Attachment A

The Forum

BP tragedy gives us pause here in Alaska

Oil companies must finally accept that business as usual is no longer an option.

By Nick Jans

RESURRECTION BAY, Alaska — The nation might sense the anguish of those whose lives lie in the path of the Gulf Coast disaster, but we Alaskans know that hollow ache firsthand. Just 90 miles from where I stand, the Exxon Valdez ran aground in 1989, spilling more than 11 million gallons of oil and leaving scars that still linger. Though Prince William Sound is slowly healing itself, the massive herring runs that drove both the ecosystem and the fishing economy have yet to return. We can only hope our loss isn't a harbinger of what awaits the people and wildlife of the Gulf.

Their misfortune, though, might have spared Alaskans a new disaster. Incredible as it may seem, when the Gulf began spewing, we were about to take a gargantuan risk in the pristine waters of the Chukchi and Beaufort seas, off Alaska's northern shore — perhaps the most potentially catastrophic offshore drilling environment on earth. Royal Dutch Shell was poised to begin drilling exploratory wells July 1 in this fragile ecosystem rich in rare wildlife, from polar bears to eider ducks. But in the wake of the BP catastrophe, the Obama administration stepped forward and announced a moratorium until at least 2011 on all new offshore drilling plans, including Shell's — a courageous and correct move in the face of an ongoing environmental crisis caused by repeated, institutional failures of both government and industry.

'Pushing the boundaries'

Both the past and the current nightmare offer stark reminders of the staggering costs of catastrophic oil spills in coastal environments. Shell's now-delayed arctic exploration plans demonstrate just how necessary that timeout was, and what we stood to lose.

Though the Gulf of Mexico and the Arctic Ocean seem worlds apart, there were ominous similarities between BP's Deepwater Horizon debacle and Shell's blueprint. "Both (the Arctic seas and the deep waters of the Gulf) are extreme environments in which the industry has very little engineering experience," says Jeffrey Short, Pacific Science director of Oceana and one of the world's leading experts on oil spills. "They're pushing the boundaries of exploration deeper and farther, and the odds of something going catastrophically wrong are greatly escalated."

Adding to the uncertainty and danger were those notoriously lax permitting processes. In granting permits to both BP's and Shell's exploration operations, the federal Minerals Management Service did not even analyze the effects of a catastrophic blowout, which relieved BP and Shell from producing adequate contingency plans for such high-magnitude spills. The rationale offered by the corporations and echoed by the MMS was that such events were deemed so unlikely that they didn't warrant analysis. Even so, Shell, like BP, fought for less regulation.

AP file photo

In '89: A Coast Guard engineer holds an oiled duck after the Exxon Valdez spill.

However extreme the deep waters of the Gulf of Mexico may be, the turbulent waters of Alaska's Chukchi and Beaufort seas could pose even greater difficulties. Shell would be drilling as many as 140 miles offshore in a remote, often hostile environment. Even summer weather can mean 20-foot seas and gale-force winds. Fog may settle in for weeks, and ice conditions can change overnight. There are no deep-water ports nearby; and the closest full-size runway to the lease area is more than 100 miles away. In the event of a major spill, mountains of emergency gear and personnel would travel huge distances over narrow logistical corridors (arctic weather permitting), and be met by a shortage of everything from lodging to boats capable of pulling oil containment booms.

A Pew Environment Group point-by-point analysis of Shell's spill contingency plan indicated a severe lack of resources for dealing with anything beyond a moderate spill under ideal conditions — a doubtful scenario. There is no proven technology for containing, let alone cleaning up, a blowout or catastrophic spill in shifting ice, a condition that defines the arctic. As far as government response goes, the nearest Coast Guard station is more than a thousand miles away.

Shell's plans

Shell, which in the wake of the Gulf disaster has beefed up plans aimed at spill prevention, remains confident of its ability to drill safely. It has voluntarily added a pre-built coffer dam, more frequent testing and a remote-triggered "hot stab" device for controlling blowouts. "I have complete confidence in the technical integrity of our well plans," wrote Shell President Marvin Odum in a recent letter to the MMS.

These reassurances echo hollow off the oiled waters far to the south. While Shell should be commended for emphasizing spill prevention, it has done little to ensure its ability to control a large arctic spill — an indication that it just hasn't absorbed the lesson of the Gulf: the need for an effective, plug-and-play fallback plan in the event of a disaster.

"If the Exxon Valdez and the Gulf teach us anything," says Alaska marine scientist Rick Steiner, "it's that people make mistakes, and equipment fails. There will be spills." In fact, the MMS estimated a 40% likelihood of a major spill over the 30-year projected life of Lease Sale 193, the area Shell intends to develop — hardly gambler's odds.

In the end, the success of President Obama's bold move to suspend new offshore drilling depends on what his administration accomplishes during this hiatus. A resumption of business as usual is not an option. A supporting web of redundant safety measures, major investment in advanced spill response technology, fundamental reform of offshore leasing, and a renewed commitment toward safe drilling on the part of both government regulators and the oil industry are required. The time for action is now.

Nick Jans is a member of USA TODAY's Board of Contributors. He lived in the Alaska arctic for 20 years and currently makes his home in Juneau.

Exhibit B-89 (Excerpts)

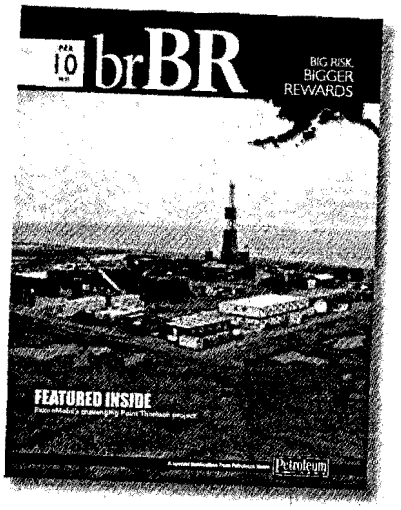
Petroleum news

Chevron

page 3 Chevron to cut 25 Cook Inlet jobs, cites production and economic woes

Vol. 14, No. 45 • www.PetroleumNews.com | A weekly oil & gas newspaper based in Anchorage, Alaska | Week of November 8, 2009 • $2

BRBR coming in February



Big Risk, Bigger Rewards magazine will be released by Petroleum News in February at NAPE EXPO in Houston. The full color magazine will feature, among other things, ExxonMobil's challenging Point Thomson project. For more information email publisher@petroleumnews.com.

Alaska well drilling activity varies somewhat year-to-year

ON PAGE 17 OF THIS ISSUE there is a chart showing the number of oil and gas wells drilled in Alaska in the January to September period for 2005 through 2009.

New well numbers are almost the same for 2005 through 2007, but dropped from 61, 58 and 66 in those years to 49 in 2008 and 46 in 2009. That drop was partly offset by an increase in re-drills in 2008 and 2009.

Laterals were 33, 31, 33 and 33 in the first four years, but fell to 16 in 2009.

The only soft numbers in the chart are new wells (wells that start at ground level) and laterals (primarily drilling segments off existing wellbores) in September 2009. According to Steve McMains of the Alaska Oil and Gas Conservation Commission, who prepared the well report for Petroleum News, both the number of new wells and laterals for September could increase by two or three in the weeks ahead because some operators file well completion reports after the due date, which is 30 days after the last day of September.

There are a number of reasons for the changes between

see INSIDER page 17

BREAKING NEWS

5 Thorn in Canada's GHG plans: Provinces react to study showing greenhouse gas reduction would transfer wealth regionally

10 EIA expects demand to continue: Abundant natural gas supplies likely to increase use, regardless of policies to curb emissions

11 Kenai hydro project progresses: Proposal involves two small dams, stirs worries of harm to salmon habitat; public meeting set

NATURAL GAS

Mac partners battle on

Positive remarks counter October gloom based on fiscal rejection speculation

By GARY PARK
For Petroleum News

The smallest interest partner in the Mackenzie Gas Project has suddenly become its biggest booster at a time when hopes are waning.

ExxonMobil, whose wholly owned Canadian unit has a 5.2 percent stake, believes natural gas demand will rise by 50 percent over the next 20 years, creating enough demand to move the C$16.2 billion Mackenzie project forward.

Andrew Swiger, senior vice president and a member of ExxonMobil's management committee, told a Calgary audience there is "room for a lot of gas in North Ameriea" based on estimates that demand will grow by 1.8 percent a year to 2030.

Regardless of the expected surge in shale gas supply, ExxonMobil sees an "expanding gas framework that provides plenty of support for projects like the Mackenzie project," Swiger said.

Bruce March, chief executive officer of Imperial Oil (69.6 percent owned by ExxonMobil) and lead partner in the MGP, told reporters Nov. 3 he was "dismayed" to see that coverage, "when in fact we've been told that nothing's different" in the status of negotiations between the consortium and the Canadian government.

"We along with other proponents of the project continue to work diligently with the communities, the regulators and the (Canadian) government to

see MAC BATTLE page 15

FINANCE & ECONOMY

Hasty Cook Inlet auction

Sale set as part of Pacific Energy plan to recoup, liquidate assets it abandoned

By WESLEY LOY
For Petroleum News

The fate of some oil and gas assets Pacific Energy Resources Ltd. abandoned in Alaska's Cook Inlet remained in limbo as the company worked to regain control of the properties and sell them at auction.

Ramshorn Investments Inc., a unit of global drilling giant Nabors Industries Ltd., appeared to lead a growing pack of prospective buyers.

These and other developments in late September and early October continued what has been a bumpy journey toward Pacific Energy's apparent exit from Alaska.

As part of bankruptcy proceedings, the company on Sept. 11 won a judge's permission to simply walk away from a package of assets, including the West McArthur River oil field and the West Foreland natural gas field. The company had been unable to find a viable buyer by that date and said it couldn't keep rolling up big losses on the properties.

Subsequently, Cook Inlet Energy LLC, a company owned in part by a former Pacific Energy employee, stepped up with an $875,000 offer.

On Oct. 14 lawyers for Pacific Energy filed papers asking the judge to vacate his abandonment order. This would allow Pacific Energy to reclaim the assets and then sell them.

see AUCTION page 14

SAFETY & ENVIRONMENT

A new Arctic paradigm

Moving farther north in Arctic offshore stimulates drilling safety innovation

By ALAN BAILEY
Petroleum News

The potentially huge but largely untapped oil and gas resources of the Arctic offshore have become a major focus of attention, as access to new resources in traditional petroleum provinces has become ever more elusive. But, as exploration moves north into deep Arctic waters, it will become increasingly difficult to use the drilling of a relief well as the mechanism of last resort for plugging an oil well blowout, Bill Scott, manager of Chevron's Arctic Center in Calgary, Alberta, told the U.S. Minerals Management Service Arctic Technologies Workshop in Anchorage, Alaska, on Oct. 15. A relief well is an emergency well drilled to penetrate and plug a well that is out of control.

Given the potential problems in relief well drilling in deep Arctic waters, Chevron is seeking new ways of proactively preventing a blowout from occurring.

"We want to go one stage further at the front end, to stop any problems happening later," Scott said.

Floating rigs

But what are the risks associated with modern offshore exploration?

Most new Arctic offshore exploration drilling is done in water depths that require the use of a floating drilling rig, a drilling approach that has become the technique of choice in the Arctic offshore of Canada and the United States, Scott said. And so far, the safe-

see PARADIGM page 18

continued from page 1

PARADIGM

ty record in using this technique in the relatively shallow waters of the Chukchi and Beaufort Seas has proved exemplary, with five wells in the Chukchi Sea, nine wells in the U.S. Beaufort Sea and 39 wells in the Canadian Beaufort Sea having been drilled to date from drilling vessels, he said.

"They were completed both safely and successfully in periods from 100 percent daylight to 100 percent darkness," Scott said. "We achieved all of our goals without any serious incident."

But, although modern drilling techniques have rendered the possibility of an accidental, uncontrolled oil blowout extremely unlikely, government regulation and prudent safety both require a well operator to maintain the capability of drilling a relief well.

Increasingly challenging

However, as drilling operations take place progressively farther north from the Beaufort Sea coast, moving off the shallow offshore shelf into ever deeper water where the shelf slopes down toward the Arctic Ocean floor, in situations where drilling targets also become deeper and more challenging, the need for longer drilling times combined with the short open water seasons of the extreme north will severely limit the practicality of relief well drilling.

In fact some wells may take more than one season to drill, thus raising question marks over the possibility of drilling a relief well in any feasible time frame.

"It's going to become increasingly challenging to be able to drill a relief well," Scott said. "... We're now looking at wells that take two to three seasons to drill, so obviously the ability to continuously drill a relief well in those areas is challenged, if not impossible."

And under Canadian regulations, drilling in the Beaufort Sea has to be completed by or on Oct. 15, thus making a blowout that occurs right at that Oct. 15 date the worst case scenario for the loss of control of an oil well, Scott explained. Subsequent relief well drilling would have to be done at a time of year when daylight is dwindling and the winter sea ice is starting to form.

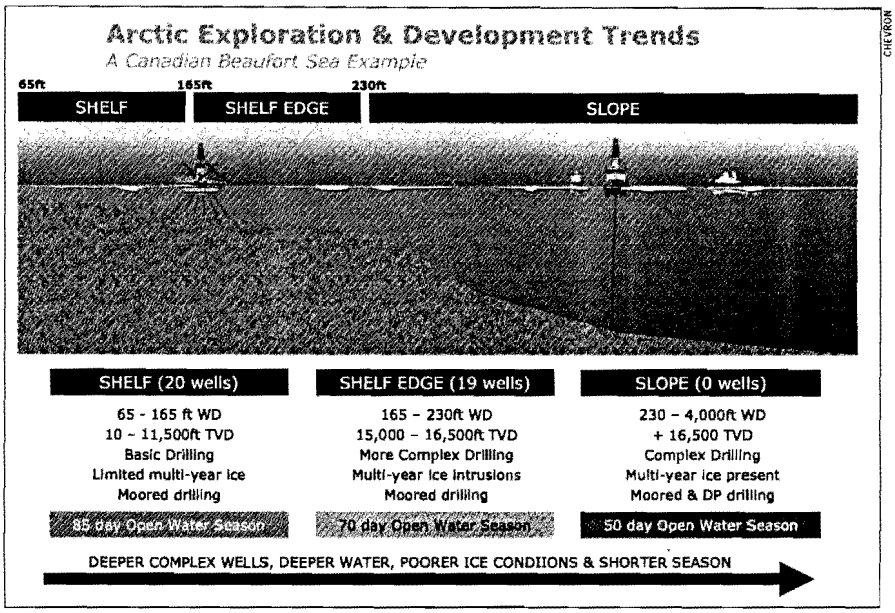
"So the longer it goes into the winter period, the tougher it is to get things done and tougher it is, certainly, to get them done efficiently," Scott said.

And, although the probability of a well blowout nowadays is as low as perhaps one in 300,000, a contingency plan that includes the possibility of drilling a relief well must assume the possibility of a blowout occurring: Relief well drilling must be feasible, Scott said.

Simulator

Chevron has developed a computer simulator to model the conditions under which a late-season offshore relief well might be

see **PARADIGM** *page 19*



Complex drilling requirements and short drilling seasons on the continental slope of the Canadian Beaufort Sea raise questions over the feasibility of drilling a relief well, should a well blowout occur during future exploration.

Drilling mud-line cellars for OCS drilling

A blowout preventer, a tall stack of valves and other devices designed to rapidly shut down a well in the event of an oil blowout, is an essential piece of safety equipment that has to be installed at the surface end of a well whenever a drilling operation is in progress. And when drilling on the outer continental shelf, the blowout preventer would sit on the sea floor.

But in the Arctic offshore, such as on the outer continental shelf of the Beaufort and Chukchi seas, the prevalence of sea ice, much of it in constant motion, gives rise to the possibility of an ice keel hitting a blowout preventer, causing major damage to the device and raising the risk of an oil spill.

To avoid this eventuality, all blowout preventers on the Arctic OCS have to be installed in mud-line cellars, cylindrical holes in the sea floor, typically 40 feet deep, Cody Teff, Shell engineering team lead in Alaska, told the U.S. Minerals Management Service Arctic Technologies Workshop in Anchorage on Oct. 13.

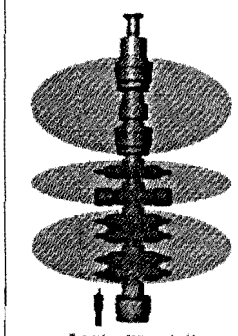
The first step in designing a mud-line cellar is the acquisition of multibeam sonar images of the seabed, a technique that uses acoustic signals to generate detailed profiles of the sea-floor surface. The sonar images enable gouges to be identified and measured, thus setting parameters for the required mud-line cellar depth, ensuring that the top of the blowout preventer will sit well below the deepest scour.

A typical blowout preventer is 20 feet tall and about 16 feet in diameter, weighing about 500,000 pounds, Teff said.

After the gouge depth measurement is complete, a 20-foot diameter, hydraulically powered rotary bit, with teeth in the form of inward-angled plow blades, carves out a cellar, an operation that typically takes anywhere from two to 10 days to complete. The plow blades direct debris from the operation towards the center of the bit, from where compressed air pushes the debris up through the tubular riser that holds the bit in place on the sea floor, Teff said.

—ALAN BAILEY

CHEVRON



A new design of blowout preventer now ready for testing includes duplicate hydraulic rams that would simultaneously shear and seal the well tubing following loss of control of a well.

continued from page 18

PARADIGM

drilled. The simulator can test the feasibility of relief well drilling at different distances offshore, north of the Canadian Beaufort Sea coast.

Data from the past 10 years indicates that on the relatively shallow continental shelf 73 to 100 days would be available to drill that worst-case scenario relief well, with the relief well likely taking about 60 days to drill.

"The conclusion obviously is that a relief well could be drilled," Scott said.

But, farther north in the Beaufort Sea, out on the continental slope, only seven to 67 days would be available for relief well drilling, in a situation perhaps requiring 120 days to plug the uncontrolled well.

"Obviously, somewhere between the shelf and the slope we run into a problem which is a combination of well depth, ice conditions and equipment, where it becomes, in all likelihood, impractical to drill a relief well," Scott said.

However, the Canadian drilling regulations allow an alternative contingency arrangement to be substituted for relief well drilling, provided that this alternative arrangement represents an equivalent or lower risk than that associated with a relief well. That "equivalency" clause in the regulations has led Chevron to seek new techniques for handling blowouts, a search that has led to an initiative with a drilling equipment company, Cameron, to develop a new form of blowout preventer.

"We've decided to go for an equivalency to late-season relief wells, and we see the need for that in various Arctic nations. ... We're developing this technology for worldwide use," Scott said.

Key technology

The key technology in the new blowout preventer design is a hydraulic ram that will both shear and seal the well tubing — a conventional blowout preventer has separate rams for the shearing and sealing operations.

"A single ram will do what two rams did — it will shear and seal simultaneously," Scott said."It will cut and seal on a wide variety of drilling tubulars and production casing."

The stacking of two of the new rams in a single blowout preventer will provide 100 percent redundancy in both the shearing and sealing operations, while additional rams and other technology in the massive device will further increase the device's overall effectiveness.

Testing of the new blowout preventer design is scheduled for the fourth quarter of 2009, with testing likely to be completed in 2010. And, in addition to being used on wells drilled from floating rigs in the Arctic offshore, presumably with the blowout preventer located in the seafloor, the new design could find application in other situations, such as drilling from offshore platforms and from land rigs. However, given the difficulty of trying to shoehorn a huge new blowout preventer into an existing land rig, for example, Chevron is considering developing a safety package, using the new technology, for retrofitting into existing rig configurations.

But, when it comes to using new technologies such as the new blowout preventers in the Arctic offshore, Chevron is taking great care to discuss its proposals both with government regulators and with the local communities along the Canadian Beaufort Sea coast, making sure that everyone is on board with what Chevron is proposing, Scott said. ●

Watching for the ice in the Chukchi

Modern satellite-based synthetic aperture radar technology is enabling the detection of sea ice in the dark and in cloudy conditions, thus greatly improving ice observation capabilities for ice management during Arctic offshore oil and gas exploration, Peter Noble of ConocoPhillips told the U.S. Minerals Management Service Arctic Technologies Workshop in Anchorage on Oct. 14.

By reflecting radar signals off the ice, synthetic aperture radar can produce images over a range of scales, and in great detail.

"We can take pictures of a 500-km square all the way down to a 20-km square at any time," Noble said. "... We use different scales for different reasons as we develop our plots."

In fact, during the summer of 2009 ConocoPhillips was able to detect a 240-foot survey boat on the water using a Chukchi Sea radar image, he said.

Ice management zones

During a drilling operation, sea-ice management would be based on the delineation of concentric zones around the drillship. The observation of ice entering a specific zone would trigger ice management activities, breaking up the ice and moving it out of the way. If the threat persists drilling operations would be suspended. And depending on circumstances, such as the ice entering a critical zone close to the drillship, the well might have to be secured and the drillship moved from the site.

The timing of any decisions on ceasing drilling would depend on a defined "time to react," a time that varies depending on the status of the drilling operation, but which tends to increase as the drill bit penetrates further into the subsurface.

Chukchi drilling

ConocoPhillips is planning to drill an exploration well in its Chukchi Sea Devil's Paw prospect, in the vicinity of the old Klondike well, in the open water season of 2011, at a time when sea ice is very unlikely to present a problem at the drill site, Noble said.

In fact, the company has been assessing past Chukchi Sea ice conditions, to determine when the drilling would best be carried out, he said. An analysis of past ice cover indicates a slow increase in the open water season length over the years, but the year-to-year variability in the ice-cover timing tends to obscure that trend towards a longer season.

Historical ice-cover data suggests a likely drilling season of up to 100 days at the planned drilling site. There has always been ice cover at the site in June, but the ice starts to retreat in July, with a 90 percent probability of the site being clear of ice by the end of August, Noble said.

—ALAN BAILEY

Exhibit EE-1
(Excerpts)

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 SIXTH AVENUE
SEATTLE, WA 98101

TARGET SHEET

The following document was not printed.
This is due to the Original being:

_____ Data Files/Spreadsheet
_X_ PDF exceeds 500 pages

Document Information and Location

Exhibit No. :	EE-1
Air Permit Name:	Chukchi/Beaufort Permit
File Category:	Endangered Species Act Essential Fish Habitat (continued)

2009 - Shell 2010 Outer Continental Shelf Lease Exploration Plan Camden Bay, (Camden Bay Exploration Plan)

Original files can be found on the Response to Petitions for Review Compact Disc in the folder Administrative Record Exhibits Cited in Response Brief On Merits/EE-1.

PUBLIC INFORMATION ONLY

2010 Outer Continental Shelf Lease Exploration Plan Camden Bay, Alaska

June 2009

Submitted to:

U.S. Department of the Interior
Minerals Management Service
Alaska OCS Region

Prepared by:

Shell Offshore Inc.
3601 C Street, Suite 1000
Anchorage, AK 99503

APPENDIX H
Environmental Impact Analysis

Environmental Impact Analysis

2010 Outer Continental Shelf Exploration Drilling Program Camden Bay, Alaska

June 2009

Prepared by:

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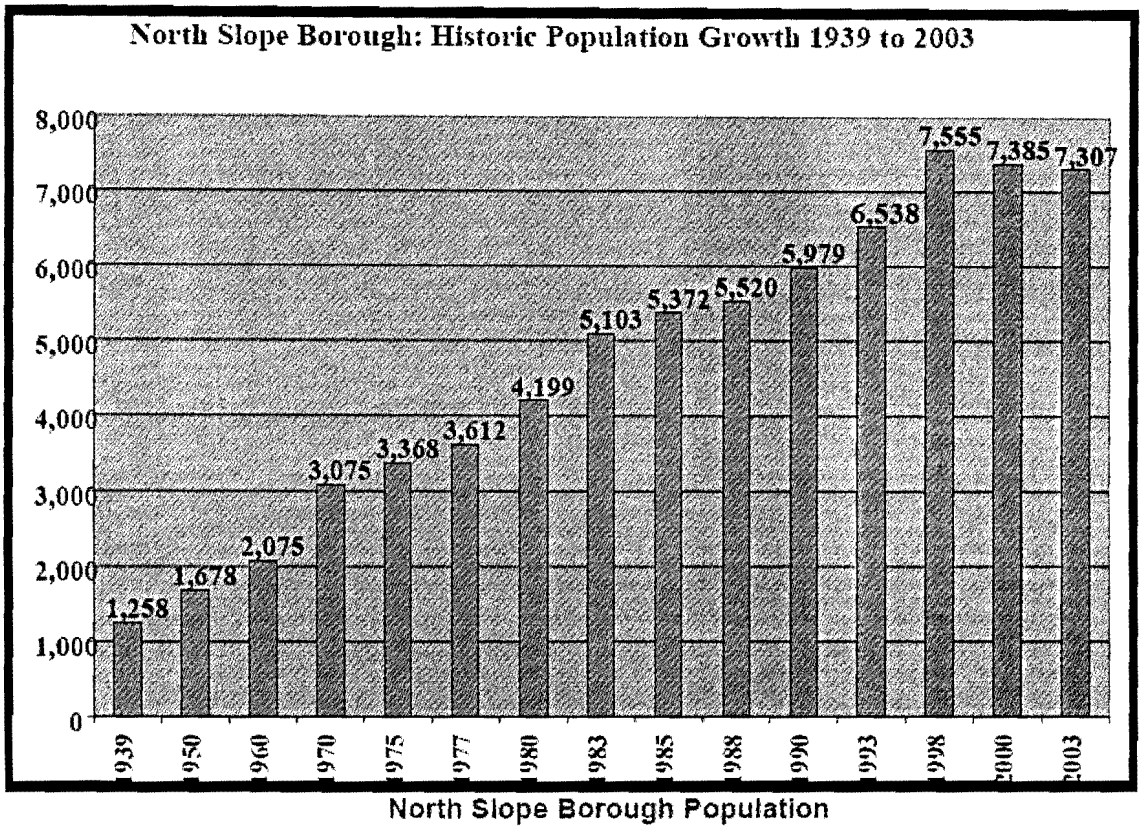
Population Trends

According to the North Slope Borough Comprehensive Plan (NSB 2005), the population within the NSB increased steadily from 1,258 residents in 1939 to 7,555 residents in 1998. The population has since decreased to 7,307 residents in 2003 (Figure 3.11-1).

Figure 3.11-1 North Slope Borough Population Trends from 1939 to 2003



(Source: Shepro et al. 2003 *in* NSB 2005)

According to the NSB 2003 census, the villages of Anaktuvuk Pass, Atqasuk, Kaktovik, and Point Lay gained residents between 1998 and 2003. The communities of Barrow, Nuiqsut, Point Hope, and Wainwright lost residents during this same time period. According to the NSB 2003 census (Shepro et al. 2003), the year-round populations of Barrow, Nuiqsut, Deadhorse/Prudhoe Bay, and Kaktovik were as follows:

- Barrow – 4,429
- Nuiqsut – 416
- Deadhorse/Prudhoe Bay – 4
- Kaktovik – 286

Population figures from 1993 to 2003 and projections for 2010 to 2020 for NSB communities are presented in Table 3.11.1-1.

TABLE 3.11.1-1 NORTH SLOPE BOROUGH POPULATION 1993 – 2003; PROJECTIONS BY VILLAGE THROUGH 2020

NORTH SLOPE BOROUGH								
COMMUNITY	1993	1996*	1998	2000**	2003	2010	2015	2020
Anaktuvuk Pass								
High	270	306	314	282	346	352	361	366
Medium						335	340	342
Low						322	326	333
Atqasuk								
High	237	226	224	228	250	290	301	312
Medium						270	283	274
Low						265	269	266
Barrow								
High	3,908	4,276	4,641	4,581	4,429	4,501	4,603	4,612
Medium						4,488	4,462	4,465
Low						4,279	4,198	4,102
Kaktovik								
High	230	223	256	293	286	305	319	327
Medium						298	302	305
Low						280	289	272
Nuiqsut								
High	418	435	420	433	416	435	437	445
Medium						432	430	436
Low						420	425	427
Point Hope								
High	699	764	805	757	764	810	815	822
Medium						799	803	807
Low						775	778	775
Point Lay								
High	192	180	246	247	260	288	292	296
Medium						272	276	278
Low						265	269	262
Wainwright								
High	584	563	649	546	556	575	582	585
Medium						570	575	572
Low						560	558	553
NSB Totals								
High	6,538	7,157	7,555	7,385	7,307	7,556	7,710	7,765
Medium						7,464	7,471	7,479
Low						7,166	7,111	6,990

Note: *AK Dept of Labor Research &Analysis (Revised 1/13/99); ** 2000 US Bureau of Census

(Source: Shepro et al. 2003 *in* NSB 2005)

3.11.5 Existing Offshore and Coastal Infrastructure

There is limited offshore and coastal infrastructure in the immediate vicinity of the proposed project area. East of the project area are the Deadhorse and Prudhoe Bay industrial facilities and British Petroleum Exploration Alaska (BPXA) Northstar production island. Buried subsea pipelines and power cables connect the BPXA in the Northstar facilities west of Stump Island to onshore transportation facilities in Prudhoe Bay. In spring 2007, a buried subsea flowline bundle was installed from the Oooguruk drill site (now in production) to the shore, west of Oliktok Point in the Kuparuk River Unit. Both facilities are located in state waters southwest of Shell's proposed drilling locations.

The exploration drilling program will use existing infrastructure in the industrialized area near Deadhorse and Prudhoe Bay, an area zoned as a resource development district within the NSB. West Dock near Point McIntyre northeast of the industrial facilities in Prudhoe Bay will be the staging area and marine service area for the support vessels involved in the exploration drilling project. The airport at Deadhorse will be the staging area for helicopter support for drilling and support vessels. Crew changes will occur at Deadhorse. The following infrastructure serves the NSB region, its residents, and the operations related to commercial activities.

Service Area 10

In 1975, the NSB established Service Area 10 to provide utilities to industrial customers in the Deadhorse and Prudhoe Bay area. These services include solid waste collection and disposal, potable water production and distribution, and sanitary waste collection and disposal. Police protection is also provided by the NSB to Deadhorse and Prudhoe Bay in Service Area 10.

Airports and Airstrips

The State of Alaska Department of Transportation and Public Facilities (ADOT&PF) owns and maintains the Wiley Post-Will Rogers airport in Barrow and the Deadhorse Airport in Deadhorse. Kaktovik and Nuiqsut each have airstrips sufficient for use by commercial and chartered passenger aircraft.

Medical Facilities

The Samuel Simmonds Memorial Hospital located in Barrow is a qualified acute care facility and state-certified medevac service (NSB 2005). Critical care air ambulance services are provided by NSB Search and Rescue (SAR) in Barrow. Emergency services include coastal and seaport access via helicopter. The NSB Clinic is a qualified emergency care center.

Utilities

The NSB owns water and sewer utilities. Private utility companies operate and maintain some community systems while the NSB maintains and operates others (NSB 2005). The NSB also owns and oversees eight landfills in the region.

Power

Generally, the NSB owns utilities, but private utility companies operate the facilities. Except for Barrow, other communities use diesel as a primary source of heat. Barrow uses natural gas from

the Barrow gas field. Some communities have back-up generators but remain vulnerable to breakdowns and problems with fuel supply. Kaktovik experienced a winter outage in 2005 that resulted in damage and threatened public health and safety.

Communications

Residents use a fully digital local telephone system, local dial-up internet, a community teleconference center, cable television, public radio broadcast, an interactive video distance education system, wide area data network, and two-way radio technologies. Kaktovik and Nuiqsut lack capacity for higher bandwidth service. In addition, there is a need for more emergency dispatch radio connections and improved telecommunications between Barrow and the outlying communities.

Roads

Traditional road access is not available to NSB villages, but seasonal ice roads and well-used snowmachine trails are used in winter. Powerboats and ATVs are common transportation in the summer.

Kaktovik

The U.S. Air Force constructed an airstrip on Barter Island in Kaktovik in 1947 and later constructed a DEW Line station in the area (NSB 2005). Commercial and chartered service is available.

Nuiqsut

At Nuiqsut there is an airstrip with regularly scheduled and chartered service available from commercial airlines, but no terminal facilities. There is a health clinic, police station, fire station, city hall, recreation center, community center, and the Nuiqsut Trapper School K-12.

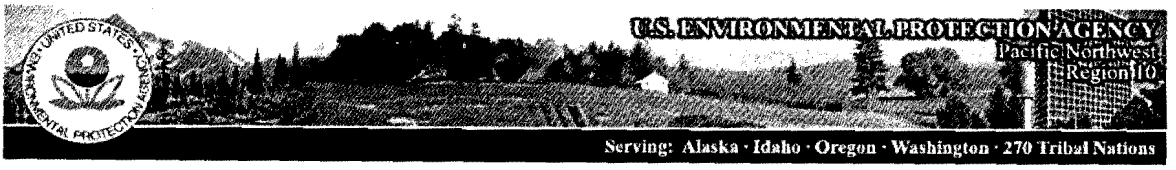
3.11.6 Land Use

The NSB Comprehensive Plan defines four land-use zoning districts: Village District, Barrow District, Conservation District, and Resource Development District. With adoption of the NSB Comprehensive Plan in 2005, two new districts were proposed for implementation through Title 19 Land Management Regulations. These proposed districts are a Special Habitat District and Subsistence Use District and have not yet been adopted by the NSB Assembly. Figure 3.11-7 shows land use in the Beaufort Sea region.

NSB villages, except Barrow, are zoned as Village Districts. These districts maintain traditional values and lifestyles for NSB communities. Traditional land uses have occurred for thousands of years for subsistence and cultural purposes and continue through present day. It is difficult to map traditional land use and subsistence areas because patterns and locations change with the seasons, animal migrations, and weather. Because of the complexity in mapping traditional land use areas, subsistence areas are generally documented on a project-specific basis.

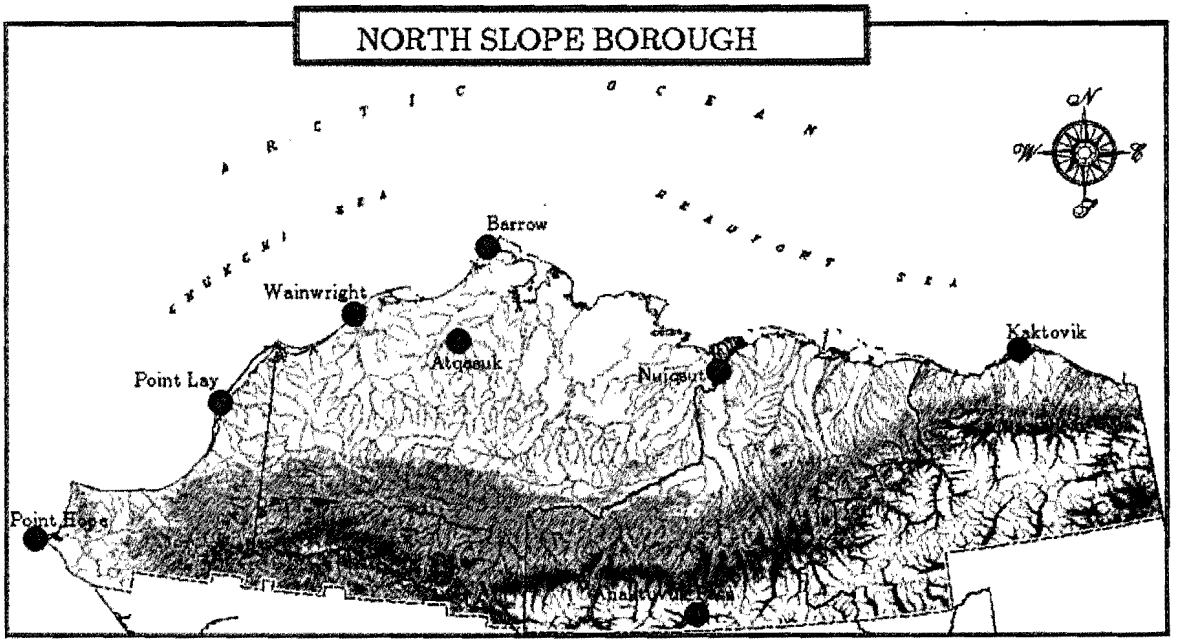
A Conservation District encompasses a large part of the NSB, in addition to the Barrow District, Village Districts, and Resource Development District. The goal of the Conservation District is preservation of the natural ecosystem, including subsistence resources.

Exhibit G-4
(Excerpts)



North Slope Communications Protocol

Communication Guidelines to Support Meaningful Involvement of the North Slope Communities in EPA Decision-Making



May 2009

G000018

- sleeping gear depending on your lodging arrangements
- clothing with pockets near the body to hold things you do not want to freeze (like eye drops, lip balm, moisturizer, camera, small flashlight, hand wipes, water bottle, etc.)
- sturdy boots (well insulated with no steel toes in winter; insulated mud-boots in summer)
- wool socks and pants (wool is better than cotton)
- thermal underwear
- warm (down) jacket with hood
- hat that covers ears, scarf, gloves
- flashlight
- sleeping mask for eyes (accommodations in the villages do not always have curtains on the windows to block out the light in the summer)
- flip-flops (bathrooms may be communal at some village accommodations)
- ear plugs for sleeping (you may be sharing a room with someone who snores)

Note: In winter, put on your warm wear before you exit the plane. The walk into a building can be a long one if you are not prepared for the cold. The plane can be cold, too!

Agency Equipment and Meeting Supplies

Each trip will have a particular purpose(s). Consequently, it is important that you give early, thoughtful consideration to the equipment and supplies that you will need to bring so that your trip is effective and productive. It is not possible to compile a complete list of equipment and supplies that may be required, but you should consider the fact that there are not office supply stores in the villages.

Suggestions:

- Visual aids (graphics) for your discussion are very valuable – they help to bridge the cultural and language differences that you will be working with and, if done well, convey a great deal of information in a small space. Remember that when dealing with different languages, a table with numbers and words is often meaningless; instead use graphics, drawings, pictures, maps.
- Consider the possible need for a flip chart or white dry erase board. If you are going to be outdoors, markers freeze and are unusable.
- Do you need a projector? Does your location have electricity? Do you need to bring long extension cords, etc.?
- If there will be a formal hearing, bring sign-in sheets, pencils, etc.

Other considerations:

There may be electricity, indoor plumbing, and land-line telephones; however, cell phone and Wi-Fi coverage is minimal to non-existent. Limited internet service, mostly by dial-up, may be available. Note that buildings are kept quite warm, usually 75 degrees or more --- the temperature differential between inside and outside can be extreme. Layer up! So you can layer down inside.

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