ConocoPhillips Alaska, Inc.
Proposed Exploration Program
2007-2012

Amendment to August 5, 2005 Petition for Incidental Take Regulations
50 CFR Part 18, Subpart J

This amendment to the August 5, 2005 petition for Incidental Take regulations includes some background information on various exploration activities that may be conducted by ConocoPhillips Alaska, Inc. (CPAI) in the next 5-year period (2007-2012), based on our current knowledge. A range of scenarios is presented for evaluation by the US Fish and Wildlife Service (Service) Marine Mammal division, in their development of these regulations.

The geographic region of activity encompasses an area extending approximately from Pt. Hope on the west to Point Barrow on the east, and 40 km (25 mi) inland from the coast to approximately 120 km (200 mi) offshore including waters in the Chukchi Sea (Figure 1).

Activities over the next five-year period can be expected to involve seismic activities to determine the presence of new hydrocarbon deposits (both onshore and offshore), and exploration drilling (both onshore and offshore) to verify hydrocarbon accumulations.

Because of the large number of variables influencing exploration activity, any predictions of exact dates and locations of these operations over the next five years would be speculative. The specific dates and durations of the individual operations and their geographic locations will be set forth in detail when requests for Letters of Authorization (LOA) are submitted to the Service.

This amendment is organized into two primary sections. Section I includes background information on geological and geophysical surveys and exploratory drilling. Section II presents information about current and possible future CPAI programs within the timeframe of the proposed regulations.

I. BACKGROUND

Geological and Geophysical Surveys

Geological and geophysical surveys are conducted to gather information about subsurface geology. Geophysical surveys can be divided into two classes: deep seismic and shallow hazard. Deep seismic surveys generally map deep strata beneath the surface of the earth (0.30 km to 6.1 km [0.2 to 3.7 mi] below ground level), in search of gas and oil-bearing rock formations. Shallow hazard surveys, also known as "site

clearance" or "high resolution surveys" are conducted to gather information on near-surface hazards (less than 305 m [0.2 mi] below ground level), which could be encountered during drilling.

Geotechnical Site Investigation

Shallow cores provide information about soil conditions that can assist in exploration efforts. Soil borings such as piston core sampling, define the soil stratigraphy and geotechnical properties at select points and may be integrated with seismic data to develop a regional model for predicting soil conditions in areas of interest. Soil corings may also be drilled to better understand soil conditions for planning scenarios surrounding foundation design for any planned structure (e.g. bottom-founded rig or platform).

Reflection Seismic Exploration

Deep seismic and shallow hazard surveys use the "reflection" method of data acquisition. Reflection seismic exploration is the process of gathering information about the subsurface of the earth by measuring acoustic (sound or seismic) waves, which are generated on or near the surface. Acoustic waves reflect at boundaries in the earth that are characterized by acoustic impedance contrasts. The acoustic impedance of a rock layer is its density multiplied by its acoustic velocity. Geologists and geophysicists commonly attribute different rock characteristics to different acoustic impedances. Seismic exploration uses a controlled energy source to generate acoustic waves that travel through the earth (including sea ice and water, as well as sub sea geologic formations), and then uses sensors to record the reflected energy transmitted back to the surface.

The basic components of these survey types include an energy source (either acoustic or vibratory), which generates a seismic signal; hydrophones or geophones, which receive the reflected signal; and electronic equipment to amplify and record the signal. The number and placement of sensors, the energy sources, the spacing and placement of energy input locations, and the specific techniques of recording reflected energy are broadly grouped as "parameters" of a given exploration program.

The number and placement of sensors, the energy sources, the spacing and placement of energy input locations, and the specific techniques of recording reflected energy may vary depending on the program. A typical program could include towing an air gun array and receiver system behind the seismic vessel. Each array has two subarrays. On average there can be 6 to 8 cables approximately 4,000 meters in length spaced 100 meters apart. Each source array consists of two identically tuned Bolt gun sub-arrays operating at 2000 psi air pressure. The arrays fire on interleaved 50-meter intervals and are designed to focus energy in the downward direction. The two subarrays would be approximately 1695 cubic inches in size and spaced about 50 meters apart. Together the two arrays would be approximately 3390 cubic inches in size. The sub-array that discharges the sound is composed of six tuning elements; two

2-gun clusters and four single guns. The clusters have their component guns arranged in a fixed side-by-side fashion with the distance between the gun ports set to maximize the bubble suppression effects of the clustered guns.

Vibroseis

Vibroseis seismic operations are conducted both onshore and nearshore using large trucks with vibrators that systematically put variable frequency energy into the earth. A minimum of 1.2 m (4 ft) of sea ice is required to support heavy vehicles used to transport equipment offshore for exploration activities. These ice conditions generally exist from 1 January until 31 May. The exploration techniques are most commonly used on landfast ice, but they can be used in areas of stable offshore pack ice. Several vehicles are normally associated with a typical vibroseis operation. One or two vehicles with survey crews move ahead of the operation and mark the source receiver points. Occasionally, bulldozers are needed to build snow ramps on the steep terrain or to smooth offshore rough ice within the site.

A typical wintertime exploration seismic crew consists of 40-140 personnel. Roughly 75 percent of the personnel routinely work on the active seismic crew, with approximately 50 percent of those working in vehicles and the remainder outside laying and retrieving geophones and cable.

With the vibroseis technique, activity on the surveyed seismic line begins with the placement of sensors. All sensors are connected to the recording vehicle by multi-pair cable sections. The vibrators move to the beginning of the line, and recording begins. The vibrators move along a source line, which is at some angle to a sensor line. The vibrators begin vibrating in synchrony via a simultaneous radio signal to all vehicles. In a typical survey, each vibrator will vibrate four times at each location. The entire formation of vibrators subsequently moves forward to the next energy input point *(e.g.*67 m [220 ft] in most applications) and repeats the process. In a typical 16- to 18-hour day, a survey will complete 6 to 16 linear km (4-10 mi) in 2D seismic operation and 24 to 64 linear km (15-40 mi) in a 3D seismic operation.

Side-Scan Sonar

One of the most accurate systems for imaging large areas of the ocean floor is called side scan sonar. This is a towed system that normally functions when it is moving in a straight line. Somewhat similar to side looking airborne radar (SLAR), side scan transmits a specially shaped acoustic beam 90 degrees from the support craft's path, and out to each side. This beam propagates into the water and across the seabed. The roughness of the floor of the ocean and any objects laying upon it, reflect some of the incident sound energy back in the direction of the sonar.

Typical deployment of side scan sonar (i.e. launching, towing and controlling the system) is an important aspect of gaining the best imagery possible. The transducer assembly (towfish) is normally towed behind and below the surface vessel. It has a

hydrodynamic shape containing the transducers and electronics and a set of tail fins to keep the towbody in line with the tow track. Although side scan applications are varied, the most common uses of imaging the seabed with this instrument are: 1) Overall survey to locate pipeline or cable routes, seamounts, obstruction and other features; 2) Target search operations where small but discrete objects are lost and require pinpointing; and 3) Mapping where large sections of seabed need to be imaged accurately. CPAI's interest in this technology would fall under categories 1 and 2 above.

Vertical Seismic Profiles

Vertical Seismic Profiles (VSPs) can be conducted onshore and offshore, and involves lowering geophones into a hole and repeatedly activating the energy source. VSPs are elaborate check shots that are used to calibrate seismic sections to well data (i.e., to correlate the reflections on the seismic data with formations seen during drilling). VSPs are a form of well logging, and they differ from the more conventional logging activities in that they are conducted off the drill pad. VSP operations are usually staffed by less than eight people. If conducted onshore during winter, four or five of the operators remain in the vehicles (vibrators) within 1.6 to 3.2 km (1-2 mi) of the rig, while the others are located at the rig. If conducted offshore, four or five operators operate an airgun configuration within 1-2 mi of the rig

Exploration Drilling

Onshore Drilling

Ice Pads, Roads and Islands

Ice roads provide seasonal routes for heavy equipment and supplies to be moved to remote areas. These temporary, seasonal roads are constructed by spreading water from local sources (lakes or rivers) to create a rigid surface. For grounded ice roads in shallow (< 2 m) waters, seawater is initially used for the foundation and the ice road is eventually "capped" with freshwater, strengthening it. Floating ice roads may also be constructed in deeper water. Ice bridges may be constructed to provide winter access across frozen rivers; ice airstrips are built in the same manner as ice roads. Ice drilling pads are commonly used for winter exploration pads and measure 500 ft by 500 ft. Ice pads are built in a similar way to ice roads and airstrips, described above. The thickness of ice roads, pads and bridges will depend on the loads that must be supported and on terrain to be crossed; thickness can range from 15 cm (6 in) to 3 m (10 ft).

New designs for ice pads have allowed what used to be a single season structure to remain intact through summer, and thus, be used for more than one drilling season. CPAI may construct at least one oversummering ice pad during the 5-yr timeframe.

Offshore Drilling

Offshore ice islands and offshore ice roads are built using similar techniques to their onshore counterparts as described previously. CPAI is not currently planning to construct offshore ice islands or ice roads in the Chukchi Sea.

The principal drilling structures proposed for use during an offshore exploration program in the Chukchi Sea would be by Drillship and/or bottom-founded structure. CPAI is currently evaluating different types of rigs to satisfy the environmental conditions.

Drillships

Drillships are used in arctic waters deeper than 18 to 24 m (60-80 ft). Drillships can also drill in waters less than 24 m (80 ft) deep thus there may be some overlap in areas where drillships and bottom-founded structures can be used. Drillships are typically ice-reinforced and classified for use in the arctic environment. As an example, the drillship CANMAR Explorer III can carry a maximum of 103 people.

Drillships operate only during the open-water season, and drifting ice can prevent their operation. Upon reaching the drill site, the vessel is secured over the location by deploying anchors on as many as ten to twelve mooring lines. These lines are drawn taut to fix the ship's location and prevent significant movement. The drill pipe is encased in a riser that compensates for the vertical wave motion. The blowout preventer (BOP) is typically located at the seabed in a hole dug below the ice-scour depth. BOP placement is an important safety feature enabling the drillship to shut down operations and get underway rapidly without exposing the well.

One or more ice management vessels (icebreakers) generally support drillships to ensure ice does not encroach on operations. A barge and tug typically accompany the vessels to provide a standby safety vessel, oil spill response capabilities, and refueling. Most supplies (including fuel) necessary to complete drilling activities are stored on the drillship and support vessels. Helicopters based at existing shore facilities could transfer personnel and additional equipment if other vessels are not available. Flights to a drillship could average three to four per week.

Bottom-founded Structures

Bottom-founded, or gravity-based structures can be used in water depths ranging from 15 to 150m (49-492 ft) with the actual depth rating dependent on the unit employed. Jack-up rigs have not been used historically for drilling in the U.S. Arctic as they have not been reinforced for ice and classified for use in the arctic environment. Any bottom-founded structure used in the Chukchi Sea for exploration would be sufficiently modified/constructed for operation in arctic conditions.

Modified Jack-up rigs would operate only during the open-water season. The Jack-up unit would require several tugs or supply vessels to mobilize/demobilize to and from the drilling location. Once on location the unit would extend its legs beneath, raising it's hull above sea level. At this point the unit would be fixed in place and would rely on other vessels (2 to 3) for resupply (fuel, materials, food, personnel, and ice management).

Most supplies (including fuel) necessary to complete drilling activities would be transported to the location via supply vessel as storage space during transit is relatively limited on board Jack-up units. Helicopters based at existing shore facilities could transfer personnel if other means of transport were unavailable. Flights to a Jack-up unit could average one or two per day.

One or more ice management vessels may be required to ensure ice does not encroach on operations. These vessels may also be used in the roll of standby safety vessel and oil spill response.

Section II. CPAI proposed exploration program (2007-2012)

Onshore Exploration

Geological and Geophysical Surveys

If there are sufficient data gathered to pursue a pre-development plan in this area, soil borings may be required. This could include transporting a rig mounted on a sled by rolligon, or transporting a rig via helicopter, nearby villages or other nearby infrastructure such as old exploration sites. These geological surveys may be conducted annually for at least a 2-year period during these regulations.

Seismic Acquisition Program

Between one and five vibroseis seismic programs may be conducted onshore within the NW NPR-A using over the next 5 years using vibroseis technology as described earlier in Section I. Figure 2 depicts the NW NPR-A, including private lands south and west of Barrow.

A typical wintertime exploration seismic crew would consist of 40-140 personnel. Roughly 75 percent of the personnel routinely work on the active seismic crew, with approximately 50 percent of those working in vehicles and the remainder outside laying and retrieving geophones and cable. A typical seismic operation, including the camp facilities, could include up to 20 or 30 pieces of equipment.

In a typical 16- to 18-hour day, a survey will complete 6 to 16 linear km (4-10 mi) in a 2D seismic operation and 24 to 64 linear km (15-40 mi) in a 3D seismic operation.

In addition to the seismic equipment, support equipment could include:

- Bulldozers and Challengers to pull the CAT train and geophone trailers;
- Haaglunds,Tucker Sno-Cats and wheeled vibe trucks may also be used to support seismic acquisition; and
- A mixture of low pressure tire and track vehicles, with the majority comprised of low pressure equipment.

During exploration, the following procedures would be followed with respect to solid waste management:

- food waste and burnables would be handled by an onsite incinerator;
- Other solid wastes would be shipped offsite to permitted facilities

Exploration Drilling

Private Lands

In 2007, ConocoPhillips Alaska, Inc. proposes to drill up to three wells south of Barrow near the NSB's Walakpa gas field on private lands. The extent of the potential project area onshore could include ASRC and/or UIC acreage (Figure 2).

Drilling is likely to also include well testing and VSPs. It is estimated that another 3 to 5 wells could be drilled in this area within the next 5 years, during exploration.. In support of these activities, CPAI estimates that the following associated infrastructure would be required. Approximate ranges of infrastructure are estimated, for purposes of this amendment.

- Transportation Support
  - 20 to 80 miles of ice roads;
  - 20 to 300 miles of rolligon trails;
  - 1 to 2 airfields, of approximately 5,000 feet in size. Airfields would be located on local lakes or on tundra, depending on site conditions;
  - Storage of rigs and/or support equipment may occur in Barrow at various existing facilities, in consultation with local businesses;
  - Some barging of equipment to and from Barrow from existing facilities (West Dock, Oliktok Point) may also be required during this period.

- Camp Infrastructure Support
  - From 2 to 4 camps would be required to support winter drilling, depending on the distance between the drilling activities.
  - These support camps typically include:
    - rig camps;
    - various well services shacks;
    - rig shops;
    - well testing skids;
    - well testing tank farms;
    - diesel tankage; and
    - telecommunication systems.

Waste Handling would be addressed in a variety of ways, depending on the waste stream:

- Cuttings would be stored temporarily onsite, in accordance with ADEC regulations;
- Food waste and burnables would be handled by an onsite incinerator;
- Other solid wastes would be shipped offsite to permitted facilities; and
- Annular injection of drilling fluids may occur if approved by agencies. Otherwise they would be shipped offsite for disposal at Alpine or another permitted facility.

Spill prevention and response capabilities would follow procedures outlined in CPAI's ODPCP plan approved by ADEC, including:

- Placement of a connex containing response equipment and materials onsite;
- Having access to mutual aid support.

Federal Lands

Over the next 5 years, an estimated total of 3 to 6 onshore wells may be drilled. Drilling will likely include well testing and VSPs. Three onshore wells are proposed for 2007.

The geographical extent of the potential project area includes existing lease blocks in NW NPR-A, as well as lease blocks to be proposed by BLM over the next 5 years (Figure 2).

CPAI estimates that the following associated infrastructure would be required to support an onshore exploration drilling program. Approximate ranges of infrastructure support are estimated, for purposes of this amendment.

- Transportation Support
  - 20 to 100 miles of ice roads
  - 20 to 300 miles of rolligon trails
  - 1 to 4 airfields, approximately 5,000 feet in length on lakes or tundra, depending on site conditions

  - Activities would likely store materials and equipment at various business locations in Barrow or at sites with infrastructure support in NPR-A such as Cape Simpson, or Inigok. Any rig storage in the summer would occur on gravel at any of the abovementioned sites, or possibly any new sites in NE-NPRA.

- Camp Infrastructure Support
  - From 1 to 5 camps would be required to support winter drilling
  - These support camps typically include:
    - rig camps;
    - various well services shacks;
    - rig shops;
    - well testing skids;
    - well testing tank farms
    - diesel tankage
    - telecommunication systems

- Number of Rigs Operating
  - There could be from 1 to 3 rigs operating in any given year during this period.

Waste Handling would be addressed in a variety of ways, depending on the waste stream:

- During exploration, cuttings would be stored temporarily onsite, in accordance with ADEC regulations;
- Food waste and burnables would be handled by an onsite incinerator;
- Other solid wastes would be shipped offsite to permitted facilities; and
- Annular injection of drilling fluids may occur if approved by agencies. Otherwise they would be shipped offsite for disposal at Alpine or another permitted facility.

Spill prevention and response capabilities would follow procedures outlined in CPAI's ODPCP plan approved by ADEC, including:

- Placement of a connex with stored response equipment and materials onsite;
- Having access to mutual aid support.

Mitigation and Monitoring for Onshore Exploration

All project personnel will be required to adhere to the Polar Bear Avoidance and Interaction Plan, prepared by CPAI. A polar bear interaction plan was submitted to the Service for all exploration activities in July 2006. Any site specific issues will be identified during permitting and attached as an addendum to the Plan, if necessary. Additionally, requests for Letters of Authorization (LOA) to 'take' polar bears during the exploration permitting process will be done on a project by project basis.

The polar bear interaction plan provides the basis for minimizing polar bear encounters through personnel control, lighting, snow clearance, garbage control, agency communication, site clearance, and site-specific safety briefings for polar bear awareness. The specific details of each plan will be revised based on the knowledge of polar bear locations provided by the USGS BRD and a identification of potential polar bear habitat by Marine Biologists with the Service.

OFFSHORE EXPLORATION

CPAI proposes that exploration activities in the Chukchi Sea could include geological and geophysical surveys and exploration drilling, conducted on an annual basis beginning in 2008, depending on the level of activity proposed. The area of interest is within the Lease Sale 193 area, although CPAI will likely only be active in <5% of the entire area, depending on the outcome of the 2007 sale.

Geology and Geophysical Surveys

Other marine projects in addition to exploration seismic or drilling activities could include geotechnical surveys such as shallow hazard surveys prior to placing a drilling rig structure. These surveys may be conducted annually between 2008 and 2012.

Depending on the outcome of the 2007 lease sale by MMS, CPAI may want to conduct additional geotechnical or engineering design studies to better understand physical oceanographic events such as ice movement and/or scouring.

In addition, depending on the results of exploration drilling, other subsea activities may be conducted to identify potential pipeline routes, or bottom founded completion systems for pre-development evaluations during this regulatory timeframe. These could include activities such as side-scan sonar (described in Section I) which could be conducted on a similar schedule as the geologic surveys.

Seismic Surveys

During the summer of 2006, ConocoPhillips Alaska, Inc. conducted seismic acquisition operations within the Chukchi Sea. Seismic operations are planned to be conducted within the proposed OCS planning area again in 2007. Proposed operations within the next 5 years could include seismic operations each year and the drilling of up to approximately 10 exploration wells (assume 2 wells per year beginning in 2008). The anticipated area of interest for the seismic and exploration well activities is presented in Figure 3.

Open water seismic operations would include one primary seismic source vessel and up to 3 support vessels. Seismic acquisition would be conducted during the summer open water season, generally between July and November. No aerial survey efforts would be planned to monitor seismic activities. There may be opportunities to use aircraft for multi-stakeholder research during the timeframe of these regulations. CPAI anticipates

testing and ultimately using unmanned aerial systems (UAS) to assist with monitoring sea ice and marine mammal locations.

Approximately 100 linear miles of 3D data can be acquired each day if weather conditions allow. For a season between 60 and 90 days, approximately 6,000 to 9,000 linear miles of 3D data can be collected.

Seismic operations could involve both 2D and 3D data collection in the Chukchi Sea, with emphasis on 3D data collection.

The zone of ensonification from seismic operations can be modeled using existing data, followed by onsite measurement prior to operations. As an example, for 2006 operations, a third-party contractor to CPAI conducted a verification test of the areas to be ensonified by CPAI operations. The resultant ensonification zones for the 3390 cubic inch system, using established NMFS decibel thresholds for pinnipeds were < 0.5 km at 190 dB.

The use of side scan sonar for detecting ice scouring and gouging will be important for pre-development planning. Side scan sonar could be used annually in the Chukchi Sea, beginning in 2008.

Mitigation and Monitoring for Seismic Acquisition

Mitigation measures for offshore seismic activities would include using qualified marine mammal observers to monitor the location of marine mammals relative to the seismic operation. The operation has established shutdown procedures should a marine mammal be seen in the exclusion zones identified for protection of pinnipeds. Also, there are ramp up procedures in place to slowly start firing guns over a 30 minute period in an effort to provide opportunity for marine mammals to move away from the area prior to full operation.

Although monitoring operations in the remote Chukchi Sea have primarily involved a vessel-based program, CPAI will be testing the use of unmanned aerial systems for assistance with monitoring of both Pacific walrus and polar bears.

In addition to the monitoring and mitigation procedures for pinnipeds, CPAI has prepared a Polar Bear Avoidance and Interaction Plan for activities conducted in locations with the potential to encounter polar bears. This is standard practice for all of CPAI operations along the coast, with additional training on polar bear awareness for all employees. A copy of the Plan submitted to USFWS in 2006 is attached. Similarly, a Plan for avoidance and interaction with Pacific Walrus encountered in the project area will be followed by crews working offshore. Our July 2006 plan is attached for reference.

Exploration Drilling

Within the next 5 years, CPAI may place an exploration rig within the waters of the Chukchi Sea's Lease Sale 193 area. In addition to drilling, other activities conducted during this period could include well testing and VSPs (see description above). The type of exploration rig would likely be a drillship or a bottom-founded rig such as a reinforced jack-up rig. These technologies are described in Section I above. It is anticipated that an artificial island or concrete drilling structure would not be an option due to the high water depth.

Exploration drilling would be conducted from July through November, weather permitting. An ice breaker escort may be required around the drilling rig to keep ice flows away in the early and late part of the season. A barge and tug could accompany the vessels to provide a standby safety vessel, oil spill response capabilities, and refueling. Some level of helicopter support to transport personnel or to respond to medical emergencies is also a possibility. Use of helicopters is expected to be minimal during drilling.

Discharge of muds and cuttings will likely occur through reinjection into the subsurface, in accordance with NPDES permit requirements. Muds and cuttings may also be injected if possible. Gray water and solid waste discharges will be treated using NPDES and/or USCG approved sanitary devices and discharged. Other drilling related wastes will be discharged or shipped offsite according to applicable regulatory requirements.

Any well requiring abandonment will be plugged with cement with the casing cut at the sea floor.

Mitigation and Monitoring for Drilling

To minimize the potential for disturbance to polar bears and walruses created by aircraft traffic, aircraft will maintain minimum altitudes of 305 m (1,000 ft) ASL (except during takeoff, landings, or poor weather conditions). Pilots will be instructed to avoid flying over marine mammals and would be prohibited from making close approaches except when stipulated in a permit. Most flights would likely be in nearshore areas where walruses are not normally found. Aircraft corridors would be negotiated between the industry and appropriate agencies to minimize impacts to sensitive areas or species.

Vessel traffic would divert around walruses wherever practical, avoid haulout areas and make every effort to avoid disturbing the animals. Walrus sightings would be recorded and reported to the relevant authorities. Most vessel traffic is not anticipated to be in preferred walrus habitat (i.e., the pack ice edge), thus further avoiding potential impacts.

If animals are sighted at close range (i.e., within the designated pinniped safety radius), mitigation measures that will include power-or shutdown procedures, and no start up of airgun operations unless the full 190 dB safety zone is visible for at least 15 min

A polar bear interaction plan has been submitted to the USFWS for all activities. Any site specific issues will be identified during permitting and requests for Letters of Authorization (LOA) to 'take' polar bears during the exploration permitting process. The polar bear interaction plan provides the basis for minimizing polar bear encounters through personnel control, lighting, snow clearance, garbage control, agency communication, site clearance, and site-specific safety briefings for polar bear awareness. The specific details of each plan are revised based on the knowledge of polar bear locations provided by the USGS BRD.

As stated previously, in 2006 monitoring operations in the remote Chukchi Sea primarily involved a vessel-based program, CPAI will be testing the use of unmanned aerial systems (UAS) for assistance with monitoring both Pacific walrus and polar bears.