



March 18, 2015

Ms. Suzan Simonds
Permits and Regulatory Manager
SAExploration, Inc.
8240 Sandlewood Place, Suite 102
Anchorage, Alaska 99507

RE: MLUP/CI 15-001, Geophysical Exploration Permit, Upper Cook Inlet 3D Marine Seismic Survey Permit Approval

Dear Ms. Simonds:

The Department of Natural Resources (DNR), Division of Oil and Gas (Division) approves the SAExploration (SAE) Upper Cook Inlet 3D Marine Seismic Survey Miscellaneous Land Use Permit (MLUP) application, dated January 30, 2015, to conduct geophysical exploration on State of Alaska lands in the Upper Cook Inlet. The enclosed permit, MLUP/CI 15-001, authorizes SAE to conduct a marine seismic survey on State of Alaska waters within Upper Cook Inlet from Moose Point south to Nikiski extending over to the west side from the West Forelands north to the Chuitna River subject to the conditions of the permit.

This permit is effective March 18, 2015 to March 18, 2016.

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 of this chapter, and is revocable at will if the DNR determines that the revocation is in the state's interest. Each permit issued is subject to any stipulations the DNR determines necessary to assure compliance with this 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 (Director) has the right at any time to amend or modify any provisions of this permit, or revoke this permit.

Project Description: Proposed Activity, Associated Structures, Type of Equipment

SAE plans to acquire three dimensional (3D) geophysical data in an approximate 821 square mile area in the Upper Cook Inlet starting on April 1, 2015. SAE will only conduct water based data acquisition operations and will use autonomous nodal seismic recording equipment and air guns as the source.

Marine operations will be based on a recording patch approach which is typically groups of 6 receiver lines and 32 source lines. The outside dimensions of a patch are approximately 7.5 mi x 10 mi (12km x 16 km), and each patch takes approximately 3-5 days to deploy, shoot, and record. The receiver lines are spaced 1,650 ft. (503 m) apart and are oriented parallel to the shoreline. The source lines are oriented perpendicular to the shoreline. Where possible, source lines may extend approximately 3 mi (5km) beyond the outside receiver lines and approximately 2.5 mi (4 km) beyond the ends of the receiver lines. During the recording of a patch, nodes from the previous patch will be retrieved, charged, and data downloaded from the nodes prior to redeployment to the next patch. As patches are recorded, receiver lines are moved side-to-side or end-to-end to the next patch location so that receiver lines have continuous coverage of the recording area. Adjacent patches may or may not be recorded, depending on scheduling priorities. The energy sources for offshore recording consist of 2 x 880-cubic inch (cui) tri-cluster arrays for a total of 1,760-cui. Two source vessels will be equipped with 1,760-cui air guns. Source activities only occur during low and high slack tides or when vessels can operate safely to acquire quality data. Typically, source activities will occur for two to three hours at each slack tide.

The marine nodes are cable-less but will be tethered together for ease of retrieval. The nodes and rope tether will lie on the seabed floor and will have no effect on marine traffic. A buoy release will be deployed when the line is ready for retrieval. Primary positioning for vessels will be with a Global Positioning System (GPS) with antenna attached to the gun array.

Scope of Decision:

This decision is reviewing the following activities for Division approval:

The activities supporting seismic data acquisition as defined in the application. The State of Alaska waters and the tide and submerged lands from the Mean High Water (MHW) seaward have been reviewed under the authority of this approval.

This decision is not reviewing the following activities for Division approval:

This project does not include land-based work above the MHW.

Land and Water Status:

The proposed Upper Cook Inlet 3D Marine Seismic Survey program is located on state waters within the Upper Cook Inlet (Appendix C). SAE plans to acquire approximately 821 square miles of data within the following locations:

Survey Line Locations by Meridian, Township(s), and Range(s)

Meridian: Seward

Township: 006N	Range(s): 012 - 016W
Township: 007N	Range(s): 012 - 016W
Township: 008N	Range(s): 010 - 015W
Township: 009N	Range(s): 009 - 014W
Township: 010N	Range(s): 007 - 014W
Township: 011N	Range(s): 006 - 013W
Township: 012N	Range(s): 008 - 010W

Agency Review:

The Division provided an Agency review and comment opportunity for the activities considered for authorization under this decision. The following government entities were notified on February 20, 2015 for

comment on the application: United States Coast Guard (USCG), United States Army Corps of Engineers (USACE), Kenai Peninsula Borough (KPB), National Oceanic and Atmospheric Administration (NOAA), United States Fish and Wildlife Service (USFWS), Alaska Department of Fish and Game (ADFG), Alaska Department of Environmental Conservation (ADEC), Alaska Oil and Gas Conservation Commission (AOGCC), Alaska Department of Transportation & Public Facilities (DOTPF), and DNR: Division of Mining Land and Water (DMLW), Office of Project Management and Permitting (OPMP), Office of History and Archaeology (OHA), and Division of Oil and Gas. The comment deadline was 4:30 pm Alaska time on March 6, 2015. On March 3, 2015 ADFG requested an extension and the comment period was extended one week ending 4:30 pm Alaska time on March 13, 2015. Comments were received by Division of Parks and Outdoor Recreation (DPOR), ADEC Division of Water, DMLW Southcentral Region Office Easement Management Unit, and ADFG. See Appendix B.

Public Review:

The public notice process is discretionary and was not initiated for this application.

Notification:

In accordance with Alaska Administrative Code (AAC) 11 AAC 96.030(c), the Division provided notification to upland landowners that the Division has received a Miscellaneous Land Use Application to conduct geophysical activities on tide and submerged lands adjacent to their properties.

The Division received phone calls from landowners asking about the seismic project and some of them requested a copy of the application. Division staff provided information over the phone and advised the landowners to submit comments by email to dog.permitting@alaska.gov for consideration.

Performance Guarantee:

The permittee has provided the Division with a performance guarantee under 11 AAC 96.060 in the amount of \$100,000.

Application Approved:

Should any unforeseen issues arise, the Division has authority to revoke or amend this permit. As detailed in this authorization, the Division shall be notified if, during the conduct of operations, a surface use conflict occurs. 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 under 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 application including the permit provisions contained in this authorization per 11 AAC 96.040(b). The Division has determined that this permit and attached provisions for this non-permanent activity as conditioned is in the state's interest. Stipulations in this permit 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 the 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. 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
Permitting Manager
Division of Oil and Gas

Appendices: A: Stipulations
 B: Comments
 C: Map

ecc: DPOR: Ryan Thomas, David Griffin

ADEC: dec.water.oilandgas@alaska.gov, Katrina Chambon, Timothy Law

EPA: Cindi Godsey

DMLW: landsales@alaska.gov, Cynthia Zuelow-Osborne, Eric Moore

ADFG: Megan Marie, Patrick Shields, Samuel Ivey, Robert Begich, Daniel Rosenberg,
Michael Petrula, Robert Small, Sue Goodglick, Bronwyn Jones, Mike Daigneault,
Virginia Litchfield, Alvin Ott

Division: Kim Kruse, Thomas Barrett, John Easton, Kyle Smith, Jeanne Frazier, James Hyun

APPENDIX A: STIPULATIONS MISCELLANEOUS LAND USE PERMIT FOR GEOPHYSICAL EXPLORATION

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

Standard Stipulations:

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 permit by the permittee, its contractors, subcontractors and their employees.
2. A copy of the permit and stipulations must be posted in a prominent location where other permits and safety information are displayed for crew members. The permittee shall make available a copy of the application, all subsequent modifications, and a copy of this permit and all its attachments to any interested party upon request and in a reasonable time.
3. The permittee shall notify and obtain a modification from the Division in advance of any activities which deviate from the approved permit. 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 permit.
4. The issuance of this authorization does not alleviate the necessity of the permittee to obtain authorization required by other agencies for this activity.
5. The permittee shall inform and ensure compliance with all conditions of this permit by its employees, agents and contractors, including subcontractors at any level.
6. **Reservation of Rights:** The Division reserves the right to grant additional authorizations to third parties for compatible uses on or adjacent to the land under this authorization. Authorized concurrent users of state land, their agents, employees, contractors, subcontractors, and licensees, shall not interfere with the operation or maintenance activities of each user.
7. **Valid Existing Rights:** This authorization is subject to all valid existing rights and to the land. The State of Alaska makes no representations or warranties whatsoever, either expressed or implied, as to the existence, number, or nature of such valid existing rights.
8. The Commissioner of the DNR may require that an authorized state representative be present during any oil and gas activities described in or conducted under this permit.
9. The permittee shall consult the Alaska Heritage resources Survey (907-269-8721) so that known historic, archeological and paleontological sites may be avoided. 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 DPOR (907-269-8721) shall be notified immediately.
10. The permittee shall make available, to the Division, all records relating to the survey operations and landowner approvals upon request.

11. The permittee shall observe and apply applicable setbacks as defined by 18 AAC 80.020, 18 AAC 72 and/or the International Association of Geophysical Contractors Setback Guidelines to activities 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. The Director has the right at any time to modify or revoke this permit.
13. All wastewater must be disposed of in a manner acceptable to ADEC and must meet Alaska Water Quality Standards found at: <http://dec.alaska.gov/water/wqsar/wqs/>.
14. ADEC Drinking Water regulations 18 AAC 80 apply to public water systems.

Land and Access Stipulations:

1. The permit authorizes the Permittee to conduct geophysical/seismic exploration activity upon lands owned by the State of Alaska. No person may engage in mineral exploratory activity on land, the surface of which has been granted or leased by the State of Alaska, or on land for which the state has received the reserved interest of the United States.
2. This approval does not authorize activity on Mental Health Trust Lands, School Trust Lands, Park Lands, or Lands of the University of Alaska.
3. Approval of this permit does not constitute the approval required for surface entry on non-state land without an agreement with the surface owner. This permit does not approve entry on private land.

Public Safety and Program Outreach Stipulations:

1. Notices: To avoid unintended conflicts with other users, the permittee shall post a Notice of this project at conspicuous locations including key travel intersection crossings, areas of public use and in a prominent location in any operators or contractors staging area or camp. The Notice shall include the Division's contact number (907-269-8800), project title and permit number, names and contact telephone numbers of the permittee and all operators. The permittee shall provide notices on behalf of the Division to all upland owners involving shoreland, tideland, or submerged land adjacent to the upland owner's property if no notice or agreement is made with the owner by the permittee as required under 11 AAC 96.030(c). All forms of public outreach must be documented and reported to the Division as they occur.
2. In areas of subsistence and personal use harvesting, the permittee will coordinate survey activity with local users to prevent unnecessary conflicts. The permittee shall make a good faith attempt to coordinate survey activities with the owners of trap lines if known. Existing snowmachine, dogsled, or other trails, should be marked with survey lath where they intersect receiver and source lines. The permittee is required to post notice of potentially dangerous or hazardous project activities at these locations.

Fuel and Hazardous Substances Stipulations:

1. 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.

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- 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.
2. Sorbent material in sufficient quantity to handle operation spills must be on hand at all times for use in the event of an oil or fuel spill.
 3. Any use of explosives or blasting materials must comply with ADFG Habitat Publication No. 13-03, Alaska Blasting Standard for the Proper Protection of Fish. Additionally the permittee must contact the nearest ADFG Division of Habitat office regarding the need for a Fish Habitat permit.
 4. Stationary fuel storage facilities must not be placed within the annual floodplain of a watercourse or closer than 100 feet 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 line of any river, lake or stream or closer than 100 ft. to a waterbody or wetland.

Wildlife Stipulations:

1. 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.
2. The permittee shall abide by the provisions of Alaska's wildlife feeding regulation, 5 AAC 92.230.
3. Operations within State-designated special areas (AS 16.20.010- .162, .500-.690) will be conducted in a manner consistent with the area's statutes regulations and management plan.

Cook Inlet Stipulations:

1. On-site refuse disposal is prohibited. The permittee will remove and dispose of all waste generated during operation and termination activities under this authorization to an off-site ADEC approved disposal facility. Waste, in this stipulation, means all discarded matter, including but not limited to human waste, trash, garbage, refuse, oil drums, petroleum products, ash and discarded equipment. Unattended vehicles and equipment will not be parked or left on the traveled surface of existing off- line trails or access routes.

Project Specific Stipulations:

1. The permittee shall obtain a Special Park Use permit from DPOR before commencing any work in a State Park within the boundaries of the proposed project area.
2. The Division/Applicant will include the parties DMLW identified on modifications to this permit at the Division's discretion.

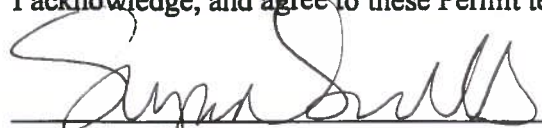
3. SAE shall contact the Upper Cook Inlet commercial and sport fisheries managers prior to May 1, 2015.
4. In the event negative impacts to waterfowl and Pacific salmon result from below-water air gun blasts SAE shall contact the ADFG Division of Habitat.

Reporting Stipulations:

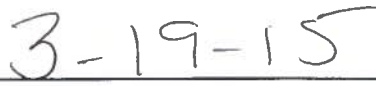
1. **Notifications:** The permittee shall comply with the ADEC requirements for reporting the unauthorized discharge, leak, or spill of hydrocarbons or toxic or hazardous substances. The permittee shall notify the Department of Natural Resources of all spills that must be reported under 18 AAC 75.300 under timelines of 18 AAC 75.300. All fires and explosions must be reported to DNR immediately. The DNR 24 hour spill number is (907) 451-2678; the fax number is (907) 451-2751. DNR and ADEC shall be supplied with all follow-up incident reports.
2. **Blowouts,** as defined as the detonation of source points that caused surface damaged, are reportable if the surface damaged is larger than 36 inches. The report must include the location (Lat./Long. in WGS 84) and pictures of the blowout. All blowouts will need to be reclaimed or rehabilitated to the satisfaction of the Alaska DNR.
3. As a stipulation of the issuance of this MLUP for Geophysical Exploration, 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 be found on the DNR Division's Website <http://dog.dnr.alaska.gov/Permitting/PermittingForms.htm>. Your signature acknowledges your obligation to fulfill the Data Submittal requirements.
4. 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 be placed into the permit file each time a sub-program is completed. Completion reports must be submitted to our office by July 1 of the following year. 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>.
5. 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.
6. 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.
7. **Annual Reports:** if the term of the MLUP exceeds on calendar year from the date of approval, an annual report must be submitted discussing the project timeline, progress, project work and continued public outreach.

8. **Completion Statement:** Upon expiration of the MLUP or completing all operations authorized under the MLUP, whichever occurs first, a completion report must be submitted discussing a summary of the operations, equipment trails, camps and staging areas, damages to State lands, spills, land-use conflicts and work completed.

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



Authorized Representative



Date

Appendix B: Comments

Agency Review Comments

1. Alaska DNR, DPOR, March 4, 2015:

It appears the Project Area includes land and water managed by DPOR – in particular the submerged lands and tidelands that are part of Captain Cook State Recreation Area. The applicant needs to obtain a special park use permit from DPOR before commencing any work within the boundaries of this area.

Applicant's Response:

SAE has already submitted a multi-agency permit application to the river center in Kenai. This permit application is distributed to all agency's for review, much like the process SAE are in now with the DNR. SAE has already been in conversation with Ms. Pam Russell at State Parks.

Division Response:

Noted; comment forwarded to applicant for a response. See Standard Stipulation #4 and Project Stipulation #1.

2. ADEC, Division of Water, March 5, 2015:

ADEC noted that discharges from large vessels greater than 79 feet when operating in Alaska state waters must comply with Environmental Protection Agency (EPA) Large Vessel General Permit (VGP), including the Clean Water Act Section 401 Certification of Reasonable Assurance issued by the Department of Environmental Conservation, Wastewater Discharge Authorization Program. In addition, ballast water discharges from vessels smaller than 79 feet must comply with the EPA Small VGP. Provided contact information for coverage for the EPA under the VGP (Cindi Godsey at (206) 553-1676, Godsey.Cindi@epa.gov).

Applicant's Response:

SAE emailed Ms. Godsey stating that the vessels do not discharge and do not have ballast tanks. Ms. Godsey responded that if SAE's vessels do not discharge then a permit is not necessary. Ms. Godsey also provided a link to other discharges that may apply to SAE's operations.

Division Response:

Noted; comment forwarded to applicant for a response. See Standard Stipulation #4.

3. Alaska, DNR, DMLW Southcentral Region Office Easement Management Unit, March 6, 2015:

DMLW requested that the Division of Oil and Gas Permitting Section and/or the applicant include the additional parties, identified by DMLW, listed in their comment on any/all future contact lists for distribution of additional information and letters or statements of non-objection per information presented by the applicant on page 18 of the POO.

Applicant's Response:

SAE will have communications with fishing organizations, set netters, near city's, villages or towns that may be effected by their project area. Community meetings will start when SAE has a timeline for the issues of all permits. Letters of notice have gone out to oil and gas lease holders and to General Communication, Inc. (GCI) and Alaska Communication Systems (ACS). SAE has established setbacks for facility locations from previous work in the Cook Inlet. There is no work planned in the vicinities of

docks or wharfs. SAE has had communications with most of the names listed on the letter within the last year and received shape files for mapping purposes from the companies. The remainder of the names on the list are clients, which is confidential information at this point.

Division Response:

Noted; comment forwarded to applicant for a response. The Division/Applicant will include the additional identified parties on modifications to this permit at the Division's discretion. See Project Specific Stipulation #2.

4. ADFG, Division of Habitat, Central Region, March 13, 2015:

ADFG has identified two potential concerns: interference with commercial, sport, and subsistence fisheries, and noise disturbance to marine mammal, waterfowl, and Pacific salmon. To address these concerns, ADFG requests that SAE contact the Upper Cook Inlet commercial and sport fisheries managers Mr. Patrick Shields and Mr. Samuel Ivey, respectively, prior to May 1, 2015, to avoid interference with commercial, sport, and subsistence fishing in the project area (Commercial fisheries: pat.shields@alaska.gov, 260-2941; Sport fisheries: samuel.ivey@alaska.gov, 746-6300). The majority of the project area falls within the Northern District for commercial fisheries which is only open 24 hours a week from late May through early September. Details on timing and location of the commercial and subsistence fishing activity within the project area are provided. In addition, ADFG requests that SAE contact the Division of Habitat in the event that any negative impacts resulting from below-water air gun blasts on marine mammals, waterfowl, or Pacific salmon are witnessed by the Protected Species Observers stationed on the vessels (megan.marie@alaska.gov or 267-2342).

The SAE POO describes the procedures to be followed in the event that a marine mammal comes within a minimum distance (i.e., safety radius) from the source vessel. Based on estimates in the SAE POO, the sound pressure levels at these radii are within the range that is considered safe for bony fishes (peak = 206 dB; cumulative = 187 dB; Caltrans 2009). Above these levels, bony fishes, such as salmon, exhibit temporary hearing loss and disruptions in homing and foraging behaviors (Popper et al. 2005). Preliminary results from recent acoustic studies of beluga whales and underwater noise in Cook Inlet indicate that anthropogenic sources of underwater noise in Cook Inlet have the potential to mask beluga communication and hearing (R. Small, Wildlife Biologist, ADFG, Anchorage, personal communications).

According to the SAE POO, sound source verification tests conducted in 2014 were used to estimate safety radii; however, the radii can vary based on parameters which can vary widely and change quickly in Cook Inlet over time (e.g., water depth, temperature, turbidity). Real-time data collected during seismic operations are necessary to accurately measure safety radii for marine mammals and assess any potential for injury or disturbance to migrating fish. ADFG requests that at least one support or node vessel be equipped with devices to measure underwater sound pressure levels and to provide real-time sound data to be used in calculating and adjusting the estimated safety radii. These data will also be beneficial in assessing potential cumulative impacts to beluga whale communication and echolocation in Cook Inlet.

Applicant's Response:

Interference with Fisheries:

SAE in the past has worked so well with the fishing industry that SAE received the award for Outstanding Oil Industry Business at Industry Appreciation Day last year. SAE were nominated by

United Cook Inlet Drift Association (UCIDA), who SAE worked with very closely during our marine operations. SAE has developed a Plan of Cooperation (POC) that will include communicating directly with native subsistence interests, sport fishing groups, and commercial fishing associations as relevant to the actual project location. SAE has included contacting the ADFG Division of Habitat, in the updated POC SAE will specifically add Patrick Shields and or Samuel Ivey. The exact location of where the 2015 seismic survey will occur has not yet been finalized. Once it is, SAE will implement the POC.

Noise Disturbance of Wildlife:

The primary focus of ADFG's concerns were noise disturbance of Cook Inlet beluga whales. Noise concerns with salmon were also raised, but as your memo verifies, SAE's seismic noise levels are within the range considered safe for bony fish, and SAE in its Marine Mammal Monitoring Plan (MMMP) has not witnessed to date fish mortalities as a result of airgun operations.

SAE is well aware of the potential impact the planned seismic operation could have on local populations of beluga whales. As a result of a many years of experience working in the Cook Inlet, SAE has in the past and will be for this project, implementing the mitigation measures that are listed in our marine mammal monitoring plan that is approved by NMFS. In short SAE has listed a few mitigations that will apply to this project.

- o Avoidance of any seismic survey within Critical Habitat Area 1 (where most beluga are expected to occur during the seismic survey season).
- o Avoidance of any airgun operations within Critical Habitat Area 2 that is within 10 nautical miles of the Beluga River between April 15 and October 15.
- o Shutting down of airguns to avoid takes of beluga whales to meet obligation under the ESA.
- o "Ramping up" airgun starts to alert marine mammals of the presence of the airguns .
- o Operation of a small 10-cubic-inch airgun during poor visibility conditions to continue to alert marine mammals of the presence of seismic operations in the area.

Relative to beluga whales (and any other species listed under ESA), the shutdown safety zone begins at the 160 dB isopleth, not the 180 or 190 dB isopleth as with unlisted marine mammals. This is not a Marine Mammal Protection Act (MMPA) requirement, but a requirement expected as a result of ESA consultation. SAE implemented these same measures during seismic surveys conducted in 2012, with the result that no beluga whale were exposed to noise levels exceeding 160 dB. The requested authorization for the takes of belugas in the IHA application was requested as "insurance" against the possibility of a group of beluga getting within an exclusion zone before detection and implementation of a shutdown could occur.

SAE has funded numerous sound source verifications (SSVs) of the airgun equipment used in both Cook Inlet and Arctic waters. Multiple SSVs were conducted on SAE's various airgun arrays in both 2011, 2012 and 2014 in the Cook Inlet. In establishing safety and harassment monitoring zones, SAE selected the most conservative measurements (90th percentile, deep water) relative to the SSVs that have been conducted in Cook Inlet to date given the sizes of the proposed airgun arrays. SAE considers conducting additional SSVs an unnecessary financial burden to the seismic program, especially given that the proposed shutdown exclusion zone for beluga whales already has a radius of nearly 7 kilometers, and SAE will be purposely operating outside waters where beluga whales are expected to summer. With such a large shutdown zone, SAE strongly believe that communication masking issues with belugas will be eliminated, and additional or continuous noise monitoring will not support the need to establish a greater shutdown zone given the greatly conservative zone proposed.

Reporting:

As an obligation in the project's updated Marine Mammal Monitoring and Mitigation Plan (4MP), any marine mammal injury take by SAE's seismic program will be immediately reported to the NMFS Office of Protected Species, the NMFS Regional Office-Anchorage, and the Alaska Regional Stranding Coordinators. Any noted injury to waterfowl or fish resources from the proposed seismic program will be reported to the ADFG Division of Habitat.

Division Response:

Comment forwarded to applicant for a response.

To mitigate interference with commercial, sport and subsistence fisheries ADFG requested SAE contact the Upper Cook Inlet commercial and sport fisheries managers prior to May 1, 2015. See Project Specific Stipulation #3.

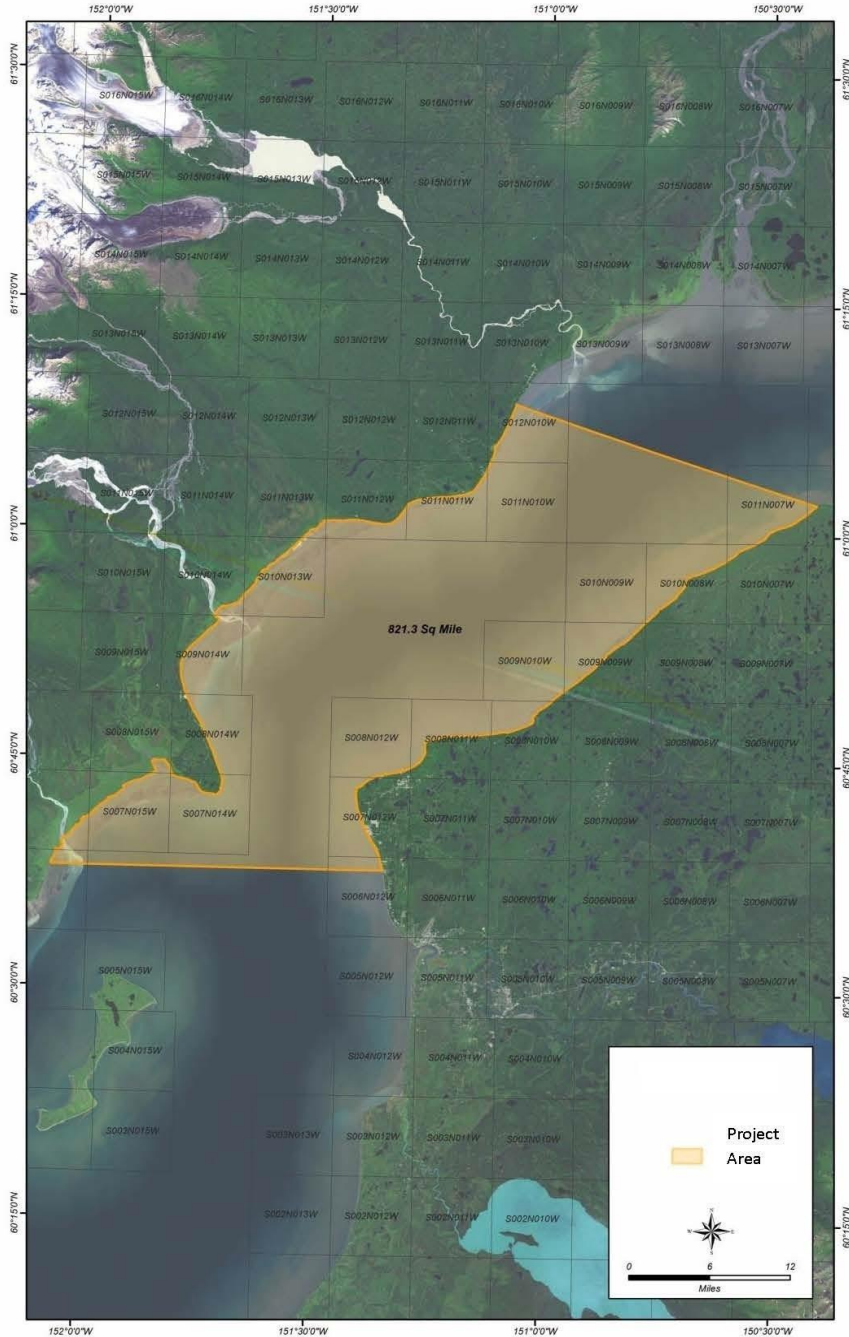
In the event negative impacts to waterfowl and Pacific salmon result from below-water air gun blasts ADFG requested SAE contact the Division of Habitat. See Project Specific Stipulation #4.

ADFG requested SAE conduct real-time sound data analysis to calculate and adjust the safety radius to assess and avoid potential for injury or disturbance to migrating fish. SAE's proposed operations are within the range considered safe for bony fish and no additional monitoring requirements are required. In the event negative impacts to Pacific salmon result from below-water air gun blasts the Division may require additional monitoring by SAE.

ADFG requested SAE conduct real-time sound data analysis to calculate and adjust the safety radius to assess and avoid potential for injury or disturbance to marine mammals and to report negative impacts to the Division of Habitat. To address noise disturbance to marine mammals and reporting requirements the Applicant provided a copy of their Marine Mammal Monitoring Plan to the Division for review, the plan was reviewed for applicability to comments submitted by ADFG.

SAE's Marine Mammal Monitoring and Mitigation Plan (4MP) discusses both the proposed safety and harassment monitoring radii and reporting requirements in detail. The 4MP will be subject to review by the National Marine Fisheries Service (NMFS) who may require further refinements to the 4MP. Marine mammals are protected by the Marine Mammal Protection Act (MMPA) which is implemented by NMFS. The Division recognizes NMFS authority on this issue and that SAE has appropriately engaged in regulatory processes related to marine mammals. See Standard Stipulation #4.

Appendix C: Map



SAExploration Upper Cook Inlet