UNITED STATES DEPARTMENT OF THE INTERIOR
MINERALS MANAGEMENT SERVICE
ALASKA OCS REGION

NTL No. 05-A02 Effective Date: JUL 25 2005

NOTICE TO LESSEES AND OPERATORS OF FEDERAL OIL AND GAS LEASES IN THE ALASKAN OUTER CONTINENTAL SHELF (OCS) REGION

SHALLOW HAZARDS SURVEY AND EVALUATION FOR ALASKA OUTER CONTINENTAL SHELF (OCS) PIPELINE ROUTES AND RIGHTS-OF-WAY

Authority

This Notice to Lessees and Operators (NTL) is issued pursuant to regulations at 30 CFR 250.201, 30 CFR 250.1007(a), and 30 CFR 250.1010 and supersedes NTL 00-A02, dated February 7, 2000.

Purpose and Need for NTL

This NTL provides guidance for lessees and/or operators to perform accurate and compliant pipeline rights-of-way (ROW) shallow hazards geophysical evaluations, surveys, and reporting procedures for the Alaska OCS Region. It is issued to clarify and interpret requirements contained in regulations and does not impose additional requirements.

The Minerals Management Service (MMS) Regional Supervisor for Field Operations (RS/FO), requires all areas considered for pipeline routes to be investigated, and the identification of any exiting natural hazardous conditions be documented and provided to the RS/FO prior to MMS review and authorization of any development plan(s). A high resolution geophysical survey and geotechnical analysis is required to ensure sufficient pre-design investigation is performed so that development plans consider any exiting natural hazardous conditions within their design and maximize avoidance and/or minimize potential adverse impacts to the environment.

Potentially hazardous shallow conditions, features, or processes include seismicity, fault scarps, steep-walled canyons and slopes, submarine channels, current scour, dynamic sedimentary bedforms, ice gouging, permafrost, gas hydrates, unstable soil conditions, and other geological or man-made features.

In addition, archaeological resources must be evaluated in areas where the Regional Director determines that they may occur or if archaeological resources are found during the pipeline route or shallow hazards surveys (see NTL No. 05-A03 Archaeological Survey and Evaluation for OCS Exploration and Development Activities).

Guidance

For a ROW that originates in the OCS the survey and archaeological analysis and report must include the entire length of the proposed pipeline ROW in accordance with 30 CFR 250.1007(a). The pipeline ROW surveys need to be conducted, analyses completed, and the report(s) provided to the RS/FO prior to the submittal of the pipeline ROW application.

Qualified and experienced personnel must perform the field survey, process and analyze data, prepare the report, and acknowledge responsibility by signing the appropriate data logs, analysis and reports. You are responsible for obtaining the best possible results using the most appropriate survey technology. Poor quality data due to acquisition or processing technique is not acceptable and could result in the MMS requiring you to resurvey a proposed pipeline route.

In addition to collecting geological and geophysical data, additional oceanographic and other supportive environmental data (see Other Investigations) that is representative for the geographic areas in which the pipe system will be installed may be required to adequately review and assess the pipeline ROW application. This data may come in part from previous relevant studies and reports done in the area. This may also require separate studies to describe dynamic environmental conditions.

No bottom disturbing activities, other than geotechnical investigations, will be conducted without the MMS RS/FO and other applicable regulatory approvals are received and/or authorized.

We strongly recommend that proposed survey strategy, schedules, and work plans are reviewed and approved by the MMS RS/FO prior to commitment of field operation activities funds and field activities commitments.

Notification

Notification to other potentially affected OCS lessees before conducting a survey. Lease sale notices may include stipulations or information to lessee clauses that require or encourage additional coordination with other parties (e.g., bowhead whale subsistence users or commercial fishing organizations). You are advised to review these provisions and associated requirements for applicability to your proposed survey. If the survey will include state waters, you should contact the appropriate state agency to ascertain any State requirements.

You should be aware that seismic surveys have the potential for incidental take of marine mammals and are subject to the incidental taking provisions of the Marine Mammal Protection Act (MMPA) and Endangered Species Act (ESA). Under the MMPA and ESA, you could be required to have a Letter of Authorization (LOA) or Incidental Harassment Authorization (IHA) from the National Marine Fisheries Service (NMFS) and Fish and Wildlife Service (FWS). You should review your proposed activity with the NMFS and the FWS.

A notice of intent must be provided to the RS/FO to conduct preliminary activities in accordance with 30 CFR 250.201. This notice should be submitted a minimum of one month before starting any survey operations. The notice should include a description of the type, scope, and timing of the survey. The notice should also include documentation of applicable notifications and coordination with other parties and a copy of an IHA or LOA application or approved authorization, if applicable.

In addition, notification to the RS/FO at least 72 hours before mobilizing this survey is required to allow the MMS the opportunity for an observer to be present.

Shallow Hazards Pipeline Survey Requirements

Shallow hazards data must provide information on seafloor conditions that may present hazards to pipeline operational integrity and safety, including pipe-lay and trenching operations. The survey should also provide information on sub-seafloor conditions and seafloor processes that must be taken into consideration during pipeline design, installation and operations to mitigate potential hazards to the integrity of the pipeline.

Survey Design

A pipeline ROW survey generally consists of at least five (5) approximately parallel lines along the entire length of the route, where one line is coincident with the proposed pipeline. The survey covers, at a minimum, an area 300 meters (m) on either side of the centerline (Figure 1) or the entire area affected by the proposed pipeline operations. The grid must provide at least 150 percent coverage of the seafloor on side-scan sonar data by a 50 percent or more overlap of channels on adjacent lines. For other seafloor imaging systems such as multi-beam sonar, you must have sufficient overlap of adjacent lines to ensure total coverage of the area with no distal distortion effects. Tie lines perpendicular to the centerline must be acquired at intervals of no greater than 1,200 m (see Figure 1). A variance from the five line spread may be desirable or necessary depending on specific conditions, pipe-lay methods, and design considerations. We strongly recommend that you consult with the MMS before you finalize your survey strategy.

If the existence of shipwrecks or other manmade objects that could pose a risk or have archaeological significance is likely to occur in the area of operations, a magnetometer survey may be necessary. If it is determined that a magnetometer survey is necessary, we will notify you of the survey requirements as they may vary depending on the water depth and nature of the target.

Sub-bottom Profiles

Use sub-bottom profiling techniques and systems that portray the seafloor and sub-bottom reflections with a vertical resolution of one millisecond or better at a two-way travel time corresponding to a depth of 30 m below the seafloor. A combination of piezoelectric (3.5 kHz) and electromechanical (boomer or equivalent) systems is acceptable survey standards. However, other systems and techniques that provide equivalent or better results are encouraged such as a digital

broadband swept Financial Memorandum (FM) frequency system instead of the 3.5 or 7 kHz sub-bottom profiler.
Vertical exaggeration should not exceed 10:1 on geophysical records. Decouple and/or compensation of the system is recommended to compensate for wave heave if the survey is undertaken in a sea state of greater than Beaufort Code 2. All geophysical systems must be integrated with the survey navigation resulting in accurate posting of fixed points on seismic lines.

Seafloor Imagery

Side scan sonographs are acceptable methods to identify areas on the seafloor of exposed rock outcrops, seafloor scarps, depressions, scour, sedimentary textures, underwater obstacles, areas of potential biological activity, or archaeological resources. Recordings must be of optimal quality (good resolution, minimal distortion) resulting in displays automatically corrected for slant range, lay-back and vessel speed. The system must, at a minimum, reliably detect and resolve objects three feet (one meter) in diameter. Side-scan records must provide at least 150 percent coverage of the area to be affected by the proposed pipeline operations. In shallow water, survey line density may need to be increased. The MMS will also consider other proposed survey systems if equivalent of better results can be demonstrated.

Bathymetry

Fathometer data should consist of high frequency (12 kHz or higher) continuous seafloor profiles. In areas of complicated seafloor characteristics, a multi-beam system may be needed.

Water-Column Anomaly Detection

A system capable of detecting gas in the water column is a required portion of the survey. Analog profiles of bathymetry are capable of detecting gas where it is present in the water-column. To obtain good records, this will involve higher bandpass frequency during water-column profiling than normally used to record only the seafloor return.

Magnetometer

Magnetometer data may be required if there is reason to believe that shipwrecks, abandoned pipe or other man made metal objects may be present. Magnetometer survey techniques should be capable of detecting and aiding the identification of ferrous, ferric, or other objects having a distinct magnetic signature. We will notify you if this survey system is likely to be needed and we will discuss with you the survey requirements.

Geotechnical Information

Seafloor samples and/or soil borings along the route may be required to evaluate sediment characteristics and engineering parameters (CFR 250.1008(4)). You should integrate the boring or sample locations with navigation for the pipeline right-of-way shallow hazards survey. Submit a descriptive geotechnical evaluation including, lithologic description, soil analysis and slope stability as part of the geotechnical study.

Other Investigations

Additional information may be required before approving a proposed pipeline route or right-of-way, as determined by the review or the survey report and supporting data. Optional equipment and techniques may be needed to substantiate route selection to ensure personnel and equipment safety or to avoid archaeological or biological resources.

Navigation

A state-of-the-art navigational positioning system, with an accuracy of $\pm$ 2 m (6 feet) is required for substantiation and integration of the survey data. For marine surveys the vessel track should not vary more than $\pm$ 15 m (49 feet) from the pre-plot line, except to avoid obstructions. All survey systems must be integrated with the referenced navigational positioning system, resulting in accurate posting of fixed points on survey lines and records. All fix marks must be easily identified on post-plot maps. For marine deep-tow systems, an ultra short baseline system may be required in order to track the towfish within a one percent error margin and must be integrated with the referenced navigational positioning system. Navigation systems must be calibrated and both relative and absolute position accuracy verified before the start of the survey and after the survey.

Report Format and Content

The survey/evaluation report, and supportive data and documentation, must be submitted along with the ROW permit application.

Survey analyses must provide sufficient information for a shallow hazards evaluation of the area along the entire length of the proposed pipeline route and ROW. The report is a technical document and should present collaborative data, maps, graphs, and tables to support all conclusions and interpretations. References cited in the text should be included in a Reference Section. Identification and discussion of geologic conditions and features must be clear and organized. Failure to submit a report with clear and supported conclusions will result in the MMS review delay and/or rejection of the report.

Report Submission

You must submit two copies (except as otherwise indicated below) or the survey report, which includes the following items:

1. Technical description of equipment, data acquisition techniques, conditions during data acquisition, data processing strategy and techniques.

2. Interpretation and evaluation of hazards and constraints.

3. Six maps, all containing geographic coordinates, plane coordinates, bar scales in feet and meters, lease boundaries in conformance with North American Datum of 1983 (NAD-83) official protraction diagrams, block and lease numbers, and the proposed pipeline route:

a. Page-size geographic area map showing proposed pipeline route and locations of geotechnical borings and sample in relation to other nearby geographic features.

b. Navigation post-plots for all investigations at a scale of 1:12,000. This map includes locations of soil boring and/or sediment samples.

c. Bathymetry map at a scale of 1:12,000 contoured in intervals of 2 m or less, or in a way not to impair legibility of the map. Use a post-plot map as the base.

d. Geologic features map, showing features at and near the seafloor at a scale of 1:12,000. Use a post-plot map as the base including locations of soil boring and/or sediment samples, as well as, all anchor impacts from pipelining vessels.

e. Geologic structure map at a scale of 1:12,000, showing thickness of unconsolidated sediment interpreted from high-resolution geophysical data, contoured in intervals of 2 m or less, or in a way not to impair legibility of the map. Use a post-plot map as the base.

f. Hazards map, showing results of all interpretations with explanation or legend detailing those geophysical systems used as source for the mapping, at a scale of 1:12,000. Use a post-plot map as the base.

4. Near surface geologic structural cross-sections along and at right angles to the centerline with related interpreted geophysical and geotechnical boring profiles.

5. Boat logs detailing data collection parameters.

6. Other graphics that may be included in the report, as appropriate:

   a. Soil profiles and descriptions available from any drilling or coring in the area.
   b. Any other interpretive graphics prepared in connection with the investigation.
   c. Page-size reductions of the six maps described above.
   d. Photographs, films or video tapes of site investigations, if applicable.

7. To facilitate development of the MMS OCS Alaska regional database we request all digitally produced maps that are provided to MMS to be in ArcGIS format with projection information and necessary metadata.

Data Preparation and Submission:

Paper copies of data must be of optimal quality and Z-folded with identification labels and data headers exposed to facilitate ease of handling during interpretation. Data records must have fix

marks with shot point numbers at 100 m or other appropriate intervals. Paper records should be displayed with consistent orientation (such as west to the left, or north to the left). Annotate all line crossings and corresponding shot-points on the records. No interpretative markings should appear on the data portion of the original records or copies you submit. Poor copies or reduced quality reproductions will not be accepted.

Data headers should contain:

- Survey name
- Dates of acquisition and if appropriate date of processing
- Start/Stop times
- Names of operating and responsible personnel
- Ships speed
- Sea state (Beaufort Scale)
- Ice conditions if applicable
- System parameters for seismic source and receivers, such as manufacturer, model, frequency range, power, filter settings, physical characteristics and deployment configuration
- Record scale parameters including any changes during recording
- Vertical exaggeration
- Processing information if applicable

Submit one paper copy of all survey data and reproducible copies of all digital data. Data records should be in order. Include two copies of an itemized invoice of materials transmitted, enumerating the data by type, line number, and inclusive fix-points (one invoice for paper copies and one for digital copies). Original side-scan sonar records may need to be submitted if paper copy quality is inadequate to evaluate seafloor features.

1. Navigation data for the survey on tape or digital diskette/CDROM.
2. Original magnetometer records (when required).
3. Side scan sonar records in paper copies. If copies are not of adequate quality to delineate sea bottom conditions, you will need to submit original records. Original records and copies of digital records should be available for MMS review after data is submitted for site clearance.

Paperwork Reduction Act of 1995 (PRA) Statement: The collection of information referred to in this NTL is required in 30 CFR part 250, subparts B and J. The Office of Management and Budget (OMB) approved the information collection requirements in these regulations and assigned OMB control numbers 1010-0114 for subpart A and 1010-0050 for subpart J. This NTL does not impose additional information collection requirements subject to the PRA.

Contacts

The following table provides contact names, telephone numbers, and addresses if you have any questions concerning shallow hazard surveys or reports:

Titles	Contact	E-mail address	Phone
Geologist	Doug Choromanski	Douglas.Choromanski@mms.gov	907-334-5308
Geophysicist	Dennis Thurston	Dennis.Thurston@mms.gov	907-334-5338
RS/FO	Jeffrey Walker	Jeffrey.Walker@mms.gov	907-334-5303

J. M. Walker

Jeffrey Walker
Regional Supervisor
Field Operations Office

7/25/05
Date

Shallow Hazard Survey Alaska OCS

Pipeline Right-of-Way Grid

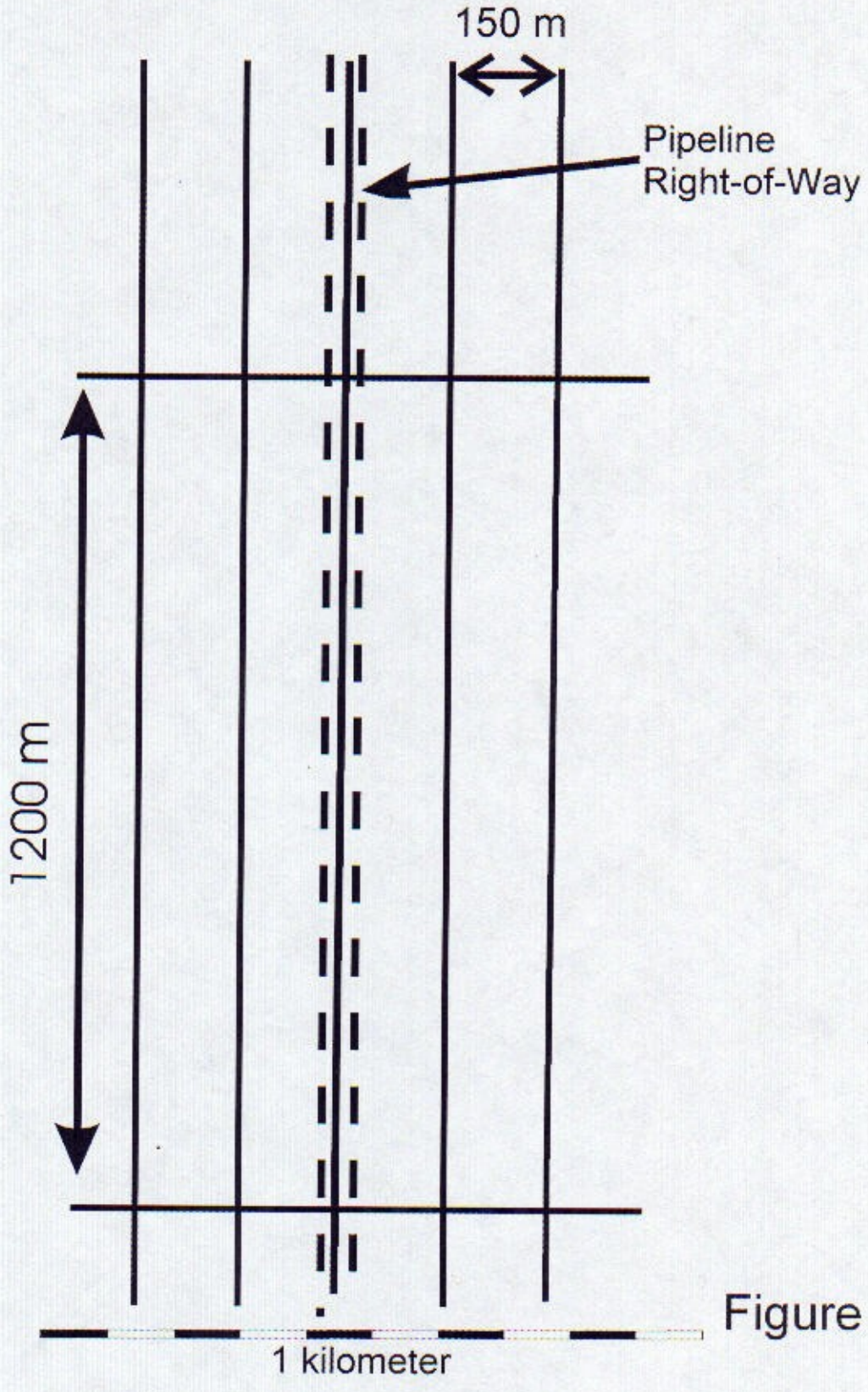

Figure 1