THE STATE of ALASKA
GOVERNOR SEAN PARNELL

Department of Natural Resources

DIVISION of Oil & Gas
Anchorage Office

550 W. 7th Avenue Suite 1100
Anchorage, Alaska 99501-3560
Main: 907.269.8800
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January 22, 2014

Mr. Chuck Robinson
Global Geophysical Services
7720 King Street
Anchorage, AK 99518

RE: **MLUP/NS 13-012 Geophysical Exploration Permit**
Global Geophysical Services, Schrader Bluffs 3D Seismic Survey

Dear Mr. Robinson:

The Division of Oil and Gas (Division) approves the Global Geophysical Services (GGS) Schrader Bluffs three dimensional (3D) Seismic Survey permit application, dated November 14, 2013, to conduct geophysical exploration on State of Alaska lands. The enclosed permit, MLUP 13-012, authorizes GGS to conduct a seismic survey subject to the conditions in the permit.

This permit is effective January 22, 2014 to May 31, 2014 or until tundra closes.

Scope of Review
Issuance of a permit under 11 AAC 96 is not a disposal of an interest in land and does not grant a preference right to a lease or other disposal. The permit is revocable for cause for violation of a permit stipulation or the provisions of 11 AAC 96, and is revocable at will if the department determines that the revocation is in the state's interest. Each permit issued is subject to stipulations the department determines necessary to assure compliance with said chapter, to minimize conflicts with other uses, to minimize environmental impacts, or otherwise to be in the interests of the state. Public notice of any miscellaneous land use application is discretionary under 11 AAC 96.030(c). The Director of the Division of Oil and Gas has the right at any time to amend or modify any provisions if this permit, or revoke this permit.

Project Location
The proposed seismic survey will be conducted in the Schrader Bluff area of the North Slope of Alaska on State of Alaska lands (Figure 1). The total survey area is approximately 294 square miles and spans the following areas: U9N8E, U9N9E, U9N10E, U9N11E, U9N12E, U10N8E, U10N9E, U10N10E, U10N11E, U10N12E, U11N8E, U11N9E, U11N10E, and U11N11E.

Project Description
GGS plans to conduct a 3D seismic survey of the Schrader Bluff area, including a portion of the Kuparuk River Unit (KRU), and extending south of the KRU, for Repsol E&P USA, Inc. (Repsol). The survey will cover approximately 294 square miles and will occur during the 2014 winter season (Figures 1 and 2).

The data acquisition technique will be vibroseis using slip-sweep technology which allows multiple sources (vibrators) to operate simultaneously. Use of this technique will allow data to be acquired more efficiently than typical techniques, thereby minimizing the time necessary to complete data acquisition. Energy sources for the project will be provided by 80,000 pound peak force rubber tracked vibrators that are weatherized for arctic conditions and that have a gross vehicle weight of 92,000 pounds. Four to five fleets of up to two vibrators will be employed.

A total of 293 square miles, correlating to 4,577 line miles, will be surveyed. 84,514 receivers will be laid in 145 receiver lines, totaling 1,760 miles. Receiver lines will be oriented north to south in 880-foot intervals. There will be a total of 405,548 source points along 134 source lines, totaling 2,816 miles. Source lines will run from east to west in 550-foot intervals. The proposed survey area boundary is displayed on Figure 1 (attached).

Source and receiver gridlines will be mapped by survey crews using an Inertial Navigation System that is equipped in each Tucker unit. Source and receiver points will be surveyed. Surveyors will drive the vehicle to a pre-plot location and once the position quality indicators are within specifications, the position will be logged. Receiver points will be physically marked using a wooden lath or stake/rod composed of fiberglass. Source points will be surveyed, but not marked. Source line information will be loaded into the vibrators navigation system for use during data acquisition.

Seismic data acquisition will be through the use of an autonomous nodal recording system, line gear, and geophones. Geophone stations will be configured in strings of three with arctic cases and will be centered on a stake. Recording equipment will be deployed at each receiver location by line crews. The line material will be laid out and picked up using Hagglund, Tucker, or Case tracked vehicles with cable/equipment bins and hot boxes for personnel. Receivers will be verified to ensure correct installation.

Upon completion of data acquisition in an area, the recording equipment will be retrieved. It will be brought back to base camp, batteries will be recharged, the nodal recording system units will be downloaded, and the seismic data will be transcribed for quality control and processing. The infield processing team will consist of four individuals split into two groups to handle both day and night operations. From the field, data will be sent to either GGS's Houston or Deadhorse offices for fast track processing, and then will undergo final processing.

Agency Review

The Division conducted an agency review from November 19, 2013 to December 4, 2013. All agency comments received by the Division expressed non-objection; however, the DNR Division of Mining, Land, and Water provided the following additional comments along with a statement of no objection:

- **DMLW Comments:** GGS met with the Northern Oil and Gas Team to discuss tundra access issues, as we requested that they access the seismic shoot area via the existing Prudhoe Bay road system. GGS and the Northern Oil & Gas Team agreed to the following tundra access method: GGS will travel to TAPS mile 12.5 to access the tundra and travel northwesterly from there to the seismic shoot area. The route will be prepared

by pre-packing with a summer approved vehicle (and receiving authorization after formal travel request) and several more pre-packing efforts may follow, depending on snow conditions. This will be followed by misting the route with water to create a solid ice base. After several days of allowing the enhanced route to set up, a primary short train of seismic-related vehicles will depart to the work area. There will be several days (3-7) between each subsequent vehicle train. Extraction will likely occur via the same route; but, they may use the road system for a limited number of the vehicles.

Public Notice

The Division also posted a 30 day courtesy public notice from December 9, 2013 through January 9, 2014 in a statewide newspaper, online, through postings in local post offices, and physical mail outs. The following comment was timely received:

- **CGG Land US:** Global Geophysical has applied for a State of Alaska Geophysical Exploration permit from the State of Alaska for the same area in which CGG plans to conduct a seismic survey and for which a permit from the State of Alaska is expected to be issued. A portion of Global Geophysical Services Schrader Bluff 3D seismic survey lies within the CGG proposed Great Bear/Niksik 3D seismic survey. The impacts of vehicle travel to the tundra, to subsistence users and potential for user conflicts/safety concerns will be magnified should two individual companies attempt to gather seismic data within the same area using different equipment. This is of significant concern to our company.

  CGG requests clarifications from the State of Alaska to the following questions: What programs administered by the State of Alaska are in place to avoid conflicts between companies conducting the surveys? How does the State anticipate differentiating between impacts and maintaining accountability by these two separate entities if approved to conduct seismic operations within the same project boundary?

- **DOG Response:** In response to these comments, DOG facilitated a teleconference with GGS and CGG to discuss the comments and possible solutions. After a brief description of each project and anticipated schedules, the companies discussed a variety of methods to maintain communication. Proposed methods include: regular SimOps meetings for field coordination; swapping project progress maps at regular intervals; and exchanging radio frequencies and other contact information. Both companies have provided a list of project contacts that has been distributed.

  Regarding surface impacts and accountability, the permit application and permit conditions minimize environmental impacts (disturbance to vegetation) by employing standard survey practices and the permit conditions include reporting requirements for surface impacts or for a conflict or damage to state resources. The program design minimizes the potential for conflicts with other uses through community and private landowner outreach, and appropriate public noticing throughout the survey area of operation. As a result of this outreach, GGS and CGG have agreed to communicate in the field regarding their operations to coordinate should they be in proximity of each other while conducting operations.

Performance Guarantee
The permittee has adopted into their application individual landowner outreach and is liable for any and all damages. The permittee has provided the Division with a performance guarantee under 11 AAC 96.060 in the amount of $100,000. If the permittee does not make an agreement with the surface owner for reasonable access to explore the estate reserved under AS 38.05.125, an opportunity to be heard by the Division and request for a damages bond shall be provided by AS 38.05.130.

Application Approval
Should any unforeseen issues arise, the Division has authority to revoke and amend this permit. As detailed in this authorization, the Division shall be notified if a surface use conflict occurs as a result of actions authorized by this approval. All operations conducted under this permit are subject to inspection by the Division, and if damage occurs, appropriate interest holders will be engaged, and corrective action will be prescribed. The Division will impose additional provisions as necessary, as set out in 11 AAC 96.040, at any time during the activity approved under this authorization to minimize impacts and conflicts.

The Division considered all facts material to this seismic application and permit provisions contained in this authorization per 11 AAC 96.040(b). The Division has determined that this permit application and attached provisions, as conditioned by this approval for this non-permanent activity is in the interest of the state. Conditions in this authorization are necessary to protect the state's interest and the public interest.

An eligible person affected by this decision may appeal it, in accordance with 11 AAC 02. Any appeal must be received within 20 calendar days after the date of issuance of this decision, as defined in 11 AAC 02.040(c) and (d), and may be mailed or delivered to Joe Balash, Commissioner, Department of Natural Resources, 550 W. 7th Avenue, Suite 1400, Anchorage, Alaska 99501; faxed to 1-907-269-8918; or sent by electronic mail to dnr.appeals@alaska.gov. This decision takes effect immediately. If no appeal is filed by the appeal deadline, this decision becomes a final administrative order and decision of the department on the 31st day after issuance. An eligible person must first appeal this decision in accordance with 11 AAC 02 before appealing this decision to Superior Court. A copy of 11 AAC 02 may be obtained from any regional information office of the Department of Natural Resources.

Sincerely,

Kim Kruse
Petroleum Land Manager

Enclosures: Permit Conditions
Project Maps

Ecc: Henry Brooks, Melissa Head, Sean Willison, Brian Jackson; DMLW
Office of History and Archeology; DNR

Sara Longan, OPMP
Jack Winters; OHMP
Laurie Silfven, Patty Cunningham; ADEC
Gordon Brower; NSB
Don Perrin, Dave Norton, Kim Kruse, Nathaniel Emery, Amy Karn, Paul Blanche, Conor Williamson, Jeanne Frazier; DOG

GEOPHYSICAL PERMIT CONDITIONS
ATTACHMENT 1

Date Issued:	1/22/2014
MLUP:	13-012
Project Name:	Schrader Bluffs 3D Seismic Survey
Type:	Geophysical Exploration
Permittee:	Global Geophysical Services, Inc.

Geophysical and Seismic activities are subject to the following permit conditions:

1. The permittee shall defend, indemnify and hold the State of Alaska harmless from and against any and all claims, damages, suits, losses, liabilities, and expenses for injury to or death of persons and damage to or loss of property arising out of or in connection with the entry on, and use of, State lands authorized under this approval by the permittee, its contractors, subcontractors and their employees.

2. The permittee shall notify and obtain approval from the Division of Oil and Gas (Division) in advance of any activities which significantly deviate from the approved plan. Any action taken by the permittee or his agent which increases the overall scope of the project or which negates, alters, or minimizes the implied intent of any stipulation contained in this permit will be considered a significant deviation from the approved plan.

3. The permittee and its contractors shall not begin any seismic operations until receiving all necessary local, state and federal permits and approvals plus receiving letters of non-objection from private property owners or leaseholders.

4. The permittee shall inform and ensure compliance with all conditions of this approval by its employees, agents and contractors, including subcontractors at any level.

5. Approval of this permit does not constitute the specific approval required for surface entry without an agreement with the surface owner. Before entering on privately owned surface land in exercise of the state's mineral rights, the permittee must comply with AS 38.05.130.

6. The seismic exploration activities granted under this permit must not diminish the use and enjoyment of lands encompassed within a Native Allotment. Before entering a pending or approved Native Allotment, the permittee shall contact the Bureau of Indian Affairs and Bureau of Land Management and comply with applicable federal law.

7. The Commissioner of the Department of Natural Resources (DNR) may require that an authorized state representative be present during any oil and gas activities described in or conducted under this approval.

8. The Alaska Historic Preservation Act (AS 41.35.200) prohibits the appropriation, excavation, removal, injury, or destruction of any state-owned historic, prehistoric (paleontological) or

archaeological site without a permit from the commissioner. All state permits require consultation with the State Historic Preservation Office (SHPO) (907-269-8722) so that consultation per Section 106 of the National Historic Preservation Act may proceed. Should any sites be discovered during the course of field operations, activities that may damage the site will cease and the Office of History and Archaeology in the Division of Parks and Outdoor Recreation (907-269-8721) shall be notified immediately.

9. The permittee shall make available, to the Division, all records relating to the survey operations and landowner approvals upon request.

10. The permittee shall make available a copy of the seismic plan of operations, all subsequent amendments, and a copy of this approval and all its attachments to any interested party upon request and in a reasonable time.

11. The permittee shall apply the International Association of Geophysical Contractors Setback Guidelines to activity approved under this authorization. Alternative setback distances may be employed to protect coastal uses and resources, water wells, structures, private property including livestock, and other resources if it is determined that a particular guideline is insufficient.

12. Fuel and hazardous substances. Secondary containment shall be provided for fuel or hazardous substances, as defined under AS 46.03.826(5) or under 42 U.S.C. 9601(14)F.

    a. Fuel or hazardous substance transfers. Secondary containment or a surface liner must be placed under all container or vehicle fuel tank inlet and outlet points, hose connections, and hose ends during fuel or hazardous substance transfers. Appropriate spill response equipment to respond to a spill of up to five gallons must be on hand during any transfer or handling of fuel or hazardous substances. Transfer operations shall be attended by trained personnel at all times.

    b. Fuel or hazardous substances container(s) with a total combined capacity larger than 55 gallons shall not be stored within 100 feet of a waterbody.

13. Stationary fuel storage facilities must not be placed within the annual floodplain of a watercourse or closer than 100 ft. to a waterbody. There shall be no fueling, servicing or repair of vehicles or equipment, and no vehicles shall be left unattended within the floodplain or below the ordinary high water (OHW) line of any river, lake or stream or closer than 100 ft. to a waterbody or wetland.

14. Vehicles shall be operated in a manner such that the vegetative mat is not disturbed, and blading or removal of vegetative cover is prohibited except as approved by DNR Division of Mining, Land and Water (DMLW) Northern Region Office (NRO). Filling of low spots and smoothing using snow and ice is allowed. Incidents of vegetative matte damage and follow-up corrective actions shall be reported to the Division.

15. Alterations of the banks of a watercourse are prohibited. Ice or snow bridges and approach ramps constructed at river, slough, or stream crossings must be substantially free of extraneous material (i.e., soil, rock, wood, or vegetation) and must be removed or breached before spring breakup. Crossing lakes and waterways shall be conducted in a manner to avoid additional freeze-down of deep-water pools that might harbor overwintering fish. Removal and compaction of snow from deep-water pools is prohibited.

16. To avoid additional freeze-down of deep-water pools harboring overwintering fish, watercourses shall be crossed at shallow riffle areas from point bar to point bar. Compaction or removal of the insulating snow cover from the deep-water pool areas of rivers must be avoided.

17. Operations must avoid occupied grizzly bear dens by one-half mile unless alternative mitigation measures to minimize disturbance are authorized by the Division after consultation with the Department of Fish and Game (ADFG). Known den locations shall be obtained from the ADFG Division of Wildlife Conservation, (Fairbanks 907-459-7213; Anchorage 907-267-2179) prior to starting operations. Occupied dens encountered in the field must be reported to the above, and subsequently avoided.

18. All activities shall be conducted in a manner to minimize or avoid disturbance to wildlife and their habitat. Hazing of wildlife is prohibited unless a Health Safety and Environment concern is present.

19. Trails, campsites and work areas must be kept clean. Trash, survey lath, markers, and other debris that accumulates in camps, along seismic lines, and travel routes, that are not recovered during the initial cleanup, shall he picked up and properly disposed of prior to freeze-up the following winter.

20. All wastewater must be disposed of in a manner acceptable to DEC and drinking water must meet Alaska drinking water standards.

21. All solid wastes, including incinerator residue, shall be backhauled to a solid waste disposal site approved by DEC.

22. The Director has the right at any time to amend or modify any provisions of this permit, or revoke this permit.

23. As a condition of the issuance of this Geophysical Exploration Permit, the permittee acknowledges the requirements of 11 AAC 96.210(1) and agrees to notify the Director of the Division and submit seismic exploration data. The Geophysical Data Submission Requirements can he found on the DNR Division's Website, http://dog.dnr.alaska.gov/Permitting/permittingForms.htmm. Your signature acknowledges your obligation to fulfill the Data Submittal requirements.

24. The permittee must complete and return a Geophysical Activity Completion Report form for each set of 3D data acquired. Please submit a separate form for each sub-program data

submittal. A non-confidential public completion report will he placed into the permit file each time a sub-program is completed. Completion reports must be submitted to our office by July 1, 2014. For in depth instruction on how to complete the form please refer to the Division's permitting website http://dog.dnr.alaska.gov/Permitting/PermittingForms.htm.

25. To the extent required as a condition of an approval for any Miscellaneous Land Use Permit (MLUP) for Seismic or Geophysical work, an Incident Report must be filed with the Division for incidents such as spills, land use conflicts, tundra damage, blowouts, and undetonated charges. The form is located at the following web address http://dog.dnr.alaska.gov/Permitting/PermittingForms.htm. Please fill out the form and email it to dog.permitting@alaska.gov.

26. A summary record of all surface impacts, lost equipment, spills, fires, and unintended explosions, shall be included in the completion report. Rehabilitation, if required, shall be completed to the satisfaction of the DNR.

27. The permittee shall be responsible for all equipment used in association with the seismic survey. Equipment lost or abandoned during operations shall be recovered and reported. If the lost equipment is not recovered, the report will include a detailed explanation of the circumstances of the loss and the recovery effort that includes Global Positioning System (GPS) location coordinates.

28. The Division's Permitting Section shall be notified in Anchorage by telephone at 907-269-8800 and by email at dog.permitting@alaska.gov if, during the conduct of operations, state resources are damaged or a conflict occurs.

29. All fires and explosions that require a response to protect life and property must be reported to DNR and Department of Environmental Conservation (DEC) immediately and shall be supplied with all follow-up incident reports.

30. The permittee shall comply with the DEC requirements for reporting the unauthorized discharge, leak, or spill of hydrocarbons or toxic or hazardous substances. The permittee shall notify DNR of all spills as required under 18 AAC 75.300. The DNR 24 hour spill report number is 907-451-2678; the fax number is 907-451-2751.

Geophysical and Seismic activities proposed by Global Geophysical Services, Inc. for the Schrader Bluffs Seismic Survey are subject to the following project specific stipulations:

31. Operations must avoid known polar bear dens by one mile. Known den locations shall be obtained from the U.S. Fish and Wildlife Service (907-786-3800 or 800-362-5148) prior to starting operations. New dens encountered in the field must be reported to the above, and subsequently avoided by one mile.

32. The use of ground contact vehicles for off-road travel must be limited to those areas which have adequate ground frost and snow cover to prevent damage to the ground surface. Movement of equipment through willow (Salix) stands must be avoided wherever possible.

The use of ground contact vehicles for off-road travel is subject to regional tundra travel openings and closure notices issued by DNR DMLW NRO. Operations are restricted to the winter seasonal opening. After April 15, the use of ground contact vehicles is subject to termination within 72 hours of written notification from DNR DMLW NRO.

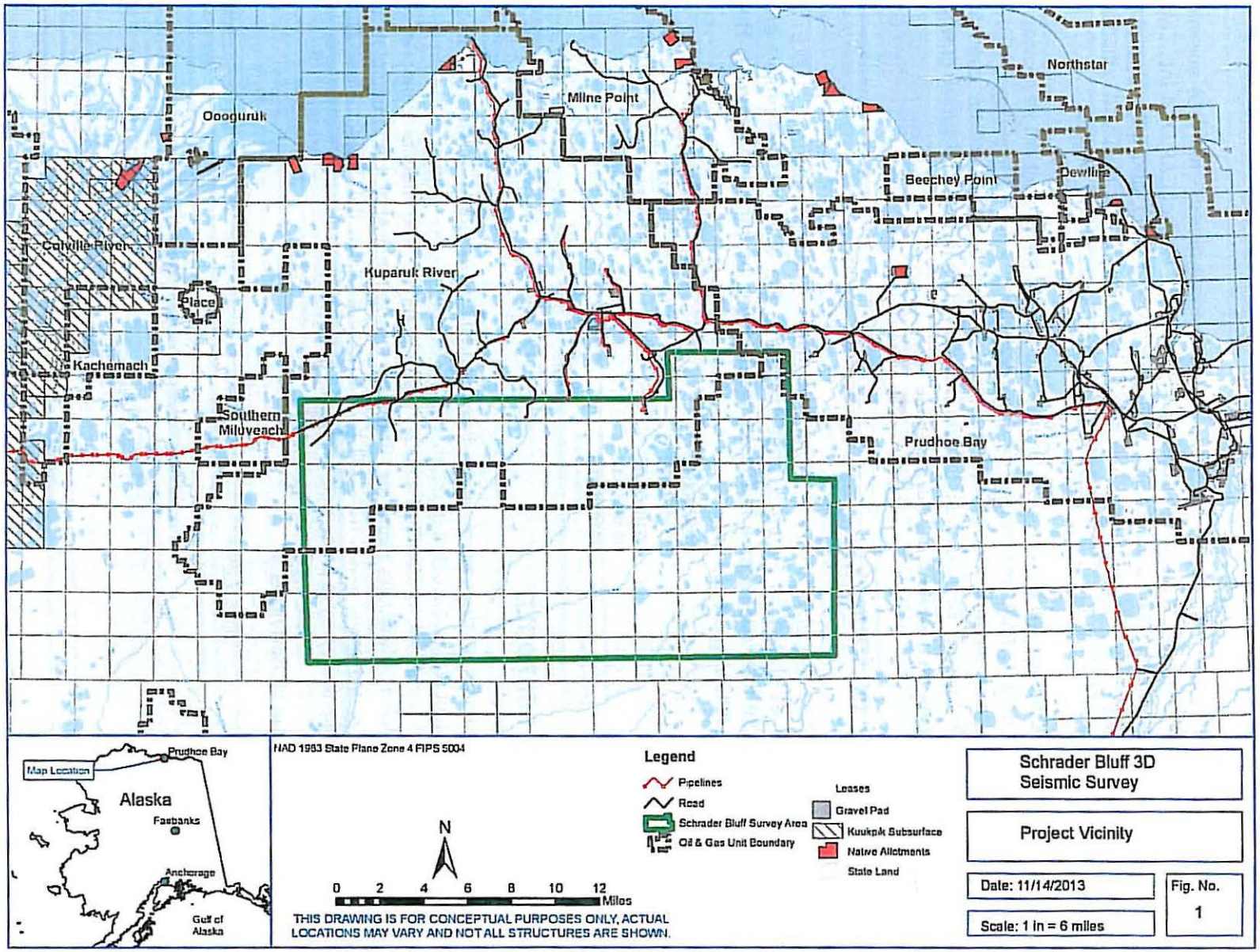
33. A letter of non-objection must be obtained from Alyeska when working in and around the Trans-Alaskan Pipeline.

34. There are DNR tundra monitoring stations on the North Slope. The permittee should work with DNR DMLW North Slope Team on identifying and avoiding these stations.

I acknowledge, and agree to these permit terms, conditions, and stipulations.

Authorized Representative

22 JAN 2014
Date


Northstar
Milne Point
Oooguruk
Beechey Point
Colville River
Kuparuk River
Place
Kachemach
Southern Miluveach
Prudhoe Bay
Map Location
Prudhoe Bay
Alaska
Fairbanks
Anchorage
Gulf of Alaska
NAD 1983 State Plane Zone 4 FIPS 5004
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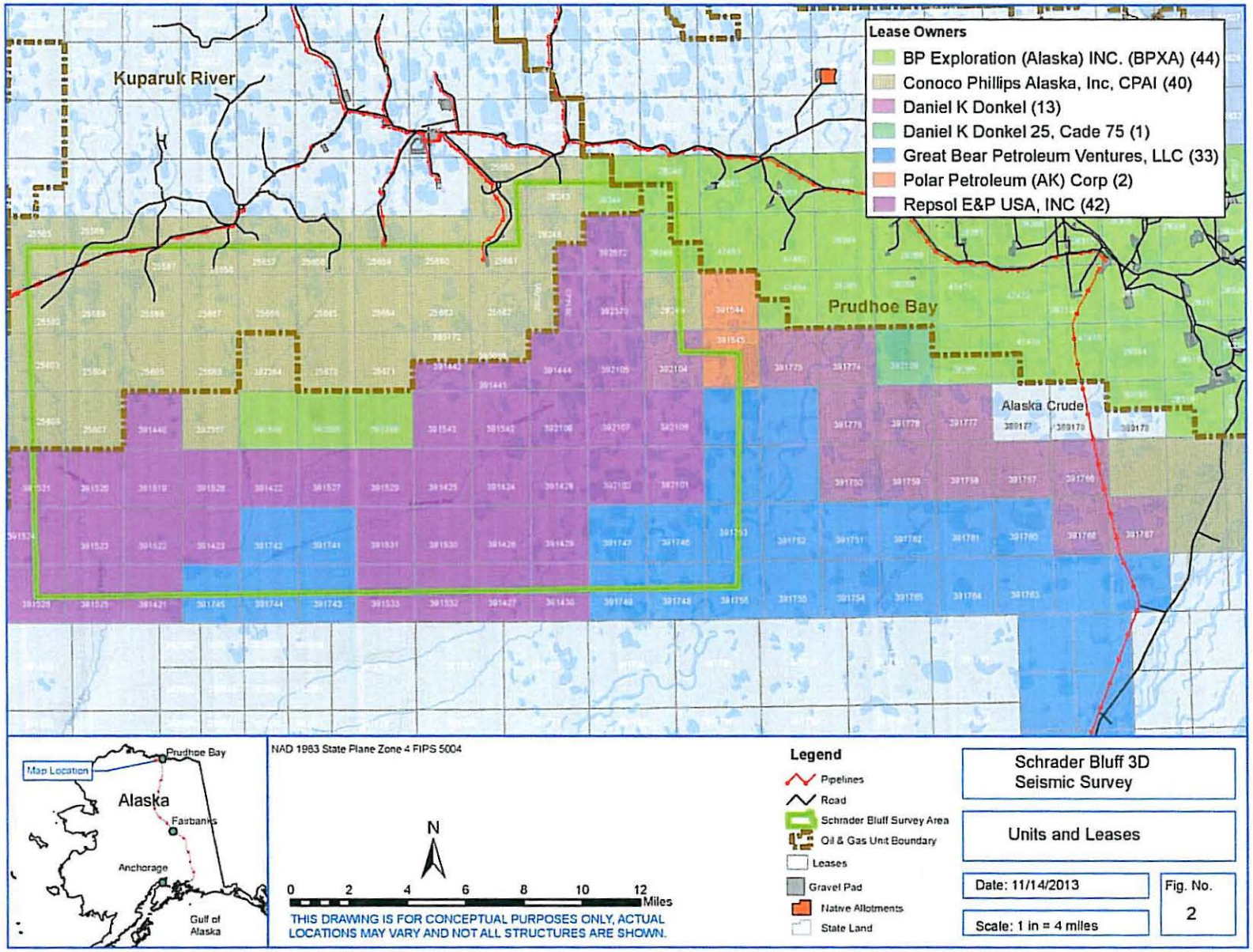
0 2 4 6 8 10 12 Miles
THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY, ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.
Legend
Pipelines
Road
Schrader Bluff Survey Area
Oil & Gas Unit Boundary
Leases
Gravel Pad
Kuukpik Subsurface
Native Allotments
State Land
Schrader Bluff 3D Seismic Survey
Project Vicinity
Date: 11/14/2013
Scale: 1 in = 6 miles
Fig. No.
1


Lease Owners
BP Exploration (Alaska) INC. (BPXA) (44)
Conoco Phillips Alaska, Inc, CPAI (40)
Daniel K Donkel (13)
Daniel K Donkel 25, Cade 75 (1)
Great Bear Petroleum Ventures, LLC (33)
Polar Petroleum (AK) Corp (2)
Repsol E&P USA, INC (42)
Kuparuk River
Prudhoe Bay
Alaska Crude
Map Location
Prudhoe Bay
Alaska
Fairbanks
Anchorage
Gulf of Alaska
NAD 1983 State Plane Zone 4 FIPS 5004
N
0 2 4 6 8 10 12 Miles
THIS DRAWING IS FOR CONCEPTUAL PURPOSES ONLY, ACTUAL LOCATIONS MAY VARY AND NOT ALL STRUCTURES ARE SHOWN.
Legend
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Road
Schrader Bluff Survey Area
Oil & Gas Unit Boundary
Leases
Gravel Pad
Native Allotments
State Land
Schrader Bluff 3D Seismic Survey
Units and Leases
Date: 11/14/2013
Scale: 1 in = 4 miles
Fig. No.
2