December 18, 2009

U.S. Fish and Wildlife Service
Marine Mammals Management
Attn: Craig Perham
1011 East Tudor Road, MS-341
Anchorage, AK 99503

Re: Request for Letter of Authorization for the Incidental Take of Polar Bears and Pacific Walrus and Intentional Take of Polar Bears by Harassment; Statoil USA E&P Inc.; 2010 3D Seismic Acquisition; Chukchi Sea, Alaska

Dear Mr. Perham:

Statoil USA E&P Inc. (Statoil) plans to conduct a three-dimensional (3D) marine seismic survey in the Chukchi Sea during the 2010 open-water season using a towed airgun array. Additional stand alone two-dimensional (2D) lines designed to tie into surrounding regional geology and existing well control are a secondary priority. The seismic survey is designed to collect 3D data of the deep sub-surface within Statoil lease holdings obtained in the Minerals Management Service Outer Continental Shelf Lease Sale 193 in the Chukchi Sea. This project is designed to support future oil and gas development within the area of coverage. Although data acquisition is expected to take 60 days, all permits will be requested from July 15 to November 30, 2010 to allow for contingencies and weather delays. The proposed seismic survey will be conducted by Fugro-Geoteam, Inc.

Statoil requests a Letter of Authorization (LOA) from the U.S. Fish and Wildlife Service (USFWS) for the incidental take of polar bear and Pacific walrus in accordance with 50 CFR 18, Subpart I - Nonlethal Taking of Pacific Walruses and Polar Bears Incidental to Oil and Gas Exploration Activities in the Chukchi Sea and Adjacent Coast of Alaska. Statoil is also requesting intentional take of polar bear by harassment in accordance with Section 101(a)(4)(A) and 109(h) of the Marine Mammal Protection Act of 1972. This letter is submitted to fulfill the requirements regarding incidental, unintentional take of protected marine mammals under 50 CFR 18, Subpart I.

As part of the application for an LOA from the USFWS, Statoil will demonstrate that consultation with potentially affected subsistence communities along the Chukchi Sea coast has been performed in accordance with 50 CFR 18.114(c)(4) by developing a Plan of Cooperation (POC). The POC specifies community consultation and identifies any potential conflicts with subsistence walrus and polar bear hunting activities.

Company
Statoil USA E&P Inc.

Address
2103 CityWest Blvd., Suite 800
Houston, TX 77042

Telephone
713-918-8200

Telefax
713-918-8290

Internet
www.statoil.com

Statoil met with community leaders, including the North Slope Borough (NSB) Planning Commission and NSB Wildlife Department, in late October 2010 to discuss the project and obtain feedback. Based upon their input, a draft POC document is being developed. The draft POC will be distributed to the potentially affected subsistence communities for review prior to planned public meetings in January 2010.

Statoil will hold public meetings in Barrow, Wainwright, Point Lay, and Point Hope, Alaska in early 2010 to inform the communities of the proposed project. At these meetings, Statoil will present its program and will be prepared to discuss local concerns regarding the potential impacts to subsistence activities or resources. Based upon the discussions held and comments obtained at these public meetings, a final POC will be developed and submitted to subsistence users and appropriate regulatory agencies.

Any potential impacts from the proposed project on the polar bear and Pacific walrus populations of the Chukchi Sea are likely to be short-term and transitory (e.g., from temporary displacement of individuals or small groups of marine mammals that may be exposed to the proposed activities). The proposed activities will not result in any permanent impact on habitats used by marine mammals or their prey sources. There should be no adverse impacts on the availability of marine mammals for subsistence users.

Items presented pursuant to 50 CFR 18, Subpart J are attached. A complete project description is provided in the Plan of Operations (Attachment A). The Polar Bear and Pacific Walrus Monitoring, Mitigation, and Reporting Plan is included as Attachment B and the Polar Bear and Pacific Walrus Awareness and Interaction Plan is included as Attachment C.

Please contact us if you have any questions or need additional information.

Sincerely,

Martin Cohen
Alaska Exploration Manager
Statoil USA E&P Inc.

Enclosures: Attachment A – Plan of Operations
Attachment B – Polar Bear and Pacific Walrus Monitoring, Mitigation, and Reporting Plan
Attachment C – Polar Bear and Pacific Walrus Awareness and Interaction Plan

Company Statoil USA E&P Inc.
Address 2103 CityWest Blvd., Suite 800 Houston, TX 77042
Telephone 713-918-8200
Telefax 713-918-8290
Internet www.statoil.com

cc:
Candace Nachman, National Marine Fisheries Service
Joel Garlich-Miller, USFWS
Rance Wall, MMS Resource Evaluation
Pete Sloan, MMS Resource Evaluation
Jeff Walker, Field Operations Supervisor, MMS
Taqulik Hepa, NSB Wildlife Department
Robert Suydam, NSB Wildlife Department
Karin Berentsen, HSE and Stakeholder Advisor, Statoil
Caren Mathis, AES
Lisanne Aerts, LGL
AES Project File
Administrative Record

MT/NS/MA 15325-01-09-001/09-133

Company
Statoil USA E&P Inc.

Address
2103 CityWest Blvd., Suite 800
Houston, TX 77042

Telephone
713-918-8200

Telefax
713-918-8290

Internet
www.statoil.com

Plan of Operations
2010 3D Seismic Acquisition
Chukchi Sea, Alaska

December 2009

Prepared for

Statoil USA E&P Inc.
2103 CityWest Boulevard, Suite 800
Houston, TX 77042

Prepared by

ASRC Energy Services
a subsidiary of Arctic Slope Regional Corporation
Regulatory and Technical Services

2700 Gambell Street, Suite 200
Anchorage, Alaska 99503

Table of Contents

List of Figures

List of Appendices

ACRONYMS AND ABBREVIATIONS

2D	two-dimensional
3D	three-dimensional
cu in	cubic inch
ft	foot/feet
Fugro	Fugro-Geoteam, Inc.
km	kilometer(s)
m	meter(s)
mi	mile(s)
MMO	Marine Mammal Observer
MMS	U.S. Department of the Interior, Minerals Management Service
M/V	marine vessel
NMFS	National Marine Fisheries Service
OCS	Outer Continental Shelf
POC	Plan of Cooperation
SAR	search and rescue
sq km	square kilometer(s)
sq mi	square mile(s)
Statoil	Statoil USA E&P Inc.
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

Statoil USA E&P Inc. (Statoil) plans to conduct a three-dimensional (3D) marine seismic survey in the Chukchi Sea approximately 100 miles (mi) northwest of Wainwright during the 2010 open water season using a towed airgun array. Some two-dimensional (2D) lines designed to tie the 3D data to the surrounding regional geology are a secondary priority for the 2010 seismic acquisition. The program is designed to support future oil and gas exploration within the area of coverage.

2.0 PURPOSE

Statoil acquired 16 leases in the Chukchi Sea during Lease Sale 193 held in February 2008. The lease areas in which the proposed 2010 3D seismic survey is planned are located in the Alaskan Chukchi Sea northwest of Wainwright and west of Barrow (Figures 1 and 2).

The purpose of the proposed seismic survey is to collect seismic reflection data to reveal the sub-bottom profile for assessments of petroleum reserves in the area. Ultra-deep 3D lines will be used to better evaluate the evolution of the petroleum system at the basin level, including identifying source rocks, migration pathways, and play types.

Obtaining some stand alone 2D lines that tie the details of high resolution 3D imagery to the surrounding regional geology is a secondary priority. The limited 2D program has been designed to allow the acquisition of useful information in the region.

3.0 PROJECT OVERVIEW

Geophysical data acquisition activities will be conducted by Fugro-Geoteam, Inc. (Fugro), Statoil's seismic contractor. Three vessels – including a seismic vessel and two support vessels will mobilize out of Dutch Harbor, Alaska, to the project area in mid-July 2010, depending upon ice and weather. It is anticipated that transit time to the project area will be roughly five days. Upon arriving at the project area sound source verification measurements will be collected to determine radii for marine mammal monitoring. Data acquisition is expected to take 60 days. Upon completion of data acquisition, all vessels will demobilize to Dutch Harbor. Although data acquisition is expected to take 60 days, all permits will be requested from July 15 to November 30, 2010 to allow for contingencies and weather delays.

3.1 Vessels and Equipment

The vessels involved in the seismic survey activities will consist of the three vessels listed below. Details of these vessels (or equivalent vessels if availability changes) are provided in Appendix A.

- One (1) seismic vessel, the marine vessel (M/V) *Geo Celtic* or similar equipped vessel, towing a 3,000 cubic inch (cu in) airgun array of airgun and hydrophone streamers for data acquisition
- One (1) support/environmental monitoring vessel, the M/V *Thor Alpha* or similarly equipped vessel for marine mammal monitoring, support, and supply duties
- One (1) support/environmental monitoring/crew transfer vessel, the seismic support vessel *Gulf Provider* or similarly equipped boat for marine mammal monitoring, crew transfer, support, and supply duties.

Vessel duties will be under the supervision of the Master on M/V *Geo Celtic.* Changes will be made to adjust to the operational requirements.

Either the M/V *Thor Alpha* or seismic support vessel *Gulf Provider* will be available for deployment and retrieval of acoustic recorders for sound source verification measurements. Vessel photographs and equipment specifications are presented in Appendix A.

3.2 Operations Information

The seismic source vessel and support vessels will be self-contained and the crew will live aboard the vessels. Crew changes are planned to be conducted primarily by boat at least once during the project. Nome will be the main port for resupply and crew changes during the survey. Emergencies will be covered by a search and rescue (SAR) helicopter stationed in Barrow. However, if necessary, personnel or equipment may be transferred through Barrow or Wainwright in case of emergency or other unforeseen circumstances.

Refueling is anticipated to take place at Nome, though it is possible that fuel re-supply could occur at sea if necessary. Helicopter operations are not planned as a part of the seismic survey, although it is possible that individuals could be transported to and from vessels via helicopter. In general, helicopter operations are expected to occur only in the case of an emergency.

Marine mammal observers (MMOs) will be located on the bridge or weatherdecks of M/V *Geo Celtic* to watch for marine mammals during the transit to the survey area, seismic data acquisition, and transit back to Dutch Harbor. One or more support/environmental monitoring vessels will be used to protect the streamers from damage; for supply; and for monitoring activities, as required. All support/environmental monitoring vessels will have MMOs onboard and will be responsible for marine mammal monitoring and mitigation as required by permit stipulations. Support/environmental monitoring vessels will not be introducing sounds into the water beyond those associated with normal vessel operations.

4.0 PROJECT DETAILS

4.1 3D Seismic Survey

The 3D data acquisition will use a towed airgun array consisting of 26 active airguns with a maximum discharge volume of 3,000 cu in. The survey area has been reduced to the maximum extent possible and covers 2,368 square kilometers (sq km) area (915 square miles [sq mi]).

The M/V *Geo Celtic* has two identical airgun three-string arrays. The arrays will be discharged in an alternating mode, starting with the starboard array. The port array will be discharged eight seconds later (18.75 meters (m) [61.52 feet (ft)] along the line), and then the pattern repeats. The array will consist of 26 (plus 10 spare) Soldera G-guns (four 60 cu in, eight 70 cu in, six 100 cu in, four 150 cu in, and four 250 cu in) with a total discharge volume of 3,000 cu in. One of the smallest guns in the array (60 cu in) will be used as the mitigation gun. The airgun array will be towed at 6 m (20 ft) depth and at a distance of roughly 275 m (900 ft) behind the vessel. More details of the airgun array are the sound signature are described in Appendix B.

The vessel will travel along pre-determined lines at between 4 knots to 5 knots while the airgun array discharges at 8 second intervals (shot interval 18.75 m [61.5 ft]). The hydrophone streamer array will consist of twelve streamers of up to 4,050 m (2.5 mi) in length, with a total of 20,000 to 25,000 hydrophones spaced 2 m (6.5 ft) apart. This large hydrophone streamer receiver array is designed to maximize efficiency, minimize the number of source points, and to minimize environmental effects. The hydrophones will receive the reflected signals from the airgun array and transfer the data to an on-board processing system. A several pinger (ION DigiRANGEII acoustic) system will be used to position the streamer relative to the vessel.

The entire 3D seismic survey program will consist of 5,000 km (3,100 mi) of production line, not including transits. 3D seismic line layout scenarios are provided in Appendix C. Water depth within the survey area is roughly 30 m to 50 m (100 ft to 165 ft).

4.2 2D Seismic Survey

The 2D data acquisition will be dependent upon the 2010 open water season's weather conditions and ice coverage. Obtaining 2D seismic data is a secondary priority. 2D seismic survey data will be obtained if ice conditions restrict access to the 3D seismic survey area or if 3D seismic survey data acquisition progresses better than anticipated.

A maximum of four 2D survey lines will be collected and 2D data acquisition will not exceed 675 linear km (420 mi). 2D data acquisition will use the same vessel, airgun array, and streamer configuration as used for the 3D data acquisition. The vessel will travel along pre-determined lines at 4 knots to 5 knots while the airgun array discharges at 8 second intervals (shot interval 18.75 m [61.5 ft]).

4.3 Project Location

The proposed 3D marine survey will be conducted in the Chukchi Sea in the area of Statoil lease holdings obtained in U.S. Department of the Interior, Minerals Management Service (MMS) Outer Continental Shelf (OCS) Lease Sale 193. The lease areas are located approximately 160 km (100 mi) northwest of Wainwright and 240 km (150 mi) west of Barrow in the Alaskan Chukchi Sea (Figures 1 and 2). The 3D marine survey will take place within a 2,385 sq km (915 sq mi) area, minimum of 145 km (90 mi). The water depth in the survey area varies from 30 m to 50 m (100 ft to 165 ft). 2D survey activities will take place a minimum of 72 km (45 mi) off the coast.

4.4 Project Timeline

Statoil plans to conduct the marine seismic survey between July 15 and November 30, 2010, ice and weather permitting. Project vessels, including the source vessel and all support vessels, will arrive in Dutch Harbor by mid-July 2010. The vessels will be supplied, and the crew, including MMOs, will board at this port. Depending on ice conditions, the vessels will depart Dutch Harbor about mid- to late July and travel to the Chukchi Sea survey area. The anticipated transit time is five days (weather depending).

Upon arrival in the survey area, the source vessel will deploy the airgun array and hydrophone streamers and start operating their guns for the purpose of sound source verification measurements as required by permit stipulations. Data acquisition will take place as soon as possible. Seismic data acquisition is expected to continue for 60 days and be completed in the first half of October, weather depending. This includes seismic data acquisition and anticipated downtime. Data acquisition is expected to occur 24-hours per day. Upon completion of data acquisition, project vessels will demobilize to Dutch Harbor.

5.0 STAKEHOLDER ENGAGEMENT

Statoil intends to maintain an open and transparent process with all stakeholders throughout the life-cycle of activities in the Chukchi Sea. Statoil began the stakeholder engagement process in 2009 with meetings with Chukchi Sea community leaders at the tribal, city, and corporate level. Statoil will continue to engage with leaders, community members, and subsistence groups (as well as local, state, and federal regulatory agencies) throughout the exploration process.

As part of stakeholder engagement, Statoil is developing a Plan of Cooperation (POC) for the proposed 2010 3D seismic acquisition. The POC identifies the actions Statoil will take to identify important subsistence activities, inform subsistence users of the proposed survey activities, and obtain feedback

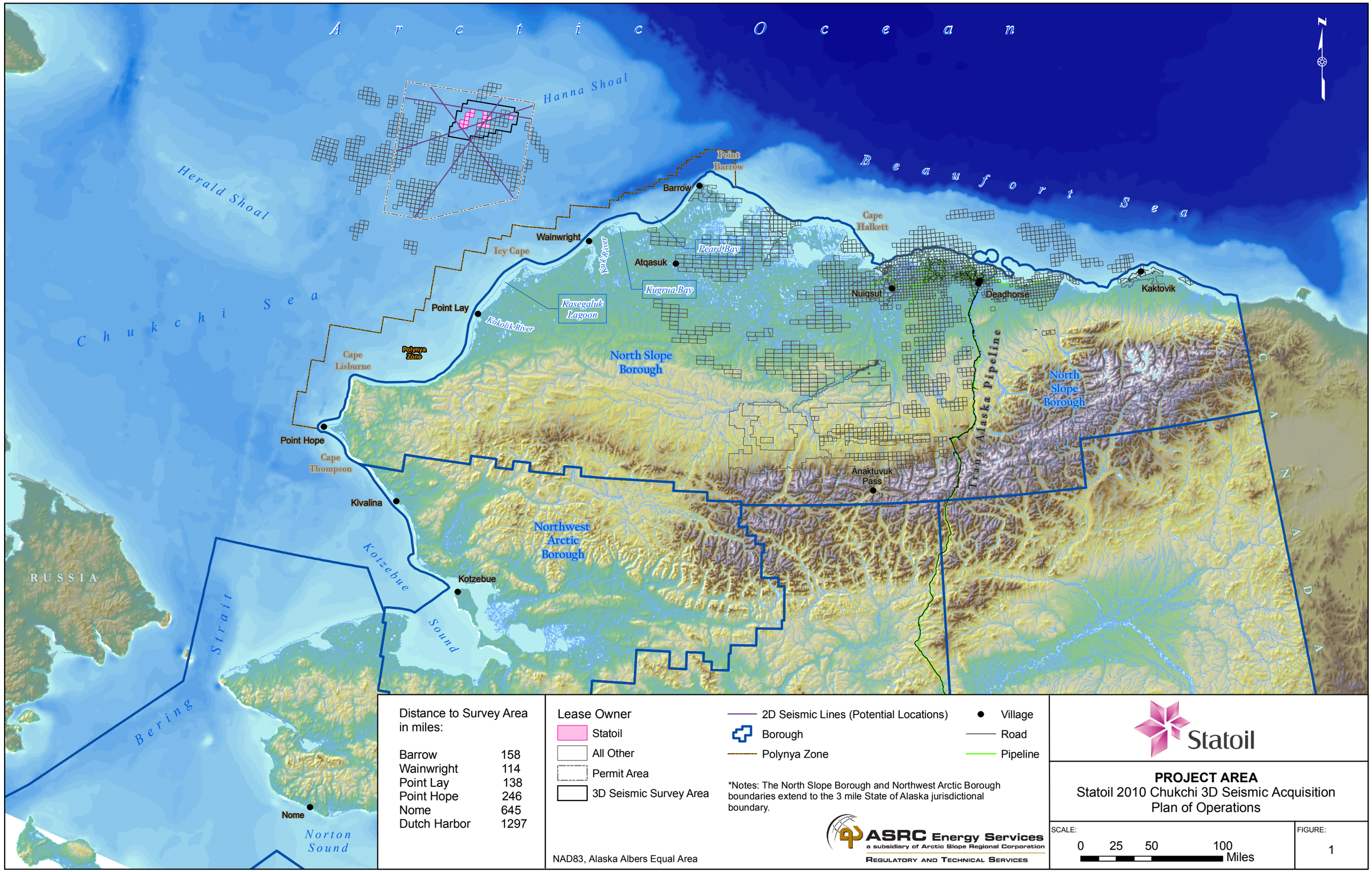
from subsistence users regarding how to provide cooperation between subsistence activities and the Statoil program.

A POC is required to comply with OCS Lease Sale 193 stipulations (Stipulation No. 5) and federal regulatory requirements [50 CFR 216.104(a)(12)ii)]. The POC also fulfills the requirements of three major federal permits: the National Marine Fisheries Service (NMFS) Incidental Harassment Authorization, the U.S. Fish and Wildlife Service (USFWS) Letter of Authorization, and the MMS Geophysical and Geological permit.

Statoil met with leadership from the communities of Barrow, Wainwright, Point Lay, Point Hope, and Kotzebue during the last week of October and the first week of November 2009. Statoil met with leaders both in small groups and a one-on-one basis. These meetings enabled Statoil to introduce themselves and the 2010 3D marine seismic acquisition program to community leaders and to discuss local concerns regarding subsistence activities, timing of operations, and local hire and workforce development.

Based upon these meetings, a draft POC document is being developed. Upon completion, the draft POC will be submitted to each member of the leadership Statoil met with during their October/November leadership meetings as well as a few other community members. Statoil will also submit the draft POC to NMFS, USFWS, and MMS as part of the permit application process. Public POC meetings will be held in January in the communities of Barrow, Point Hope, Point Lay, and Wainwright to obtain input from the general public and individual subsistence hunters within these communities.

A final POC that documents all consultations with community leadership, subsistence users groups, individual subsistence users, and community members will be submitted to NMFS, USFWS, and MMS upon completion of consultation. The final POC will include feedback from the leadership meetings and POC meetings. Statoil will continue to document all consultation with the communities and subsistence stakeholders.



Distance to Survey Area in miles:	
Barrow	158
Wainwright	114
Point Lay	138
Point Hope	246
Nome	645
Dutch Harbor	1297

Lease Owner
- Statoil
- All Other
- Permit Area
- 3D Seismic Survey Area

- 2D Seismic Lines (Potential Locations)
- Borough
- Polynya Zone
- Village
- Road
- Pipeline

*Notes: The North Slope Borough and Northwest Arctic Borough boundaries extend to the 3 mile State of Alaska jurisdictional boundary.

NAD83, Alaska Albers Equal Area

ASRC Energy Services
a subsidiary of Arctic Slope Regional Corporation
Regulatory and Technical Services

Statoil

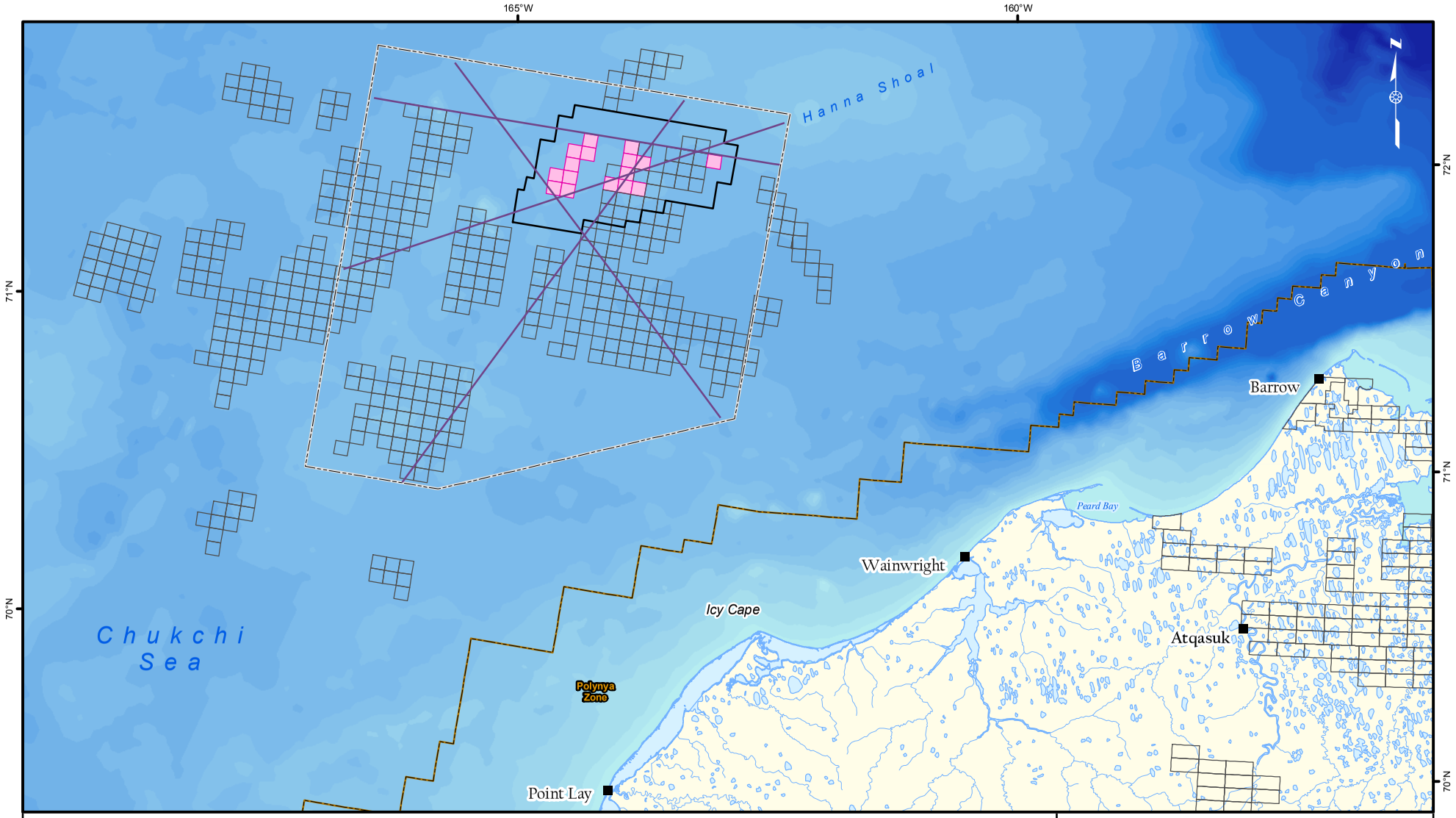
PROJECT AREA
Statoil 2010 Chukchi 3D Seismic Acquisition
Plan of Operations

SCALE: 0 25 50 100 Miles

FIGURE: 1

AES-RTS: 09-155-001.mxd, 12/22/09, R00

THIS PAGE INTENTIONALLY LEFT BLANK



Lease Owner
- Statoil
- All Other

- 3D Seismic Survey
- Permit Area
- 2D Seismic Lines (Potential Locations)
- Polynya Zone
- Village

Statoil

SEISMIC SURVEY AREA
Statoil 2010 Chukchi 3D Seismic Acquisition Plan of Operations

ASRC Energy Services
a subsidiary of Arctic Slope Regional Corporation
Regulatory and Technical Services

SCALE: 0 10 20 40 Miles

FIGURE: 2

NAD83, Alaska Albers Equal Area

AES-RTS: 09-155-002.mxd, 12/22/09, R00

**THIS PAGE
INTENTIONALLY
LEFT BLANK**

APPENDIX A

Vessel Specifications

**THIS PAGE
INTENTIONALLY
LEFT BLANK**

M/V GEO CELTIC

TECHNICAL SPECIFICATIONS

C O N T E N T S

1. VESSEL

1.1. VESSEL GENERAL

Name	M/V Geo Celtic
Operator	Fugro-Geoteam AS
Owner	E Forland AS
Seismic Management	Fugro Norway Marine Services AS
Maritime Management	E Forland AS
Type	3D seismic survey vessel
Port of registration	Bergen, Norway
Flag	Norwegian
Class	DNV = 1A1 ICE-C SF COMF-V(3)C(3) HELDK-SH RP E0 CLEAN DK
Class registration no.	D26988
Call sign	LAKF6
IMO	9376995
MMSI	258966000
Year built/rebuilt	2006/2007
Length overall	100.80 m
Breadth moulded	24 m
Breadth maximum	28 m
Draught, loaded	7.5 m
Tonnage	12109 gross tons, 3633 net tons
Cruising speed	16.0 knots
Operation range	World wide
Endurance seismic days max load	60 days
Main engine	4 x generating set continues engine rating MCR 3780 kW 750 RPM (660 V, 3-phase, 60 Hz)
Gearbox	2 x reduction gear boxes, low noise type for driving C.P. propellers
Propulsion	2 x C.P. propellers of low noise design. Fixed nozzle
Rudder	2 x free hanging type with rope-guard fitted in lower end
Steering gear	2 x Rolls-Royce
Azimuth thruster	1 x retractable, 1500kW with complete electric AC drive
Bow thrusters	1 x fixed pitch, 1200 kW with complete electric AC drive.
Stern thruster	None
Main engine monitoring	Kongsberg-Simrad IAS
Electrical power	690V 60 Hz 3ph, 220V 50 Hz 1ph
Emergency generator	1 x 575 kW
Clean power	100 kW UPS
Fuel capacity	HFO capacity 1825 m^3
Fuel consumption	40 tons per day
Fresh water capacity	257 m^3
Fresh water consumption	15 tons per day
Fresh water generator	2 off FW generators with capacity 15 ton/day
Sewage treatment plant	Yes; for 69 persons
Incinerator	Yes; for 69 persons
Black water	Holding tank cap 32 m^3

Grey water	Holding tank cap 29 m^3
Bilge water	Bilge water separator with 3 m^3/h capacity
Sludge	Holding tank cap 33 m^3
Dirty oil	Holding tank cap 13 m^3
Stabilising system	2 off passive anti-rolling tanks
Deck machinery	
Crane	1 x 5 ton SWL, 16 m knuckle arm handling crane on hangar deck aft cl. 1 x 10 ton SWL, 16 m knuckle arm handling crane on hangar deck stb. 1 x 10 ton SWL, 16 m knuckle arm handling crane on hangar deck ps.
Source handling beams	2 x Odim gun booms with el. drive
Streamer winch	5 x Odim double streamer winch with el. drive 2 x Odim double streamer winch with PF: 12T BF 33 outer & el. drive
Lead-in winch	None
Storage winch	5 x Odim storage winch with el. drive
Spread rope winch	4 x Odim with el. drive
Source winch	8 x Odim capacity 800 m cable, el. drive
Wide-tow winch	2 x Odim wide tow winch 60 ton pulling
Auxiliary winch	5 x Auxiliary winches with el. drive
Drum handling	Electric/hydraulic drum spooling rack
Tow points	12 towing points with blocks
Wide tow shock absorbers	2 x Vestdavit 160 ton
Paravane	Barovane 48
Paravane handling	Odim handling davit
Transverse towing point	2 x Odim 5 ton winches
Hydraulic power pack	Dimo 2 x 305 l/min @ 250 bar
Accommodation	For 69 persons+hospital. All cabins with separate toilets/showers. Some cabins with radio/cd player and some with IMac CD/DVD player
Galley store	Facilities for 70 persons
Mess	Seating for 60 persons
Day rooms	Lounges for smokers and non-smokers with seating for 65 persons
Exercise room	Large exercise room with saunas
Air condition	Air condition with chilled water system for world wide conditions
Helicopter landing zone	Dimensioned and arranged for the operation of Sikorsky S61 helicopters. Deck to be arranged and equipped according to CAA rules CAP 437 / ICAO requirements

1.2. VESSEL NAVIGATION AIDS

Auto pilot	Kongsberg cJoy
DGPS	Furuno
Differential GPS	Furuno
Radar no. 1	Furuno 10 cm ARPA-radar with daylight monitor. Antenna with built-in transmitter
Radar no. 2	Furuno 3 cm ARPA-radar with daylight- and performance monitor. Antenna with built-in transmitter
Gyros	SG Brown Meridian Surveyor with • 1 x digital gyro repeater auto pilot, • 2 x digital gyro repeaters for mounting in bridge wing consoles • 1 x steering repeater • 1 x digital gyro repeater for each steering gear room • 1 x class A magnetic compass • Binnacle, reflector compass, azimuth device, straight vertical reflection tube and hood
Speed log	Furuno DS 80 2-axis doppler log
VHF direction finder	Helicopter beacon
Wind sensor	Seatex 100 HMS
Navigation echo sounder	Furuno FE 700
Electronic chart	TECDIS
Navtex	Furuno
Weather fax	Furuno

1.3. VESSEL COMMUNICATION

GMDSS	Furuno FS-2570 / 1570
Inmarsat C	2 x Furuno
Inmarsat B	Sailor
NorSat	Telenor
M/F and H/F	Furuno
VHF stationary	VHF radio, Icom IC-M401E
VHF portable	VHF radio, Entel HT640
UHF portable	UHF radio, Entel HT780
VHF helicopter communication	1 x VHF/AM 1 x portable VHF/AM with headset
Helicopter non-directional beacon	410 kHz helicopter beacon
Internal communication	PABX telephone system with 120 lines
Telephone numbers	
Inmarsat bridge	+871 600 859066
NorSat bridge	+47 23 25 42 91
NorSat captain office	+47 23 25 42 95
NorSat party chief	+47 23 25 42 92
NorSat client office	+47 23 25 42 97
Fax numbers	
Bridge	+47 23 25 42 90
Internet access via NorSat	
E-mail addresses	
Captain	geoceltic-captain@forlandship.no
Party chief	pc@celtic.fugro.geoteam.no
Client	client1@celtic.fugro.geoteam.no.

1.4. VESSEL SAFETY

Safety manning level	69
Covered lifeboat	2 x 90 persons, one each side
Rescue / FRC	750 Magnum
Workboat / MOB boat	1 MOB boat, fast rescue craft, 7 m long, 200 HP inboard engine and water jet drive. 1 x 9.6 m Westplast workboat, twin water jets, twin streamer winches
Inflatable life rafts	3 x 25 persons
Man overboard life raft	JonBuoy (1 man) with remote release
Survival suits	73 pcs Helly Hansen
Life jackets	73
Life rings	18
Smoke hoods	Draeger “Parat C”
Work vest	Crewsaver 275N
Emergency radios	Jotron TR20
EPIRB	Jotron 45SX
Radar transponders	Jotron Tron SART
Fire detection system	Eltek
Fire pumps	3
Fire suits	4+spares
Halon systems	No
Argonite	Yes
CO2 systems	Yes
Foam deluge system	Yes, in engine room
Lg. portable foam extinguishers	Yes

2. SEISMIC

2.1. SEISMIC RECORDING INSTRUMENT

Type	Sercel Seal, 24 bit digital system
Number of channels	8000
Number of waterbreaks	1 pr. streamer (in HESA Section)
Auxiliary channels	36 channels
Sample rate	¼, ½, 1, 2 and 4 ms
Filters	
Low cut	3 Hz analogue 6 dB/octave plus configurable digital low cut (between 2.5 Hz and 15 Hz @ 6dB/octave). Combined filter slope 12 dB/octave
High cut	Depending on sample rate 0.8 Nyquist @ 370dB/octave linear or min phase
Recording format	SEGD 8058 or 8036
Recording medium	IBM 3592
Raid system	Argus by Profocus
QC system	Argus by Profocus
On-line display	Argus by Profocus
Single channel recorder	Argus by Profocus

2.2. STREAMERS

Type	Sercel Sentinel solid streamer
Length	12 x 6000 m
	Max 1000 channels pr. streamer @ 2ms sampling
Available group interval	12.5 m
Section length	150 m
Groups pr. section	12
Hydrophone type	Sercel Flexible Hydrophone
No. of hydrophones/group	8
Streamer diameter	59.5mm
Streamer sensitivity	19.73 V/Bar @ 22°C
Fault locator	Sercel Seal Digital System
Compasses	ION Model 5011 Compass Bird
Streamer control	ION DigiFIN
	ION Model 5011 Compass Bird
Acoustics	ION DigiRANGE II

2.3. ENERGY SOURCE

Type	Sodera G-Gun
Size of guns	Up to 250 cu. inch
Typical volume	Single source up to 9000 cu. inch Dual source up to 5100 cu. inch
Maximum output @6 m, 0-206 Hz	
Number of sub-arrays	2 x 3 sub-arrays
Configuration	Single source or dual source
Tow width	Typically 10 m between sub-arrays
Firing control	Seamap GunLink 4000 Digital Gun Controller
QC	Seamap GunLink 4000 Digital Gun Controller
Depth transducers	Seamap Digital, Integrated on GFSM Module
Tow system	Sercel rigid gun floats. Self deflecting
Offset	< 600m from stern of ship
Compressor	3 x LMF high pressure compressor units, each 1700 SCFM
Compressor capacity	48 m^3
Air pressure	138 bar = 2000 psig as well as 207 bar = 3000 psig

2.4. NAVIGATION EQUIPMENT

On-line navigation system	Concept Systems Orca
Primary navigation	Fugro Skyfix-XP DGPS
Demodulator	Fugro 4100LRS
GPS receiver	Fugro SPM2000 with internal Novatel
Secondary navigation	Fugro Starfix.HP DGPS with SPM software
Demodulator	Fugro 4100LRS
GPS receiver	Fugro SPM2000 with internal Novatel
Tailbuoy tracking	Kongsberg Seatex Seatrack 220 RGPS
Gun array tracking	Kongsberg Seatex Seatrack 320 RGPS
Gyro	2 x SG Brown Meridian Surveyor
GPS azimuth	Applanix POS MV 320
Motion sensor	Applanix POS MV 320
Echosounder	Kongsberg Simrad EA600
Echosounder transducers	12, 38, 200 kHz
Acoustic doppler profiler	RDI ADCP Mariner 600kHz type Workhorse
SVP/CTD probe	Valeport Midas SVX2
Moving vessel profiler	Odim MVP300-3400
Streamer mounted speed log	ION Model 7500 Speed Log
Streamer mounted velocity meter	ION Model 7000 Velocimeter
Streamer positioning	ION Model 5011 Compass Bird
	ION DigiRANGEII acoustics:
	Up to 180 x CMX unit
	2 x CTX transducer flanged - hull
	6 x CTX pinger towed - gun
Navigation processing	Concept Systems Sprint
	Concept Systems NRT
Binning	Concept Systems Reflex

2.5. ONBOARD PROCESSING

Hardware	16 x 2 Quad Core CPU nodes HP BLc7000 Linux cluster (total 128 CPUs), 16 GB RAM per node 2 HP Proliant DL580G4 servers on Linux, 4 x dual core CPUs, 16 GB RAM per server 3 x dual monitor HP xw6400 work stations 44 TB disk space
Software	Paradigm Focus 5.4 FSI Uniseis 0804 64 bit and 32 bit RedHat Enterprise 4 Linux
Capabilities	Full 3D QC processing, fast track full fold cube at acquisition speed
Tape drives	4 x IBM Magstar 3590E 4 x IBM Jaguar-2 3592
Plotters	HP 1050C A0 plotter OYO GS 36'' thermal plotter
Data compression software	Aware Seispact v 3.61

Fugro-Geoteam AS, P.O. Box 490 Skøyen, 0213 Oslo, Norway. Tel:+ 47 22 13 46 00
E-mail: geoteam@fugro.geoteam.no Web page: www.fugro.geoteam.no

"M/V Thor Alpha"

General Information

Name	M/V Thor Alpha
Call sign	OZ 2070
Flag	Faroese
Class	DNV + 1A1 E0 SF
IMO no.	9458559
Built	2008
Length overall	55,10 m
Length bp.	50,56 m
Breath moulded	12,50 m
Depth boat deck	8,00 m
Depth main deck	5,50 m
Gross tonnage, 1969	1051 GT
Net tonnage, 1969	315 NT
Deadweight	1600 ton
Light ship weight	700 ton
Draught	4.85 m
Speed	13 knots
Speed water jet	4,5 knots
Accommodation (crew)	6 persons
Berths for passengers	10 persons
Sleeping seats	34 persons

Machinery/Diesel-electric:

Generators	Nordhavn GASI 16-07 4 x 440 kw / 1800 o/min 3 x 440 Volt 60 Hz
Engines	Scania Type DI16 44M – 469 kw

Propulsion

Azimuth	2 x Rolls-Royce, Aquamaster
Type	US 105 CRP
Power	2 x 650 KW
Bollard pull	19,3 ton

Pump Jet

Type	Schottel, SPJ 82 SD
Power	1 x 360 KW
Thrust	2,5 ton

Cargo Discharge Pump

Cargo pumps	2 x 120 m^2 / 15 m hight

Capacities

Heavy fuel oil	992 m^3
Diesel oil	556 m^3
Fresh Water	69 m^3
Cargo on deck	320 m^2 / 100 ton
Sludge tank on deck	Tank for seismic sludge
Cargo hold on deck	31 m^2 cooling room
	22 m^2 freezing room

Deck Equipment

Deck crane	ABAS
Type	5 ton SWL 1,8 – 16 m
Rope winch	1,5 ton
capstan	4 x 5 ton
Anchor winches	2
Towing hook	30 ton
Davits	1 pc Vestdavit PLR-10002 for workboat – SWL 10000 kg
	1 pc Vestdavit PL – 1500 for rescueboat – SWL 1500 kg

Rescue Boat:

Norsafe MIDGET 530 MK II Diesel Jet Rescue Boat

Capacity	6 persons
Standard	72 Hp inboard diesel engine with waterjet propulsion

Pumps

Fuel Oil	2 x 120 m^3 / hour
Fresh water	1 x 50 m^3 / hour

A3 GMDSS – Equipment:

Furuno FS-1570 150W MF/HF SSB Transceiver

Furuno FM-8800S VHF-DSC Transceiver

Radio Ocean RO 4700 VHF Transceiver

Furuno NX-700-B Navtex Receiver

Furuno Felcom-15 Inmarsat-C

SSAS UPG for Furuno Felcom-15

McMurdo E-5-A EPIRB

McMurdo E-5-M EPIRB

McMurdo G4 SART

McMurdo R-2 portable GMDSS VHF Transceiver

2 pc. Furuno Radar:

FAR-2137S/IMO S-band 30 kW with 12 fot antenna

FAR-2117/IMO X-band 12 kW with 6.5 fot antenna

Echosounder and Speed-log:

Furuno FE-700/200 IMO

Furuno DS-80 speed-log

Navigation:

Furuno FA-150 AIS Transceiver

Furuno GP-150 GPS- Professional navigator

MaxSea Commander software

MaxSea tracking-modul for Arpa og AIS-traget

Computer for MaxSea

Gyro / Autopilot and Bridge-Alarm:

Anschuetz Standard 22 Gyro-compass

Anschuetz Digital Autopilot Pilotstar D

Furuno SC-110 Satellite-compass

RD-30 Remote display

UniSafe Bridge-alarm

Communication:

Emergency communication system wheelhouse / engine
Communication system round the ship
Telular SX5D gsm-phone with telefax
Icom portable UHF-transceiver
Safety helmet, with Peltor head-set

Camera and Sound Signal Reception System + Wind Sensor:

Camera monitoring system thruster room and deck
Vingtor VSS-111 sound signal reception system
RO-wind sensor

Safety Equipment:

Liferafts	Viking 25 DK SOLAS – 6 x 25 persons
Life-jackets	Merman 16 A SOLAS – 104 pcs
Immersion suits	Viking PS 5002 SOLAS – 54 pcs

FRC Safety Equipment:

FRC working suits	PS 5041 SOLAS – 3 pcs
Inflatable life-jackets	PV 9308 SOLAS – 3 pcs
Jofa 390 R helmets	3 pcs

Communication:

Telephone	+44 20 78 58 56 99 SevSat
Telephone	+871 764 812 338 Mini-M
E-mail	thoralpha@thor.fo
E-mail	bridge.thoralpha@skyfile.com

gulffleet.com

Gulf Provider

190' SSV

Gulf Provider

MAIN PARTICULARS

LENGTH OVERALL	190 ft	57.9 m
BEAM	38 ft	11.58 m
DEPTH	14 ft	4.27 m
LOADED DRAFT	12.33 ft	3.76 m
LIGHTSHIP	824.57 LT	838 MT

CAPACITIES

BALLAST	66,050 USG	250 m^3
FUEL	161,162 USG	610 m^3
POTABLE WATER	26,9481 USG	102 m^3

SERVICE EQUIPMENT

DECK CRANE #1	Seattle Crane MCF-493	
	2755 lbs.	1250 kg
INCEINERATOR	Elastek Smart Ash	
WATERMAKERS	(2) Sea Recover SC800 800 USG/Day	
	3.03 m^3/Day Reverse Osmosis	
REFRIGERATED CONTAINERS	(2) 8 ft/2.44 m x 20 ft/6.1m	
DRY CONTAINER	8 ft/2.44 m x 20 ft/6.1m	
STREAMER REEL	6000 m	
SMALL FENDERS	(4) 7 ft/2.13 m x 5 ft/1.52 m	
LARGE FENDER	12 ft/3.66 m x 7 ft/2.13 m	
BUNKER HOSE with Dry Break	4 in/10.16 cm x 100 ft/30.48 m	

TONNAGE

	USA	ITC
GRT	367	926
NRT	277	

MACHINERY

MAIN ENGINES	(2) Caterpillar D399 @ 1250 BHP
REDUCTION GEARS	Reintjes WGV481
GEAR RATIO	4.22:1
GENSETS	(2) Caterpillar 3406 @ 315 KW
PROPELLERS	78 x 72 Stainless Steel 4-Blade
RUDDERS	Spade Type

PERFORMANCE

MAXIMUM SPEED	12 Knots	
CRUISING SPEED	10 Knots	
MAXIMUM FUEL CONSUMPTION	110 USG/Hr.	10 m^3/Day
CRUISING FUEL CONSUMPTION	77 USG/Hr.	7 m^3/Day

DISCHARGE RATES

	GPM @ FT		M³/min @ M	
FUEL	500	100	1.9	30
POTABLE WATER	420	100	1.6	30

ACCOMMODATIONS

CABINS/BERTHS	16/52
EXERCISE ROOM	Exercise Machine & Weights
LOUNGE	10
MESS	22
CERTIFIED TO CARRY	60

ELECTRONICS

RADARS	(1) Furuno FR-1525 MK III & (1) Furuno FR-2125-ARPA
GPS	(1) Garmin GP-80 & (1) Garmin GP-90D
GYRO COMPASS	Tokimec GM21
AUTOPILOT	Sperry GyroPilot
WEATHER FAX	Furuno FAX-108
NAVTEX	Furuno NX-500
RADAR TRANSPONDER	(2) Tron SART
SSB	Furuno FS-1562-15
GMDSS	Furuno Felcom-15 Inmarsat C w/ Furuno DP-6 NBD
VHF	(2) Furuno FM-8500
AIS	Bridgemate MT
FAX	Brother Intellifax 775
COPIER	Brother MFC-7820N
SHIP SECURITY ALERT	Satamatics SAT-101
E-MAIL & COMMUNICATIONS	Nera Mini-M & Iridium (Client & Crew Addressing Available)

DOCUMENTATION

CLASS	ABS A1+AMS+Load Line; SOLAS-MARPOL
FLAG	Panama
OFFICIAL NUMBER	22269-95-C
CLASS NUMBER	77901855
YEAR BUILT/REBUILT	1979/2003
BUILDER	Zigler Shipyard, Inc. Jennings, LA

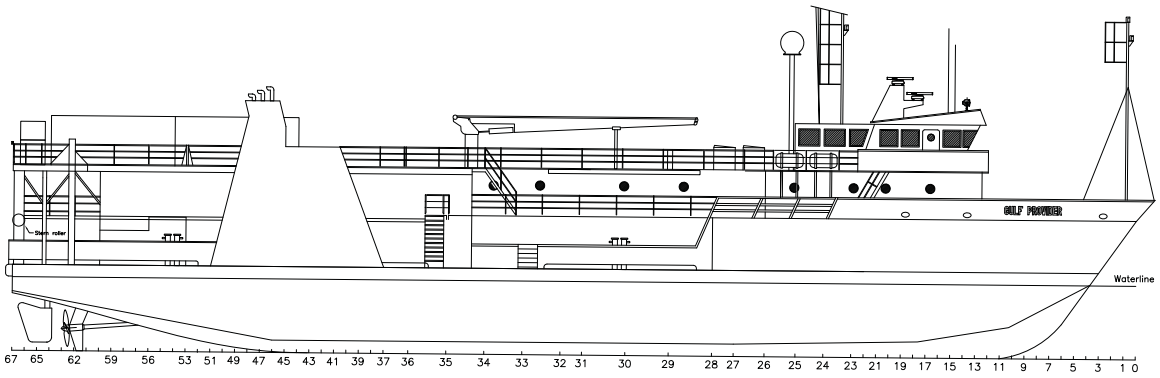
GULF FLEET HOLDINGS
2623 SE Evangeline Thwy Lafayette, LA 70508 • P.O. Box 80707 Lafayette, LA 70598-0707
Office 337-210-2600 • Fax 337-210-1648 • Toll Free 866-857-9900

gulffleet.com

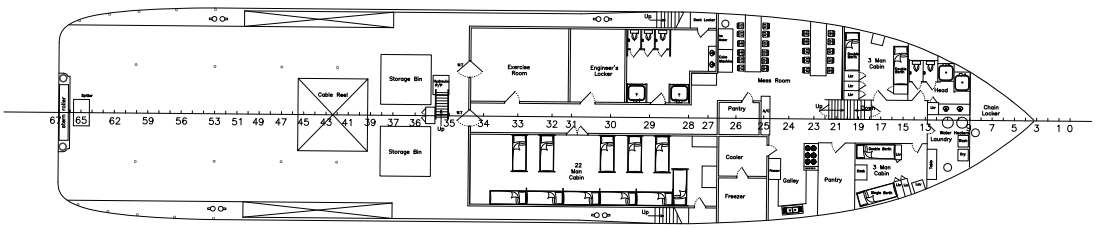
Gulf Provider

190' SSV

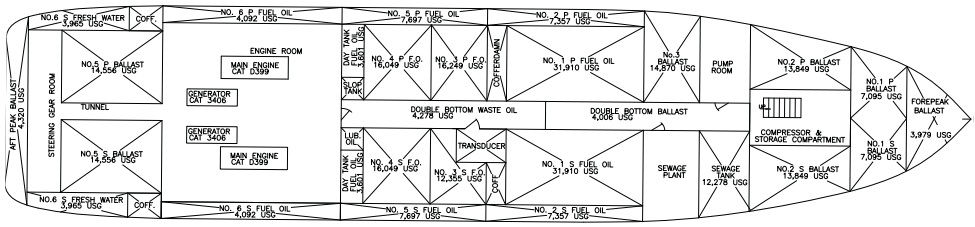
Gulf Provider



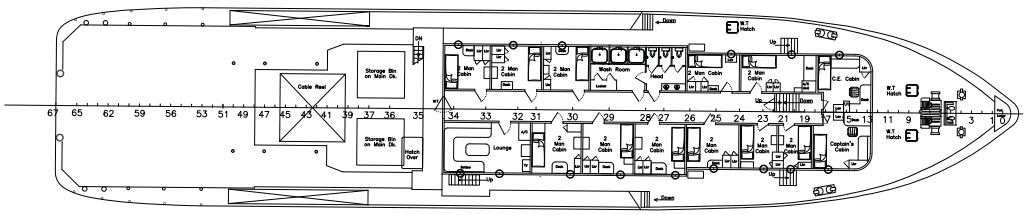
PROFILE



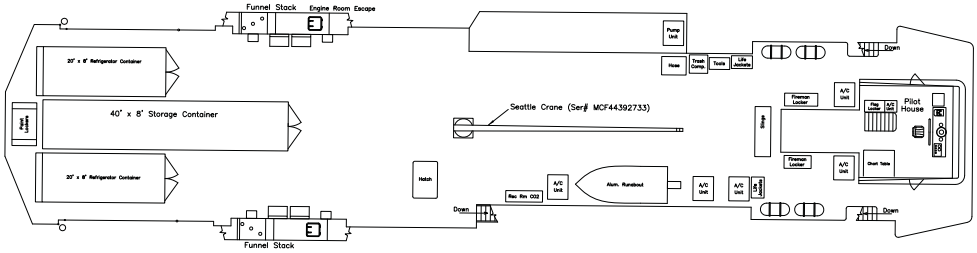
MAIN DECK



HOLD PLAN



FORECASTLE DECK



PILOT HOUSE/UPPER DECK

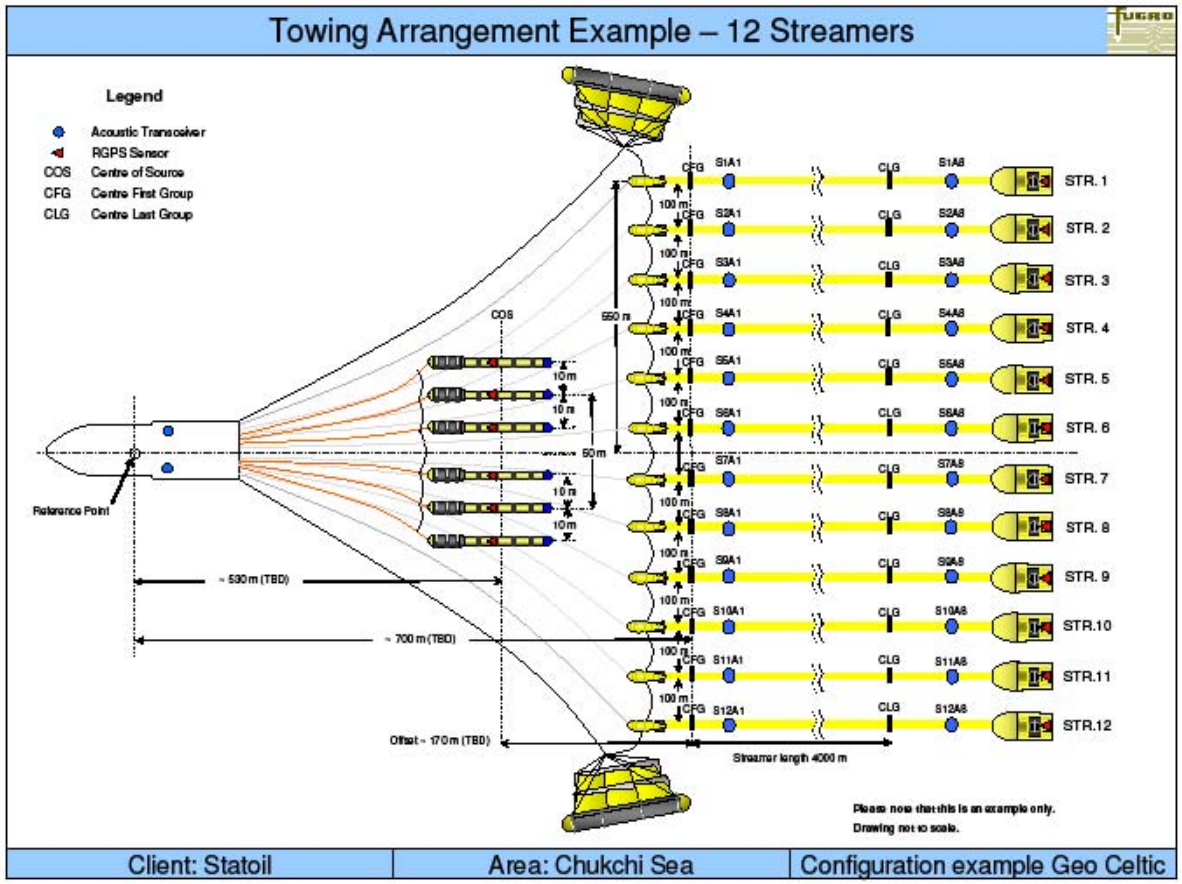
GULF FLEET HOLDINGS
2623 SE Evangeline Thwy Lafayette, LA 70508 • P.O. Box 80707 Lafayette, LA 70598-0707
Office 337-210-2600 • Fax 337-210-1648 • Toll Free 866-857-9900

APPENDIX B

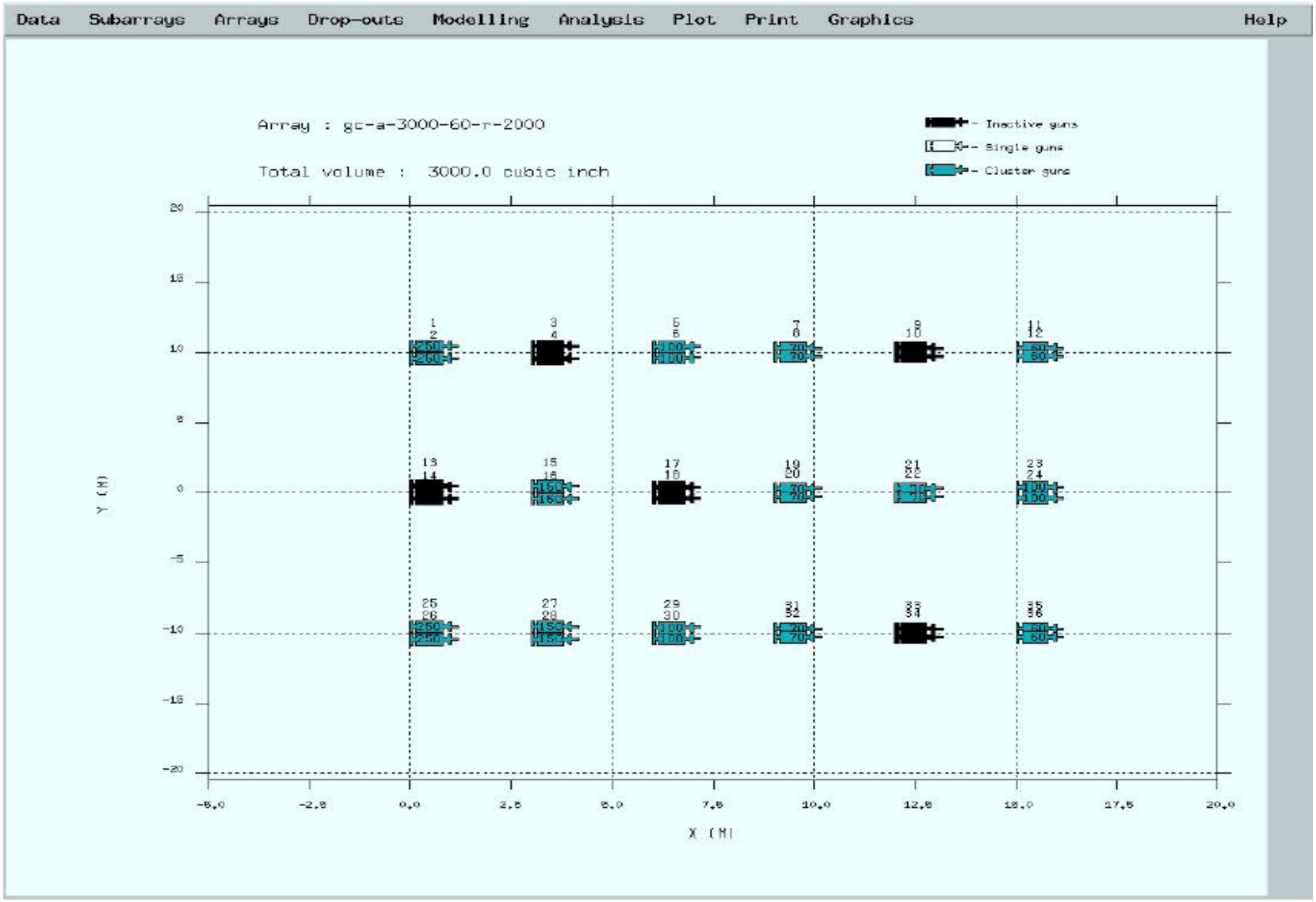
Signature and Acoustic Radiation Patterns

**THIS PAGE
INTENTIONALLY
LEFT BLANK**

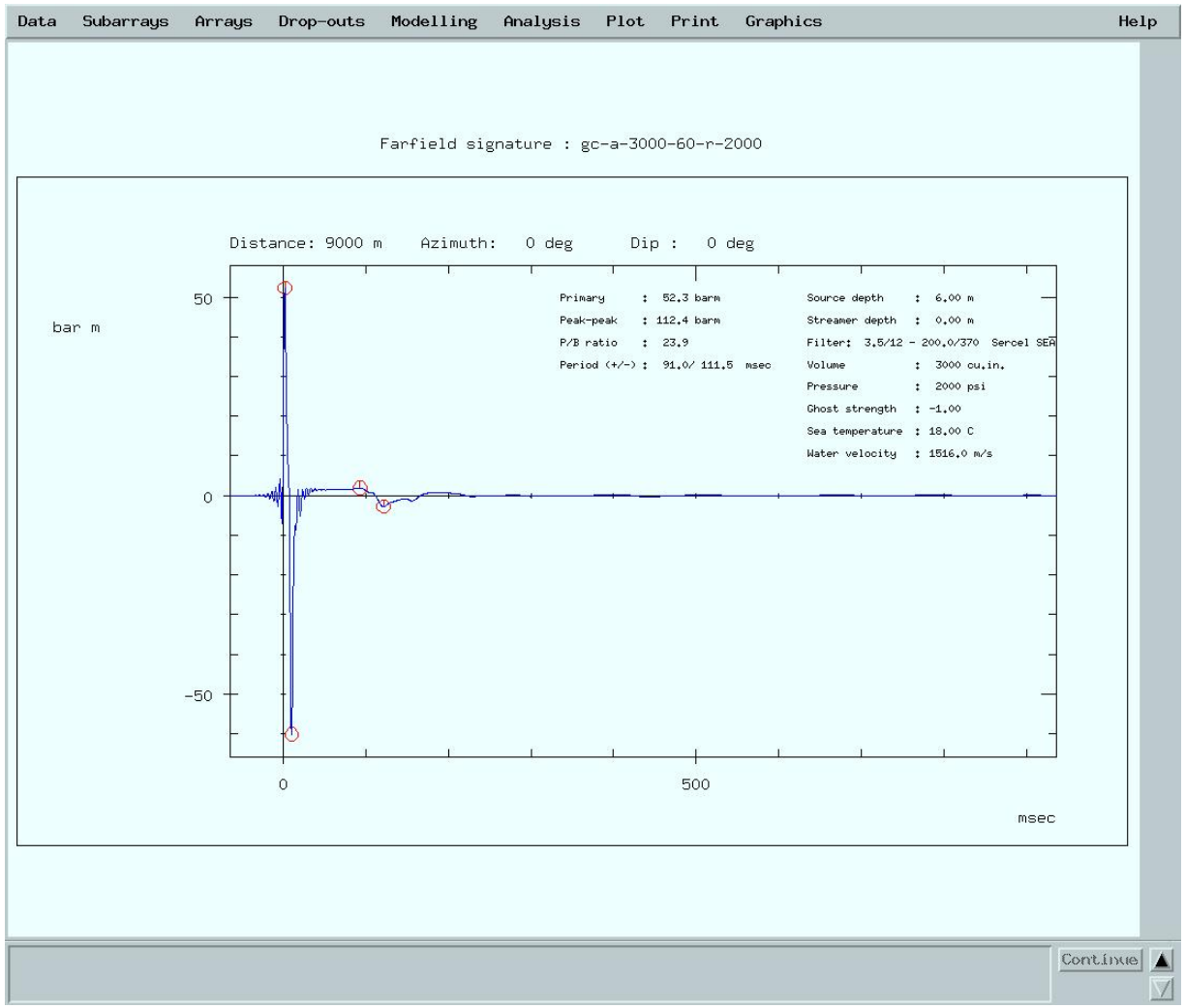
Towing Configuration



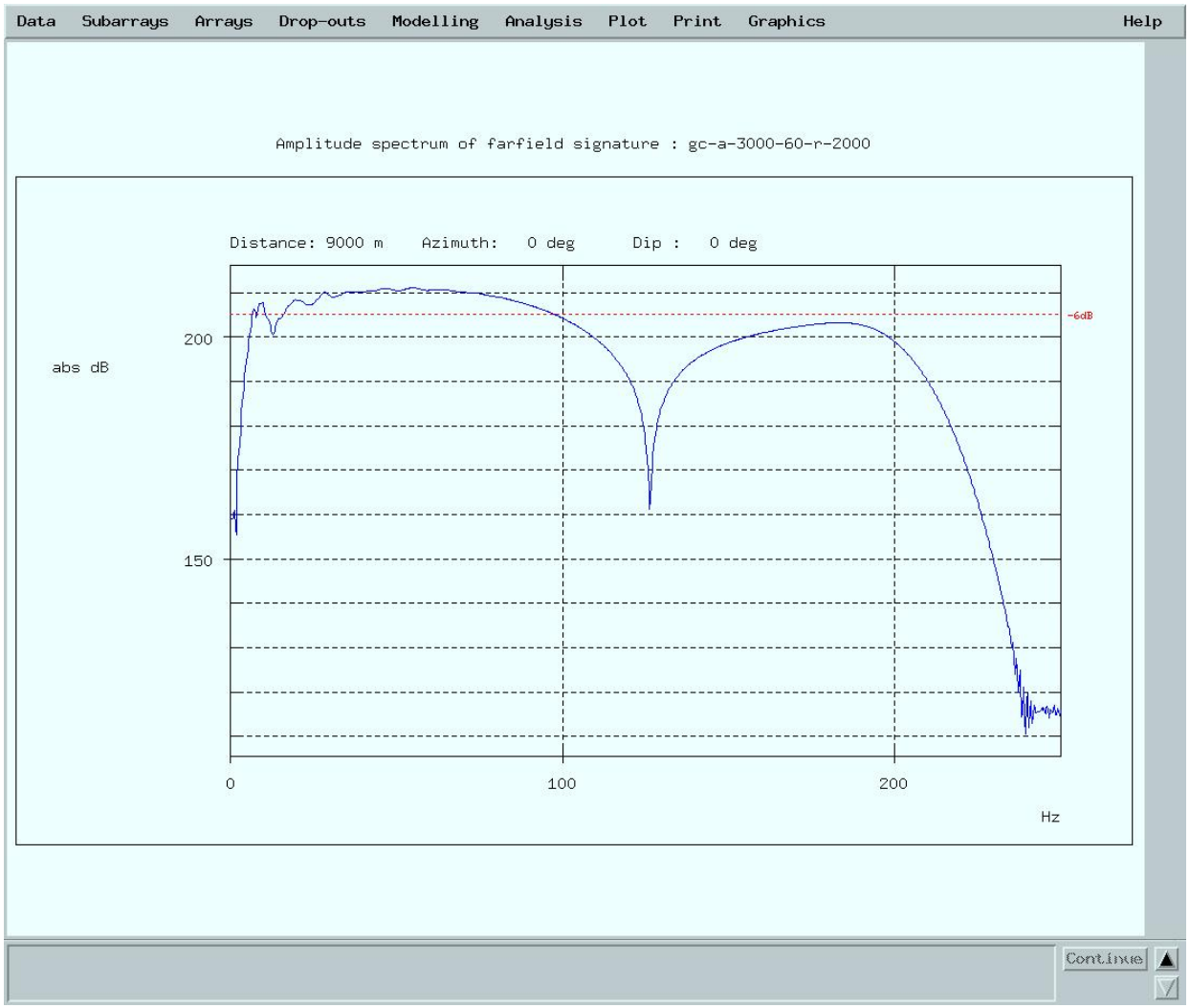
Airgun Configuration



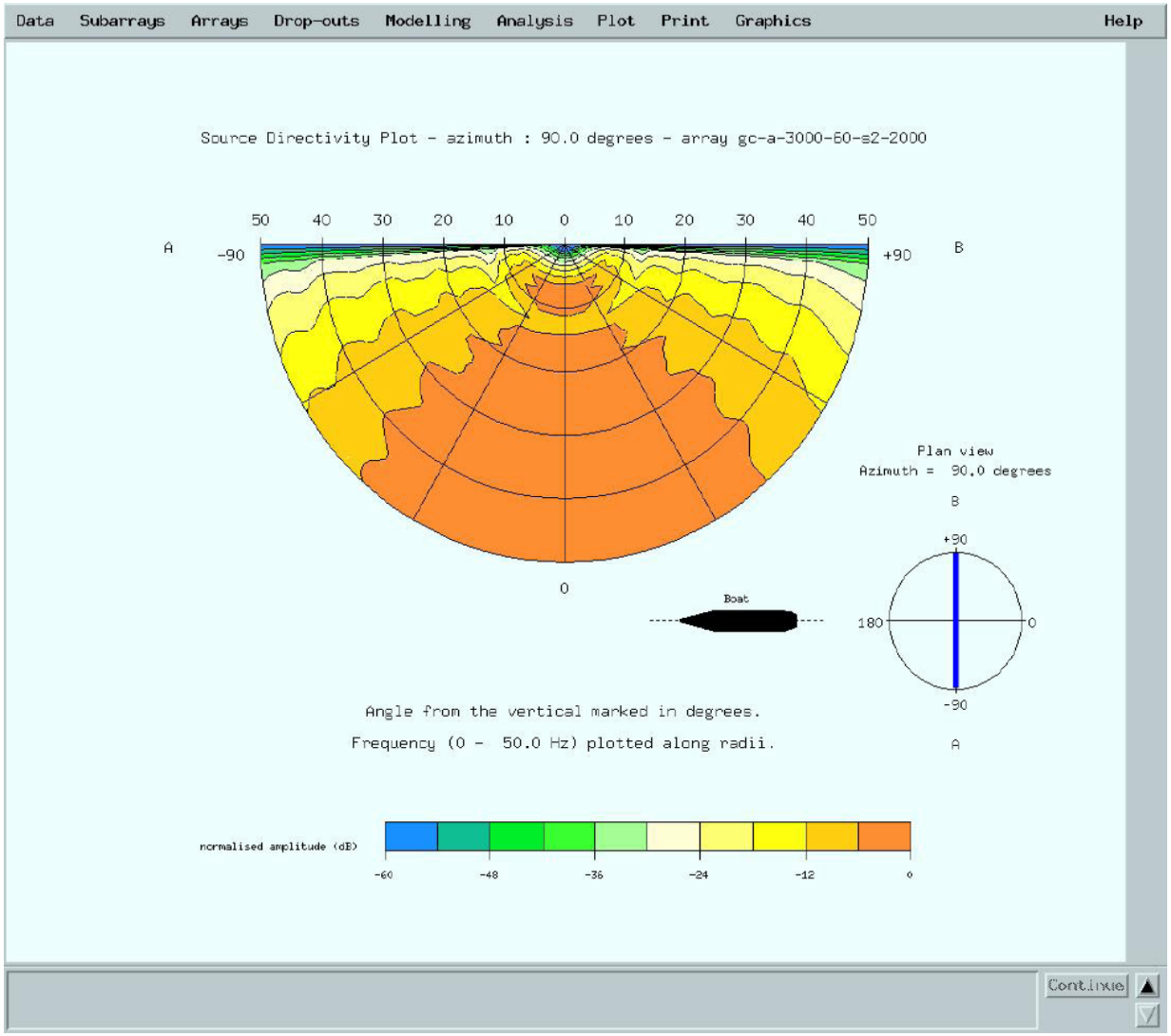
Source Signature



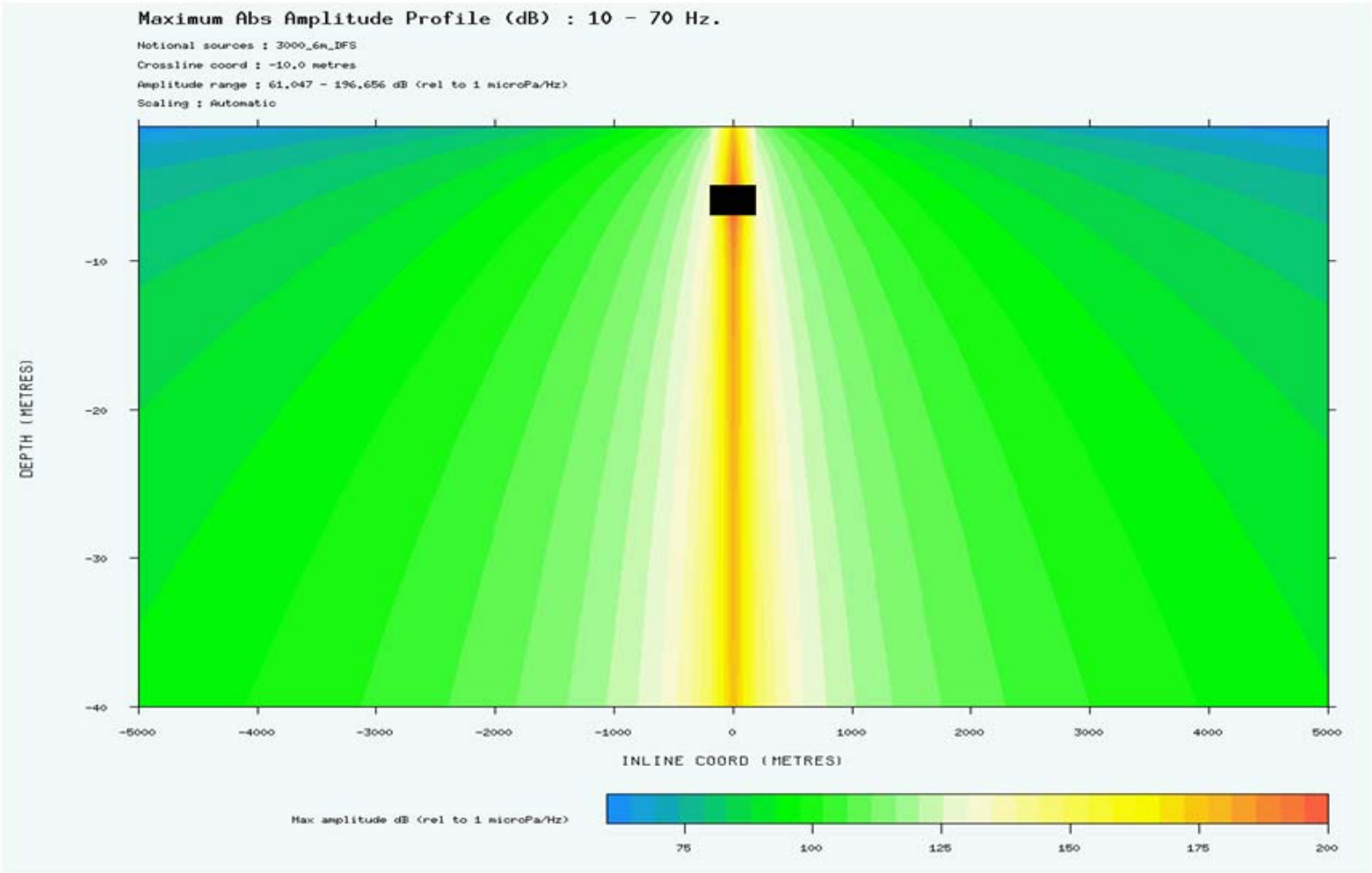
Source Signature



Energy Source Directivity



Energy Source Directivity



APPENDIX C

3D Seismic Line Layout Scenarios

THE INFORMATION IN THIS SECTION CONTAINS CONFIDENTIAL/PROPRIETARY INFORMATION AND IS NOT AVAILABLE IN THIS PUBLIC COPY OF THE PLAN OF OPERATIONS

**THIS PAGE
INTENTIONALLY
LEFT BLANK**

QUALITY CONTROL REVIEWER
Elizabeth Benson

Technical Editor: Nikishka Stewart

Polar Bear and Pacific Walrus Monitoring, Mitigation, and Reporting Plan Statoil 2010 3D Seismic Acquisition Chukchi Sea, Alaska

December 2009

Prepared for

Statoil USA E&P Inc.
2103 CityWest Boulevard, Suite 800
Houston, TX 77042

Prepared by

ASRC Energy Services
a subsidiary of Arctic Slope Regional Corporation
Regulatory and Technical Services
2700 Gambell Street, Suite 200
Anchorage, Alaska 99503

Table of Contents

ACRONYMS AND ABBREVIATIONS

2D	two-dimensional
3D	three-dimensional
cu in	cubic inches
dB	decibel(s)
ft	foot, feet
km	kilometer(s)
LOA	Letter of Authorization
m	meter(s)
mi	mile(s)
MMO	Marine Mammal Observer
MMS	U.S. Department of the Interior, Minerals Management Service
NMFS	National Marine Fisheries Service
OCS	Outer Continental Shelf
POC	Plan of Cooperation
re 1 µPa	relative to one microPascal
sq km	square kilometer(s)
sq mi	square mile(s)
SSV	sound source verification
Statoil	Statoil USA E&P Inc.
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

Statoil USA E&P Inc. (Statoil) plans to conduct a three-dimensional (3D) marine seismic survey in the 2010 open-water season, using a towed airgun array. The purpose of the proposed seismic survey is to collect seismic reflection data that reveal the sub-bottom profile for assessments of petroleum reserves in the area. Ultra-deep 3D lines, such as those to be collected, will be used to better evaluate the evolution of the petroleum system at the basin level, including identifying source rocks, migration pathways, and play types. Two-dimensional (2D) lines designed to tie the details of this high-resolution 3D imagery to the surrounding regional geology are a secondary priority.

All seismic acquisition will take place within Chukchi Sea waters included in the Minerals Management Service (MMS) Outer Continental Shelf Lease Sale 193. The seismic survey will take place between July 15 and November 30, 2010; however, all permits will be requested from July 15 to November 30 to allow for contingencies and weather delays. The proposed seismic survey will be conducted by Fugro-Geoteam, Inc.

This Polar Bear and Pacific Walrus Monitoring, Mitigation, and Reporting Plan has been developed to support Statoil's seismic survey program and meet the requirements of 50 CFR 18.114(c)(2) to monitor and mitigate the effects of activities authorized under a Letter of Authorization (LOA) on walruses, polar bears, and subsistence use of these species.

2.0 MITIGATION

Potential effects of the proposed 3D seismic acquisition program on Pacific walruses, polar bears, and the subsistence use of these species are expected to be minimal and temporary. Statoil has designed the seismic acquisition program to reduce the potential impact on marine mammals:

- The size of the 3D seismic acquisition area has been minimized to the smallest area practicable to obtain the required data for a total 3D survey area of 2,385 square kilometers (sq km) (915 square miles [sq mi]).
- The total airgun discharge has been reduced to the minimum volume needed to obtain the required data without compromising data quality. The total volume is 3,000 cubic inches (cu in).
- The airgun array has ten spare airguns to reduce the chance for shutdowns due to equipment failures, thus potentially reducing the total field time.
- An unusually large streamer array (twelve individual streamers) is being deployed, resulting in a larger than normal distance between source lines and fewer transects needed to cover the seismic acquisition area. Because there are fewer transects, fewer shotpoints are needed to collect the required data and the data acquisition can be completed in a shorter time.

Vessel-based Marine Mammal Observers (MMOs) will be located on all project vessels and will monitor for the presence of marine mammals in the project area as described below. At least one Alaska Native knowledgeable about marine mammals will be part of the MMO team located on each project vessel. At least one MMO (when practicable, two MMOs) will monitor for marine mammals during daylight operations and during nighttime startups. MMO shifts will be no longer than four hours.

In order to mitigate the potential negative effects of the 3D seismic acquisition program on walruses, polar bears, and the subsistence use of these species, Statoil will adhere to the following mitigation measures.

2.1 Operating Conditions for Support Vessels

Statoil will adhere to the following mitigation measures during seismic acquisition, when mobilizing to the project area, when demobilizing from the project area, and in the performance of any other operations in support of seismic acquisition activities.

- All seismic source and support vessels will be staffed with MMOs who will alert the crew to the presence of Pacific walrus and polar bear so that vessel crews can initiate appropriate mitigation measures.
- Vessels will maintain the maximum practicable distance from concentrations of Pacific walrus and polar bears. Vessels should not approach Pacific walruses or polar bears on ice or land closer than 805 meters (m) (0.5 miles [mi]).
- Vessels must take precautions to avoid harassment of concentrations of feeding walruses. Vessels should reduce speed and stay a minimum of 805 m (0.5 mi) from groups of feeding walrus. Vessels may not be operated in a way to separate members of a group of walruses. If weather or visibility conditions make it necessary, vessels should reduce speed to avoid the likelihood of injury to walruses.
- All vessels must avoid areas of active or anticipated subsistence hunting for walrus or polar bear.

2.2 Operating Conditions for Aircraft

Statoil does not anticipate performing aerial surveys as part of the monitoring for its 3D seismic acquisition program. Aerial surveys would be impractical and unsafe due to the location of the survey area approximately 240 km (150 mi) offshore.

Aircraft are not anticipated to be needed during the Statoil 3D seismic acquisition; however, it is possible that individuals could be transported to or from vessels via helicopter or for emergencies. If aircraft are used, they will adhere to the following operational conditions:

- Aircraft will be operated at the maximum practicable distance from concentrations of walruses and polar bears.
- Except in an emergency, aircraft should operate no lower than 305 m (1,000 feet [ft]) altitude within 805 m (0.5 mi) of walruses and polar bears on ice or land. Helicopters may not hover or circle above areas with walruses or polar bears on ice or land or within 805 m (0.5 mi) of such areas. When weather conditions do not allow flights above 305 m (1,000 ft), such as during low cloud cover, aircraft may be operated below the 305 m (1,000 ft); when these conditions occur, aircraft must avoid areas of known walrus or polar bear concentrations and avoid flying directly over or within 805 m (0.5 mi) of these areas.
- Aircraft routes should be planned to minimize potential conflicts with active or anticipated walrus or polar bear hunting activities.

2.3 Additional Mitigation Measures for Seismic Operations

Statoil will adhere to the following mitigation measures during 3D seismic acquisition activities:

- All seismic data acquisition activities will take place between July 15 and November 30.
- Operators will maintain a minimum spacing of 24 km (15 mi) between all active seismic source vessels and/or exploratory drilling operations.

- Acoustic safety radii will be verified through sound source verification (SSV) upon arrival at the project area. At a minimum, SSV would measure where the received level is:
    - >/= 180 decibels (dB) relative to one microPascal (re 1 µPa)
    - >/= 190 dB re 1 µPa
    - >/= 160 dB re 1 µPa
- Establish and monitor acoustic safety radii with MMOs where the received level is:
    - >/= 180 dB re 1 µPa for walrus exclusion zone
    - >/= 190 dB re 1 µPa for polar bear exclusion zone
    - >/= 160 dB re 1 µPa for walrus disturbance zone

  The source vessel will have U.S. Fish and Wildlife Service- (USFWS-) approved MMOs actively watching for marine mammals, recording marine mammal observations, and providing direction to vessel crew as specified below. At least one chase/monitoring vessel will assist in monitoring exclusion zones immediately prior to and during seismic acquisition operations.
- Vessel crews will also keep watch for Pacific walruses and polar bears. If these mammals are sighted, the MMO on watch must be notified.
- During the seismic acquisition program, the volume of the airgun array would be reduced to a single small airgun (60 cu in) used for mitigation during vessel turns.
- If a polar bear or walrus is detected outside the exclusion zone radius and appears to be entering the zone radius, the source vessel must alter its speed and/or track to prevent the marine mammal from entering the exclusion zone. If these actions cannot prevent the marine mammal from entering the exclusion zone, power-down procedures will be initiated (addressed below).
- **Ramp-up Procedures—**The following ramp-up procedures will be adhered to for all seismic surveys, including airgun testing, to allow marine mammals to depart the exclusion zone before the seismic data acquisition begins.
    - Visually monitor the exclusion zone and adjacent water for polar bear and walruses for at least 30 minutes before initiating ramp-up procedures. Ramp-up procedures may be initiated if no polar bears or walruses are observed in the exclusion zone during the 30-minute observation period. Ramp-up procedures cannot be performed at night or when the exclusion zone cannot be visually monitored for marine mammals.
    - Ramp-up procedures should be initiated by discharge of a single airgun (preferably the smallest airgun in the array). Ramp-up will continue by gradual activation of additional airguns over a period of 20 minutes, but no longer than 40 minutes, until the operating energy output is reached.
- **Power Down/Shutdown Procedures—**Power down/shutdown procedures will be adhered to in the following situations:
    - Immediately power down/shut down the airgun array (and other acoustic sources) whenever any walruses are sighted approaching close to, entering, or within the 180 dB re 1 µPa walrus exclusion zone. Immediately power down/shut down the airgun array (and other acoustic sources) whenever any polar bears are sighted approaching close to, entering, or within the 190 dB re 1 µPa polar bear exclusion zone.

- If power down cannot reduce the received sound pressure level to 180 dB re 1 µPa for walrus (or 190 dB re 1 µPa for polar bear), the sound source must immediately be shut down.

- **Emergency Shutdown Procedures—**If observations are made or credible reports are received that one or more walruses or polar bears are within the seismic survey area and are injured, dead, dying, or indicate acute distress due to seismic noise, the airgun array should undergo emergency shutdown and the USFWS should be contacted immediately.

  If it can be determined that the marine mammal injury or death is likely not due to seismic activities (e.g., obvious signs of killer whale predation; signs of hunting, such as bullet wounds), Statoil will collect information as specified in Section 4.0 of this document, notify the USFWS, and resume seismic acquisition activities. If cause of death cannot be attributed to causes other than the seismic operation, the airgun array will not be restarted until approval has been given by USFWS.

- **Adaptive Response for Walrus Aggregations—**Whenever an aggregation of twelve or more walruses in water is observed within the 160 dB re 1 µPa exclusion zone ahead of or perpendicular to the seismic vessel track, the vessel must:

  - Immediately power down/shut down the airgun array (and other acoustic sources) so that the sound pressure level received by the walrus does not exceed 160 dB re 1 µPa.

  - Not power up until it can be established that there are no walrus within the 160 dB re 1 µPa zone, based upon vessel course, direction, and distance from the last walrus sighting. If shutdown was required, ramp-up procedures addressed earlier in this section should be followed.

2.4 Mitigation Measures for Subsistence Use of Walruses and Polar Bears—Plan of Cooperation

Statoil intends to maintain an open and transparent process with all stakeholders throughout the life-cycle of activities in the Chukchi Sea. Statoil began the stakeholder engagement process in 2009 with meetings with Chukchi Sea community leaders at the tribal, city, and corporate level. Statoil will continue to engage with leaders, community members, and subsistence groups (as well as local, state, and federal regulatory agencies) throughout the exploration process.

As part of stakeholder engagement, Statoil is developing a Plan of Cooperation (POC) for the proposed 2010 3D seismic acquisition. The POC identifies the actions Statoil will take to identify important subsistence activities, inform subsistence users of the proposed survey activities, and obtain feedback from subsistence users regarding how to provide cooperation between subsistence activities and the Statoil program.

A POC is required to comply with Outer Continental Shelf (OCS) Lease Sale 193 stipulations (Stipulation No. 5) and federal regulatory requirements [50 CFR 216.104(a)(12)ii)]. The POC also fulfills the requirements of three major federal permits: the National Marine Fisheries Service (NMFS) Incidental Harassment Authorization, the USFWS Letter of Authorization, and the U.S. Department of the Interior, MMS Geophysical and Geological permit.

Statoil met with leadership from the communities of Barrow, Wainwright, Point Lay, Point Hope, and Kotzebue during the last week of October and the first week of November 2009. Statoil met with leaders both in small groups and a one-on-one basis. These meetings enabled Statoil to introduce themselves and the 2010 3D marine seismic acquisition program to community leaders and to discuss local concerns regarding subsistence activities, timing of operations, and local hire and workforce development.

Based upon these meetings, a draft POC document is being developed. Upon completion, the draft POC will be submitted to each member of the leadership Statoil met with during their October/November leadership meetings as well as a few other community members. Statoil will also submit the draft POC to NMFS, USFWS, and MMS as part of the permit application process. Public POC meetings will be held in January in the communities of Barrow, Point Hope, Point Lay, and Wainwright to obtain input from the general public and individual subsistence hunters within these communities.

A final POC that documents all consultations with community leadership, subsistence users groups, individual subsistence users, and community members will be submitted to NMFS, USFWS, and MMS upon completion of consultation. The final POC will include feedback from the leadership meetings and POC meetings. Statoil will continue to document all consultation with the communities and subsistence stakeholders.

3.0 MONITORING

Statoil will maintain trained MMOs to carry out the monitoring necessary to perform mitigation as required by the LOA. The MMO training curricula will be preapproved by USFWS and the NMFS, and all MMOs will be approved by USFWS. MMOs will be required to be present on board the seismic source vessel and support vessels to:

1) Alert the crew to the presence of walruses and polar bears so that appropriate mitigation action can be taken.

2) Carry out the specific monitoring activities necessary to evaluate the impact of activities authorized by the LOA on walruses, polar bears, and subsistence uses of walruses and polar bears.

4.0 REPORTING

Statoil will adhere to USFWS-required reporting requirements, including the following reporting requirements. Reporting for polar bears will be made to Craig Perham; reporting for Pacific walrus will be made to Joel Garlich-Miller at the addresses below.

Craig Perham—USFWS–Marine Mammals Section
1011 East Tudor Road
Anchorage, Alaska 99503
Telephone: 907-786-3810 (direct); 907-786-3800 (main office)
Fax: 907-786-3816
Email: craig_perham@fws.gov

Joel Garlich-Miller—USFWS–Marine Mammals Section
1011 East Tudor Road
Anchorage, Alaska 99503
Telephone: 907-786-3820 (direct); 907-786-3800 (main office)
Fax: 907-786-3816

The operator of the seismic vessel will maintain a log of seismic activity noting the date and time of all changes in seismic activity (ramp up, power down, changes in active airguns, etc.) and any corresponding changes in monitoring radii.

Statoil will maintain a table of all marine mammal observations. This information will be provided to USFWS and will be used to complete the 90-Day Report at the conclusion of seismic acquisition. Information collected during marine mammal observations will include the following:

- Date, time, and location of each walrus/polar bear sighting

- Number of walruses/polar bears observed, sex, and age
- Observer's name and contact information
- Weather, visibility, and ice conditions at the time of observation
- Estimated distance of walrus/polar bear at closest approach
- Activity at the time of observation, including possible attractants present
- Animal behavior
- Description of the encounter
- Duration of encounter
- Action taken

Polar bear observation forms are included as Appendix B of the Polar Bear and Pacific Walrus Awareness and Interaction Plan (Bear Plan). Walrus observation forms are included as Appendix C of the Bear Plan.

4.1 In-Season Monitoring Reports

Statoil will provide reports to USFWS regarding the progress of authorized activities, including the following:

- Notifying the USFWS at least 48 hours prior to beginning 3D or 2D seismic acquisition activities
- Providing weekly progress reports that include any significant changes in operating state or activities
- Notifying the USFWS within 48 hours of ending seismic acquisition activities

4.2 Polar Bear and Walrus Observation Reports

Statoil will provide USFWS with a list of all polar bear observations and all walrus observations as requested by the LOA.

4.3 Notification of Incident Report

Statoil will report to USFWS: (1) any lethal take or injury of a polar bear or walrus or (2) any observations of polar bear or walrus within the exclusion zone in effect at the time of the lethal take or injury. Reports will include a complete written description of the incident and any actions taken. All information required as part of the walrus observation report or polar bear observation report should be included in the incident report.

4.4 90-Day Report

Results of marine mammal monitoring will be provided to USFWS for review within 90 days of completion of activities performed as part of the Statoil 3D Seismic Acquisition. Results will include:

- A summary of the monitoring effort
- Analysis of factors affecting the visibility and detectability of walruses and polar bears by monitoring
- Analysis of distribution and abundance of walrus and polar bear sightings, and description of walrus and polar bear behavior in relation to date, location, ice conditions, and operations
- Estimates of takes based upon density estimate derived from monitoring and survey efforts.

QUALITY CONTROL REVIEWER
Elizabeth Benson

Technical Editor: Nikishka Stewart

Polar Bear and Pacific Walrus Awareness and Interaction Plan Statoil 2010 3D Seismic Acquisition Chukchi Sea, Alaska

December 2009

Prepared for

Statoil USA E&P Inc.
2103 CityWest Boulevard, Suite 800
Houston, TX 77042

Prepared by

ASRC Energy Services
a subsidiary of Arctic Slope Regional Corporation
Regulatory and Technical Services

2700 Gambell Street, Suite 200
Anchorage, Alaska 99503

Table of Contents

Page

List of Figures

List of Attachments

ACRONYMS AND ABBREVIATIONS

2D	two-dimensional
3D	three-dimensional
ADF&G	Alaska Department of Fish and Game
Bear Plan	Polar Bear and Pacific Walrus Awareness and Interaction Plan
CFR	Code of Federal Regulations
ESA	Endangered Species Act
ft	feet
km	kilometer(s)
LOA	Letter of Authorization
m	meter(s)
mi	mile(s)
MMPA	Marine Mammal Protection Act
MMO	Marine Mammal Observer
MMS	U.S. Department of the Interior, Minerals Management Service
M/V	marine vessel
sq km	square kilometer(s)
sq mi	square mile(s)
Statoil	Statoil USA E&P Inc.
USFWS	U.S. Fish and Wildlife Service

1.0 INTRODUCTION

Statoil USA E&P Inc. (Statoil) plans to conduct a three-dimensional (3D) marine seismic survey in the 2010 Chukchi Sea open-water season using a towed airgun array. The purpose of the proposed seismic survey is to collect seismic reflection data that reveals the sub-bottom profile for assessments of petroleum reserves in the area. Ultra-deep 3D lines will be collected to better evaluate the evolution of the petroleum system at the basin level; including, identifying source rocks, migration pathways, and play types. Two-dimensional (2D) lines designed to tie the details of this high-resolution 3D imagery to the surrounding regional geology are a secondary priority.

This Polar Bear and Walrus Awareness and Interaction Plan (Bear Plan) has been developed to support Statoil's 3D seismic survey program. This Bear Plan details the policies and procedures necessary to avoid harmful interactions with polar bears and Pacific walrus that may be encountered during the survey. Travel and activities related to the open-water seismic surveys are proposed to be conducted in remote areas of the Chukchi Sea. At this time, Statoil is not seeking authorization for any onshore activities.

1.1 Specific Objectives and Actions

This Bear Plan is intended to standardize the procedures for: avoiding bear-human or walrus-human interaction; generating wildlife reports; and educating workers in safety procedures. These procedures will reduce the chances of conflicts or harm occurring to humans, bears, and walruses.

The primary objective of this plan is to create a work environment that decreases bear-human or walrus-human interactions by implementing the following procedures:

- Prevent bears from associating humans and facilities with food.
- Avoid walrus and bear interactions with humans and vessels.
- Educate vessel crews about the controls used to prevent encounters and interactions.
- Protect workers, bears, and walruses.
- Implement observation, monitoring, recording, and reporting procedures.

1.2 Regulatory Requirements

Statoil is requesting a Letter of Authorization (LOA) from the U.S. Fish and Wildlife Service (USFWS) for the incidental take of polar bear and Pacific walrus in accordance with 50 CFR 18, Subpart I. Statoil is also requesting intentional take of polar bear by harassment in accordance with Section 101(a)(4)(A) and 109(h) of the Marine Mammal Protection Act (MMPA) of 1972. This Bear Plan is intended to fulfill the requirement for a "site specific polar bear awareness plan as specified under 50 CFR 18.114 (c)(3), included as part of the requirements regarding incidental, unintentional 'take' of protected marine mammals under 50 CFR 18, Subpart I – *Nonlethal Taking of Pacific Walruses and Polar Bears Incidental to Oil and Gas Exploration Activities in the Chukchi Sea and Adjacent Coast of Alaska*."

The MMPA prohibits, with certain exceptions, the taking of marine mammals. Take is defined as: "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." The USFWS has responsibility for the polar bear, (*Ursus maritimus*) and Pacific walrus (*Odobenus rosmarus divergens*), under the MMPA and the Endangered Species Act (ESA). The MMPA and ESA allow for the nonlethal taking, or level B harassment, of these two species incidental to oil and gas exploration activities in the Chukchi Sea and adjacent coast of Alaska.

1.3 Polar Bear

Polar bears are widely distributed in low densities across the Alaska North Slope. Polar bears are abundant near the Alaskan coast and at the southern edge of the ice. Their distribution is directly related to seasonal ice movements. Their primary habitat is sea-ice from which they hunt, feed, breed, den, and

rest. During the summer months, polar bears occupy pack ice in the Chukchi Sea and Arctic Ocean, also using the coastal areas of the North Slope and Beaufort Sea ice (Alaska Department of Fish and Game [ADF&G] 2009). The total number of polar bears worldwide is estimated to be 20,000 to 25,000 bears (Aars et al. 2006).

Information from surveys, marking studies, and traditional knowledge resulted in the recognition of 19 polar bear groups. Two of these populations occur in Alaska, with seasonal intermingling. The southern Beaufort Sea population is estimated at approximately 1,500 (Evans 2009), and the Chukchi Sea population is estimated at approximately 2,000 (USFWS 2009b).

1.3.1 Listing of Polar Bear as Threatened

In May 2008, the U.S. government listed the polar bear as a threatened species under the ESA (USFWS. 2008). In general, if a marine mammal species is listed as endangered or threatened under the ESA, the requirements of both the MMPA and ESA must be met before an incidental take can be authorized. A special rule under authority of section 4(d) of the ESA was adopted that states the regulatory requirements under the ESA are met by following the requirements of the MMPA.

1.3.2 Proposed Polar Bear Critical Habitat Designation

As part of listing polar bear as threatened under the ESA, the USFWS is required to designate critical habitat areas. USFWS must reach a conclusion on the designation of critical habitat no later than June 30, 2010. On October 21, 2009, the USFWS proposed a designation of critical habitat for the polar bear (USFWS 2009a).

The area the USFWS has proposed as critical habitat for polar bear covers 519,403 square kilometers (sq km) (200,541 square miles [sq mi]) of U.S. land and water, and is categorized into three types of habitat: sea-ice habitat, terrestrial denning habitat, and barrier island habitat. The Statoil 3D seismic acquisition program is located within the area to be designated as polar bear sea-ice habitat. Critical sea-ice habitat for polar bears is located over the outer continental shelf atop waters less than 300 meters (m) (984.2 feet [ft]) in depth. Wind, currents, and the magnitude of summer ice melts and winter ice freezes account for the extreme variability in the location and amount of critical sea-ice habitat.

1.3.3 Potential Impacts to Polar Bear and Polar Bear Habitat

While, the area of proposed critical habitat encompasses Statoil's lease blocks and the survey area, the seismic acquisition planned for the 2010 season is unlikely to have a significant impact on polar bear populations or polar bear habitat because of the following project elements.

- The activities occur during a time when the project area is expected to be relatively ice free.
- The survey location is a considerable distance off shore (see Figures 1 and 2).
- Mitigation measures will be implemented regarding polar bear avoidance.
- The seismic survey will be conducted during a period when polar bears are not using dens.

Section 7 of the ESA requires federal agencies to ensure that the activities they authorize are not likely to jeopardize the continued existence of the species or destroy or adversely modify its critical habitat (USFWS 2009a). Under the current permitting process, consultation with USFWS will occur with consideration toward the proposed polar bear critical habitat as part of the request for a LOA.

1.4 Pacific Walrus

Pacific walrus occur seasonally from Bristol Bay to Point Barrow (Bering and Chukchi Seas) with most animals migrating northward during spring and returning south during the fall. Migrations are directly related to the seasonal advance and retreat of the sea-ice (ADF&G 2009b). Pacific walrus can be expected in shallow waters near the coast, on ice, and offshore.

Pacific walrus distribution varies seasonally and is limited by water depth and ice conditions. It is considered an ice-associated species because it uses floating sea-ice for birthing, nursing, resting, isolation from predators, and for passive transport to new feeding areas. Most of the population spends the summer months in the pack-ice of the Chukchi Sea; however, several thousand animals, primarily adult males, use coastal haulouts in the Bering Sea during the ice-free season (USFWS 2009d).

Although walruses are capable of deep diving (greater than 250 m [820 ft]), they usually feed in waters less than 80 m (260 ft) deep over the continental shelf where their prey are more abundant and easier to obtain than in deeper waters (USGS 2008). Hanna Shoal, which is located northeast of the project area, is considered winter habitat and potentially important summer feeding habitat for Pacific Walrus (MMS 2008, MMS 2009).

The current size and trend of the Pacific walrus population is unknown, as no reliable estimate for the size of the Alaska Pacific walrus stock is available. Efforts to estimate abundance have met with limited success because the population is distributed over such a large and generally inaccessible area. Gilbert et al. (1992) estimated 16,489 walruses were distributed in the Chukchi sea pack-ice between Wrangel Island and Point Barrow in September 1990. This estimate was considered conservative because no correction was made for walrus in the water at the time of the survey. A joint U.S./Russian aerial survey was conducted in April 2006. Thermal infrared scanners were used to detect walruses resting on pack-ice in the Bering Sea and satellite telemetry tags were used to account for diving animals. Analysis of these survey results is expected to be published in late 2009 (USFWS 2009d). However, this information was not available for review as of the development of this Bear Plan.

1.4.1 Proposed Listing of Pacific Walrus as a Threatened or Endangered Species

On September 8, 2009, the USFWS announced a finding on a petition to list the Pacific walrus as threatened or endangered under the ESA and to designate critical habitat. The USFWS found that the petition presents scientific information indicating that listing a subspecies may be warranted and is soliciting information regarding the status of the Pacific walrus for review. The USFWS will conduct a 12-month review and submit a finding on whether to propose this species for listing under the ESA, by September 10, 2010 (USFWS 2009c).

The proposed seismic activities will likely occur prior to the issuance of this finding, and no specific action is required of Statoil toward this proposed listing. Statoil will consult with the USFWS to determine if protective measures are needed beyond what is currently required under the MMPA.

2.0 PLAN OF OPERATION

Geophysical data acquisition will be conducted by Statoil's seismic contractor, Fugro-Geoteam, Inc. Vessels will mobilize out of Dutch Harbor, Alaska to the project area in approximately mid-July, depending upon weather. Upon arriving at the project area sound source verification measurements will be collected to determine radii for marine mammal monitoring. Data acquisition is expected to take approximately 60 days; however, all permits will be requested from July 15 to November 30 to allow for contingencies and weather delays.

A single source vessel, the marine vessel (M/V) *Geo Celtic,* or similarly equipped vessel, will perform 3D and 2D data acquisition. Two support vessels, the M/V *Thor Alpha* and seismic support vessel *Gulf Provider,* or similarly equipped vessels, will perform marine mammal monitoring, support, supply, and crew transfer duties, and will be available for deployment and retrieval of acoustic recorders for sound source verification measurements. Additional information about program specifics is included in the Plan of Operations.

**THIS PAGE
INTENTIONALLY
LEFT BLANK**

Arctic Ocean

Hanna Shoal

Herald Shoal

Chukchi Sea

Beaufort Sea

N

Point Barrow

Barrow

Wainwright

Icy Cape

Kuk River

Peard Bay

Atqasuk

Kugrua Bay

Cape Halkett

Nuiqsut

Deadhorse

Kaktovik

Point Lay

Kasegaluk Lagoon

Kokolik River

Polynya Zone

Cape Lisburne

North Slope Borough

Trans-Alaska Pipeline

North Slope Borough

Point Hope

Cape Thompson

Anaktuvuk Pass

Kivalina

Northwest Arctic Borough

Kotzebue

Kotzebue Sound

RUSSIA

Bering Strait

Nome

Norton Sound

CANADA

Distance to Survey Area in miles:	
Barrow	158
Wainwright	114
Point Lay	138
Point Hope	246
Nome	645
Dutch Harbor	1297

Lease Owner
- Statoil
- All Other
- Permit Area
- 3D Seismic Survey Area

- 2D Seismic Lines (Potential Locations)
- Borough
- Polynya Zone
- Village
- Road
- Pipeline

*Notes: The North Slope Borough and Northwest Arctic Borough boundaries extend to the 3 mile State of Alaska jurisdictional boundary.

NAD83, Alaska Albers Equal Area

ASRC Energy Services
a subsidiary of Arctic Slope Regional Corporation
Regulatory and Technical Services

Statoil

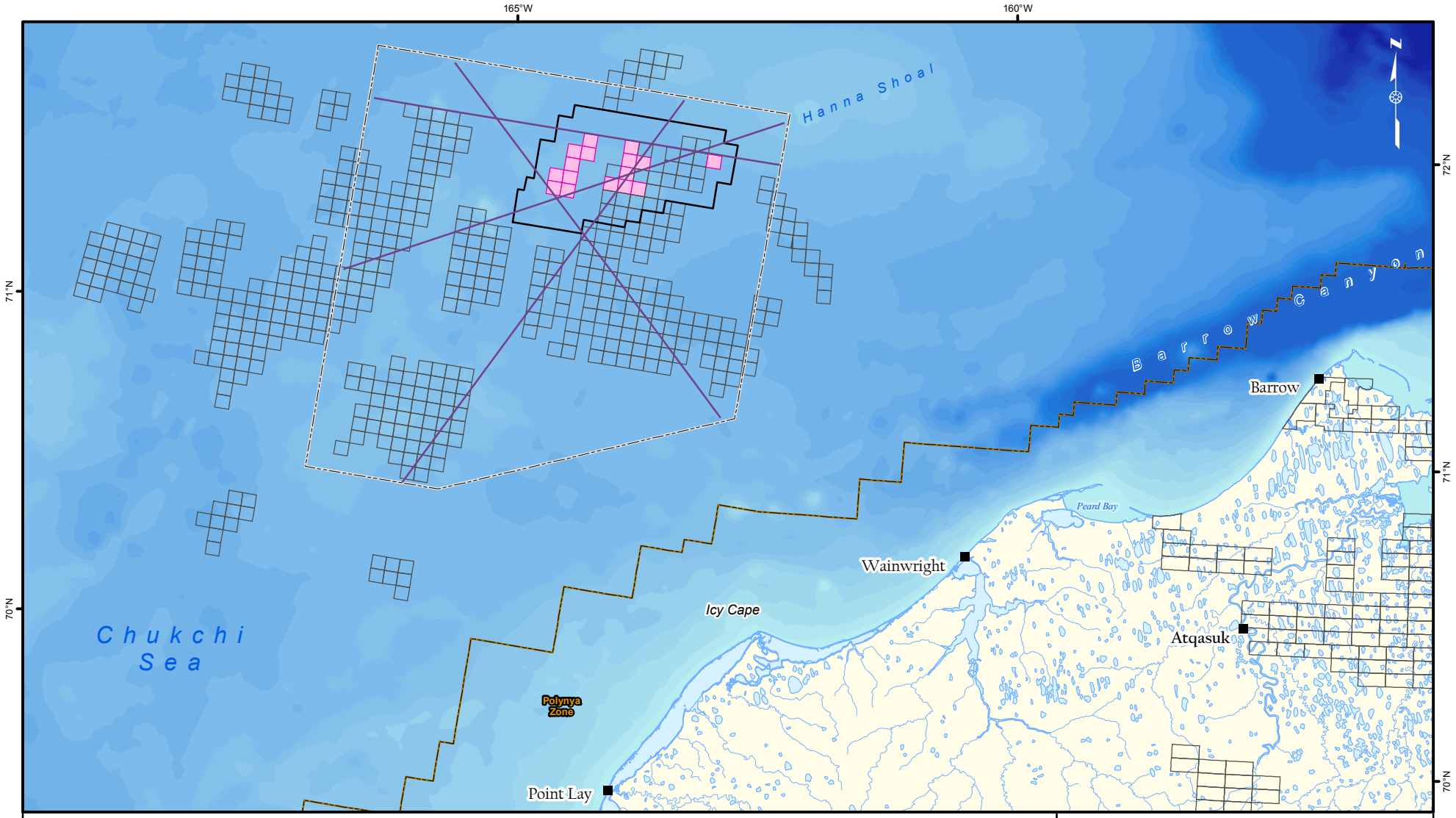
STATOIL SEISMIC SURVEY AREA 2010
Statoil Chukchi 2010 Seismic Acquisition
Polar Bear and Walrus Awareness and Interaction Plan

SCALE: 0 25 50 100 Miles

FIGURE: 1

AES-RTS: 09-134-001.mxd, 12/22/09, R00

THIS PAGE INTENTIONALLY LEFT BLANK



Lease Owner
- Statoil
- All Other

- 3D Seismic Survey
- Permit Area
- 2D Seismic Lines (Potential Locations)
- Polynya Zone
- Village

Statoil

PROJECT AREA
Statoil Chukchi 2010 Seismic Acquisition
Polar Bear and Walrus Awareness and Interaction Plan

ASRC Energy Services
a subsidiary of Arctic Slope Regional Corporation
Regulatory and Technical Services

SCALE: 0 10 20 40 Miles

FIGURE: 2

NAD83, Alaska Albers Equal Area

AES-RTS: 09-134-002.mxd, 12/22/09, R00

**THIS PAGE
INTENTIONALLY
LEFT BLANK**

3.0 SITE-SPECIFIC POLAR BEAR INTERACTION PLAN

The possibility of human-bear interaction will be remote as the proposed seismic activity will take place on the open water where humans will be aboard self-contained vessels. However, the following practices have been developed to reduce the risk of attracting polar bears and provide procedures in the unexpected event that human-bear interactions occur.

3.1 Food and Waste Management Plan

Human activity has the potential to attract certain species of wildlife; specifically, food and associated waste by-products are attractants for bears. Proper waste management is critical to prevent bears from being conditioned to associate human activity with a food source. The following procedures will help eliminate the potential for bears to associate humans and facilities with food:

- Food waste and other associated waste will be stored in containers until transferred off-vessel for disposal at an approved disposal site.
- Sanitary waste from bathrooms, sewage sludge, and kitchen-associated garbage will be transferred on a regular basis to ensure control of attractants.
- Kitchen grease will be identified for treatment as spoilable waste.
- Hazardous wastes will be transported off-vessel for disposal at an approved facility.
- Employees will be strictly prohibited from directly feeding animals, throwing food to animals, or improperly disposing of food wastes.

3.2 Personnel Training Materials

All vessel crew and seismic acquisition personnel will be fully trained in their required tasks. In addition, crews will have environmental sensitivity training, including food and waste management training, prior to transiting to the project area.

Each vessel will have Marine Mammal Observers (MMOs) responsible for looking for the presence of marine mammals; including, polar bear and Pacific walrus; recording observations; and directing the vessel crew in required mitigation measures. Training will be done in accordance with USFWS requirements.

3.3 Personnel Safety and Communication

The following communication practices will be implemented:

- Ensure personnel are trained to operate communication equipment to alert crew of bear sightings.
- Coordinate personnel with vessel crews to ensure the activities are compatible with bear avoidance.
- Personnel will follow a chain of command for reporting and responding to bear sightings.
- If a bear is observed, personnel will notify the MMO or designated personnel immediately to ensure proper bear monitoring.

3.4 At-Risk Locations for Polar Bears

In general, sea-ice floes are the most likely locations for observing polar bears. It is possible that polar bears may be encountered if project vessels seek safe harbor near shore or when performing crew changes or resupply activities. In the unlikely such an event occurs, personnel should seek shelter in secure areas of vessels and, if possible, move the vessels away from bears.

4.0 POLAR BEAR AND PACIFIC WALRUS OBSERVATION AND REPORTING PROCEDURES

Bear and walrus monitoring and reporting related to survey activities will be conducted in accordance with regulations of the MMPA and as described in the LOA from the USFWS. Monitoring and reporting requirements are discussed in Sections 3.0 and 4.0 of the Polar Bear and Pacific Walrus Monitoring, Mitigation, and Reporting Plan, respectively. A flowchart showing reporting procedures is provided as Appendix A of this document. Forms that may be used to report polar bear and walrus observations are also provided as Attachments B and C, respectively.

5.0 POLAR BEAR AND PACIFIC WALRUS AVOIDANCE AND ENCOUNTER PROCEDURES

Bear and walrus mitigation measures related to survey activities will be conducted in accordance with regulations of the MMPA and as described in the LOA from the USFWS. Mitigation measures are discussed in Section 2.0 of the Polar Bear and Pacific Walrus Monitoring, Mitigation, and Reporting Plan.

6.0 REFERENCES

Aars, J., N.J. Lunn, and A.E. Derocher. eds. 2006. Polar Bears: Proceedings of the 14th Working Meeting of the IUCN/SSC Polar Bear Specialist Group, 20-24 June, Seattle, Washington, USA. Occasional Paper of the IUCN Species Survival Commission No. 32. IUCN, Gland, Switzerland Cambridge, UK. 189 pp.

ADF&G. 2009. Wildlife Notebook Series. http://www.adfg.state.ak.us/pubs/notebook/marine/polarbear.php (accessed October 26, 2009)

ADF&G. 2009b. Wildlife Notebook Series. http://www.adfg.state.ak.us/pubs/notebook/marine/walrus.php (accessed October 26, 2009)

Evans, Thomas. Personal Communication. 2009. U.S. Fish and wildlife Service, Marine Mammals Management, 1011 East Tudor Road Anchorage, Alaska, 99516

Gilbert, J.R., G.A. Fedorseev, D. Seagars, E. Razlivalov, and A. LaChugin. 1992. Aerial census of Pacific Walrus, 1990. USFWS R7/MMM Technical Report 92-1; in USDOI, USFWS. 2007. Proposed Rule to Authorize the Incidental Take of Small Numbers of Pacific Walruses and Polar bears During Oil and Gas Industry Exploration Activities in the Chukchi Sea. Environmental Assessment. July FWS AR009265

MMS. 2008. Beaufort Sea and Chukchi Sea Planning Areas. Oil and Gas Lease Sales 209, 212, 217, 221. Draft Environmental Impact Statement. OCS EIS/EA MMS 2008-0055.

MMS. 2009. MMS Environmental Studies Program: Ongoing Studies. Pinniped Movements and Foraging: Walrus Habitat Use in the Potential Drilling Area (AK-09-01).

USFWS. 2008. 50 CFR Part 17, Endangered and Threatened Wildlife and Plants; Determination of Threatened Status for the Polar Bear (*Ursus maritimus*) Throughout Its Range; Final Rule. Federal Register, 75:95 (May 15), (28212-28303).

USFWS. 2009a. U.S. Fish and Wildlife Service Proposes Polar Bear Critical Habitat. News release, October 22. www.fws.gov/fisheries/mmm/polarbears/criticalhabitat.htm Accessed October 23, 2009.

USFWS. 2009b. Stock Assessment for Polar Bears (Alaska Stock) Marine Mammal Protection Act Stock Assessment Report. Marine Mammals Management, U.S. Fish and Wildlife Service, Anchorage, Alaska. P.28946 Federal Register / Vol. 74, No. 116 / June 18, 2009

USFWS. 2009c. 50 CFR Part 17, Endangered and Threatened Wildlife and Plants; 90 Day Finding on a Petition to List the Pacific Walrus as Threatened or Endangered. Federal Registry, 74:174 (September 10) (46548)

USFWS 2009d Walrus (Odobenus rosemarus divergens) fact sheet U.S. Fish and Wildlife Service, Alaska, MS-341 Anchorage Alaska. http://Alaska.fws.gov . Accessed December 1, 2009.

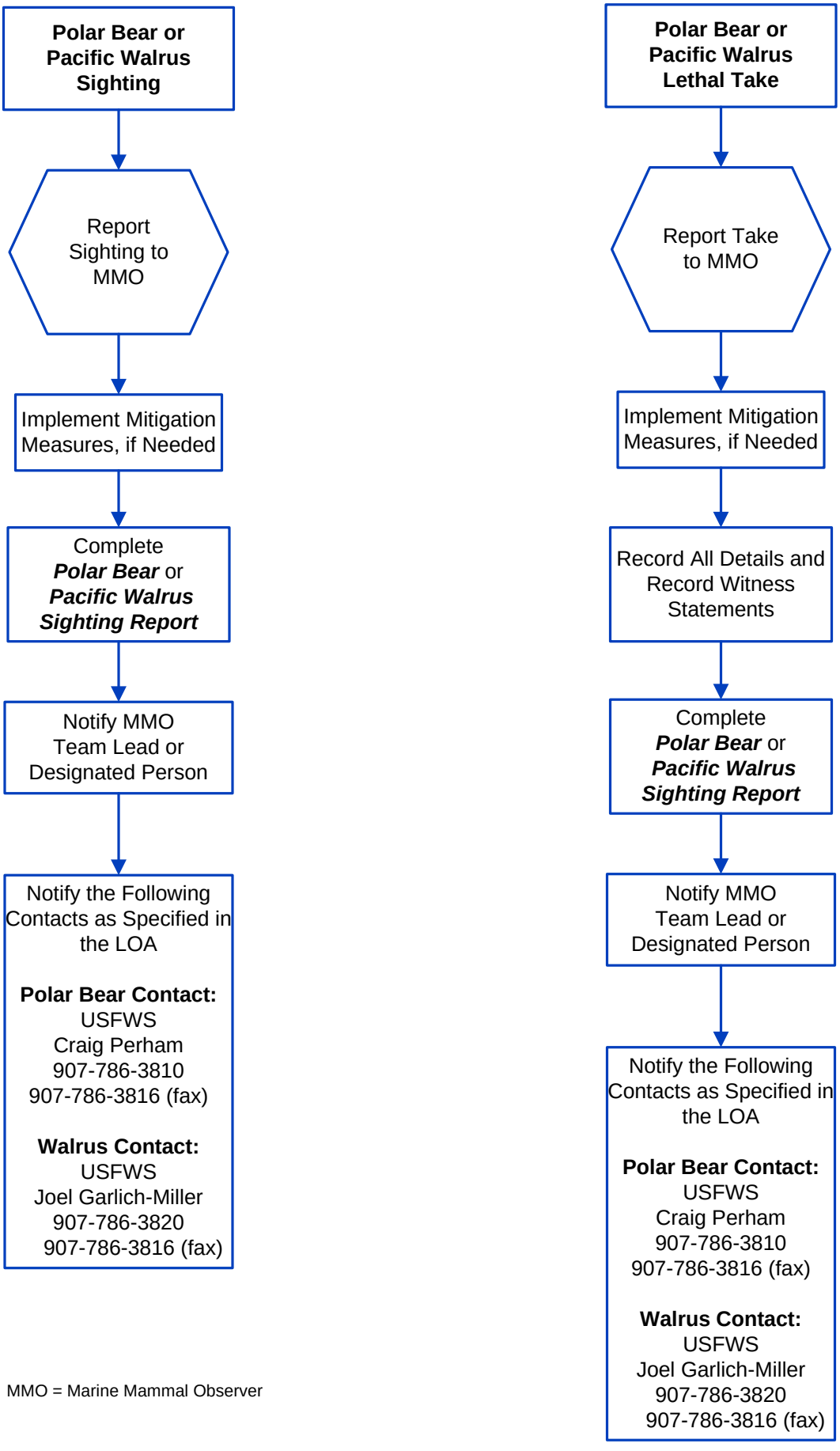
USGS 2008. Pacific Walrus Response to Arctic Sea Ice Losses**.** Fact Sheet 2008-3041, May 2008 http://pubs.usgs.gov/fs/2008/3041/ . Accessed December 1, 2009.

**THIS PAGE
INTENTIONALLY
LEFT BLANK**

ATTACHMENT A
Polar Bear and Pacific Walrus Notification Flow Chart

**THIS PAGE
INTENTIONALLY
LEFT BLANK**

Polar Bear and Pacific Walrus Notification Flow Chart



MMO = Marine Mammal Observer

ATTACHMENT B
Polar Bear Sighting Report

**THIS PAGE
INTENTIONALLY
LEFT BLANK**

United States Department of the Interior
FISH AND WILDLIFE SERVICE
1011 E. Tudor Road
Anchorage, Alaska 99503-6199

POLAR BEAR SIGHTING REPORT

Date:_____ Observer name:_____
Time:_____ Contact number/email:_____
Sighting Identification Number_____Vessel Name_____

Location: _____
Latitude:_____ Longitude_____ Datum:_____

Substrate: (animal on ice, in water, on land) _____

Environmental Conditions: water depth _____m; sea state (Beaufort scale)_____

Weather conditions: Fog_____ Snow_____ Rain_____ Clear_____ Temperature_____°F/°C
Wind speed_____mph/kts Wind direction_____
Visibility (in # km): Poor____ Fair____ Good_____ Excellent_____
Light/dark_____ Glare (none, moderate, severe)_____ Ice condition- % cover
Ice condition

Number of bears: _____
_____ Adult M/F _____ Sow/cub(s) _____ Sow/yearling(s) _____ Sow/2YO(s)
_____ Sub-adult _____ Unknown
Estimated distance of bear(s)
from personnel_____ (meters) and vessel/equipment:_____ (meters)

Bear behavior (Initial Contact): _____

Bear behavior (After Contact): _____

Vessel Activity at time of sighting: vessel speed_____, seismic activity code____action taken by operator in response to sighting (yes, no); if yes, specify what action was taken_____
_____

Description of encounter:_____
_____
_____
_____

Duration of encounter:_____ **Possible attractants present: _____**
MMO notes_____
Were Deterrents used?/distance:
_____ Vehicle_____ Bean bag _____ Spotlight/Headlight
_____Crackershell_____ Horn/siren_____ Rubber bullet _____Other

ATTACHMENT C
Walrus Sighting Report

**THIS PAGE
INTENTIONALLY
LEFT BLANK**

United States Department of the Interior
FISH AND WILDLIFE SERVICE
1011 E. Tudor Road
Anchorage, Alaska 99503-6199

WALRUS SIGHTING REPORT

Date:_____ Observer name:_____
Time:_____ Contact number/email:_____
Sighting Identification Number_____Vessel Name_____

Location: _____
Latitude:_____ Longitude_____ Datum:_____

Substrate: (animal on ice, in water, on land) _____
Environmental Conditions: water depth _____m; sea state (Beaufort scale)_____

Weather conditions: Fog_____ Snow_____ Rain_____ Clear_____ Temperature_____°F/°C
Wind speed_____mph/kts Wind direction_____
Visibility (in # km): Poor____ Fair____ Good_____ Excellent_____
Light/dark_____ Glare (none, moderate, severe)_____ Ice condition- % cover

Number of walruses: _____
_____ Adult M/F _____ cow/calf _____ _____ Sub-adult _____ Unknown
Estimated distance of walrus(es)
from personnel_____ (meters) and vessel/equipment:_____ (meters)

Walrus behavior (Initial Contact): _____

Walrus behavior (After Contact): _____

Vessel Activity at time of sighting: vessel speed_____, seismic activity code____
action taken by operator in response to sighting (yes, no); if yes, specify what action was taken
_____

Description of encounter: _____
_____
_____
_____

Duration of encounter:_____

MMO notes_____

Were Deterrents used? /distance:_____
Vessel _____ Spotlight/Headlight_____ Horn/siren_____ Rubber bullet_____Other_____

Agency/Contacts:
USFWS_Joel Garlich-Miller (786-3820) (FAX: 786-3816)_____ Time_____Date_____

QUALITY CONTROL REVIEWER
Elizabeth Benson

Technical Editor: Nikishka Stewart