

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

NTL No. 05-A03

Effective Date: JUL 25 2005

NOTICE TO LESSEES AND OPERATORS OF FEDERAL OIL AND GAS LEASES IN THE
ALASKA OUTER CONTINENTAL SHELF REGION

**ARCHAEOLOGICAL SURVEY AND EVALUATION FOR EXPLORATION AND
DEVELOPMENT ACTIVITIES**

Authority

This Notice to Lessees and Operators (NTL) is issued pursuant to regulations at 30 CFR 250.194; 30 CFR 250.201; 30 CFR 250.203; 30 CFR 250.204; 30 CFR 250.1007(a)(5); and 30 CFR 250.1010(c) and supersedes NTL 00-A03, dated February 7, 2000.

In accordance with 30 CFR 250.196(b), the Minerals Management Service (MMS) may release to the public all high resolution seismic data 60 days after the data is formally submitted to the MMS.

Purpose and Need for NTL

This NTL provides guidance for the lease owner/operator of performance standards for conducting and evaluating archaeological surveys, reports, and reporting procedures to the MMS, Alaska Outer Continental Shelf (OCS), Field Operations (FO) office. It is issued to clarify and interpret requirements contained in regulations and does not impose additional requirements.

Before beginning drilling, facility construction, or pipeline rights-of-way (ROW) activities, an archaeological survey and analysis may be required to be conducted, to evaluate the existence and location of any submerged archaeological resources, which could be impacted by proposed OCS operations. An Archaeological resource report is a document prepared by an operator or applicant and submitted to the MMS Regional Supervisor for Field Operations (RS/FO). The report is an analysis of geophysical survey data for indications of potential archaeological resources. The report is for prehistoric and/or historic resources, as determined by the MMS RS/FO, and covers the area of proposed operations.

The MMS RS/FO may require pre-exploratory and pre-development archaeological investigations and evaluation if the Regional Director (RD) determines that submerged archaeological resources may exist on or near lease areas under the MMS authority.

When notified by the RD that an archeological resource may exist in the lease area, an archaeological survey must be performed, and an archaeological report must be included in the Exploration Plan (EP) and/or Development and Production Plan (DPP) submittal, and/or pipeline ROW permit application.

Potential submerged archaeological resources range from historic to prehistoric. Historic resources include man-made objects or structures older than 50 years, such as shipwrecks, submerged structures, and aircraft. Prehistoric archaeological resources may occur in areas that were sub aerially exposed during the low stand of sea level approximately 13,000 years before present (generally 60 meters below sea level on the Alaska OCS). Relict terrestrial landforms such as preserved levees or terraces associated with paleo-river channels, river confluences, ponds, lakes, lagoons, or paleo-shorelines are areas where archaeological sites are most likely to occur. More information on archaeological resources may be found in the MMS Handbook for Archaeological Resource Protection, which is available upon request or on the MMS web page at <http://www.mms.gov/adm/rn239.pdf>.

Guidance

The archaeological survey consists of a high-resolution geophysical survey. You may satisfy the general survey data requirements for the archaeological resources analysis in part, or in whole, with data from high-resolution geophysical surveys acquired under the provisions of NTL 05-A01, (Shallow Hazards Survey and Evaluation for OCS Exploration and Development Drilling) and NTL 05-A02 (Shallow Hazard Survey and Evaluation for OCS Pipeline Routes and Right-of-Way Activities). It is recommended that you consult with the MMS RS/FO before finalizing your survey strategy and plans.

The Archaeological analysis and report must be provided to the MMS RS/FO for review prior to and/or concurrent with the EP, DPP, or Pipeline ROW permit application.

For a pipeline ROW that originates in the OCS and continues across State submerged lands, 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) (5).

Qualified and experienced personnel must perform the field survey, analyze data, perform the evaluation, prepare the report, and acknowledge responsibility for these activities by signing the appropriate data logs, analyses, and reports in accordance with 30 CFR 250.194 (a) (2).

A survey geophysicist must be actively present during field survey operations to ensure that the equipment is properly tuned and data are accurate and of sufficient quality to perform the required analyses and supportive of report conclusions. The survey geophysicist must evaluate the data to determine if any anomalies warrant collection of additional survey data or further field evaluation to determine their archaeological potential in accordance with 30 CFR 250.194 (a) (2).

An archaeologist who meets the Professional Qualifications Standards in the Secretary of Interior's Standards and Guidelines for Archaeology and Historic Preservation as required by Section 112(a)(1) of the National Historic Preservation Act, must evaluate data that indicate the

presence of relict terrestrial landforms that may have prehistoric site potential and be involved in the Archaeological analysis and report in accordance with 30 CFR 250.194 (a)(2).

The MMS will not deem an EP or DPP to be submitted under 30 CFR 250.203(b)(15) or 30 CFR 250.204(b)(8)(v)(A) without a sufficient and complete archaeological survey and analysis report; and will not initiate the regulatory review of the plan or ROW permit until a complete report has been submitted. No bottom disturbing activities, other than geotechnical investigations, will be allowed until the MMS has completed and approved the EP, DPP or ROW.

Notification

All potentially affected OCS lessees are required to be notified of survey actions and schedules prior to survey mobilization.

Lease sale notices may include stipulations or information to lessee clauses which require or encourage additional coordination with other parties (e.g., subsistence users, local communities, commercial fishing organizations, etc). 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 and comply with any and all applicable 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 U.S. National Marine Fisheries Service and U.S. Fish and Wildlife Service. You should review your proposed activity with these agencies.

You must provide the RS/FO with a notice of intent to conduct preliminary activities in accordance with 30 CFR 250.201. This notice should be submitted a minimum of one month before initiating any field 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 to other OCS lessees and coordination with other potentially effected parties and a copy of an IHA or LOA application or approved authorization, if applicable.

In addition, you or your contractor should notify the RS/FO at least 72 hours before mobilizing for this survey so that the MMS may make arrangements for an observer to be present.

Archaeological Survey Requirements

You are responsible for obtaining the best possible survey results, utilizing the most appropriate survey technology. Poor quality data due to acquisition or processing technique is not acceptable and may result in the MMS requiring you to resurvey the site. All systems should be integrated with accurate geo-positioning of fixed points on all survey lines.

For an archaeological investigation in a leased area or pipeline right-of-way, the primary analysis should be based on a survey and report for hazards analysis that address the following:

Survey Design

Archaeological surveys for site assessment should provide detailed coverage, usually to a distance of 1,200 meters (m) or greater in all directions from the proposed activity. Grid-spacing for seismic profiles is generally 150 m by 300 m or less (see Figures 1 and 2 in NTL No.05-A01). For side-scan sonar use a grid-spacing that ensures at least 150 percent coverage of the area of proposed activity. The need for this coverage may affect the survey line density in shallow water (see NTL No. 05-A01).

Archaeological surveys for pipeline rights-of-way generally consists of five (5) approximately parallel lines where one line is coincident with the proposed pipeline route, and which cover an area 300 m on either side of the center line (See Figure 1 in NTL No. 05-A02). The grid should provide at least 150 percent coverage of the sea floor on side-scan sonar data by a 50 percent or more overlap of channels on adjacent lines. Tie-lines perpendicular to the center-line should be acquired at intervals of no more than every 1,200 m. A variance from the five (5) line spread may be desirable or necessary dependant on specific conditions, pipe-lay methods, and design considerations.

If a magnetometer is required, please consult with us prior to planning your survey strategy and grid-spacing.

See NTL No. 05-A01 (Shallow Hazards Survey) and NTL No. 05-A02 (Pipeline Rights-of-Way Survey) for more details on survey designs. You are encouraged to discuss your survey grid strategy with the RS/FO during your planning stage.

Sea Floor Imagery

Recordings should be of optimal quality (good resolution, minimal distortion) resulting in displays automatically corrected for slant range, lay-back and vessel speed, and provide at least 150 percent coverage of the seafloor in the survey area affected by the proposed operations. Data you obtain should be of such quality as to permit detection and evaluation of seafloor objects and features within the survey area. We will accept information from a shallow hazards survey if coverage and quality are adequate.

Bathymetry

Fathometer data should consist of high frequency (12 kHz or higher) continuous sea floor profiles. In areas of complicated sea floor characteristics a multi-beam system may be needed. Information from a shallow hazards survey may be acceptable if coverage and quality are deemed adequate by the RS/FO.

Acoustic Subbottom Profilers

Use sub-bottom profiling techniques and systems that portray the sea floor and sub-bottom reflections with a vertical resolution of 1 millisecond or better at a two-way travel time corresponding to a depth of 30 m below the sea floor. 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 Frequency Modulated (FM) frequency system instead of the 3.5 or 7 kHz subbottom 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.

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.

Navigation

A state-of-the-art navigational positioning system, with an accuracy of ± 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 ± 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. Navigation systems must be calibrated and both relative and absolute position accuracy verified before the start of the survey and after the survey.

Shallow Core Data

Shallow cores collected for engineering and geotechnical investigations may be used to identify archaeological resources. In some cases it may be desirable to perform additional analysis of cores such as carbon age-dating of organic material. The MMS urges you to discuss your coring program relative to archaeological investigations with the RS/FO and other designated MMS personnel during the planning stage of your survey.

Additional Systems Options

You may use additional optional equipment and techniques (i.e., visual investigations, remotely operated vehicle investigations, non-acoustic imaging, etc.) to delineate and confirm or negate the presence of archaeological resources within the survey area.

Survey Report Format and Content

The report is a technical document and should present data, maps, graphs, and tables to support all survey interpretations and evaluation conclusions. Conclusions must be documented and explained in the text, with figures, maps, and interpreted data records.

Identification and discussion of geologic conditions, features, and potential archaeological resources should be clear and organized. References cited in the text should be included in a Reference Section.

Paper copies of data must be of optimal quality and over-sized pages Z-folded with identification labels and data headers exposed to facilitate ease of handling during interpretation.

Annotate line crossings and corresponding shot-points on the records. Do not make interpretative markings on the data portion of the *original* records. Non-original report data records must have fixed marks with shot point numbers at 100 m or other appropriate intervals. The report should display page records/data orientated consistently, dependant upon survey orientation/runs, such as: west to the left, or north to the left.

The survey geophysicist and a qualified archaeologist as stipulated above (**Guidance** paragraph. 4, 5, and 6) should sign the report.

Report Submission:

Submit two copies of the report to the RS/FO in conjunction with the EP, DDP and/or Pipeline ROW. The report must include the following information (if they are not described in the Hazards Survey Report. If this information is in the Hazards Report, please reference that report for the following information):

- A. A description of the area surveyed including lease number(s), block number(s), and water depth. Include a page-size map(s) showing the survey area(s) in relation to the proposed activity and the geographic area indicating lease and block numbers.
- B. A listing of personnel and duties for individuals involved in survey planning, survey conduct, and report preparation.
- C. A discussion of the archaeological resources field survey including the following:
 - (1). A brief description of the navigational system with a statement of its estimated accuracy for the area.
 - (2). A brief description of survey instrumentation including scale, sensitivity settings, and tow depths where appropriate.

- (3). A description of the survey vessel including vessel size, sensor configuration, navigation antenna location, and cable size.
 - (4). Vessel speed and course.
 - (5). Sea state and weather conditions.
 - (6). A copy of the daily survey operations log.
 - (7). A description of survey procedures including a statement of survey and recording quality, a comparison of survey line crossings, and a description of any problems which may affect the ability of the report preparation personnel to determine the potential for archaeological resources in the survey area.
- D. Post plot/Base map(s) at 1:12,000 scale showing vessel track lines and navigational reference points using a NAD 83 projection with the appropriate X and Y Universal Transverse Mercator (UTM) coordinates and latitude-longitude reference points. Include shallow geotechnical borings locations if applicable. This map, or separate maps at the same scale which also show survey lines, shot points and line direction, will be orientated to true north and will delineate the following, as appropriate:
- (1). The horizontal and vertical extent of all relict geomorphic features having potential for associated prehistoric sites. Such areas including, but not limited to, tidal estuary, embayment, barrier islands, beach ridge sequences, spits, alluvial terraces, and stream channels. When relict fluvial systems are recorded, the map shall:
 - (a). differentiate between generations of channeling when more than one generation is present;
 - (b). show any internal channel features such as point bar deposits and terraces;
 - (c). delineate any channel margin features such as natural levee ridges; and
 - (d). indicate the depth of channel banks and channel axes.

Note: An Isopach map of channel fill sediments is often the most efficient means of conveying the above information, but this method alone will not allow differentiation for more than one generation of channeling.
 - (2). Bathymetry map contoured in intervals of 2 m or less, or in a way not to impair legibility of the map if closely spaced.
 - (3). Isopach map(s) scale showing thickness and distribution of unconsolidated sediments, when present, contoured in intervals of 2 m or less, or in a way not to impair legibility of the map. Include the location of geotechnical borings and samples, if applicable.
 - (4). All magnetic anomalies and seafloor side-scan sonar contacts of unknown source.
 - (5). Sites of proposed oil and gas operations (i.e., proposed well location, platform sites, and/or pipelines).
 - (6). Sites of former oil and gas operations (i.e., proposed well location, platform sites, and/or pipelines), when available at the time of report preparation.

- E. The side-scan sonar records, magnetometer data, and subbottom profiler data with an interpretation of the area at and near the proposed drill site(s).
- F. If additional survey methods were employed (i.e., photo, television, diver observation, age-date analysis of cores, etc.) a general narrative summary of this information should be included. In all cases where an anomaly is encountered, a clear and precise copy of the original display should be submitted to document and verify the presence and evaluation of any anomaly. The original of all survey data and original survey records and print outs for the line(s) indicating the anomaly should be available to the RS/FO at any time.
- G. Cross-sections showing interpreted regional setting and features with soil classification, and as appropriate or available, graphic soil logs, and/or geotechnical boring profiles to an appropriate scale.
- H. If an analysis of the potential for prehistoric sites within the survey area is required, it will include;
 - (1). A review of existing literature of the late Pleistocene and Holocene geology, pale geography and sea level change in the area, marine and coastal prehistory, and previous archaeological resource reports in the area, when available.
 - (2). The discussion of the relict geomorphic features and their archaeological potential shall include the following:
 - (a) geomorphic association of the features mapped;
 - (b) description of the acoustic characteristics of channels and their fill material;
 - (c) evidence of preservation or erosion of channel margins;
 - (d) evidence for more than one generation of fluvial down cutting; and
 - (e) sea level curves used in the assessment.
 - (3). A discussion of the potential for identification and evaluation of buried prehistoric sites based upon the capabilities of current technology in relation to the thickness and composition of sediments overlaying the potential site area.
- I. If an analysis of the potential for shipwrecks within the survey area is required, it will include, as appropriate, the following:
 - (1). A review of existing records for reported shipwreck locations in the survey area and adjacent areas:
 - (2). A list of magnetic anomalies including the location (corrected for sensor offset, intensity, lateral extent, and sensor tow depth at each location);
 - (3). A list of side-scan sonar contacts including the location (corrected for sensor offset), size, shape, and height of protrusion above the seafloor of each;
 - (4). A discussion of any magnetic anomalies and seafloor side-scan sonar contacts of unknown source in terms of their potential as historic shipwrecks;
 - (5). A discussion of the potential for shipwreck preservation in terms of the effects of past and present marine processes; and

- (6). A discussion of the potential for identification and evaluation of potential shipwrecks based on the capabilities of current technology in relation to the water depth and the probable thickness and composition of sediments overlaying the potential shipwreck location.
- J. Representative Data samples, as appropriate, will be submitted for the following:
- (1). A representative data sample of the subbottom profiler data shall be included for each type of relict landform identified. When more than one generation of fluvial channeling is evident, a sample depicting each shall be submitted. The quality of the copies must be readable and must include horizontal and vertical scales. Any highlighting of the sample data shall be on a separate overlay or high quality copy. In no instance should original survey data be highlighted.
 - (2). A copy of the side-scan sonar data where contacts representing unidentified man-made objects are recorded.
 - (3). A representative sample of magnetometer data, if required.
- K. A summary of conclusions and recommendations supported by the archaeological resource field survey data and archaeological analysis including:
- (1). A discussion of known or potential archaeological resources;
 - (2). Recommendations for avoidance or for further archaeological investigations;
 - (3). Recommendation that operation be permitted because data recovery negates effects.
- L. A discussion of the data and results from any additional investigations that may be required by the MMS shall be appended to the archaeological resource report.
- M. To facilitate development of the MMS Alaska OCS regional database, we request all digitally produced maps that are provided to the MMS in Geographic Information System software such as ArcGIS, with projection information and necessary metadata.

Results and Mitigation

When the MMS determines that the survey data and archaeological analysis indicate there is potential for an archaeological site(s) in the area of the proposed activity, you have three alternatives:

1. Employ operational procedures to ensure the protection of the potential site(s).
2. Adjust the location of any proposed activity to a distance necessary to prevent disturbance of, or to avoid, the potential site(s).
3. Perform additional investigations to establish to the RS/FO satisfaction that archaeological resources do not exist or will not be adversely affected by operations.

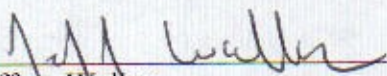
Paperwork Reduction Act of 1995 (PRA) Statement: The collection of information referred to in this NTL is required in 30 CFR part 250, subparts B, D, J; and 30 CFR part 251. The Office of Management and Budget (OMB) approved the information collection requirements in these regulations and assigned OMB control numbers 1010-0049 for subpart B; 1010-0141 for subpart D; 1010-0044 is currently in the sunaming process to be consolidated into the primary collection for subpart D which includes Form MMS-123, Application for Permit to Drill that will be superseded by 1010-0141 when OMB approves; 1010-0050 for subpart J, and 1010-0048 for part 251. This NTL does not impose additional information collection requirements subject to the PRA.

Contacts

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

Alaska MMS Office Contacts

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	Jeff Walker	Jeffrey.Walker@mms.gov	907-334-5300



 Jeffrey Walker
 Regional Supervisor
 Field Operations Office

Date 7/25/05