: Set water houses in place. Set generator houses on top.
	1200			Set incinerator, and parts house. Begin bolting the camp together.
1200				Organize connex's in yard in Deadhorse to ship out to GSI.
	1800			Weld new brackets for steps on Gen. house. Remove snow from pad.
0600				Stage connexes to GSI from Carlisle yard in Deadhorse. Pull wires
	1800			for Gen. #1 and #2. Jack up corners of camp after over night
1800				settling. 1.5" inches.
	2400			Hot Ice: Clean pad, plant grass seed in VSM holes. Scrape i
				pad with grader. Move Co-man trailer down road to wide spot. Load
				out dumpster, communication gear, dish, enviro-shed.
				Fire watch.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	1GBR/2Veco/	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
27 to 33	below F. 60 below windchill
Wind	
5 to 15	mph NW

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)	6,125				84,030	4,380
On Hand			0			

Comments: Unable to remove VSM # 36. It will be cut off 3 feet below grond level

Date: 3/10/2004
Rpt. No. 59

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Fire watch.

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Electrical safety, energized equipment, starting up generators

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: D.Thompson/R.Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600			No activity at GSI. Fire watch at Hot Ice. Two work sites still in action.
0600				GSI: Connected all generator wires up.
				Stacked the conex's . Cleaned snow out of camp. Fired up Generators placed #2 on line. Warm up camp.
	1800			Jacked the corners of the camp up 2 inches. Settled over night.
0600				Hot Ice: Continue to clean site, pull delineators, dig out
				both stream crossings. Remove Hot Ice sign, abandon site.
				Site completely clean and documented as being so. All AOGCC
	1800			regulations, and conditions of drilling permits met.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	1GBR/2Veco/	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
27 to 33	below F. 45 below windchill
Wind	
3 to 10	mph NW

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)					84,030	4,380
On Hand			0			

Comments:

Date: 3/11/2004
Rpt. No. 60

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: No late night activity. Down to one crew.

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Forklift safety, good communication with driver hand signals, and staying focused on the end of the job.

Environmental Incidents: No Spills

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: D.Thompson/R.Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600		1	Hot Ice completed./ No activity overnight at GSI site.
0600	1200			Continue to insulate portholes between camp modules as the temp. rises. Stack conex's as they arrive from Deadhorse. Run all three generators, with #3 on line to the camp. Continue to organize, inventory and consolidate material in the Carlile yard in Deadhorse. Winterize Generator #3, shut down #2. run #1 to keep the camp warm. Stack VSM's. clean up generator rooms and all camp bed rooms and offices.
1200	1800			
1800	2400			No activity.
	Total	24.00	Hours	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	1GBR/2Veco/	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
15 to 30	below F.
Wind	
3 to 10	mph NW

no wind

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)					84,030	4,380
On Hand			0			

Comments:

Date: 3/12/2004
Rpt. No. 61

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: No late night activity. Down to one crew.

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Forklift safety, good communication with driver hand signals, and staying focused on the end of the job.

Environmental Incidents: No Spills

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: D.Thompson/R.Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600		1	No activity over night.
0600	0630			Pre job safety meeting.
0630	1800			Repair plumbing in potable water house. Stack dura-mats, and module lids in foot print of storage area. Continue to clean up and stack conex's. Inventory wood and iron beams. Place front porch on camp. Clean out tool /parts house. Retrieve Pason float from trip tank. Inspect modules # 15 and #2, and lift station tank in Peak Wash Bay. Module #3 / last one to wash.
1800	2400			No activity.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	1GBR/2Veco/	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
15 to 30	below F.
Wind	
3 to 10	mph NW

no wind

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)					84,030	4,380
On Hand			0			

Comments:

Date: 3/13/2004
Rpt. No. 62

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: No late night activity. Down to one crew.

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Forklift safety, good communication with driver hand signals, and staying focused on the end of the job.

Environmental Incidents: No Spills

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: D.Thompson/R.Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600		1	No activity over night.
0600	0630		1	Pre job safety meeting with Peak crew. Three forklift operators - crane operator and rigger - 3 truck drivers. Move and stack the modules.
0630	0700			Pre job safety meeting with Veco roustabouts, and Laura, Victor, Andy Move and stack the modules.
0700	2000			The two 988 forklifts loaded the trucks in the Peak yard with the modules. The 966 and crane off loaded the aluminum modules at the Parson's (GSI), yard. The mods. were rotated while suspended and stacked 3 high up side down. Seven rows of three, for a total of 21.
2000	2400			No activity.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	1GBR/2Veco/	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.		
15 to 30	below F.	no wind
Wind		
3 to 10	mph NW	

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)					84,030	4,380
On Hand			0			

Comments:

Date: 3/14/2004
Rpt. No. 63

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: No late night activity. Down to one crew.

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Forklift safety, good communication with driver hand signals, and staying focused on the end of the job.

Environmental Incidents: No Spills

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors: D.Thompson/R.Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600		1	No activity over night.
0600	0630			Pre job safety meeting with Veco roustabouts. Final day of organization in the Carlisle yard and out at Parson's. Stay focused, no one is in a hurry.
0630	1800			Build storage docks with beams and 3 x 12's. Arrange and store all the stairs, lids, and misc. acoutrements. Steel placed on trailers to be shipped to Anchorage.
	Total	24.00	Hours	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	1GBR/2Veco/	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.		
15 to 30	below F.	no wind
Wind		
3 to 10	mph NW	

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)					84,030	4,380
On Hand			0			

Comments:

Date: 3/15/2004
Rpt. No. 64

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: No late night activity. Down to one crew.

Accidents/Injuries: No accidents or injuries.

Safety: Back safety, and proper lifting techniques.

Environmental Incidents: No Spills

Drilling Supervisors: D.Thompson/R.Wall

Current Depth 24:00 hrs	2300
Footage This Report	0
Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

From	To	Hours	IADC Code	Activity Time Summary
0000	0600		1	No activity over night.
0600	0630			Pre job safety meeting
0630	1800			Finish stacking all equipment, and dunnage at the Parson's site. Shut down warming house, blow down. All buildings winterized, and locked. Broken door lock on potable water house. Locked with pad lock. Key box in the Co-Man office in camp has all the keys. Master key in wharehouse in Deadhorse. 250 gallons of fuel in the up right day tank, for the generators. Enough for 30 hours of operation. Desicants placed in the air intakes of all three generators. batteries disconnected. Potable water tank drained out.
	Total	**24.00**	**Hours**	

Rental Equipment		Location
Pickup Trucks (5)	Airport Rntls	Deadhorse
Passenger Van (1)	PBHotel	Deadhorse
Light Plants (5)	GBR	Hot Ice #1
Security Guard Shack (1)	Arctic Cater	Hot Ice #1
Heaters (4)	1GBR/2Veco/	Hot Ice #1
50T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Airport Rntls	Hot Ice #1
150T Crane (1)	Peak	Hot Ice #1
Manlift (1)	Kuparuk	Hot Ice #1

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
10 to 20	below F.
Wind	
3 to 10	mph NW

no wind

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)					84,030	4,380
On Hand			0			

Comments:

Date: 3/16/2004
Rpt. No. 65

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Wrap Up Operations

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Back safety, and proper lifting techniques.

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: R. Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600		1	No activity over night.
0600	2400			Hot Ice equipment all consolidated and stored in Deadhorse. Roustabouts off payroll today. they stayed over night at the PBH, are going to Alpine. Several pieces of equipment yet to be moved from Deadhorse to GSI Yard. Continuing efforts on inventory & final storage of materials and goods in Deadhorse
	Total	24.00	Hours	

Rental Equipment		Location
Pickup Trucks (2)	Airport Rntls	Deadhorse

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
10 to 20	below F.
Wind	
3 to 10	mph NW

Daily Mud Report	Time of day	
Mud properties @	9:00	20:00
MW		
Funnel Visc.		
PV		
YP		
F/L		
Flowline Temp.		
pH		
Chlorides(mg/l)/Ca++		
%KCL		
Freeze Point		

Chemicals Mixed

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)					84,030	4,380
On Hand			0			

Comments:

Date: 3/17/2004
Rpt. No. 66

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Wrap Up Operations

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Back safety, and proper lifting techniques.

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: R. Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600		1	No activity over night.
0600	2400			Hot Ice equipment all consolidated and stored in Deadhorse.
	Total	24.00	Hours	

Rental Equipment		Location
Pick up Trucks (2)	Airport Rntls	Deadhorse

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
10 to 20	below F.
Wind	
3 to 10	mph NW

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	
MW			
Funnel Visc.			
PV			
YP			
F/L			
Flowline Temp.			
pH			
Chlorides(mg/l)/Ca++			
%KCL			
Freeze Point			

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)					84,030	4,380
On Hand			0			

Comments:

Date: 3/18/2004
Rpt. No. 67

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: Wrap Up Operations

Accidents/Injuries: No accidents or injuries.

Current Depth 24:00 hrs	2300
Footage This Report	0

Safety: Back safety, and proper lifting techniques.

Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Environmental Incidents: No Spills

Drilling Supervisors: R. Wall

From	To	Hours	IADC Code	Activity Time Summary
0000	0600		1	No activity over night.
0600	2400			Hot Ice equipment all consolidated and stored in Deadhorse.
	Total	24.00	Hours	

Rental Equipment		Location
Pick up Trucks (2)	Airport Rntls	Deadhorse

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.	
10 to 20	below F.
Wind	
3 to 10	mph NW

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	
MW			
Funnel Visc.			
PV			
YP			
F/L			
Flowline Temp.			
pH			
Chlorides(mg/l)/Ca++			
%KCL			
Freeze Point			

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)					84,030	4,380
On Hand			0			

Comments:

Date: 3/19/2004
Rpt. No. 68

Hot Ice Project
Daily Drilling Report

Anadarko Petroleum Corporation

Operation @ 0300 AST: FINAL REPORT

Accidents/Injuries:

Safety:

Environmental Incidents:

Current Depth 24:00 hrs	2300
Footage This Report	0
Total Well Footage Cored	897
Total Well Core Recovered	838
Core Recovery Percentage	93.0%

Drilling Supervisors:

From	To	Hours	IADC Code	Activity Time Summary
0000	0600		1	No activity over night.
0600	2400			Hot Ice equipment all consolidated and stored in Deadhorse. All personnel off slope, inventory secure and warehouse closed. Work pending includes: 1) removal of communications dish from KRU tower 2) shipment of Hazwaste out of state 3) disposal of used oil to north slope recycler 4) re-dressing of tools run &/or used on project 5) site inspection during summer of 2004 6) site inspection during summer of 2007 7) release of cores and core storage unit to UAF?
	Total	24.00	Hours	

Rental Equipment		Location
All Rental Equipment Returned		

Data Logger Surveys			Mud Surface Temp. Micro		
Depth	Inclination	Temp	Time	In	Out

Temp.
Wind

Daily Mud Report	Time of day		Chemicals Mixed
Mud properties @	9:00	20:00	
MW			
Funnel Visc.			
PV			
YP			
F/L			
Flowline Temp.			
pH			
Chlorides(mg/l)/Ca++			
%KCL			
Freeze Point			

Consumables	Hot Ice Potable	Hot Ice Grey	Main Wtr. Storage	Hot Ice Fuel	Lake K209 (water-Bbls)	Lake K209 (ice chips - yds)
Previous Balance	0	-	0	-	84,030	4,380
Received						0
Daily Usage or made						
Cumulative Usage (est.)					84,030	4,380
On Hand			0			

Comments: **Final daily report for Hot Ice No. 1.**

Appendix C:
Permafrost Foundations and Their Suitability as Tundra Platform Legs

Prepared for Anadarko Petroleum Corporation

By Lynn Aleshire and Hannele Zubeck

February 10, 2003

University of Alaska Anchorage
School of Engineering
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ABSTRACT

Anadarko Petroleum Corporation (APC) requires Vertical Support Members (VSM's) to support its Tundra Platform. The Platform will be mobilized for the hydrate drilling project on Alaska's North Slope during the winter of 2002/2003. The VSM's must meet APC's requirements to adequately support the Platform and, after the project is complete, to leave behind little or no evidence of the foundation. Foundation design processes for the North Slope were reviewed as well as basic principles of frozen ground soil mechanics. A variety of permafrost pile design and installation possibilities were reviewed to make recommendations of practical VSM's to support the Platform.

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INTRODUCTION

Background

Anadarko Petroleum Corporation (APC) has designed and developed the Tundra Platform that will serve as a land-based, all-season drilling platform for oil and gas exploration on Alaska's North Slope. Operation of the platform requires expeditious mobilization and demobilization without leaving any significant traces on the tundra.

The Tundra Platform requires 39 vertical support members (VSM's) to provide an adequate foundation for the horizontal operations surface. This Platform surface is designed to stand 14 feet (5 m) above the ground surface. The project design life is 2 years. During mobilization all of the VSM's must be installed and allowed to freeze back to provide adequate strength. After drilling is completed and the well is plugged and abandoned the horizontal members of the Platform are dismantled leaving the VSM's. The VSM's must then be removed with the goal of reusing them for the next drilling project.

Problem Statement

Designing the VSM's for this project presents several challenges. Axial design load for each of the VSM's is 667 kN (100 kips) with an anticipated bending moment of 68 kNm (600 kip-in).

While piles are routinely installed successfully as long-term foundations in permafrost they are not often inserted and then removed after only a few weeks. The design must allow for ease of removal.

Because there are so many piles required for the Tundra Platform the most economical design would call for the shortest piles possible. Shorter piles are cheaper, easier to transport and require less installation and removal time.

Design life for the Anadarko drilling projects is relatively short (less than two years) and thus pile-jacking due to frost heave cycles is not a critical design factor. Permafrost degradation from heat transfer is not a serious concern because the operations surface is an adequate height above the ground surface. Heat sources greater than 0.7 m above the ground surface have been found not to transfer the heat necessary to cause thermal degradation (Johnston, 1981). In addition to mobility, important design factors are axial loads, primary creep and lateral loads.

Goals and Objectives

The purpose of this report is to describe different pile types, design methods, and installation methods in permafrost and evaluate their suitability as a foundation for the Tundra Platform. Based on the results of this evaluation, a course of action is recommended.

Scope of Work

This work will be accomplished by summarizing existing literature about piles in permafrost, considering new designs and methods, analyzing their suitability as Tundra Platform legs and formulating recommendations for future research.

DESIGN METHODS

The typical engineering design approach for foundations in permafrost is sketched in Figure 1. The primary determining factor is thaw stability of the soil. In other words, how does the soil behave throughout the seasonal freeze/thaw cycles? Stable soils are clean and granular without

ice. They do not heave when frozen and do not subside when thawed. Most soils are classified as thaw unstable. Ice and fine-grained soils are very common in permafrost and, therefore, foundations are designed to accommodate their heaving and subsidence.

Once it is determined that a pile foundation is the best design choice the pile design follows a procedure outlined in Figure 2.

Piles carry loads in two different ways regardless of the installation method. They can mobilize adfreeze strength at the pile soil interface, which is analogous to a friction pile in warm soils, or they can utilize the shear strength of the soils (end bearing). Essential to any foundation in frozen ground is maintenance of the thermal regime, that is, the permafrost must be kept frozen and as cold as possible. Anadarko's Tundra Platform will not cause excessive heat to be added to the ground because it is elevated. It will also provide shade that is beneficial in keeping the thermal regime.

Pile Failure

Pile failure may be defined two ways:

1. Excessive creep displacement over the project life. An allowable cumulative movement of the foundation must be determined.

2. Sudden movement caused by failure of the soil in tertiary creep.

Creep

When frozen ground is subjected to a load it responds with instantaneous deformation followed by a time-dependent deformation. Very heavy loads will display a limiting strength (Andersland and Ladanyi, 1994). Model curves of the behavior of frozen soils under load are shown in Figure 3. The initial displacement, primary creep, is a very small portion of the total time and displacement. Secondary creep is the next part of the curve and is also called steady-state creep. The limiting strength of a soil is defined by the tertiary creep that always leads to failure. The pile may also fail in creep; creep displacement exceeds allowable displacement.

Johnston and Ladanyi (1972) visually examined the frozen soils, silty clays, surrounding grouted anchors which had been pulled out of the ground. They found two kinds of deformation: a thin zone of high shear strain at the soil/grout interface and an outer zone of uniform shear strain that decreased rapidly with distance from the anchor. They considered the former to be slip failure at the anchor/soil interface which coincides with the tertiary creep and failure. In other words, it is visible evidence of the failure of the adfreeze bond under load. For slurried piles, failure will likely be between the pile and the slurry.

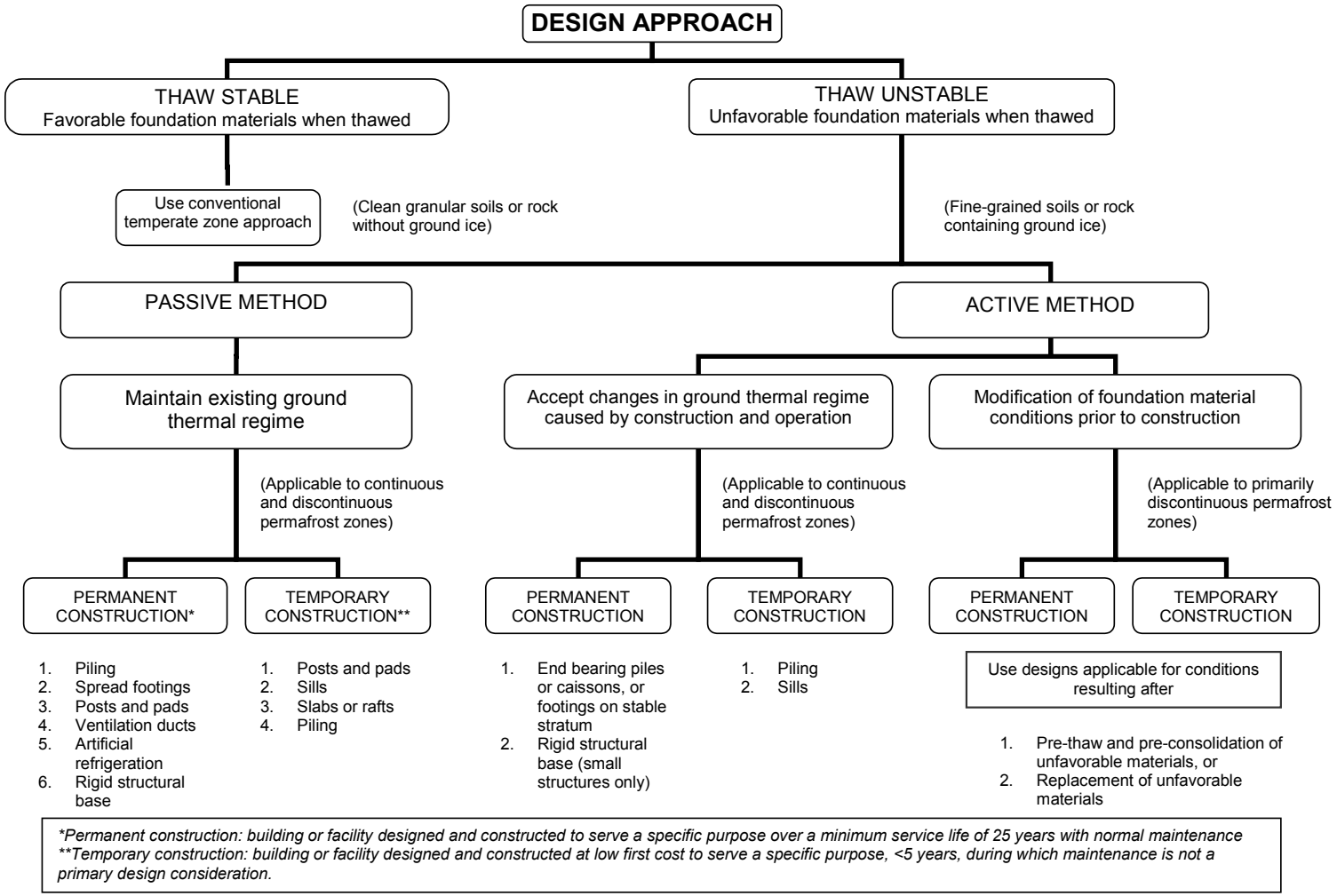


Figure 1 Foundation schemes for permafrost areas (modified from Linell and Lobacz, 1980)

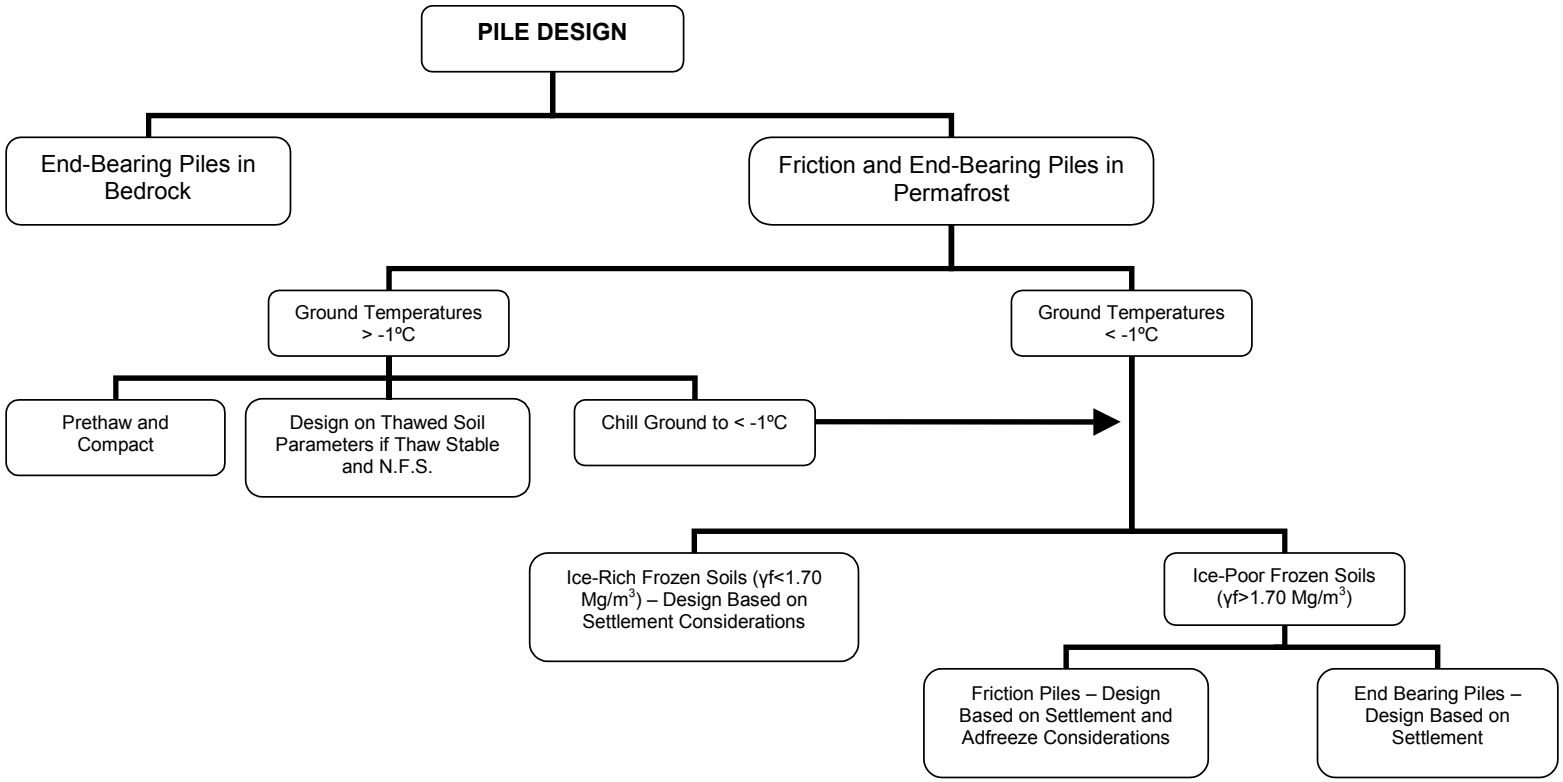
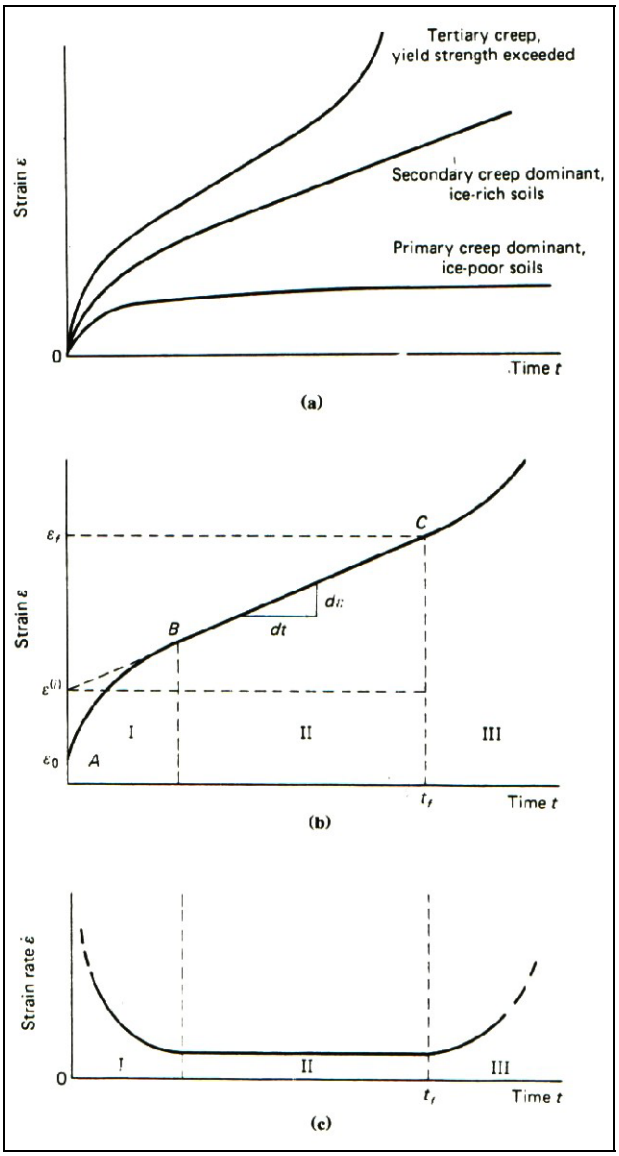


Figure 2 Pile design procedure for frozen ground (adapted from Weaver and Morgenstern, 1981)



a) Creep-curve variations
b) Basic creep curve
c) True strain rate versus time

Figure 3 Model creep curves from constant-stress test (Andersland et al., 1978)

In design practice, the main concern is prediction of the displacement in secondary creep. Design load, allowable displacement and design temperature are required. Creep is directly related to ground temperature; displacement rates are much higher in warmer permafrost. Typically, predictions are made assuming ice-rich soils are present. Ice content of permafrost soils is highly variable within small areas. The presence of ice lenses and wedges is unpredictable and, therefore, a design based on an ice-rich soil is conservative at best. For light structures, resistance to pile jacking is the main concern.

There are numerous models used to predict creep in ice and ice-rich soils. Ladanyi (1972), Ladanyi and Johnston (1974), Nixon and McRoberts (1976), Nixon (1978), Morgenstern, Roggensack and Weaver (1980), Weaver and Morgenstern (1981), and Sego (1980) have each contributed to creep theory as it is practiced today and the reader is referred to these papers for a much more detailed discussion.

A result of the research listed above is the following equation (Equation 1) which predicts pile velocity in polycrystalline ice at temperatures below -1ºC assuming constant load. The constant, B, is temperature-dependent and has been experimentally determined by Morgenstern et al (1980) and is defined by Equations 2 and 3.

Equation 1 $$\dot{u} = \frac{9}{2} aB\tau^3$$

Where: $\dot{u}$ *= pile velocity, (mm/yr)*

a *= pile radius, (mm)*

τ *= constant shear stress, (kPa)*

B *= constant related to soil/ice structure and temperature, (kPa^{-3}/yr)*

Equation 2 $$B = \frac{1.2x10^{-7}}{(1-T)^2} \text{ for } -2 < T \leq -1 \circ C$$

Equation 3 $$B = \frac{6x10^{-8}}{(1-T)} \text{ for } T \leq -2 \circ C$$

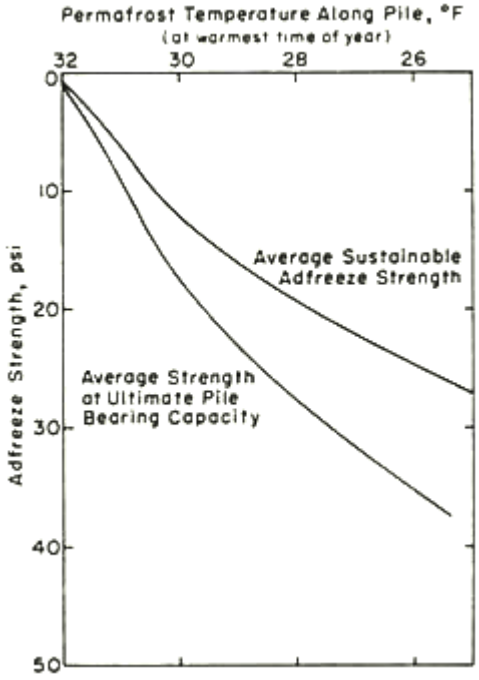
Using these three equations, curves can be generated to determine normalized pile velocity in terms of creep rate/year for various temperatures and loads (Neukirchner, 1984).

Adfreeze Design

Adfreeze forces are produced when frozen ground bonds to the pile surface and resists movement due to applied load. Magnitude of the adfreeze force is related to surface area and roughness of the pile, soil type, and temperature.

There are several methods used to determine load capacity of a pile using adfreeze strength. All of these methods produce rough estimates of adfreeze strength based on experimental studies. For all adfreeze calculations depth of the active layer does not contribute to pile strength. In other words, the first several feet of soil that is the active layer are not included as part of the pile length.

An often used design method developed by Linell and Lobacz (1980), given in Figure 4, estimates strength as a function of temperature and applies various factors to compensate for pile roughness and soil types. It includes correlation factors used to calculate load bearing capacity. "Sustainable" adfreeze strength relates to long-term adfreeze strength.



Tangential adfreeze bond strengths versus temperature for silt-water-slurried 0.22-m-O.D. steel pipe piles in permafrost, averaged over 5.50- to 6.40-m embedded lengths in permafrost. Correction factors for type of pile and slurry backfill (using steel in slurry of low-organic silt as 1.0).

Type of pile	Slurry soil	
	Silt	Sand
Steel	1.0	1.5
Concrete	1.5	1.5
Wood, untreated or light creosoted	1.5	1.5
Wood, medium creosoted (no surface film)	1.0	1.5
Wood, coal-tar-treated (heavily coated)	0.8	0.8

Notes:

1. Applies only for soil temperatures down to about -4ºC (25°C).
2. Where factor is the same for silt and sand, the surface coating on the pile controls, regardless of type of slurry. In the remaining factors the pile is capable of generating sufficient bond, so that the slurry material controls.
3. Gradations typical of soils used for slurry backfill are as follows: silt—SFS, Fairbanks silt; sand—SM, McNamara concrete sand.
4. Pile load tests performed using 44.5 kN/day (10kips/day) load increment were adjusted to 44.5 kN/3 days (10 kips/ 3days) to obtain curves shown.
5. Clays and highly organic soils should be expected to have lower adfreeze bond strengths.

Figure 4 Adfreeze strength as a function of temperature (from Linell and Lobacz, 1980)

Another model that is commonly used on the North Slope was developed by the North Slope Task Group. It uses a step function to approximate increases in adfreeze strength with depth (ARCO, Sohio, et, al, 1982). Permafrost temperatures are assumed to be the highest encountered in the Prudhoe Bay area. It assumes a 100-year design life. Table 1 is a chart of the adfreeze design strengths developed by the North Slope Task Group. Pile capacity can then be calculated by multiplying the adfreeze strength by the surface area of the pile. This model does not consider pile roughness and the slurry properties.

Table 1 Adfreeze strengths as a function of depth and factor of safety (modified from ARCO Oil & Gas and Sohio, 1982)

Depth, m (ft)	Adfreeze Strength, kPa (psi)	
	F.S. = 2.0	F.S. = 3.0
0 to 2 (0 to 9)	15 (103)	10 (69)
2 to 4 (9 to 14)	20 (138)	15 (103)
>4 (>14)	25 (172)	20 (138)

Typically, end-bearing capacity is neglected in adfreeze designs. Linell and Lobacz (1980) considered piles backfilled with slurry to be friction piles with zero load at the tip. After reviewing long-term creep tests on frozen soils and proposed creep laws, Weaver and Morgenstern (1980) also concluded that end-bearing support is negligible for piles in all types of homogeneous permafrost. The fraction of load supported in end-bearing by a pile in frozen ground is less than 2%. However, both Ladanyi and Paquin (1978) and Sego (1980) determined experimentally that after settlement of 30% of the pile diameter there is some end-bearing capacity. The point resistance becomes proportional to penetration rate. For low settlement rates, less than 1mm/yr, the end bearing is neglected.

Both driven piles and smooth freezeback piles are considered friction piles and are designed to carry their loads using the strength of the adfreeze bond.

Shear Strength Design

Piles can be designed with a helix or rings that change the way the pile mobilizes load-bearing capacity. Shear strength or bearing capacity of the frozen ground carries the load instead of adfreeze strength. Utilizing soil shear strength greatly increases allowable pile load. Estimates range from 3 to 7 times adfreeze strength (Vialov 1959 and Newcombe 1973). As a result, screw piles can be much shorter than adfreeze piles.

Frozen soils are considered to be cohesive soils and, as described by Terzaghi (1943), bearing capacity is dependent on soil cohesion and soil friction angle. Therefore, this type of design requires *in situ* soil analysis to obtain the required values. Ishlinskiy (1944) and Berezantsev (1949) developed the theoretical model for calculating bearing capacity, P_{lim}, for two-dimensional circular footings as shown in Equation 4. Vialov (1959) compared theoretical calculations with actual measurements of bearing capacity. Computed values compared favorably with measured bearing capacities. The bearing capacity equations produce bearing length necessary to support the design load. Required helix length for the pile is calculated from bearing length.

Equation 4 $$P_{\lim} \approx 5.65c_e + q$$

Where P_{lim} *=limiting stress of the soil (kg/cm^2) or ultimate bearing capacity*

c_e*=measured value of soil cohesion which includes plasticity and internal friction angle (kg/cm^2)*

$q = \gamma D_f$*, where* γ*=unit weight of the soil and* D_f*=depth of the footing*

PILE TYPES AND INSTALLATION METHODS

Driven Piles

Driven piles in permafrost are different from driven displacement piles used in warmer climates. Permafrost requires some type of preconditioning before any type of pile can be driven because of its strength and hardness. Original builders in cold regions used steam to thaw the frozen ground and then inserted the pile, usually timber, by gently driving it. Steam thawing is a process difficult to control; a uniform hole size is not easily obtained (Crory, 1982). The slurry produced by the thawing is forced to the surface during the driving process. Stones or rocks often displace piles driven in steam-thawed holes, as much as 300 mm (12 in), and then must be straightened by rethawing and wedging the pile until it freezes into place (Johnston, 1963).

According to Nottingham and Christopherson (1983) driven piles, usually steel pipe or reinforced H-piles, are inserted into thermally modified pilot holes. Piles cannot be driven efficiently at temperatures colder than –0.5 to -1.0°C (-31 to 30°C) without pilot holes. Holes are predrilled or augured at a diameter less than the pile and filled with a warm fluid to warm the soils. The undersized hole makes driving easier and control of vertical alignment is maintained. Piles are usually driven with impact or vibratory hammers. Driving rates range from 300 mm (1 ft) per minute for an impact hammer to 1,500 mm (5 ft) per minute for a vibratory hammer. If properly planned, installation rates for driven piles can be twice that of drilled and slurried piles. Driven piles require less freezeback time, typically less than 2 days, and thus can be loaded sooner (Nottingham and Christopherson, 1983).

ARCO Alaska conducted extensive testing and research and selected the thermally modified pile driving method as the fastest and most economical method of pile installation. As a result, all the piles installed for the aboveground oil pipeline in the Kuparuk Field were installed by this method. Recommended water temperature is 66°C (150°F) with a thaw time of 30 minutes for granular soils and 60 minutes for fine-grained soils. For the determination of adfreeze strengths, soil type is more important than installation method. Different methods produced comparable adfreeze strengths. However, piles driven in frozen gravelly soils indicate lower adfreeze values than ice-rich silty sands. The author suggested this is because gravelly soils are located near rivers and subject to warmer ground temperatures (Manikian, 1983).

Freezeback Piles

Freezeback piles, also called drill and slurry piles, are placed by drilling an oversized hole, inserting the pile, and backfilling with a sand or gravel slurry to fill annular voids while suspending the pile with a crane. Slurries are mixed according to ASTM standards.

Screw Piles

Screw piles, also called ring piles or helical piles, have rings or a helix added to the surface of the pile that are of a greater diameter than the pile itself. They are, therefore, utilizing shear strength rather than adfreeze. Screw piles are installed using the drill and slurry method and thus also require freezeback time before loading. Installation procedures must ensure that slurry is placed adequately in the helical portion of the pile.

Helical Piers

Helical piers have a 50 mm (2 in) shaft and typically a 200 or 250 mm (8 or 10 in) helix and are currently used as foundations in permafrost for light-weight structures. They are screwed into the permafrost with a backhoe or excavator with a rotation head. Usually a pilot hole is not necessary. However, if soils are very cold a pilot hole may be necessary along with extra weight on the rotating head when screwing in the pier. Using a factor of safety of 2.0, each pier can carry about 111 kN (25 kips) if the soil conditions permit. (Zubeck and Liu, 2002).

For the Tundra Platform project 4 helical piers would replace each VSM. They would be inserted at an angle with a common apex. A connection would then be made to a vertical member and then to the platform. This 4 member unit would supply the necessary strength for lateral loading as well as axial loading. Angular installation is very common in warmer soils where these devices are used also in tension as helical anchors.

Thermal Piles

Thermal piles or thermosyphons are VSM's that are self-contained passive two-phase liquid/vapor heat transfer units (Figure 6). They are widely used to maintain thermal regimes in permafrost. The heat transfer technology is also used for remediation of foundations that have failed because of permafrost degradation. Thermosyphons can significantly increase soil strength by reducing the soil temperatures.

Thermal piles can be smooth piles designed using adfreeze forces, but are more and more ring or helical piles utilizing soil shear strength. They are installed using the drill and slurry method. Freezeback times are reduced because the thermal pile increases the rate at which heat is removed from the soil.

EXPERIMENTAL FOUNDATION OPTIONS FOR TUNDRA PLATFORM

TPL-7

Anadarko along with Radoil Inc. have designed a pile specifically for its Tundra Platform, Figure 6. For the purposes of this report we will designate it TPL-7. Outside diameter (OD) of the pile in the 6.7 m (22 ft)-upper smooth portion is 0.35 m (13.625 in). Below that point the casing OD becomes 0.22 m (8.625 in); with the helix added the diameter of the lower portion of the pile becomes 0.334 m (13.135 in). Planned embedment depth is approximately 6.1 m (20 ft).

The large diameter of the upper portion is required to accommodate the expected moment caused by wind. This design was originally a helical pile that would mobilize the soil shear strength. Because of the increased diameter of the upper portion it is highly probable that the adfreeze strength will be mobilized before the shear strength and the helix will add any additional load capacity. A field test was conducted for the TPL-7 and is reported separately (Zubeck, et al. 2003). According to the test results, more testing is required before the TPL-7 can be used for the Tundra Platform foundation system.

Flat Loop Evaporators

Flat loop evaporators are not VSM's, but they utilize thermosyphon technology to allow for on-grade construction. Horizontal thermosyphons are installed on-grade and require no ground penetrations (Yarmak and Long, 2002). Similar designs are used successfully beneath pavement and building structures to maintain the thermal regime in areas of warm or discontinuous permafrost (Forsström et al., 2002).

Briefly, the plastic thermosyphons are 64 mm (2.5 in) in diameter and are laid out on the ground. The ground is sprayed with enough water necessary to saturate the tundra and to cover the tubes. The thermosyphons freeze in place and can be overlaid by insulation and the Tundra Platform. Because this installation is on-grade normal loads are not a critical design factor. The controlling design factor is the heat transfer from the Platform to the subgrade and thus a thermal analysis is required. Spacing of the thermosyphons is dependent on results of the analysis and allows for maintenance of the thermal regime of the permafrost beneath the Platform.

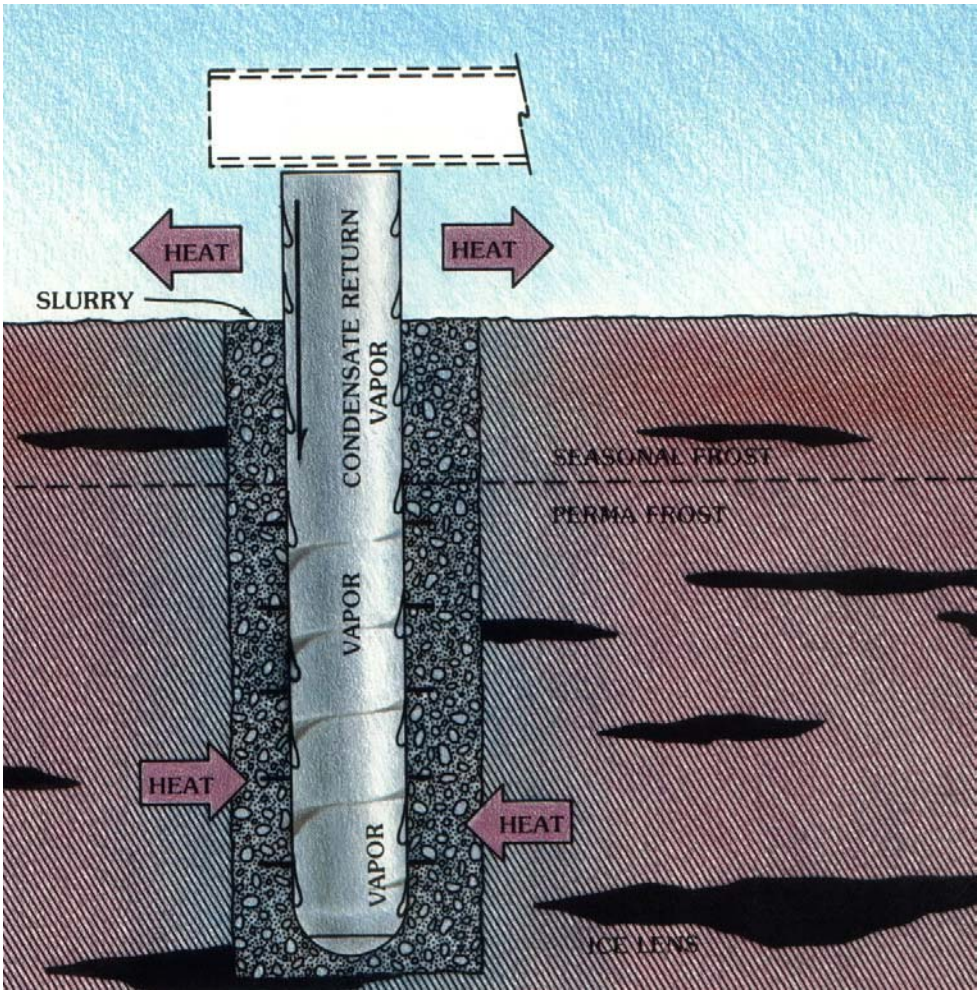


Figure 5 Thermal pile. Self-contained passive refrigeration system (from Arctic Foundations)

After drilling operations are complete and the well is plugged and abandoned the Platform components and the insulation are removed. The tubes are left behind and can be recovered when they have thawed in spring or summer temperatures. If the access to the site is limited in the summer period, steam could be circulated in the tubes to thaw them quickly.

It is understood that this type of foundation is not a consideration for this particular project. However, we do include this description to inform Anadarko of the state-of-the-art for possible application in future projects in cold regions.

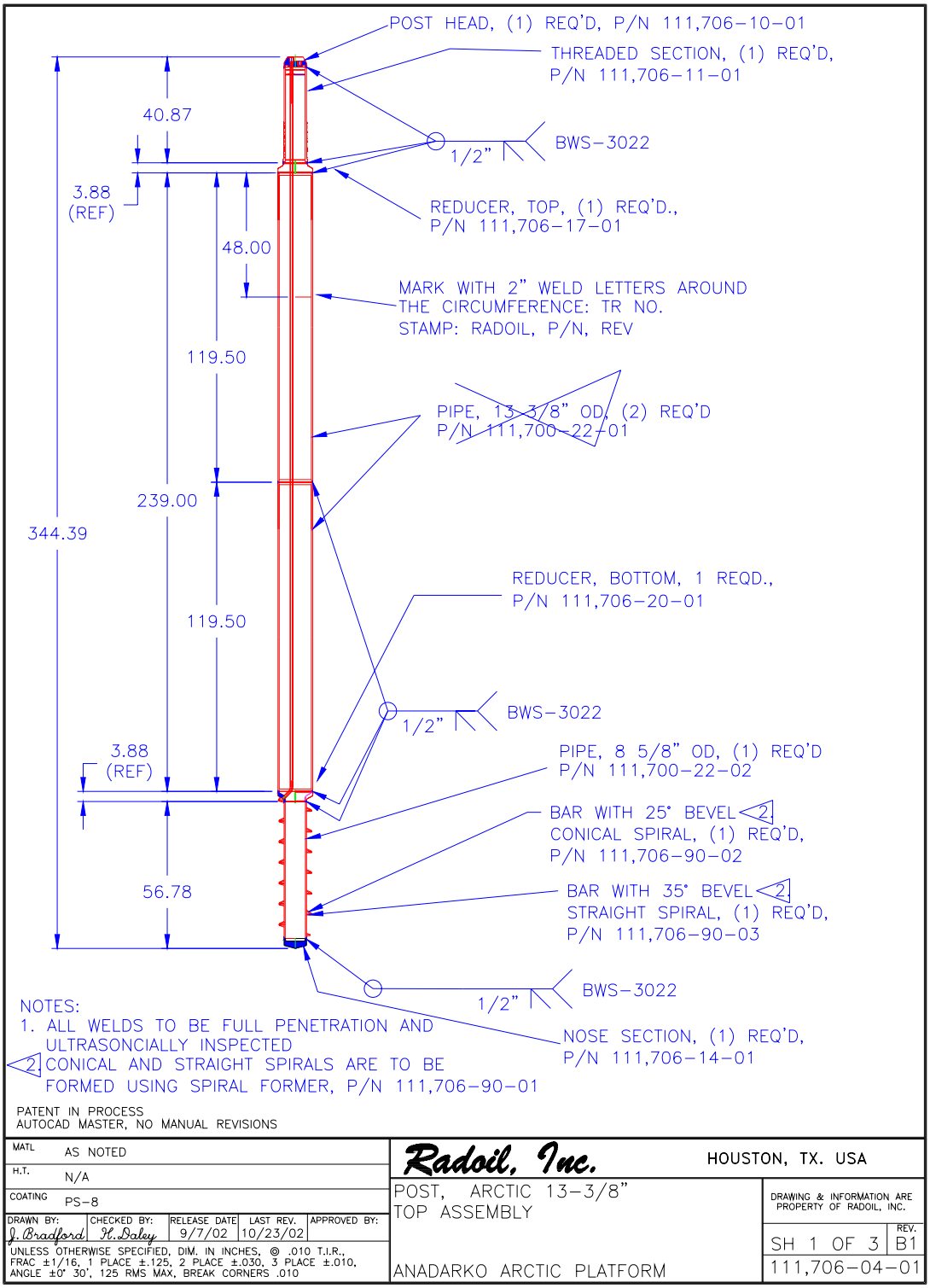


Figure 6 Diagram of Anadarko's Tundra Platform Leg, TPL-7

SUITABILITY OF FOUNDATION TYPES AS TUNDRA PLATFORM LEGS

Driven Piles

Advantages:

- Driven piles can be installed very quickly, as many as three per hour in warm permafrost (Phukan, 1998). Operationally, they would be relatively inexpensive to install.
- Because they require minimum thawing of the pilot hole, freezeback times are less than for drill and slurry piles.
- They can be cut off below the surface and left behind without removal.

Disadvantages:

- Driven piles utilize adfreeze design and are thus very long piles. Removal at the end of the project would be difficult.
- Precise placement is usually possible, but not always easily attained. The required tolerances for placement of the horizontal members must be compared with the expected placement precision.

Freezeback Piles

Advantages:

- Precise placement is easily achieved. Because the piles are inserted into oversized holes they can be accurately positioned before the slurry is poured.

Disadvantages:

- Temperature monitoring is required because adequate freezeback time is necessary before loading.
- Operationally, greater installation time is required.
- Adfreeze design requires pile lengths up to 10 m (30 ft).
- Pile removal by pullout will be difficult, because of the length and quantity.
- Pile removal will take more time because of the quantity

Screw Piles

Advantages:

- Because screw piles utilize the shear strength of the soil they can be much shorter than the piles mentioned above, and may be more economical.
- Operationally, shorter piles mean that less installation time is necessary. Shorter auguring time and fewer slurry materials are required.
- They can be placed precisely because they are installed using a drill/slurry method.

Disadvantages:

- They require freezeback time.
- Because they are usually shorter a lateral load or bending moment may require the pile to be lengthened.
- Because of the helix they are not easily removed. A mechanism to rotate and pull the pile to remove it from the ground will be necessary.

Helical Piers

Advantages:

- Fast and easy installation.
- Small size and weight.
- Ease of transportation.
- Resistance to frost jacking.

Disadvantages:

- The four piers required for each "leg" need to be connected to large-diameter legs at the ground surface.

TPL-7

Advantages:

- Shorter length than an adfreeze pile, if properly installed.
- Legs can be removed.

Disadvantages

- Uncertain load bearing capacity because of the unconventional diameter of the helix in relationship to the pile diameter. Need more research before an adequate design can be developed.
- Rotation for removal requires special equipment, which is an added expense.

Thermally Controlled Piles

Advantages:

- Short legs because the helices utilize soil shear strength.
- Capable of reducing soil temperatures and thus increasing soil strength.
- Have built-in capability for circulating fluids.

Disadvantages:

- Initial expense is greater than conventional piles.

Flat Loop Evaporators

Advantages:

- Allow for on-grade construction and thus eliminate VSM's.
- Relatively inexpensive and easy to install and remove.
- No ground penetrations. The siphon tubes can be recovered in the summer leaving no trace of a foundation.

Disadvantages:

- Requires some freezing time, but much less than a conventional ice pad.
- Design may require some insulation between structure and tundra.

RECOMMENDATIONS FOR IMPLEMENTATION AND FUTURE RESEARCH

General Recommendations for Design Choices

There are several feasible pile designs for Anadarko's Tundra Platform. Cost effectiveness and site impact are the most important factors. We can recommend two of the reviewed designs. Recommendations are based on general economic understanding that may or may not agree with Anadarko's own specific economic and operational standards.

- Driven piles. These would use an adfreeze design. They would be the cheapest to purchase and their installation by driving is the quickest of all the piles reviewed. Because they would be relatively long, lateral loads are easier to accommodate. When the project is complete they would not be recovered, but cut off below the surface leaving little evidence of the project.
- Helical piles: The bearing capacity design would allow them to be much shorter and they would be easier to recover if equipment is available to rotate and pull them out. Initial expense would be greater but the piles would be available for reuse. Lateral loading needs to be considered in the design.
- Flat Loop Evaporators and Helical Piers: We believe that these options are also worth of considering as foundation systems for the Platform.

Future Research

The future research could be conducted in two fronts: Conduct more studies on TPL-7 or optimize the pile length for smooth adfreeze piles. Reduced scale laboratory and field tests are recommended for TPL-7. Outcome of this research would be more information on how much more capacity do the helixes add for the pile when compared to a smooth pile.

The length of a smooth adfreeze pile could be optimized using Finite Element Analysis and reduced scale laboratory testing. The current adfreeze design method assumes that the adfreeze strength is mobilized along the whole pile surface, whereas Dr. He Liu and Dr. Hannele Zubeck from the UAA hypothesize that it is only mobilized along a small section of the pile. The outcome of this research would be a method to design the length of an adfreeze pile in ice-rich silt with ground temperature.

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Appendix D:
Tundra Platform Leg Tests

Prepared for Anadarko Petroleum Corporation

by

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ABSTRACT

The University of Alaska Anchorage, School of Engineering designed and analyzed a pile test in permafrost for Anadarko Petroleum Company. The two piles (Spiral Legs) tested were designed and built by Radoil, Inc. using a concept provided by the Anadarko. The goals for the testing were to assure that the piles can be installed and removed without major problems, to assure that the piles can carry the design load for the design life of 2 years without instantaneous failure or excessive creep displacement, and to provide information and experience for future testing. The test proved that the Spiral Legs could be installed and removed without major difficulties at the average temperature of –2°C (28°F) in the ice rich silty soil and pure ice. The observed pile displacement rate at this temperature and in this soil was about 0.025 mm/h (0.001 in/hr). With this rate, the allowable design displacement of 15 mm (0.60 in) would be reached in one month. More research is recommended before Spiral Legs are used in the field. Since the spirals did not seem to offer the benefit of providing an acceptable displacement rate, the future research is recommended in optimizing the length of smooth piles.

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INTRODUCTION

Background

Anadarko Petroleum Company (Anadarko) has designed a portable tundra platform and will field test the design during the 2003 drilling season on a gas hydrate coring well as part of their research into gas hydrate technologies. The design of the platform calls for ease of mobilization and demobilization without leaving significant damage to the existing tundra. An important part of the platform design is the foundation system. Anadarko has designed a pile with helixes (Spiral Leg) to carry the load from the superstructure to the permafrost. The function of the helixes was to possibly add additional pile capacity and to aid in removing the piles by circulating a heated liquid down the pile, through the helixes and back to the surface. Anadarko provided funding for the University of Alaska Anchorage (UAA), School of Engineering to design and analyze a pile test that would determine the suitability of the spiral legs as the tundra platform foundations and to provide information for further testing.

Problem Statement

The piles need to meet the following requirements:

- The design load per pile is 445 kN (100kips). The ultimate capacity of each pile is 667 kN (150 kips) using a factor of safety of 1.5 and a design life of 2 years. The allowable settlement is 15 mm (0.6 in) in 2 years and 25mm (1 in) in 40 years.

- The permafrost needs to remain frozen below the tundra platform. If degradation of the permafrost is anticipated, the foundation system needs to assist in keeping the permafrost from thawing.

- The foundation system needs to be removable so that the tundra will not be seriously damaged after the foundation has been removed.

Piles have not been removed in the past, and therefore, research needs to be conducted to make sure that the proposed pile design meets all the requirements for the capacity, permafrost protection and the ease of removal.

Goals and Objectives

The following objectives were set for the initial load testing conducted in November 2002 at the Alaska Telecom Inc. (ATI) site in Prudhoe Bay:

1. Assure that the piles can be installed and removed without major problems.

2. Assure that the piles can carry the design load for the design life of 2 years without instantaneous failure or excessive creep displacement.

3. Provide information and experience for future testing.

The purpose of this report is to describe the pile tests performed, analyze the test results and give recommendations for implementation and future research.

Scope of the Work

A testing plan was created based on ASTM D 5780 Standard Test Method for Individual Piles in Permafrost Under Static Axial Compressive Load (1995). The test results were analyzed and recommendations for implementation and future research were given.

MATERIALS

Test Legs

The two Spiral Legs tested were designed and constructed by Radoil Inc. A photo of the spirals is given in Figure 1 and a schematic picture is given in Figure 2. The total length of each leg was 8.839 m (29 ft), embedment depth into the permafrost was 4.27 m (14 ft), the inner diameter was 314 mm (12.347 in) and the outer diameter was 340 mm (13.375 in). The bottom 1.524 m (5 ft) had an inner diameter of 194 mm (7.625 in) and outer diameter of the smooth leg of 219 mm (8.625 in) with spirals extending the outer diameter to 333 mm (13.125 in). The spirals had a 152-mm (6-in) lead making the spiral angle 12.44°. The spirals were hollow having a 10-mm (0.375 in) wall thickness. A small pipe was designed to carry heated liquid from the top of the spiral to the bottom and back to the surface through the inside of the leg. The leg material was carbon steel with a Young's modulus of 200,000 MPa (29,000,000 psi).

Additionally, a smooth leg and two Vertical Support Members (VSM's) were installed. The smooth leg was used as a control leg for the removal experiment and the VSM's provided reaction forces for the compressive test load.

Figure 1 Spiral legs

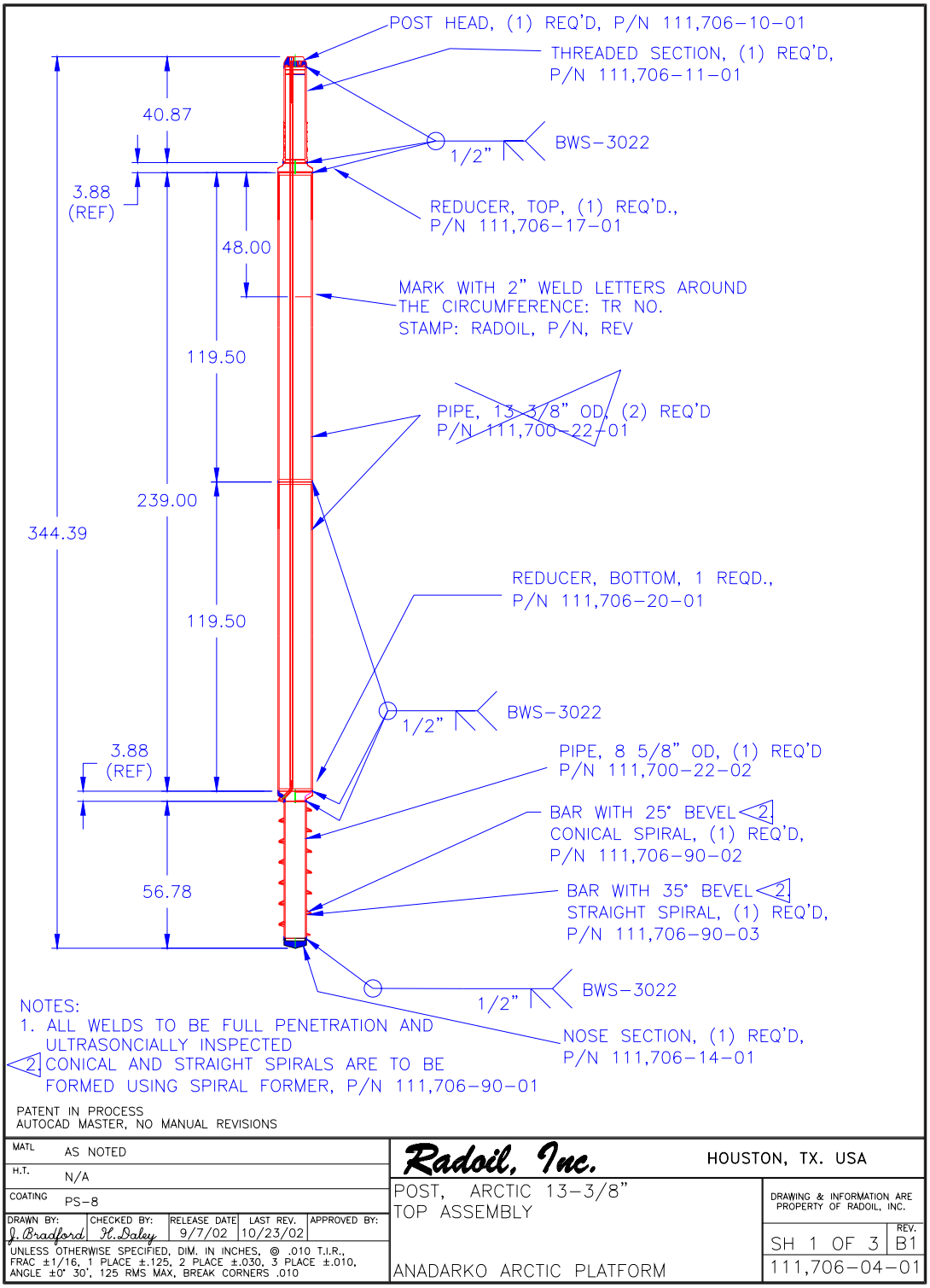


Figure 2 Schematic picture of spiral legs

Soils

The sand slurry used to backfill the holes was well graded sand with silt and gravel, SW-SM (Alaska Testlab, 2002) The gradation is given in Table 1. A water content of 7.6% was determined in the UAA Soils Laboratory and 7.7% by Alaska Testlab.

Table 1 Soil Gradation (Alaska Testlab, 2003)

U.S. Sieve (opening, mm)	Passing %	Sieve Size	Passing %
1/2 in (12.70 mm)	100	No. 40 (0.425 mm)	19
3/8 in (9.52 mm)	98	No. 60 (0.250 mm)	12
No. 4 (4.75 mm)	64	No. 100 (0.150 mm)	7
No.10 (2.00 mm)	40	No. 200 (0.075 mm)	5.3
No. 20 (0.85 mm)	29		

Michael Baker, Jr. Inc. (2002) logged the drilling of the piles and prepared a separate geotechnical report for the native soils. The following summarizes the soil strata shown in Figure 3.

The existing soil consisted of a 1.2 to 1.8-m (4 to 6 ft) thick fill and native soil beneath it. The fill material was poorly graded gravel with sand. The native soil around the spiral legs consisted of a organic to sandy silt layer of 0.6 m to 0.9 m (2 to 3 ft), beneath which Spiral Leg #2 had a 0.6-m (2ft) gravel layer and 2 m (7 ft) thick ice lens. Spiral Leg #3 had a 3.0-m (10ft) thick ice lens with air bubbles directly underneath the silt. A gravel layer with silt or sand started at a depth of 5.2 m to 5.8 m (17 to 19 ft) from the soil surface.

Figure 3 Soil logs (Baker)

TEST PROCEDURE

Test Setup

The test setup is shown in Figures 4 and 5. The test frame, load actuator and legs were designed by Radoil Inc. using a concept provided by Anadarko. The load was applied with two linear actuators at the top of the VSM's. The Radoil drawing number for the whole set up was 190,899-07-01 A4. A plan view of the test setup is given in Figure 6. The installation procedure by Anadarko is given in Appendix D-1 and a report of pile removal by Federico Lier in Appendix D-2.

The Spiral Legs were suspended in augered holes with a 508-mm (20 in) diameter. The holes were backfilled with the sand slurry described earlier. The slurried legs were left to freeze for seven days. The top 1.8 m (6 ft) of each hole was not filled with slurry so that active layer forces would not affect the legs. Installation of the smooth leg and VSM's was similar to the Spiral Legs.

The testing followed the procedure outlined in ASTM D 5780 (1995). The following sections will summarize the testing and loading sequence.

Figure 4 Test setup

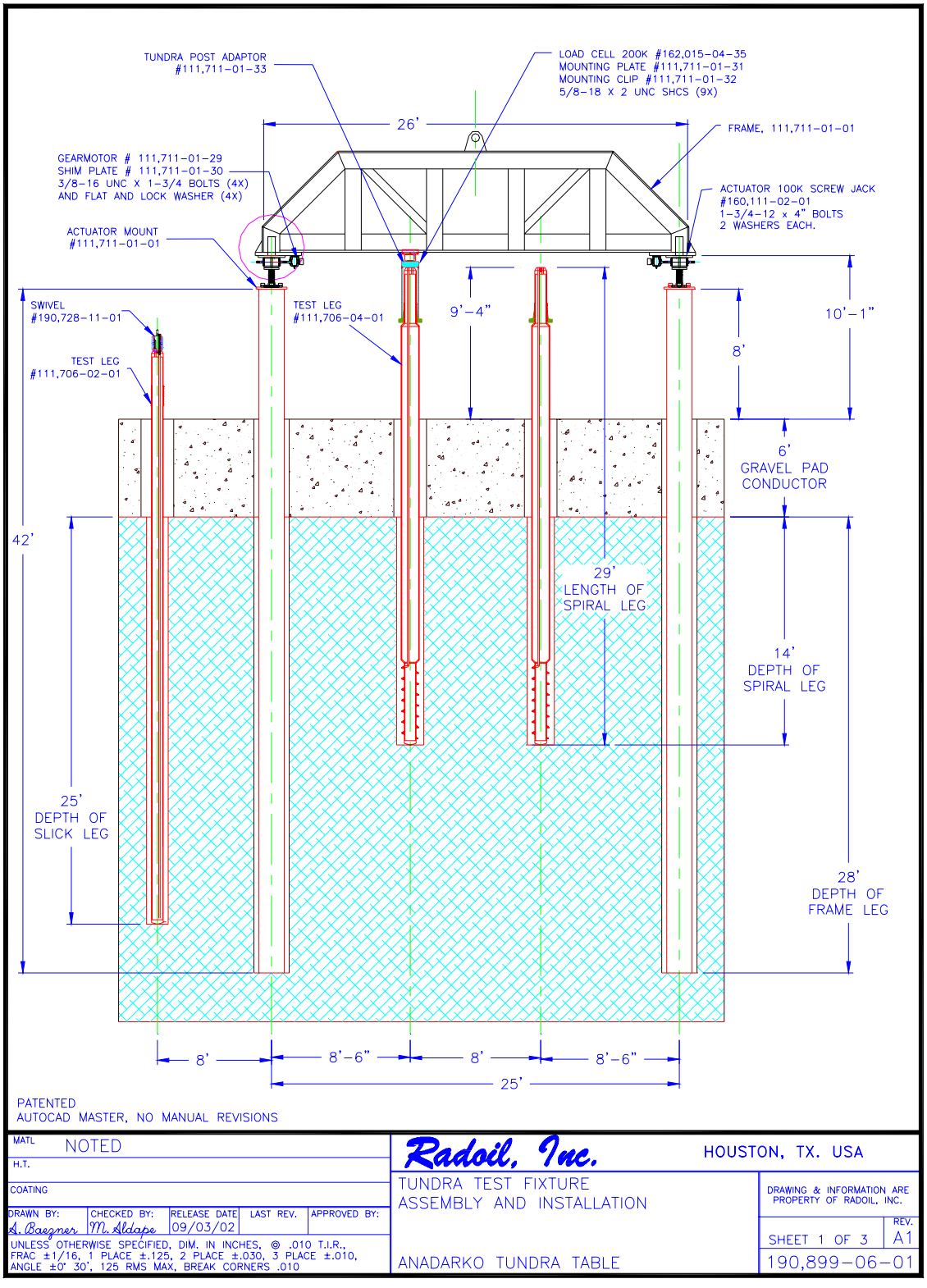


Figure 5 Schematic of test setup

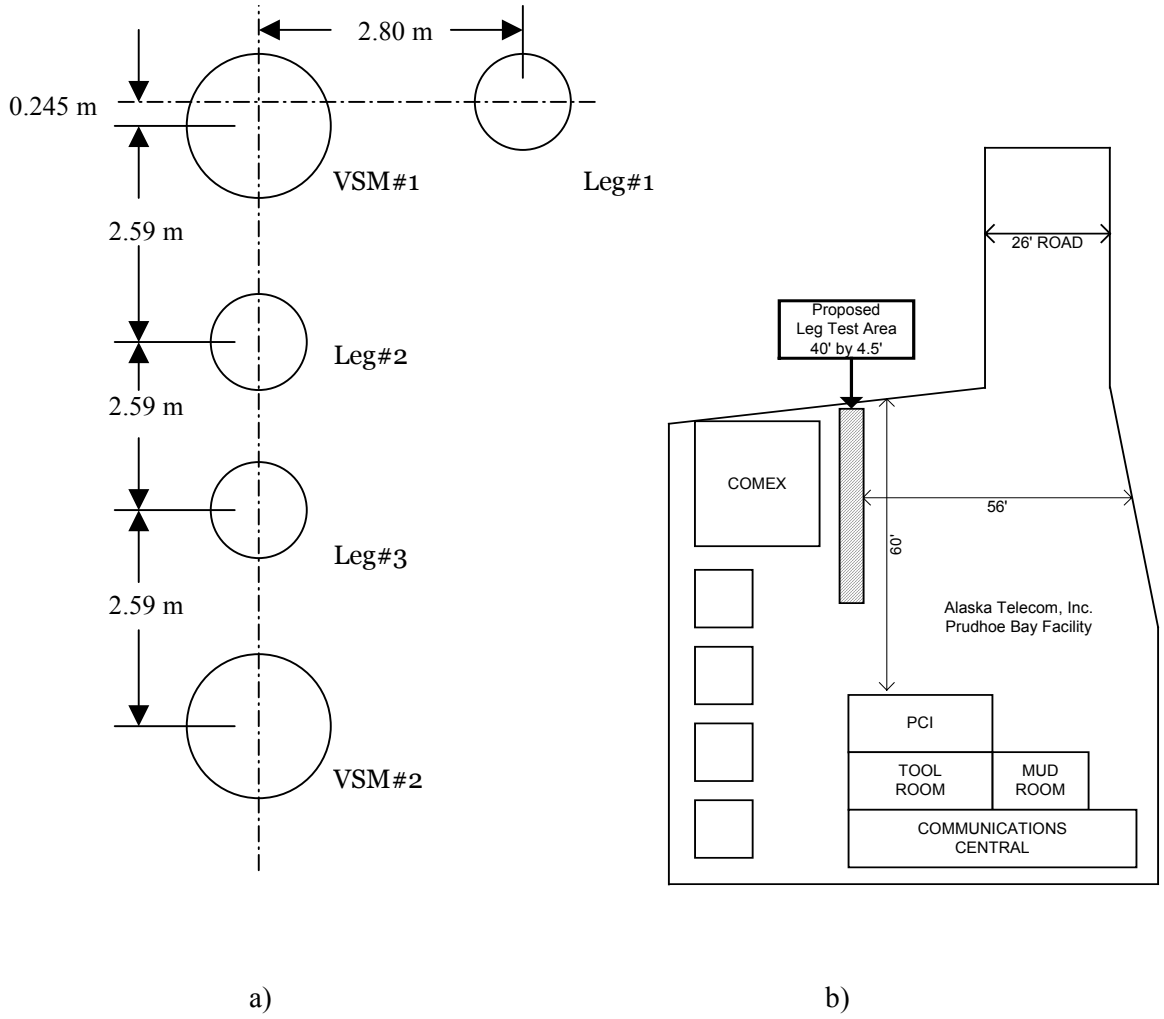


Figure 6 Plan view of test setup a) as built, b) site location (Radoil, Inc. 2002)

Apparatus for Measuring Movement

The primary method of measurement was a potentiometer (Figure 7) with an accuracy of 0.05 mm (0.001 in). ASTM D 5780 requirements call for an accuracy of 0.0025 mm (0.0001 in). The potentiometer accuracy was considered to be adequate for this phase of testing. The potentiometer was attached to a vertical carbon steel rod welded to a conductor that was used as a casing through the gravel pad at each hole (see Figures on page 3 and 4 in Appendix D-1).

Figure 7 Potentiometer for measuring displacement

Three secondary methods of measurements were used:

1. *A wire, scale and mirror (Figure 8).* A wire was stretched on the side of the test legs. The wire broke immediately and a thicker string was used instead. A scale and a mirror were mounted on the side of the leg such that the string passed clear of the face of the scale. The string was approximately 25 mm (1 in) from the scale. Vertical support angle irons were welded to the VSM conductors (see Figure on page 3 in Appendix D-1) that were considered to be as stable reference points as any other anchored reference system on the site. The other end of the wire was tied to one of the angle irons and the other end was hanging over the other angle iron and tied to a weight. The tension of the string was checked before each reading. The stainless steel scale had divisions up to 1/64 in. or 0.4 mm (0.016 in). The measurements were made by lining up the string, its mirror reflection and the scale. The length of the angle iron support at VSM #2 (closest to the smooth leg) was 1.585 m (5.2 ft) and at VSM #1 was 1.256 m (4.12 ft). The distance between the supports was 6.960 m (22.833 ft).

2. *A surveyor's level and a scale on the leg.* Permanent benchmarks were established outside the immediate test area. A transit was set up outdoors with a clear line of site to both the scale and the benchmarks (Figure 9).

3. *Dial gages.* The dial gages were accurate to 0.001 in. and two were used for the test. One to measure vertical movement and a second to measure horizontal or rotational movement (Figure 10).

Figure 8 Wire, scale and mirror for measuring displacement

Figure 9 Transit setup

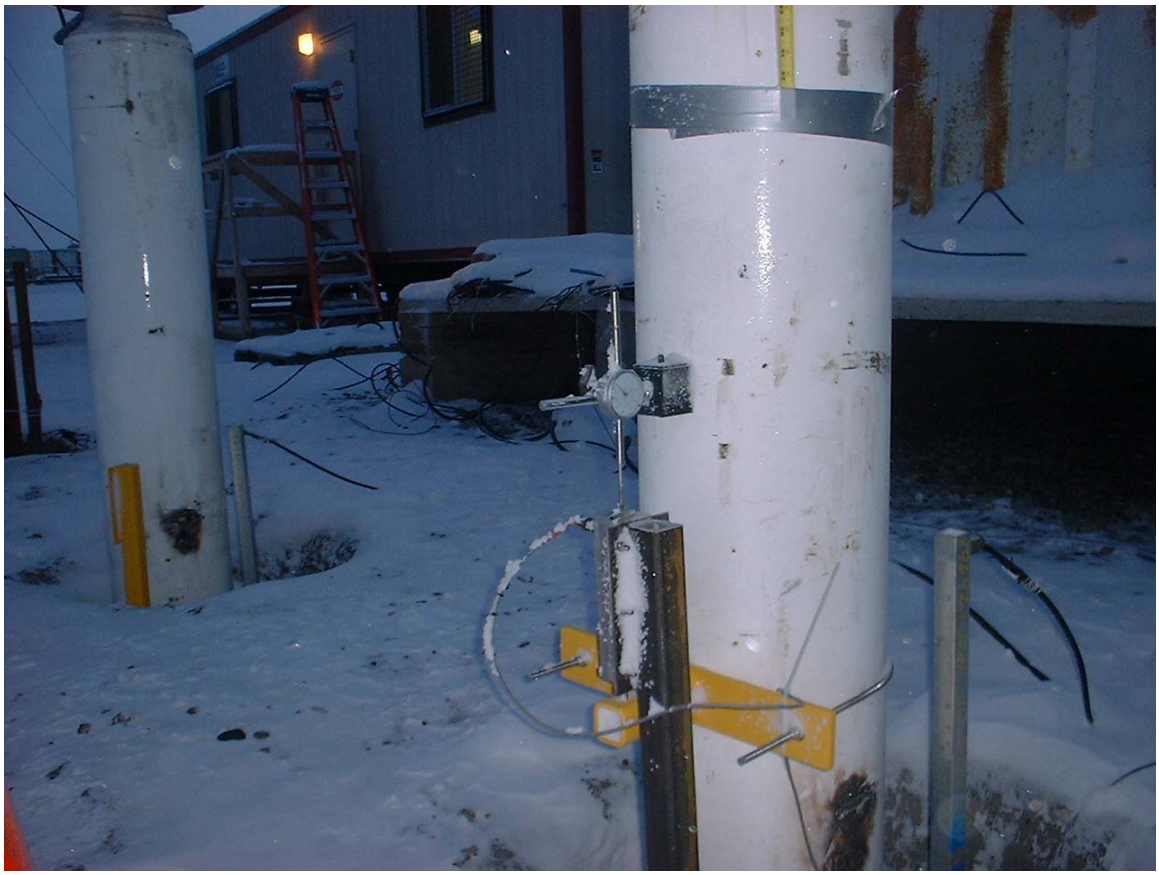


Figure 10 Dial gage

Apparatus for Measuring Temperature

The temperature was measured using thermistors. A string of thermistors was installed in the augered hole of the smooth leg and the two Spiral Legs. Figure 11 details the positions of the thermistors on each of the legs. The air temperature was also measured using a thermistor. The accuracy of the thermistors was 0.2 °C (0.4°F).

Apparatus for Measuring Load

The applied load was measured using a load cell with an accuracy of 1% of the load reading. The load cell can be seen in Figure 4 between the left most Spiral Leg and the testing frame.

Measuring and Recording Procedures

ASTM D 5780 requires displacement readings to be recorded at the following intervals: every 10 minutes during the first 30 minutes, every 20 minutes for the next 1 ½ hours, every hour for the next 10 hours, every 2 hours for the next 12 hours, every 6 hours thereafter. For the tests reported here, the displacement and the load were read ten times per second and stored once per second from the commencement of a test up to 24 hours after the load increment was removed.

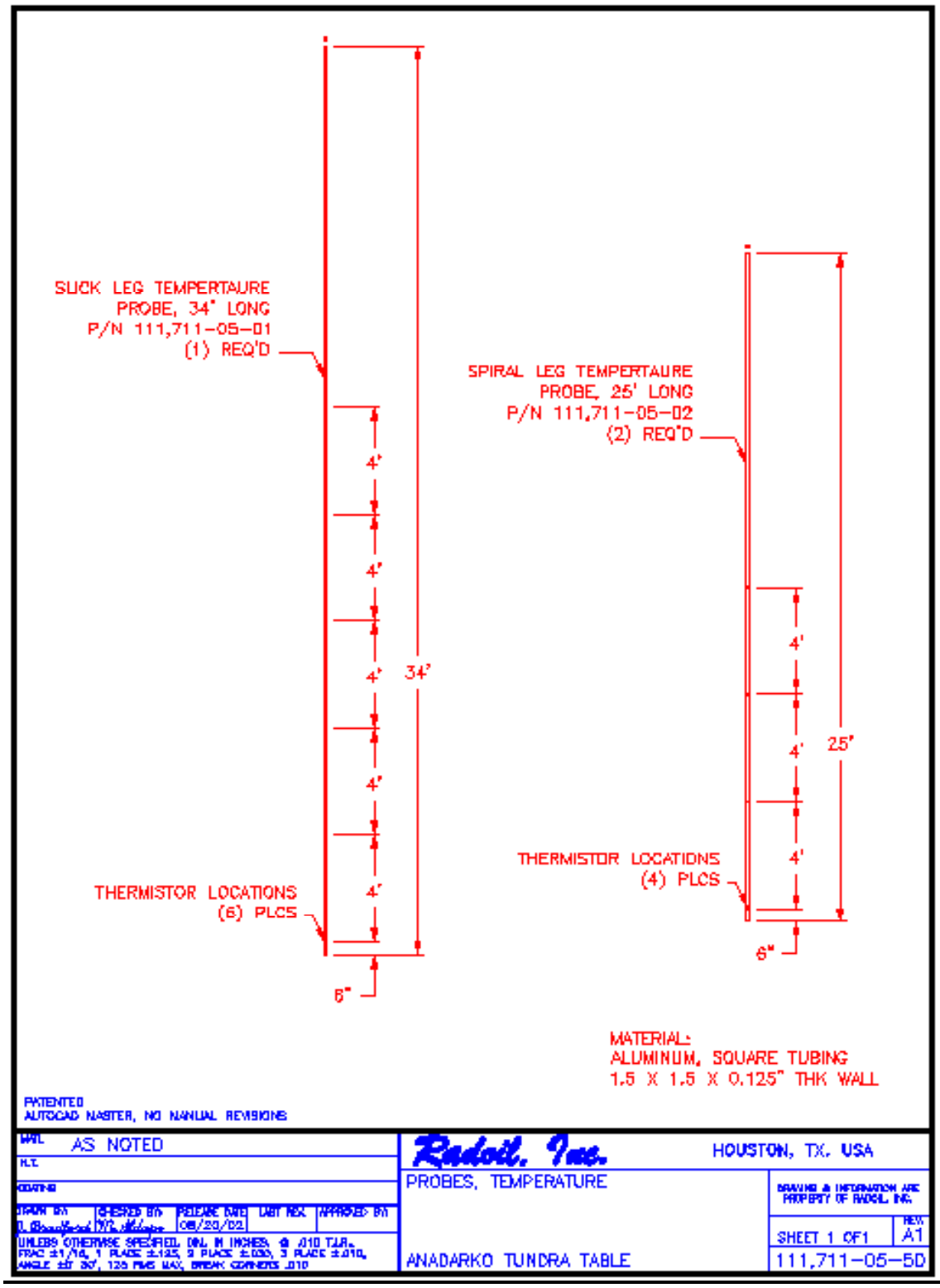


Figure 11 Thermistor strings

The secondary measurement devices were read periodically for backup data. The creep displacement readings were selected for plotting and analysis at each 0.0254 mm (0.001 in) during secondary creep and more often during the primary creep. ASTM D 5780 requests ground-temperature readings prior to the start of each load increment, after the completion of each load increment, and at least once per day during each load increment. For our tests, the air and ground temperatures were read 10 times per second and selected for analysis every 6.25 minutes.

Loading Procedure

The loads were applied in a continuous uniform manner until the test load was attained. The time to load was under 10 seconds except for the 445 and 667 kN (100 and 150 kips) loads. Since a mechanical actuator was used, it was not possible to maintain the load exactly at the designated level. The load ranges are given with the test results.

According to the ASTM D 5780 method, two types of loads are to be applied to the test legs: creep loads and failure loads. The creep load increments are maintained until a uniform rate of movement of the test leg is achieved for four consecutive measurement periods (at least 15 min apart) or for a minimum of 3 days (which ever is greater). If failure occurs before attaining uniform movement the load test on the leg may be terminated, or if after 7 days there is not uniform movement the test increment may be terminated. The failure load increments are maintained on the test leg until failure occurs. If failure is not reached in 7 days the test increment may be terminated. When failure occurs or the test increment is terminated the applied load is to be removed and rebound measurements are to be taken for 24 hours.

No soil data for the site were available prior to installation of the legs that would assist in selecting proper load levels. The load levels of 222, 445 and 667 kN (50, 100 and 150 kips) were chosen based on the 667-kN (150 kips) capacity of the test frame. It was unknown prior to testing whether or not any of the loads would lead to a failure.

LOAD TEST ON PILE 1 (Spiral Leg #3)

A nominal load of 67 kN (15 kips) was applied on Spiral Leg #3 at 20:00 on November 8 to make sure that the loading and measurement apparatus worked properly.

The actual testing started at 12:21 on November 9 by applying a load of 222 kN (50 kips). The program was set up to keep the load between 213 and 222 kN (48 to 50 kips). The test was terminated at 13:57 on November 10. The creep rate had been stable for 20 hours.

A load of 445 kN (100 kips) was applied at 15:15 on November 10. The program was set up to keep the load between 440 and 445 kN (99 to 100 kips). The test was terminated at 9:53 on November 12. The creep rate had been stable for 40 hours.

A load of 667 kN (150 kips) was applied at 11:49 on November 12. The program was set up to keep the load between 440 and 445 kN (99 to 100 kips). One of the actuators failed during the load application, but the other actuator was able to bring the system up to the target load. The test was terminated at 9:17 on November 15. The creep rate had been stable for 65 hours.

LOAD TEST ON PILE 2 (Spiral Leg #2)

After the rebound had been measured for 2 hours, the load cell, potentiometer, and dial gages were removed from Spiral Leg #3. The load cell was moved along the truss by hand over Spiral Leg #2. The leg was placed in contact with the load cell, and the potentiometer and a dial gage were attached to the leg.

The wire, scale and mirror were not used for the testing of Spiral Leg #2, as the potentiometer, dial gage and transit measurement systems were reliable for the data recording and verification. The dial gage for vertical displacement was read periodically to verify the potentiometer readings. However, blowing snow and freezing temperatures affected the gage readings, and therefore the dial gage was not relied upon during testing of Spiral Leg #2. No rotation was observed for Spiral Leg #3, and therefore the dial gage used to measure the rotation was not used for Spiral Leg #2.

A nominal load of 67 kN (15 kips) was applied on the Spiral Leg #2 at 13:10 on November 15 to make sure that the loading and measurement apparatus worked properly. The actual testing started at 14:03 on November 15 by applying a load of 445 kN (100 kips). The program was set up to keep the load between 440 and 445 kN (99 to 100 kips). The test was terminated at 14:02 on November 18. The creep rate had been stable for 40 hours.

A load of 667 kN (150 kips) was applied at 15:00 on November 18. The program was set up to keep the load between 658 and 667 kN (148 to 150 kips). The test was terminated at 15:00 on November 23. The creep rate had been stable for 40 hours.

TEST RESULTS

Temperature Data

The measured ground temperatures for Spiral Legs are given and analyzed below with the displacement data. Temperature data from for the smooth leg and the ambient air are given in Appendix D-3. The season of October - November is the warmest period for permafrost below the ground surface, which is desired for permafrost pile testing. The measured temperatures showed that the permafrost was about 1°C (2°F) warmer at the depth of 4 m (14 ft) than in November of 1969, a value reported by Neukirchner (1984).

Spiral Leg #3

Data for the displacement, displacement rate and temperatures are given in Tables 2 to 5. The pile displacement with time is plotted in Figure 12 and the soil temperature with time in Figure 13. In the first test, 222-kN (50 kips) load on Spiral Leg #3, the creep reached the secondary creep rate at approximately 40 minutes. The average creep rate was measured to be 0.023 mm/hr (0.0009 in/hr). The pseudo-instantaneous displacement (obtained by intersecting the best fit line for the secondary creep data and the ordinate) was 0.38 mm (0.015 in). When the load was removed, an immediate rebound of 0.38 mm (0.015 in) was observed. When the test started, only the bottom 2.29 m (7.5 ft) of the pile was in frozen soil. The average temperature over the frozen part of the leg was –2°C (28°F). At the end of the test, an estimated of 2.44 m (8 ft) of the pile was in frozen soil. The average temperature over the frozen part of the leg was still about –2°C (28°F). The load actuator increased the load from the minimum set value to the maximum set value twice, at 3 hours and 54 minutes, and at 23 hours 29 minutes, which explains the small changes in the displacement rates at those times.

In the second test, 444-kN (100 kips) load on Spiral Leg #3, the creep reached the secondary creep rate at approximately 3 hours. The average creep rate was measured to be 0.026 mm/hr (0.0010 in/hr). The pseudo-instantaneous displacement was 1.04 mm (0.041 in). When the load was removed, an immediate rebound of 0.84 mm (0.033 in) was observed. When the test started, only the bottom 2.44 m (8 ft) of the pile was in frozen soil. The average temperature over the frozen part of the leg was –2°C (28°F). At the end of the test, an estimated of 3.66 m (12 ft) of the pile was in frozen soil. The average temperature over the pile was still about –2°C (28°F). The load actuator increased the load from the minimum set value to the maximum set value at about 18 hours, which explains the small change in the displacement rate at that time.

In the third test, 667-kN (150 kips) load on Spiral Leg #3, the creep reached the secondary creep rate at approximately three hours. The average creep rate was measured to be 0.027 mm/hr (0.0011 in/hr). The pseudo-instantaneous displacement was 1.52 mm (0.060 in). When the load was removed, an immediate rebound of 1.270 mm (0.050 in) was observed. When the test started, the bottom 3.66 m (12 ft) of the pile was in frozen soil. The average temperature over the frozen part of the leg was –2°C (28°F). At the end of the test, entire pile length of 4.27 m (14 ft) was in frozen soil. The average temperature over the pile was still about –2°C (28°F).

Spiral Leg #2

Data for the displacement, displacement rate and temperatures are given in Tables 6, 7 and 8. The pile displacement with time is plotted in Figure 14 and the soil temperature with time in Figure 15. In the first test, 444-kN (100 kips) load on Spiral Leg #2, the creep reached the secondary creep rate at approximately 8 hours. The average creep rate was measured to be 0.024 mm/hr (0.00094 in/hr). The pseudo-instantaneous displacement (obtained by intersecting the best fit line for the secondary creep data and the ordinate) was 1.07 mm (0.042 in). When the load was removed, an immediate rebound of 0.74 mm (0.029 in) was observed. When the test started, only the bottom 3.35 m (11 ft) of the pile was in frozen soil. The average temperature over the frozen part of the leg was –2°C (28°F). At the end of the test, entire pile length of 4.27 m (14 ft) was in frozen soil. The average temperature over the pile was about –2.5°C (27°F).

In the second test, 667-kN (150 kips) load on Spiral Leg #2, the creep reached the secondary creep rate at approximately 11 hours. The average creep rate was measured to be 0.020 mm/hr (0.00078 in/hr). The pseudo-instantaneous displacement was 1.55 mm (0.061 in). When the load was removed, an immediate rebound of 1.17 mm (0.046 in) was observed. The entire pile length of 4.27 m (14 ft) was in frozen soil during the whole test. The average temperature over the pile was about –2.5°C (27°F) at the beginning of the test and about –3.0°C (26.6°F) at the end of the test. The load actuator increased the load from the minimum set value to the maximum set value at about 18 hours, which explains the small change in the displacement rate at that time.

Secondary Displacement Measurements

Displacements from the secondary measurement systems are given in Table 9. The wire and mirror system measurements were close to potentiometer readings for Leg #3. This system was not used for Leg #2, as the dial gages were more accurate and easier to read. The dial gage confirmed the potentiometer readings. Possible rotation of the piles was measured for Spiral Leg #3 at load levels of 444 and 667 kN (100 and 150 kips). No rotation was observed.

Table 2 Displacement data for Spiral Leg #3 with 222-kN (50 kips) load

Time	Displacement		Time	Displacement		Time	Displacement	
hrs	mm	0.001 in	hrs	mm	0.001 in	hrs	mm	0.001 in
0.00	0.000	0	6.96	0.559	22	19.55	0.813	32
5E-3	0.305	12	8.18	0.584	23	20.80	0.838	33
14E-3	0.330	13	9.81	0.610	24	21.81	0.864	34
0.08	0.356	14	10.96	0.635	25	22.93	0.889	35
0.65	0.381	15	12.36	0.660	26	23.36	0.914	36
1.65	0.406	16	13.45	0.686	27	23.58	0.940	37
2.81	0.432	17	14.88	0.711	28	24.53	0.965	38
3.90	0.483	19	16.15	0.737	29	25.31	0.991	39
4.56	0.508	20	17.13	0.762	30			
5.65	0.533	21	18.41	0.787	31			

Table 3 Displacement data for Spiral Leg #3 with 444-kN (100 kips) load

Time	Displacement		Time	Displacement		Time	Displacement	
hrs	mm	0.001 in	hrs	mm	0.001 in	hrs	mm	0.001 in
0.00	0.000	0	7.36	1.219	48	24.96	1.702	67
0.01	0.254	10	8.14	1.245	49	26.14	1.727	68
0.02	0.787	31	8.71	1.270	50	27.24	1.753	69
0.02	0.813	32	9.71	1.295	51	28.04	1.778	70
0.04	0.838	33	10.49	1.321	52	29.24	1.803	71
0.06	0.864	34	11.17	1.346	53	30.46	1.829	72
0.15	0.889	35	12.14	1.372	54	31.54	1.854	73
0.33	0.914	36	13.01	1.397	55	32.71	1.880	74
0.45	0.940	37	13.52	1.422	56	33.67	1.905	75
0.83	0.965	38	14.51	1.448	57	34.71	1.930	76
1.27	0.991	39	15.84	1.473	58	35.96	1.956	77
1.71	1.016	40	16.92	1.499	59	37.02	1.981	78
2.16	1.041	41	17.54	1.524	60	37.82	2.007	79
2.87	1.067	42	18.17	1.549	61	38.84	2.032	80
3.91	1.092	43	18.79	1.575	62	39.89	2.057	81
4.16	1.118	44	19.87	1.600	63	40.87	2.083	82
4.94	1.143	45	21.22	1.626	64	41.94	2.108	83
5.67	1.168	46	22.66	1.651	65			
6.69	1.194	47	23.66	1.676	66			

Table 4 Displacement data for Spiral Leg #3 with 667-kN (150 kips) load

Time	Displacement		Time	Displacement		Time	Displacement	
hrs	mm	0.001 in	hrs	mm	0.001 in	hrs	mm	0.001 in
0.00	0.000	0	15.81	1.956	77	42.53	2.692	106
0.03	1.245	49	16.69	1.981	78	43.79	2.718	107
0.04	1.270	50	17.48	2.007	79	44.68	2.743	108
0.05	1.295	51	18.66	2.032	80	45.73	2.769	109
0.07	1.321	52	19.23	2.057	81	46.63	2.794	110
0.10	1.346	53	19.98	2.083	82	47.98	2.819	111
0.17	1.372	54	20.93	2.108	83	48.78	2.845	112
0.29	1.397	55	22.06	2.134	84	49.56	2.870	113
0.40	1.422	56	23.26	2.159	85	50.53	2.896	114
0.64	1.448	57	24.16	2.184	86	51.41	2.921	115
0.88	1.473	58	25.56	2.210	87	52.49	2.946	116
1.38	1.499	59	26.68	2.235	88	53.49	2.972	117
1.83	1.524	60	27.91	2.261	89	54.76	2.997	118
2.26	1.549	61	28.84	2.286	90	55.73	3.023	119
3.01	1.575	62	29.83	2.311	91	56.36	3.048	120
3.41	1.600	63	30.36	2.337	92	57.28	3.073	121
4.23	1.626	64	31.19	2.362	93	58.34	3.099	122
4.98	1.651	65	32.01	2.388	94	59.49	3.124	123
5.49	1.676	66	32.99	2.413	95	60.49	3.150	124
6.36	1.702	67	34.09	2.438	96	61.59	3.175	125
7.39	1.727	68	34.98	2.464	97	62.58	3.200	126
8.11	1.753	69	36.09	2.489	98	63.59	3.226	127
9.23	1.778	70	36.56	2.515	99	64.59	3.251	128
10.09	1.803	71	37.51	2.540	100	65.48	3.277	129
11.26	1.829	72	38.43	2.565	101	66.43	3.302	130
12.34	1.854	73	39.34	2.591	102	67.44	3.327	131
13.14	1.880	74	40.16	2.616	103	68.63	3.353	132
14.46	1.905	75	40.91	2.642	104			
15.23	1.930	76	41.93	2.667	105			

Table 5 Temperature data for Spiral Leg #3, °C

Date	Time	Depth, m (ft)				Date	Time	Depth, m (ft)			
dd-mm	hrs	0.61 (2)	1.83 (6)	3.05 (10)	4.27 (14)	dd-mm	hrs	0.61 (2)	1.83 (6)	3.05 (10)	4.27 (14)
2-Nov	0	4.2	3.1	4.2	0.2		266	-0.7	-1.6	-3.1	-3.9
3-Nov	25.5	-0.1	1.0	-0.2	-0.7	14-Nov	280	1.1	-1.4	-3.2	-3.8
4-Nov	40	-0.3	1.0	-0.2	-0.7		290	0.2	-1.6	-3.2	-3.9
	50	0.0		-0.3	-1.6	15-Nov	304	1.8	-1.6	-3.3	-4.1
5-Nov	63	0.0	2.2	-0.5	-2.0		314	0.0	-2.1	-3.3	-4.2
	74	0.0		-0.6	-2.2	16-Nov	328	3.5	-1.9	-3.3	-4.0
6-Nov	88	-0.1		-0.8	-2.9		338	1.2	-1.8	-3.3	-4.0
	98	-0.1		-1.1	-3.4	17-Nov	352	0.6	-2.1	-3.4	-4.2
7-Nov	111	-0.1		-1.5	-3.6		362	-0.8	-2.1	-3.4	-4.3
	122	-0.1		-1.7	-3.7	18-Nov	376	-0.1	-2.2	-3.5	-4.3
8-Nov	136	-0.1		-2.0	-3.8		386	-1.6	-2.3	-3.4	-4.1
	146	-0.3	0.0	-2.1	-3.9	19-Nov	400	-0.1	-2.2	-3.5	-4.1
9-Nov	160	0.4	0.4	-2.3	-3.8		410	0.2	-2.1	-3.5	-4.0
	170		0.4	-2.4	-3.9	20-Nov	424	-0.7	-2.4	-3.5	-4.2
10-Nov	184	0.0	0.4	-2.6	-4.0		434	-0.8	-2.4	-3.6	-4.3
	194	-0.3	-0.1	-2.7	-3.9	21-Nov	448	-1.6	-2.6	-3.6	-4.3
11-Nov	208	0.6	-0.2	-2.9	-4.2		458	-1.6	-2.5	-3.5	-4.1
	218	1.0	-0.2	-2.9	-4.1	22-Nov	472	-1.9	-2.6	-3.6	-4.2
12-Nov	232	-0.6	-1.3	-3.0	-4.2		482	-1.8	-2.6	-3.6	-4.2
	242	-0.1	-1.4	-3.1	-4.2	23-Nov	496	-1.5	-2.5	-3.6	-4.1
13-Nov	256	0.0	-1.4	-3.1	-3.9						

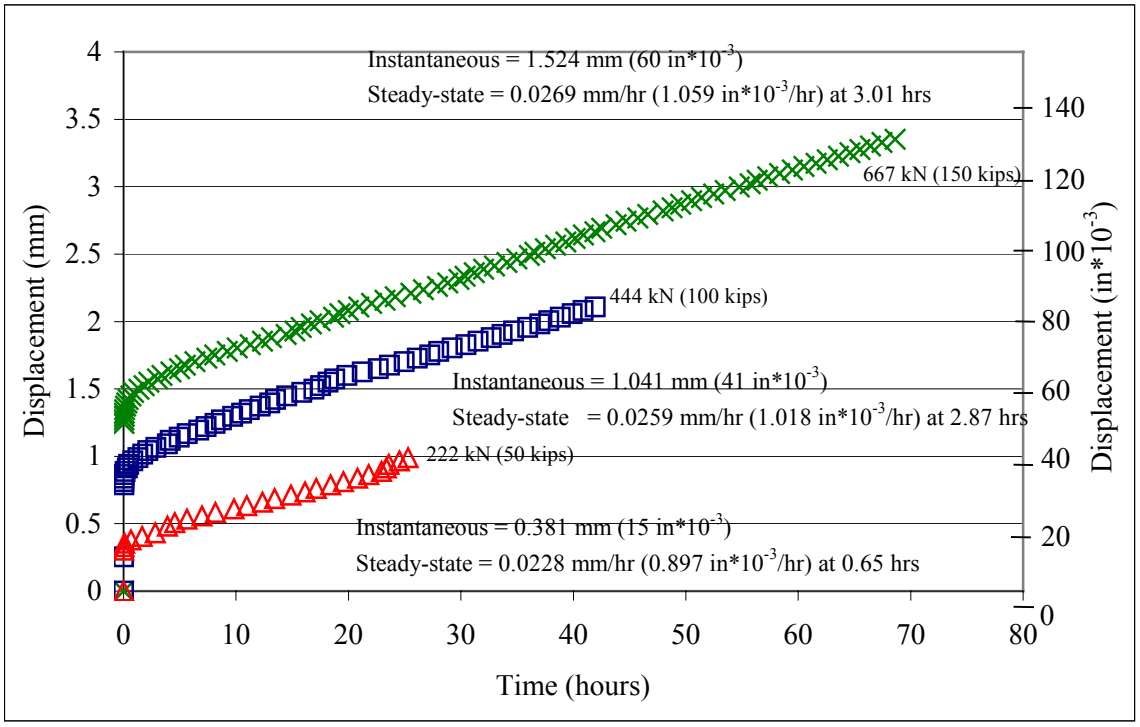


Figure 12 Pile displacement with time for Spiral Leg #3

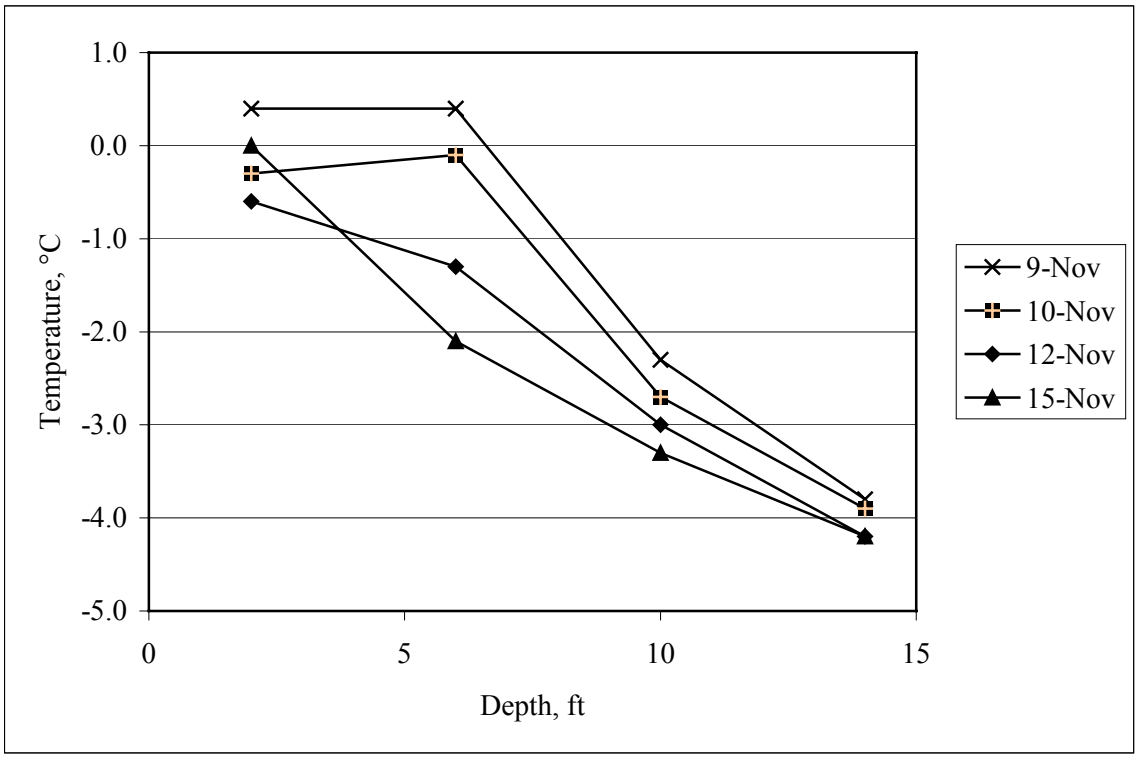


Figure 13 Pile temperature with depth for Spiral Leg #3

Table 6 Displacement data for Spiral Leg #2 with 442-kN (100 kips) load

Time	Displacement		Time	Displacement		Time	Displacement	
hrs	mm	0.001 in	hrs	mm	0.001 in	hrs	mm	0.001 in
0.00	0.000	0	1.06	0.914	36	30.03	1.803	71
0.0005	0.025	1	1.56	0.940	37	30.93	1.829	72
0.0017	0.051	2	1.78	0.965	38	31.88	1.854	73
0.0022	0.076	3	2.45	0.991	39	32.44	1.880	74
0.0030	0.102	4	3.25	1.016	40	33.13	1.905	75
0.0035	0.127	5	3.56	1.041	41	33.84	1.930	76
0.0042	0.152	6	4.26	1.067	42	34.68	1.956	77
0.0047	0.178	7	5.11	1.092	43	35.58	1.981	78
0.0052	0.203	8	6.05	1.118	44	36.56	2.007	79
0.0058	0.229	9	6.56	1.143	45	37.68	2.032	80
0.0060	0.254	10	7.16	1.168	46	38.43	2.057	81
0.0063	0.279	11	7.81	1.194	47	39.26	2.083	82
0.0072	0.305	12	8.85	1.219	48	40.11	2.108	83
0.0077	0.330	13	10.23	1.245	49	41.29	2.134	84
0.0085	0.381	15	10.96	1.270	50	42.21	2.159	85
0.0092	0.406	16	11.50	1.295	51	43.66	2.184	86
0.0093	0.432	17	12.65	1.321	52	45.03	2.210	87
0.0097	0.457	18	13.98	1.346	53	45.96	2.235	88
0.0102	0.483	19	14.91	1.372	54	47.08	2.261	89
0.0108	0.508	20	16.06	1.397	55	48.46	2.286	90
0.0110	0.533	21	17.16	1.422	56	50.38	2.311	91
0.0117	0.559	22	17.80	1.448	57	51.84	2.337	92
0.0133	0.584	23	18.45	1.473	58	53.3613	2.362	93
0.0163	0.610	24	19.46	1.499	59	54.4113	2.388	94
0.0183	0.635	25	20.24	1.524	60	55.1780	2.413	95
0.0230	0.660	26	21.24	1.549	61	57.2780	2.438	96
0.0352	0.686	27	22.24	1.575	62	59.4947	2.464	97
0.0430	0.711	28	23.13	1.600	63	62.0947	2.489	98
0.0463	0.737	29	24.08	1.626	64	64.2947	2.515	99
0.0963	0.762	30	24.73	1.651	65	65.9613	2.540	100
0.1630	0.787	31	25.31	1.676	66	67.5113	2.565	101
0.1963	0.813	32	26.09	1.702	67	69.1447	2.591	102
0.3130	0.838	33	26.96	1.727	68	70.2947	2.616	103
0.5963	0.864	34	27.71	1.753	69	71.8280	2.642	104
0.6797	0.889	35	28.93	1.778	70			

Table 7 Displacement Data for Spiral Leg #2 with 667-kN (150 kips) load

Time	Displacement		Time	Displacement		Time	Displacement	
hrs	mm	0.001 in	hrs	mm	0.001 in	hrs	mm	0.001 in
0.0000	0.000	0	23.52	2.007	79	69.49	2.972	117
0.0158	0.610	24	24.77	2.032	80	71.11	2.997	118
0.0233	0.787	31	25.64	2.057	81	72.74	3.023	119
0.0400	1.092	43	26.82	2.083	82	73.86	3.048	120
0.0567	1.143	45	28.49	2.108	83	75.24	3.073	121
0.0717	1.168	46	29.39	2.134	84	76.72	3.099	122
0.10	1.194	47	30.69	2.159	85	78.36	3.124	123
0.14	1.219	48	31.79	2.184	86	79.96	3.150	124
0.24	1.245	49	33.34	2.210	87	81.37	3.175	125
0.39	1.270	50	34.16	2.235	88	82.29	3.200	126
0.56	1.295	51	35.49	2.261	89	83.29	3.226	127
0.84	1.321	52	36.67	2.286	90	84.54	3.251	128
1.21	1.346	53	37.72	2.311	91	85.96	3.277	129
1.56	1.372	54	38.91	2.337	92	87.52	3.302	130
2.21	1.397	55	40.19	2.362	93	88.99	3.327	131
2.64	1.422	56	41.71	2.388	94	90.64	3.353	132
3.42	1.448	57	42.32	2.413	95	92.31	3.378	133
4.06	1.473	58	43.62	2.438	96	93.59	3.404	134
4.84	1.499	59	44.46	2.464	97	94.89	3.429	135
5.29	1.524	60	46.16	2.489	98	96.07	3.454	136
6.01	1.549	61	47.27	2.515	99	97.69	3.480	137
6.92	1.575	62	48.36	2.540	100	99.11	3.505	138
7.41	1.600	63	49.77	2.565	101	100.71	3.531	139
8.59	1.626	64	51.12	2.591	102	102.11	3.556	140
9.52	1.651	65	52.42	2.616	103	103.74	3.581	141
10.22	1.676	66	53.26	2.642	104	105.47	3.607	142
11.21	1.702	67	54.59	2.667	105	107.17	3.632	143
11.96	1.727	68	55.64	2.692	106	108.59	3.658	144
12.66	1.753	69	56.91	2.718	107	110.02	3.683	145
13.62	1.778	70	57.96	2.743	108	111.26	3.708	146
14.82	1.803	71	58.99	2.769	109	112.42	3.734	147
15.22	1.829	72	60.24	2.794	110	113.82	3.759	148
16.36	1.854	73	61.61	2.819	111	115.04	3.785	149
17.72	1.880	74	63.26	2.845	112	116.56	3.810	150
18.51	1.905	75	64.29	2.870	113	117.99	3.835	151
19.92	1.930	76	65.26	2.896	114	119.46	3.861	152
21.34	1.956	77	66.39	2.921	115			
22.19	1.981	78	68.04	2.946	116			

Table 8 Temperature Data for Spiral Leg #2, °C

Date	Time	Depth, m (ft)				Date	Time	Depth, m (ft)			
dd-mm	hrs	0.61 (2)	1.83 (6)	3.05 (10)	4.27 (14)	dd-mm	hrs	0.61 (2)	1.83 (6)	3.05 (10)	4.27 (14)
2-Nov	0	5.8	3.9	0.5	-0.3		266	0.4	-1.2	-1.6	-4.1
3-Nov	25.5	-0.1	0.1		-0.7	14-Nov	280	0.5	-1.3	-1.4	-4.1
4-Nov	40	0.0	-0.1	0.1	-1.0		290	0.5	-1.5		-4.1
	50	0.0	-0.1	0.5	-1.1	15-Nov	304	0.7	-1.5		-4.1
5-Nov	63	0.0	-0.1	-0.2	-1.7		314		-1.6		-4.2
	74	0.0	-0.1		-2.2	16-Nov	328		-1.7		-4.1
6-Nov	88	0.0	-0.1	-0.2	-2.7		338	0.1	-1.7		-4.1
	98	0.1	-0.1		-3.1	17-Nov	352	-0.1	-1.7		-4.2
7-Nov	111	0.1	0.0	-0.3	-3.3		362	-0.4	-1.9		-4.2
	122	0.1	-0.1	-1.0	-3.4	18-Nov	376	-0.7	-1.9		-4.2
8-Nov	136	0.5	-0.1	-1.6	-3.5		386	-1.1	-2.0		-4.2
	146	0.6	-0.2	-1.8	-3.6	19-Nov	400	-1.1	-2.1		-4.2
9-Nov	160	0.9	-0.2	-2.0	-3.8		410	-1.5	-2.1		-4.2
	170	1.2	-0.2	-2.0	-3.8	20-Nov	424	-1.7	-2.2		-4.2
10-Nov	184	0.0	-0.2	-2.1	-3.9		434	-1.9	-2.3		-4.2
	194	-0.1	-0.3	-2.5	-3.9	21-Nov	448	-2.1	-2.4		-4.2
11-Nov	208	-0.1	-0.4	-2.3	-3.9		458	-2.2	-2.4		-4.2
	218	0.0	-0.4	-2.1	-4.0	22-Nov	472	-2.4	-2.5		-4.2
12-Nov	232	-0.1	-0.6	-1.8	-4.1		482	-2.4	-2.5		-4.2
	242	0.1	-0.8	-1.6	-4.1	23-Nov	496	-2.5	-2.5		-4.2
13-Nov	256	-0.1	-1.0	-1.6	-4.1						

Table 9 Primary vs. Secondary Displacement methods

Leg 3 (All values are the change from the initial value)					
Time (hours)	Temperature °C	Potentiometer (in)	Transit (in)	Dial Gage (in)	Wire (in)
0	-17.0	0.000	0	-	0
21.81	-13.6	0.034	0.9375	-	0.016
27.35	-13.0	0.060	-	-	0.047
44.45	-17.0	0.083	-	-	0
Leg 2 (All values are the change from the initial value)					
Time (hours)	Temperature °C	Potentiometer (in)	Transit (in)	Dial Gage (in)	Wire (in)
0	-13.0	0	0	0	-
24.02	-10.6	.067	-	.067	-
91.55	-22.4	.153	-	.156	-
95.17	-22.8	.156	-	.1585	-

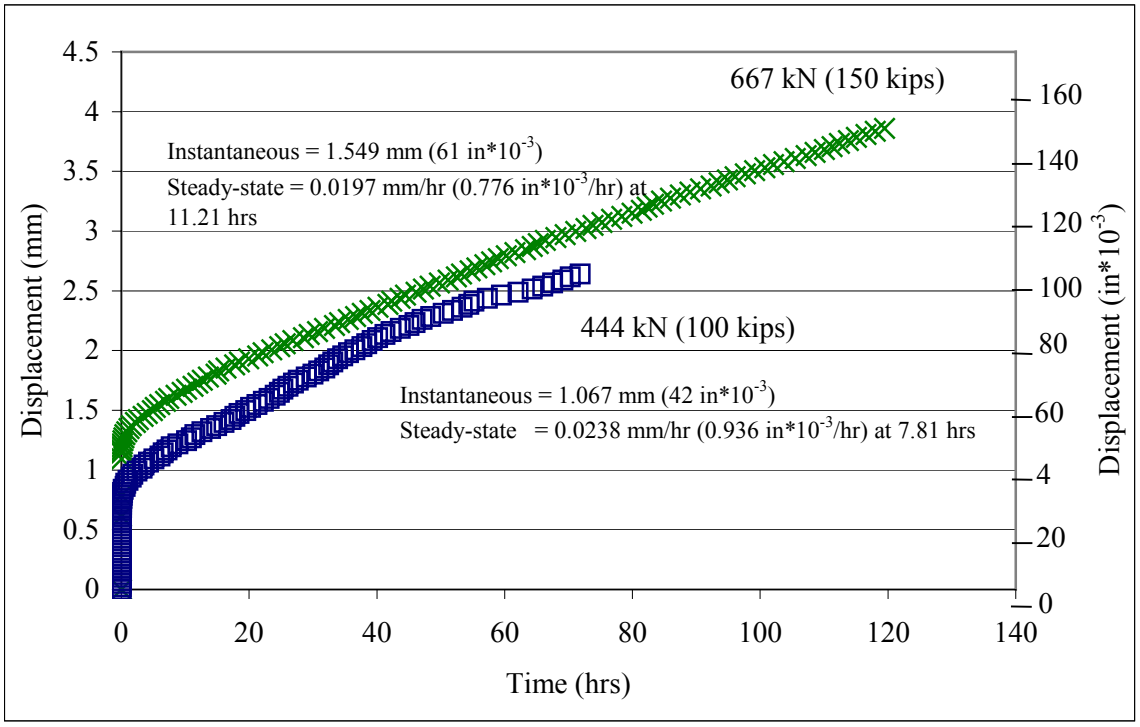


Figure 14 Pile displacement with time for Spiral Leg #2

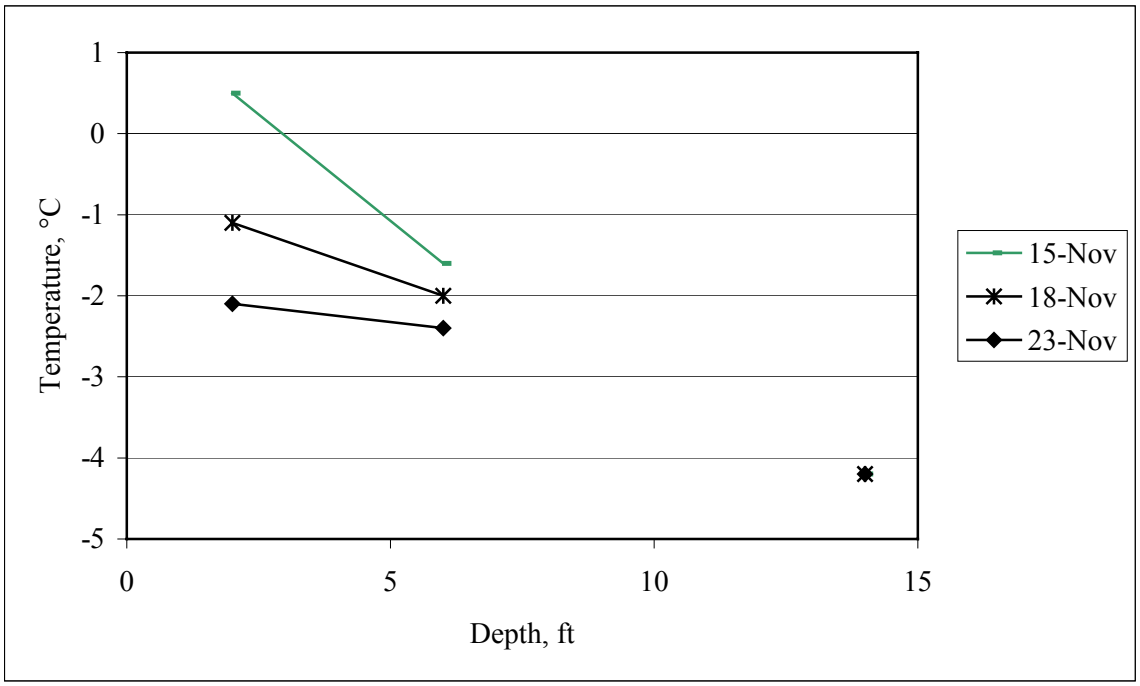


Figure 15 Temperature with time for Spiral Leg #2

PILE INSTALLATION AND REMOVAL

Accoring to Federico Lier (personal correspondence and report in Appendix D-2), the pile installation proceeded without any difficulties and did not differ from installation of smooth piles. The slurry was not vibrated when it was dropped to the oversized hole around the piles, which may have resulted in gabs directly below the helixes. Based on the tight schedule, the pile testing was started while the ground temperatures were still changing due to the freeze back of the warm slurry around the piles. The removal of piles was conducted by with a learning curve, but progressed mostly without difficulties. One of the legs had an obstruction in the fluid circulation system, refused to come out and was finally abandoned on the site. The pile was cut three feet below the ground surface.
Lier estimates that the total removal time per pile is estimated to be from 30 to 45 minutes and even less during production, as three to four piles can be hooked up to the steam plant at the same time.

CONCLUSIONS

The following conclusions that apply for the ice rich silty soil and pure ice found at the test site at the average temperature of –2°C (28°F) were obtained from the test results:

- The testing period represented the warmest permafrost temperatures, which is the worst case scenario for pile bearing capacity considerations and pile installation, and the best case scenario for pile removal.

- The Spiral Legs were installed with the same effort as smooth adfreeze piles. However, the slurry need to be vibrated during pouring to eliminate possible air gabs below the helixes. The Spiral Legs can be removed in an estimated 30 to 45 minutes assuming that the fluid circulation system works as designed.

- The test frame and the potentiometer functioned well for the given test period the air temperature being warmer than –23°C (-10°F). The dial gages worked well, too, and were handy in verifying the potentiometer readings.

- The observed pile displacement rate was about 0.025 mm/h (0.001 in/hr). With this rate, the allowable design displacement of 15 mm (0.60 in) would be reached in one month. The displacement rate was not affected significantly with the magnitude of the load. The capacity of the test frame did not allow for higher loads that would have led to a possibly higher displacement rates and failure.

- Vibration of the slurry during installation may improve the pile performance.

RECOMMENDATIONS

The following recommendations are made on the basis of the test results:

- More research before the Spiral Legs are used in the field.

- The following is recommended for possible future pile testing in the field: a larger capacity test frame (1334 to 1780 kN; 300 to 400 kips), a system that works down to –40°C (-40°F), and a flexible schedule to assure that the slurry around the pile is properly frozen. The slurry should be sampled at the plant, tested for gradation and water retention, and compared with the specifications. The slurry need to be vibrated around the piles.

- The idea of instrumentation of the actual Tundra Table Legs was considered. At this time, the authors and Dr. Helen Liu from the UAA consider that this data may not be usable for modeling purposes, because the piles will be installed in such a heterogeneous soil and the temperature is changing constantly. Laboratory testing in controlled environment would provide more valuable data. However, the instrumentation can be designed under a separate report if Anadarko wants to record a range of displacement for the Tundra Table sites.

- Since the spirals did not seem to offer the benefit of providing an acceptable displacement rate under the testing conditions, the future analytical and laboratory research should be optimizing the length of the smooth piles.

REFERENCES

Alaska Testlab, (2002), Laboratory Report for Michael Baker Jr. Inc for Anadarko Pile Test, reported 11/26/2002.

American Society for Testing and Materials, (1995). Designation: D 5780 Standard Test Method for Individual Piles in Permafrost Under Static Axial Compressive Load, West Conshohocken, PA.

Michael Baker Jr. Inc., (2002), Pile Test Geotechnical Investigation, submitted to Anadarko Petroleum Company.

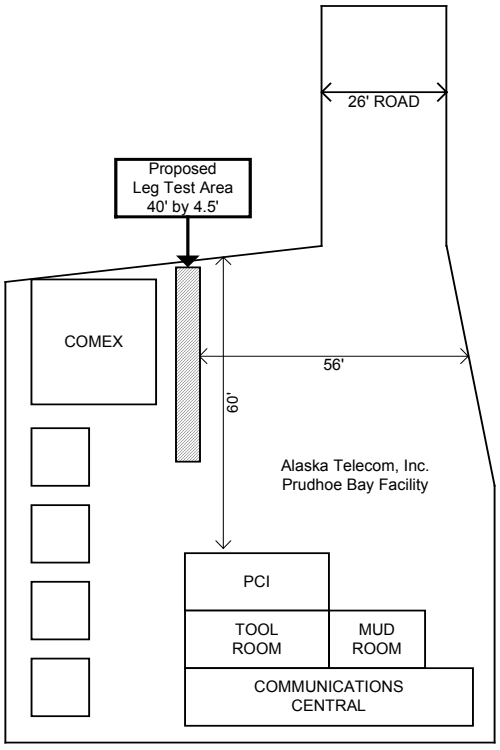
Neukirchner, R. J., (1984) “Permafrost Temperature Profiles for Design of Piles by Creep Theory,” Proceedings: Cold Regions Engineering Specialty Conference, April 4-6, 1984, Candadian Society for Civil Engineering, Montreal, Quebe

A. Leg Test Objectives

1. To test the vertical load bearing capacity of the leg in the permafrost.
2. To determine the response to cyclic loading of the leg.
3. To determine creep characteristics in both steady state and cyclic loading conditions.
4. To provide education and experience in the actual leg installation and removal process.
5. To establish the temperature profile outside of the leg during freeze-in, steady state, and melt-out conditions.
6. To establish the amount of energy required for the melt-out process by monitoring the temperature of fluid in and fluid out of the leg when fluids are pumped through the legs circulation system.
7. Establish a working relationship with the local agencies and universities for future support.

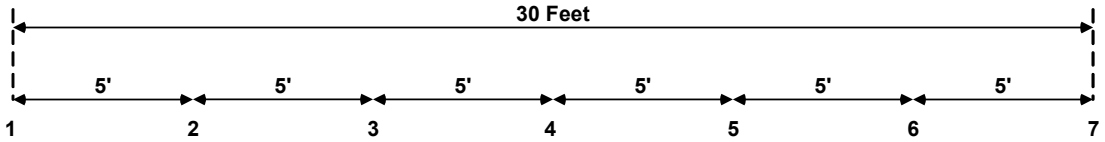
B. Preparation

1. Test Site
   a. The test site facility selected is the Alaska Telecom, Inc. Prudhoe Bay facility.



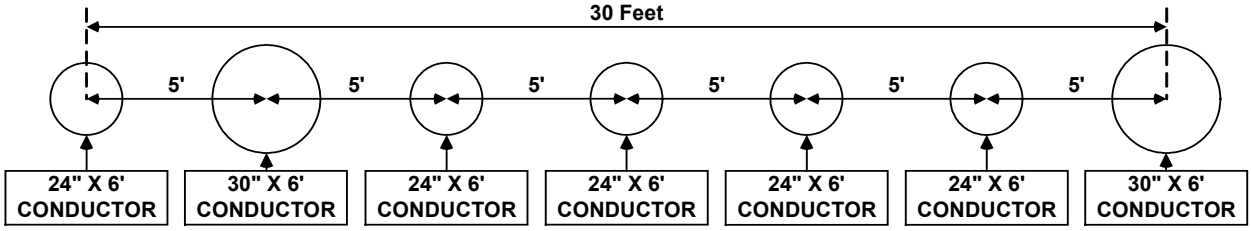
2. Survey and mark seven hole positions as outlined below
   a. Insure area sufficient for maneuvering heavy equipment and handling 35 ft long leg sections. **(Avoid risky areas with buri ed and/or aboveground power lines and guy wires).**
   b. Insure test fixture area selected is on level ground.

Anadarko Tundra Platform
Tundra Performance Test
Five Leg Test Fixture



3. Insert five each 24” inch screw in conductors as indicated below.

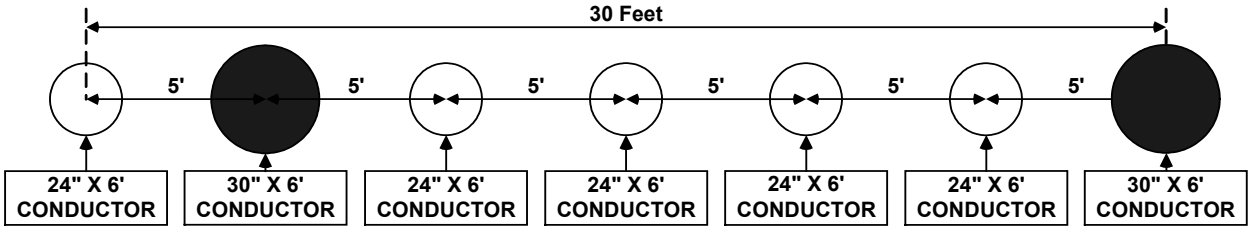
Anadarko Tundra Platform
Tundra Performance Test
Five Leg Test Fixture



   a. Insertion shall be through the gravel pad until the surface of the tundra is encountered.
   b. Insure that Herculite or another suitable material is spread out to contain the soil/gravel removed from each hole, which will be in excess of 3 cubic feet per linear foot of depth. The material removed should be stored on site for use in filling the excavated holes upon completion of the leg test project.

4. Insert two each 30” screw in conductors as indicated below.

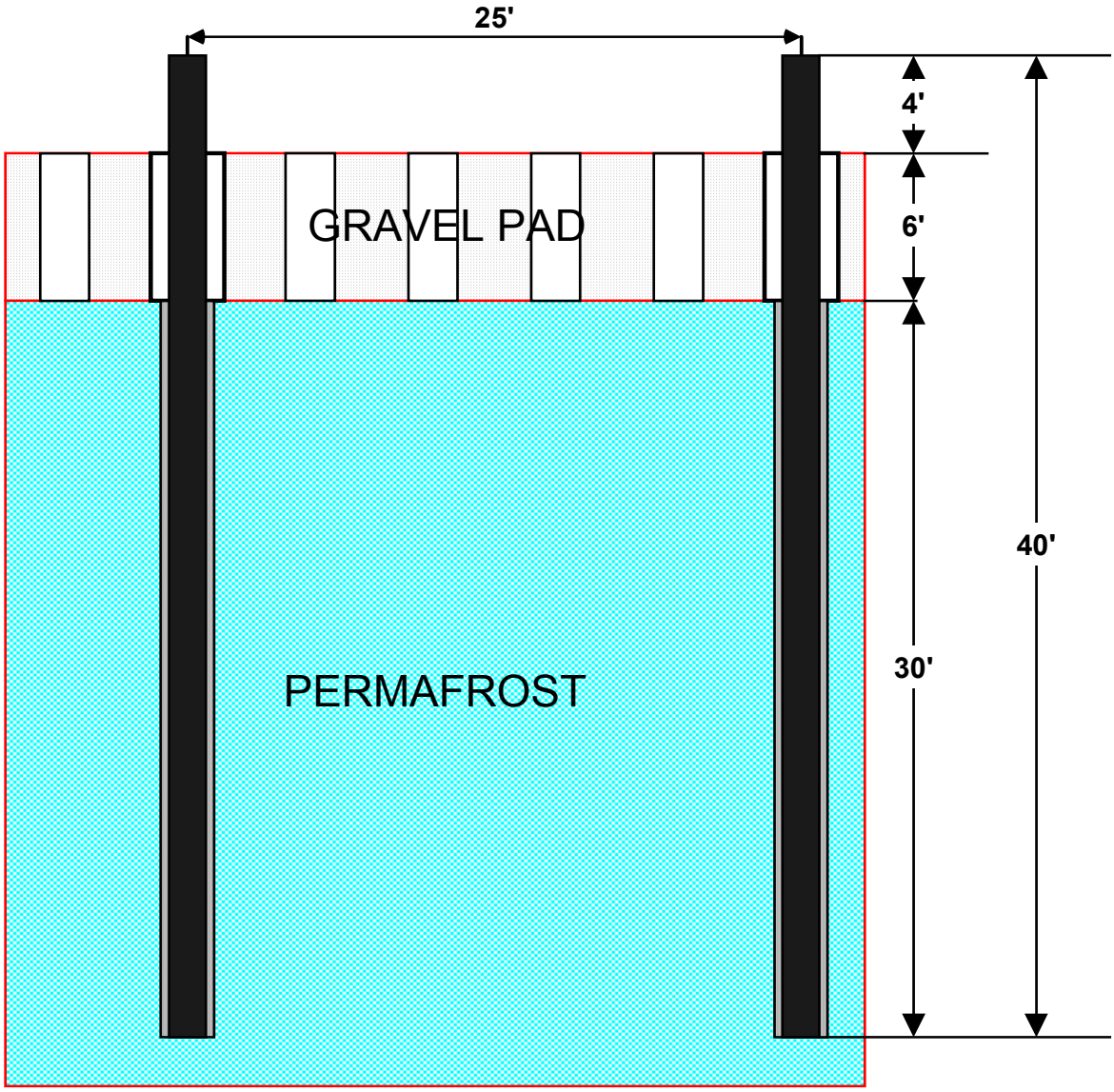
Anadarko Tundra Platform
Tundra Performance Test
Five Leg Test Fixture



   a. Insertion shall be through the gravel pad until the surface of the tundra is encountered.
   b. Insure that Herculite or another suitable material is spread out to contain the soil/gravel removed from each hole, which will be in approximately 5 cubic feet per linear foot of depth. The material removed should be stored on site for use in filling the excavated holes upon completion of the leg test project.

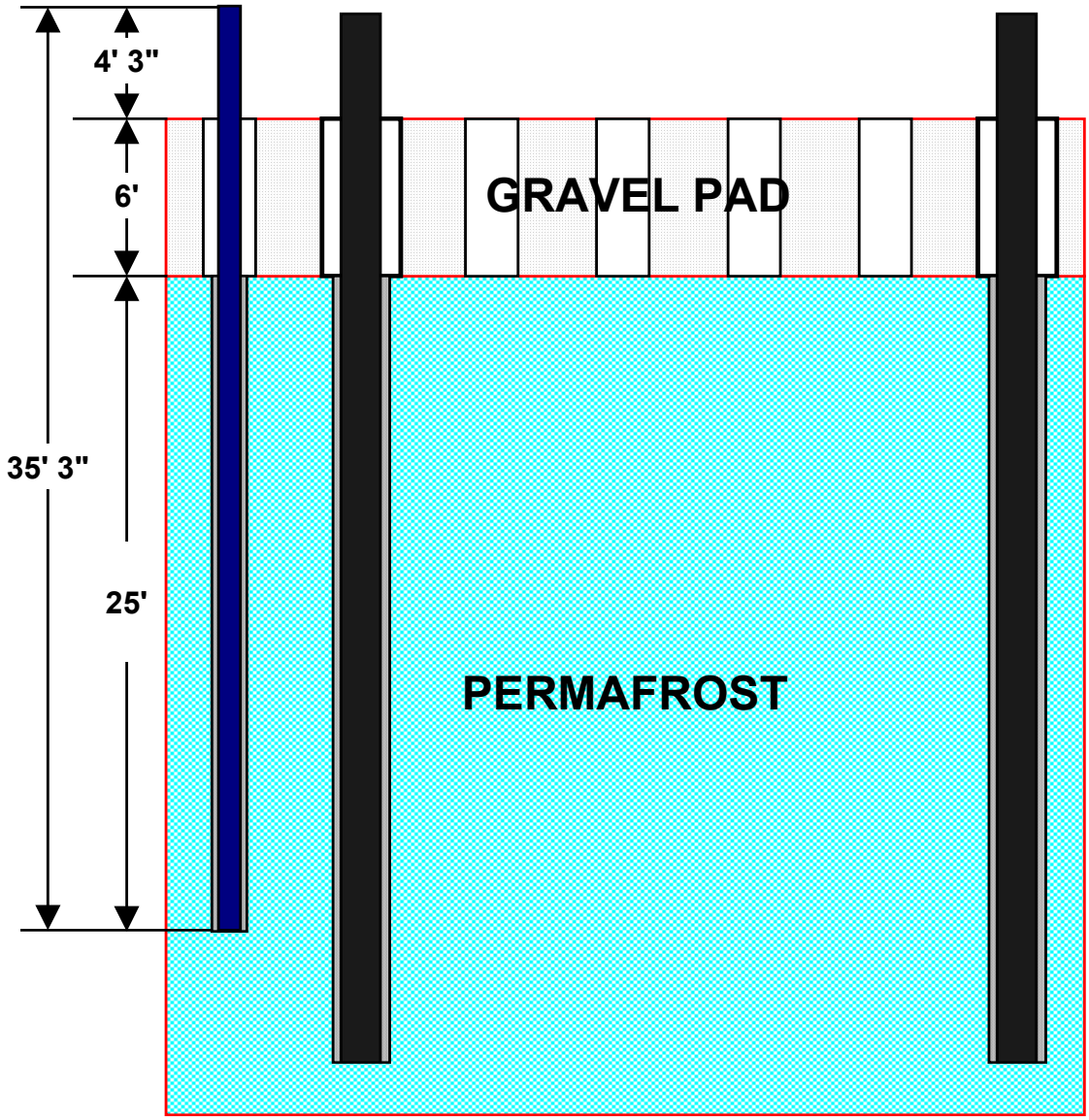
5. Drill two each 26 inch diameter holes to a depth of 30 feet below the tundra surface level.
   a. Sediment removed from each hole will be approximately 140 cubic feet and should be stored on site to enable filling of excavated holes upon completion of the leg test project, or disposed of in accordance with local regulations.

6. Insert two each 18 inch diameter by 40 feet length VSMs into the 26 inch holes to a depth of thirty feet below tundra surface. Stickup of the VSM of 4 ft is required above the gravel pad. (Reference drawing schematic on page 4).
   a. Slurry in place in the most optimum manner for quick freeze-in of the VSMs.

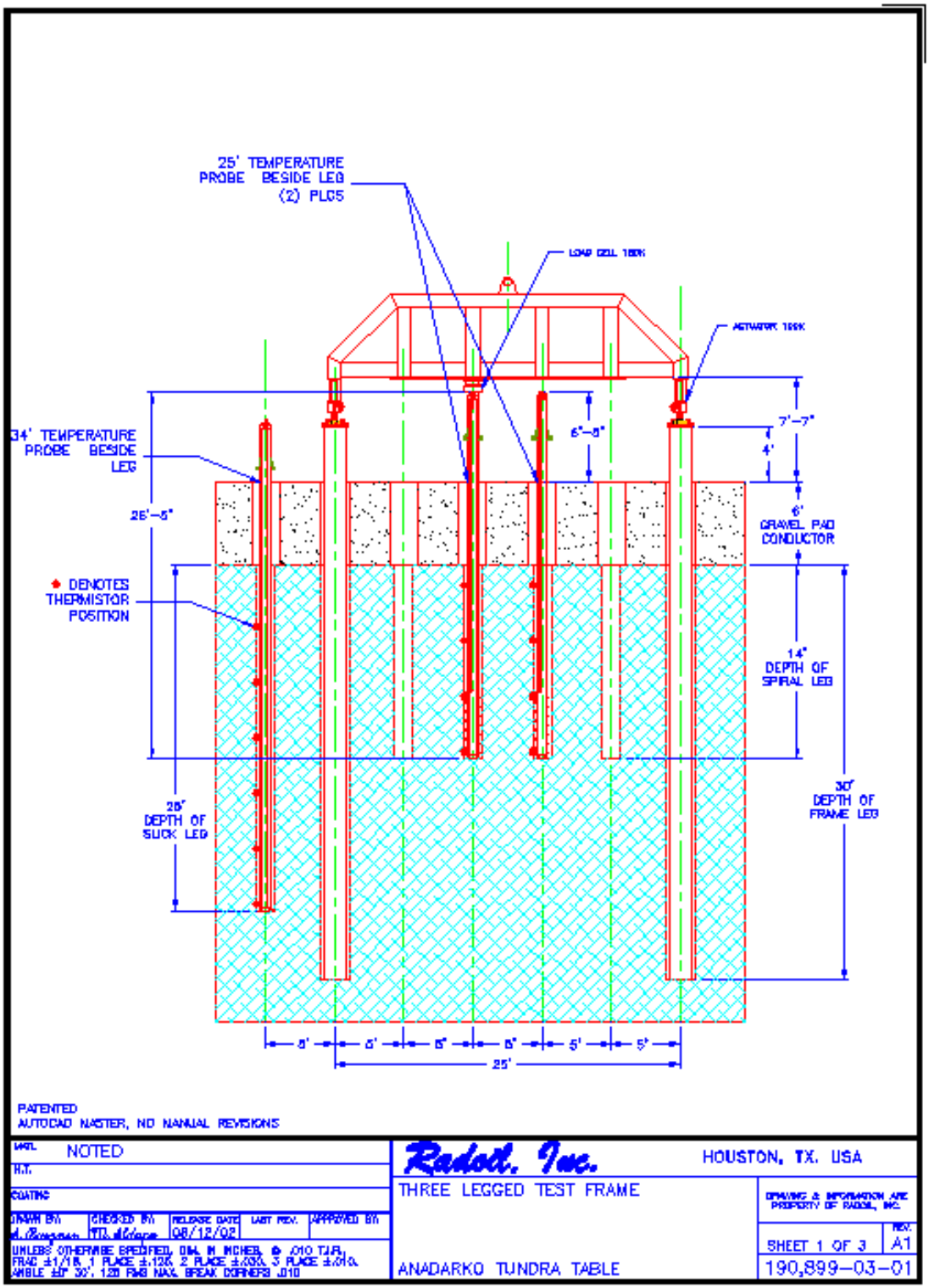

25'
4'
6'
GRAVEL PAD
PERMAFROST
30'
40'

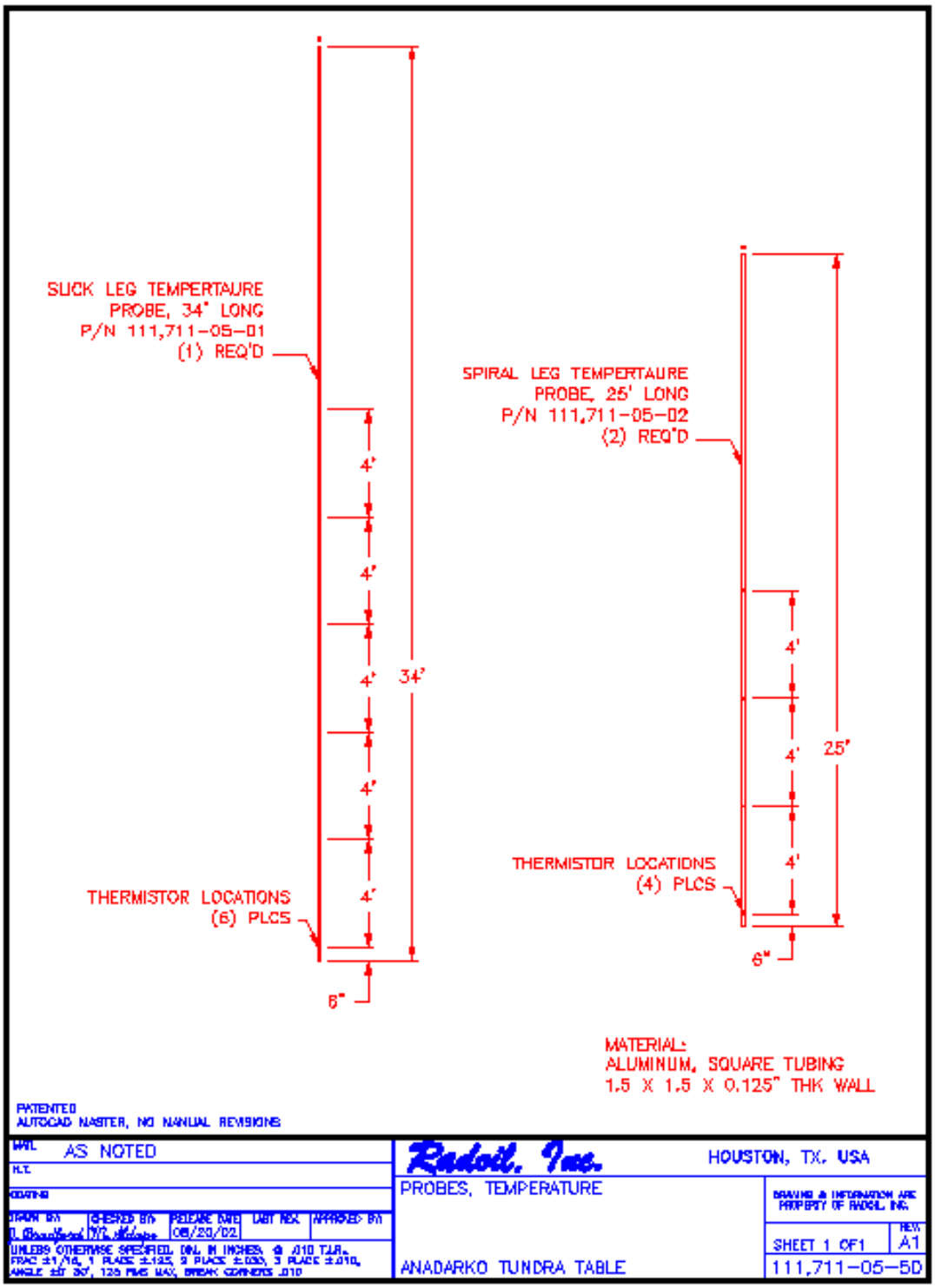
C. Test Leg Installation

7. Installation of Non-Spiraled (Smooth OD) Leg.
    a. Drill (auger) the left hole (#1) a 16 inch diameter to a depth of 25 feet below tundra surface level.
    b. Sediment removed from this hole will be approximately 45 cubic feet and should be stored on site to enable filling of excavated holes upon completion of the leg test project, or disposed of in accordance with local regulations.
    c. Using a crane with a swivel connection between the leg and load line, pickup leg number 983 800 1 and insert into the hole.
    d. The leg should stop with the top 4' 3" above ground (gravel pad) level. Check to insure this measurement is accurate and also check with a level to ensure the leg is in a straight vertical position. Install wooden wedges between the leg and the caisson to ensure the leg remains true vertical.
    e. Lower temperature sensor probe, which is a 34 ft length of 1 ½ inch square tubing, to a depth of 25 feet below tundra surface and secure to the leg above the surface level of the gravel pad. (Top is painted blue with wire spool attached).
    f. Fill the annular void with sand and water slurry and allow leg to freeze in. Monitor temperature over time and observe and record when leg is firmly frozen in. (Reference drawing schematic on page 6).


4' 3"
6'
GRAVEL PAD
35' 3"
25'
PERMAFROST

8. Installation of Helical Spiraled Leg(s).
    a. Drill (auger) the holes four and five a 20 inch diameter to a depth of 14 feet.
    b. Sediment removed from this hole will be approximately 25 cubic feet and should be stored on site to enable filling of excavated holes upon completion of the leg test project, or disposed of in accordance with local regulations.
    c. Using a crane with a swivel connection between the leg and load line, pickup leg number 983 800 2 and 983 800 3 separately and insert into the hole. The top of the legs should be 6' 5" above ground (gravel pad) level. Check to insure this measurement is accurate and also check with a level to ensure the leg is in a straight vertical position. Install wooden wedges between the leg and the caisson to inure the leg remains true vertical.
    d. Lower temperature sensor probe on each leg, which is a 25 ft length of 1½ inch square tubing, to a depth of 14 ft below tundra surface and secure to the leg above the surface level of the gravel pad. (Top is painted blue with wire spool attached).
    e. Fill the annular void with sand and water slurry and allow leg to freeze in. Monitor temperature over time and observe and record when leg is firmly frozen in. (Reference drawing schematics on pages 8 and 9).


25' TEMPERATURE PROBE BESIDE LEG (2) PLCS
LOAD CELL 150K
ACTUATOR 150K
34' TEMPERATURE PROBE BESIDE LEG
25'-5"
DENOTES THERMISTOR POSITION
6'-6"
7'-7"
4'
6' GRAVEL PAD CONDUCTOR
14' DEPTH OF SPIRAL LEG
30' DEPTH OF FRAME LEG
25' DEPTH OF SUCK LEG
5'
5'
5'
5'
5'
5'
25'
PATENTED
AUTOCAD MASTER, NO MANUAL REVISIONS
MATL NOTED
H.T.
COATING
DRAWN BY
CHECKED BY
RELEASE DATE 08/12/02
LAST REV.
APPROVED BY
UNLESS OTHERWISE SPECIFIED, DIM. IN INCHES ± .010 T.I.R. FRAC ±1/16, 1 PLACE ±.125, 2 PLACE ±.030, 3 PLACE ±.010, ANGLE ±0° 30', 125 RMS MAX. BREAK CORNERS .010
Radoil, Inc.
HOUSTON, TX. USA
THREE LEGGED TEST FRAME
ANADARKO TUNDRA TABLE
DRAWING & INFORMATION ARE PROPERTY OF RADOIL, INC.
SHEET 1 OF 3
REV. A1
190,899-03-01


SUCK LEG TEMPERTAURE
PROBE, 34' LONG
P/N 111,711-05-01
(1) REQ'D
4'
4'
4'
4'
4'
4'
34'
THERMISTOR LOCATIONS
(6) PLCS
6"
SPIRAL LEG TEMPERTAURE
PROBE, 25' LONG
P/N 111,711-05-02
(2) REQ'D
4'
4'
4'
25'
THERMISTOR LOCATIONS
(4) PLCS
6"
MATERIAL:
ALUMINUM, SQUARE TUBING
1.5 X 1.5 X 0.125" THK WALL
PATENTED
AUTOCAD MASTER, NO MANUAL REVISIONS
AS NOTED
Radoil, Inc.
HOUSTON, TX. USA
PROBES, TEMPERATURE
ANADARKO TUNDRA TABLE
SHEET 1 OF1
A1
111,711-05-5D

D. Test Fixture Installation:

1. Lift the test fixture frame and set in position with the two connection plates landing on top of the 18 5/8 inch VSMs.
2. Weld the connection plates to the VSMs.
3. Connect the load cell to which ever leg is to be tested first.
4. Connect the data signal cables to the operators console.
5. Connect the electric cables to the electric supply circuit.

E. List of tools and equipment required:

1. Truck mounted auger drill with 12” and 16” augers available.
2. Crane with 50-ft boom, load line, fast line, and minimum of 15-ton capacity.
3. 25-ft tape measure.
4. 3-ft level.
5. Two each alignment strings.
6. Twelve 8-inch wooden chocks with strap handles and safety lanyard attached.
7. Portable steam jenny and water supply.
8. Leg swivel and hoses to connect to steam jenny.
9. Appropriate hand tools to attach swivel and connections.
10. One 8-ft stepladder.
11. One 20-ft telescoping ladder.

APPENDIX D-2

Observation, Conclusions & Recommendation for The Pile Load Test Leg Removal

by
Federico Lier P.E.
December 9, 2002

Observation

Background: Test Pile Leg#2 & 3 were tested for their load capacity. The bottom five feet is helical (spiral) and were placed 20 feet below existing ground surface of which 14 feet were embedded in gravel. Leg#1 is a slick pile and was placed 31 feet below ground surface of which 25 feet were embedded. The legs have internal piping to pump a cooling or heating media though it to speed the freeze back or their removal. Freeze back temperatures along the piles varied between 0 to –5 degrees Celsius. The steam applied had a temperature of 298 deg F at 50 psi. Temperature will vary with pressure.

The piles were removed on December 8, 2002. (See Daily Field Report 12-08-02 for a minute-by-minute log of the removal.

Removal - Leg#2: A fitting was welded to one of the openings to the heat/cooling pipe. Also two ¾ inches thick steel ears with a hole were welded on both sides of all three legs. This was needed to be able to pull on the piles. The existing pull connecters could not be used as they inhibit the access to the heat/cooling coils. An air compressor was connected to Test Leg#2 pushing warm air through the heat/cooling coils. The air was connected at the end of the day and left there for approximately 14 hours. Steam from a portable steam plan was connected to the heat/cooling coil. For about two to three minutes the intake fitting was leaking and much steam escaped before entering the pile. Not much steam exited the end of the internal piping for about five minutes after which an ample amount of steam escaped. Initial low escape and excessive leaking of steam would indicate that the steam condensed quickly at the beginning. 34 minutes after commencing the steaming Leg#2 was pulled out with a Case 821 (Front-end-loader/Fork-lift) with no visual resistance. This would indicate that the leg could have been pulled faster. The pile could then be removed with a crane (Grover RT 745).

APPENDIX D-2

Removal - Leg#3: Compressed air was placed on this leg for about one hour. Steam was connected with no escape of steam from the outlet for approximately 5 minutes after which bubbling water escaped. The water was hot and at intervals sprayed into the air like a geyser. The Case 821 was hooked up to the leg after about 15 minutes but the leg would not move. The forklift was left with a constant pull so we would know when the leg was thawed sufficient to be pulled. This occurred after 22 minutes after connecting the steam.

Removal - Second VSM: As the top of both VSM's is open the steam hose was just lowered into the inside of the VSM's. Initially the hose, which hade a 7 feet long steel pipe at the end, was only lowered to about 15 feet below the top of the pipe. After 24 minutes the forklift tried to move the pile without success. The steam plant was then moved closer to the piles, as the hose from the steam plant was not long enough to lower it to the bottom of the pile. Nine minutes after lowering the steam hose to the bottom of the VSM the pile could be removed without any visible effort. Total removal time was 33 minutes and nine minutes after the steam was lowered to the bottom.

Removal – First VSM: Steam was lowered to the bottom of he VSM and pulled after 18 minutes without any visible effort of the forklift indicating that the pile could have been removed quicker.

Removal – Leg#3: As the air compressor was connected to the heat/cooling coil opening it became obvious that the heat/cooling pipe was plugged. The plug (ice, dirt or fabrication error) could not be removed even with high pressure. Steam was then connected with no steam escaping from the outlet. Most the steam escaped at the intake fitting. Pile got hot at the first five feet. Pile would not move even with constant effort of the forklift. After 75 minutes the steamer was disconnect from the top and lowered on the outside of the pipe to a depth of approximately 17 feet below the ground surface. The water level rose to approximately three feet of the existing ground surface. 60 minutes later we decided to cut the top of the pile to lower the steam to the inside. Only one side of the heat/cooling coil had a pipe connected. The Steam was lowered but could not get passes ten feet because of an obstruction. Almost got the hose stuck and it took a consederable effort to get it untangled. We continued to steam from the inside for another 60 minutes without success. It was then decided that we would cut the pipe and abandon it on site. The pile was cut three feet below the ground surface.

Other: The location for the test was marginal and the room to move equipment and piles was inadequate. At times the limited space was a safety hazard.
Equipment should be inspected and be in good working condition before moving to a remote location.

Conclusion

From the removal it became evident that steam is a quick and effective way to remove the pipe out of the frozen ground. Steam is easy to produce and applied. Steam plants are readily available on the North Slope and mobile. Heat and pressure can be increased up to ~400 Degree Fahrenheit at 175 psi. Total removal time per pile is estimated at 30 to 45 minutes and less during production as three to four piles can be hooked up to the steam plant at the same time.

Recommendation

Several important observations were made, which need to be taken in to consideration for the successful removal of the tundra legs.

- For the steam to work it has to applied at the bottom of the pile.
- Heat/cooling inlet and outlet on the pile should be better accessible and not interfere with pull fittings.
- In and outlet of the heat/cooling should be tested for plugs and obstruction before leaving the manufacturer.
- In and Outlet should be capped and have a connector to easily fit the steam fittings so no field welding and changes will be needed.
- In and Outlet to the heat/cooling coil should be just above the ground surface. This would help to lower the distance the steam has to travel to reach the bottom of the pile, which will increase the removal of the pile and decrease condensation.
- Fittings on the steam plant and into the pile need to be tight.
- If the steam can be moved quickly to the bottom of the pile no hot air is needed to pre-warm the steal.
- Piles should have a better mechanism for pulling and removal with the forklift/crane. The piles are to slick to be hoisted with a rope or chain. The existing mechanism is to cumbersome needing special tools and will slow down the removal process specially if temperatures are below freezing.

APPENDIX D-3

THERMISTOR DATA

Date	Time	Temperature, °C Depth, m (ft)						Air Temperature, °C
dd-mm	hrs	0.61 (2)	2.13 (7)	3.35 (11)	4.57 (15)	6.10(20)	7.62 (25)	
2-Nov	0	4.7	0.1	0.9	0.0	0.5	3.7	
3-Nov	25.5	3.1	0.5	-2.2	-3.8	-3.8	-2.3	
4-Nov	40	-0.4	-0.2	-2.7	-4.3	-3.9		
	50	2.6		-3.1	-3.6	-3.6		
5-Nov	63		-1.4	-3.3	-4.6	-4.2		
	74		-1.6	-3.3		-4.6		
6-Nov	88		-1.9	-3.4		-4.7	-4.3	
	98		-2.1	-3.4	-4.9	-4.5		
7-Nov	111		-2.3	-3.8	-4.0	-4.7		
	122		-2.4	-3.8	-4.9	-4.9	-4.6	
8-Nov	136			-3.7	-4.3	-4.9		
	146		-2.5	-3.8	-4.9	-4.9		
9-Nov	160		-2.7	-3.8	-4.7	-4.9		
	170		-2.4	-3.8	-4.3	-4.9		-17.0
10-Nov	184		-2.9	-3.8	-4.2	-5.0		-13.6
	194		-2.2	-3.9	-4.1	-5.0		-13
11-Nov	208	0.0	-2.5	-3.9	-4.2	-5.0	-5.5	-17.0
	218	-1.1	-3.2	-4.0	-5.2	-5.0	-5.5	-13.4
12-Nov	232	-1.1	-2.7	-3.9	-4.2	-5.0	-5.5	-13.06
	242	-1.4	-2.9	-3.9	-4.5	-5.0	-5.5	-13.92
13-Nov	256	-0.7	-2.5	-3.9	-4.3	-5.1	-5.6	-14.98
	266	-0.3	-2.2	-3.9	-3.8	-5.1	-5.6	-12.05
14-Nov	280	-0.5	-2.5	-4	-4.6	-5.1	-3.9	-14.31
	290	-0.7	-2.5	-4	-4.4	-5.1	-5.6	-14.43
15-Nov	304	-1.4	-3.1	-4	-5	-5.1	-4.9	
	314	-1.3	-2.7	-4	-4.3	-5.1	-5.6	-13.02
16-Nov	328	-1	-2.6	-4	-4.3	-5.1	-5.6	-7.67
	338	-0.9	-2.7	-4	-4.5	-5.1	-1.8	-10.57
17-Nov	352	-1.4	-3	-4	-4.7	-5.1		-18.23
	362	-1.3	-2.8	-4	-4.5	-5.1	-1.9	-20.84
18-Nov	376	-1.5	-3	-4	-4.7	-5.1	-5.6	-18.43
	386	-1.2	-2.9	-4	-4.3	-5.1	-4.2	-18.31
19-Nov	400	-1.4	-3.1	-4	-4.8	-5.1	-5.5	-22.36
	410	-1.2	-2.9	-4.1	-4.8	-5.2	-5.3	-22.83
20-Nov	424	-1.4	-3.1	-4.1	-4.6	-5.1	-5.2	-22.52
	434	-1.6	-3.1	-4	-4.8	-5.1	-4.8	-21.56
21-Nov	448	-1.6	-3.1	-4	-4.6	-5.1	-5	-22.31
	458	-1.3	-2.9	-4	-4.3	-5.2	-5.7	-20.88
22-Nov	472	-1.4	-2.9	-4	-4.3	-5.1	-5.6	-19.88
	482	-1.4	-2.9	-4.1	-4.5	-5.1	-5.6	-17.71
23-Nov	496	-1.5	-3	-4.1	-4.5	-5.1	-3.3	-14.45