



United States Department of the Interior
BUREAU OF SAFETY AND ENVIRONMENTAL ENFORCEMENT

Alaska OCS Region
3801 Centerpoint Drive, Suite 500
Anchorage, Alaska 99503-5823

JUL 22 2015

Susan Childs, Alaska Venture Support Integrator, Manager
Shell Exploration and Production
3601 C Street, Suite 1000
Anchorage, Alaska 99503

Dear Ms. Childs:

The Bureau of Safety and Environmental Enforcement - Alaska Region (BSEE) is in receipt of the Application for Permit to Drill (APD) submitted by Shell Gulf of Mexico, Inc. (Shell) for Well Number 001, Burger V, on lease OCS-Y-2324, Block 6915, in the Chukchi Sea. This well has been assigned API number 55-352-00007-00.

We have completed our review of your APD, and find that it conforms to BSEE regulations at 30 CFR Part 250, under the Outer Continental Shelf Lands Act. However, as of the date of this letter the capping stack is not able to be deployed to the Burger Prospect, due to ongoing repairs to its carrier vessel *Fennica*. The capping stack is required by your approved Exploration Plan to be available within 24 hours when drilling into or working in hydrocarbon bearing zones. Therefore we are unable to approve the entire scope of activities in your APD at this time. In accordance with the requirement to maintain availability of a capping stack, and pursuant to 30 CFR 250.410, your application is hereby conditionally approved. In addition to the conditions set forth in Enclosure 1 to this letter, you may not drill beyond the last casing point (14 inch casing) set prior to penetrating a zone capable of flowing liquid hydrocarbons. When the capping stack is ready to be deployed to the Chukchi Sea, you may contact BSEE with an Application for Permit to Modify (APM) requesting to have this restriction lifted.

We further find as follows.

- The mobile offshore drilling unit (MODU) Noble Discoverer was approved by this office in 2012 for use at the proposed drilling location. As the Discoverer has undergone significant upgrades and modifications since 2012, we have again assessed its fitness for operations under 30 CFR 250.417. Based on our review of the information provided with your APD and found in the related Exploration Plan, and on our observations during preliminary inspection of the Discoverer, this MODU is approved for use on the Alaska Outer Continental Shelf (OCS).
- The MODU Transocean Polar Pioneer has been designated by Shell as the backup relief well drilling unit for the Discoverer. Based on a similar review (conducted in conjunction with the separate Burger J APD) and inspection, the Polar Pioneer is also approved for use on the Alaska OCS.

- In accordance with 30 CFR 250.490(c), your request to classify the Burger Prospect as H₂S Absent is approved.

BSEE will maintain a continuous inspection presence during the operations approved in this APD, and we will use Shell transportation and lodging for that purpose. As provided for in 30 CFR 250.133, Shell will invoice BSEE for reimbursement. Contact the BSEE Alaska Region office for instructions on submitting invoices.

Please contact me with any questions at (907) 334-5311, or via e-mail at kevin.pendergast@bsee.gov.

Sincerely,



Kevin J. Pendergast, PE CPG
Regional Supervisor, Field Operations

Enclosures:

1. Conditions of Approval for Burger V Well No. 001
2. Well Records Submittal Requirements

ENCLOSURE 1
Conditions of Approval for Burger V Well No. 001

1. BSEE has previously approved Shell's Alaska capping stack for use in the Chukchi Sea during the 2015 drilling season. During drilling operations in zones capable of flowing liquid hydrocarbons, that capping stack must be positioned to ensure that it will arrive at the well location within 24 hours of a loss of well control.
2. BSEE has previously approved the Arctic Containment System (ACS, including the Arctic Challenger's containment dome and cap/flow systems related to the capping stack) for use in the Chukchi Sea during the 2015 drilling season. During drilling operations, the ACS must be positioned no farther from the Burger Prospect than Goodhope Bay near Kotzebue.
3. The Bureau of Ocean Energy Management (BOEM) has determined a 2015 trigger date (date of expected ice encroachment over the Burger leases) of November 1. Shell may not drill below or work below the last casing point set prior to penetrating a zone capable of flowing liquid hydrocarbons during the following timeframes:
 - a. Within 34 days of the trigger date, if the relief well drilling rig is positioned on the Burger Prospect or in the Chukchi Sea, or
 - b. Within 38 days of the trigger date, if the relief well drilling rig is positioned in Dutch Harbor or between Dutch Harbor and the Chukchi Sea.
4. Follow the incident reporting requirements of 30 CFR 250.187-190. Use the BSEE Alaska Region Drilling Alert Line (1-855-277-2733) to report incidents requiring immediate notification. In addition, use the Drilling Alert Line to provide notification to the BSEE Alaska Region of any event of interest; this line will be monitored (voice and message) 24 hours per day, 7 days per week during drilling operations.
5. Shell must immediately notify the BSEE inspector on the Noble Discoverer if a significant well event occurs, to include (but not limited to) the events listed in Box 15 of form BSEE-0133, and anything else that could impact well control.
6. Pursuant to 30 CFR 250.409, and based on the justifications provided with your APD, the following requests for departures from the regulations are approved:
 - a. 250.423(a) Testing of casing/liner strings to the pressures listed on form BSEE-0123S is approved.
 - b. 250.423(c) Based on the small pressure differential achievable at this site, and on related considerations, your request for a departure from the requirement of a negative pressure test is granted.
 - c. 250.447(c) Based on the fact that you will not remove your BOP stack to run your casing strings or liners, and that the BOP test pressure is consistent from BOP installation to total depth, your request for a departure from the requirement to perform a BOP test before drilling out each string of casing or liner is approved. The 14-day frequency for BOP testing remains a requirement.
 - d. 250.448(b) and (c) You are approved to conduct high-pressure tests of the BOP rams and annular in accordance with the pressures listed on form BSEE-0123S.
 - e. 250.449(d) Because the blind shear rams will be pressure tested in the same test series as the casing, approval is granted to use the casing test pressures listed on form BSEE-0123S as the approved pressure for both sets of blind shear rams.

- f. 250.449(j)(1) The ROV hot stabs on the BOP stack will not be accessible inside of the mudline cellar on the seafloor. Therefore your request to test the ROV intervention functions of the BOP using a remote BOP operating control panel instead of through the ROV hot stabs is approved.
 - g. 250.449(k) Your request to test the deadman/autoshear system only during the stump test is approved.
- 7. Provide the final third-party verification (non-provisional) of the blowout preventer system as required in 30 CFR 250.416(f); this must be submitted to BSEE Alaska Region prior to the initial use of the BOP on this well.
- 8. Shell submitted several documents describing the Noble Discoverer welding plan as required under 30 CFR 250.418(e). These included the "NDI Gas testing cert," "NDI Safe Welding Information," "NDI hot work permit," "NDI hot work policy," "NDI permit to work policy," and the "Welding and Hot Work report (WIM report)." These documents and the procedures they incorporate comply with the basic requirements for a welding plan under 30 CFR 250.109-113. They must be implemented aboard the Noble Discoverer and available for review upon request by BSEE inspectors.
- 9. Shell must provide BSEE Alaska Region with representative dry samples collected during the drilling of this well, as soon as they are available. Shell is also requested to collect and retain a set of wet well cuttings for BOEM. This request is voluntary and the samples are intended to provide for public access once the proprietary term for the samples is concluded. Contact us as needed for further discussion related to this voluntary request.
- 10. As required by 30 CFR 250.468(c), submit Well Activity Reports (WARs) to BSEE daily by 8:00 a.m. Alaska time via the program eWell, subject to the following:
 - a. Begin submitting WARs as soon as the Noble Discoverer arrives at the Burger Prospect, and continue submitting them until the MODU disconnects from the moorings after completing 2015 operations.
 - b. Due to constraints within eWell, WARs submitted prior to the date of spudding the well must be submitted via secure electronic transfer (e.g. Petro Vault).
 - c. Public information copies of the WARs must be submitted on form BSEE-0133 daily by 2:00 p.m. Alaska time, preferably via e-mail through existing contacts.
- 11. Shell must brief BSEE upon request regarding data and findings to date, if BSEE determines that the WARs and other information reveal trends in subsurface information that were not expected.
- 12. Beginning when the Noble Discoverer arrives at the Burger Prospect, submit to BSEE Alaska Region a daily weather synopsis via secure electronic transfer (e.g. Petro Vault), as follows:
 - a. Include the current weather report and 24-hour outlook in the drilling area.
 - b. Submit this report daily at an appropriate time based on Shell's Ice and Weather Advisory Center schedule, such that BSEE will have a continuous 24-hour outlook of weather conditions in the drilling area.
 - c. In addition to standard marine forecast information such as sea state, visibility, etc., provide a current Chukchi Sea Ice Analysis map and the ice alert level.
- 13. Adhere to the well data and records submittal procedures and criteria provided with your APD approval. When filing your End of Operations Report (form BSEE-0125), include a complete list of all types of well logging operations that were performed.

14. Prior to commencing the proposed operations, any changes to the approved APD must be requested via a Revised Application for Permit to Drill (RPD) submitted through eWell. After drilling starts, any changes to the approved APD must be requested via an Application for Permit to Modify (APM), which should also be submitted via eWell. In cases where written or oral approval is requested and granted, APMs must still be submitted through eWell no later than the end of the third business day following the initial approval.
15. Shell must submit and gain approval of an APM through eWell in advance of either temporarily or permanently abandoning this well. The request must contain all information required in 30 CFR Part 250, Subpart Q.
16. Submit a certified plat (stamped by a registered professional land surveyor) as soon as practicable, in accordance with 30 CFR 250.465(a)(2).
17. Notify both the BSEE inspector on the Discoverer and the BSEE Alaska Region Drilling Alert Line (1-855-277-2733) a minimum of 72 hours prior to the BOP stump test and initial test on the seafloor. For subsequent BOP testing, provide 24 hours advance notice in the same manner.
18. Your operations must be conducted in accordance with your approved Exploration Plan, and with all associated BOEM Conditions of Approval and mitigation measures.
19. You must be in compliance with OCSLA and all other applicable statutes and regulations. This includes but is not limited to leases, plans, and permits and associated stipulations, conditions of approval, and mitigations issued under OCSLA and all other applicable statutes and regulations.
20. You must adhere to all provisions, reasonable and prudent measures, and terms and conditions of the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) biological opinions issued under the Endangered Species Act. You must also adhere to all conditions of the USFWS Letter of Authorization (LOA) and NMFS Incidental Harassment Authorization under the Marine Mammal Protection Act, for activities described in the Exploration Plan and this APD. All reporting required under these approvals and authorizations must be submitted in PDF format to BSEE Alaska Region at AKOCScompliance@bsee.gov.
21. Consistent with Condition 6(d)(ii) in the USFWS LOA, the Discoverer is not permitted to conduct drilling, well evaluation and logging activities, or plugging and abandonment operations while the Polar Pioneer is engaged in such activities. Shell must plug and abandon or temporarily abandon the well at the first drilling site before commencing drilling at the second site.
22. Adhere to the requirements of your coverage under NPDES permit AKG-28-8100, to include the Environmental Monitoring Program described therein. BSEE inspectors will be conducting inspections under this permit on behalf of the Environmental Protection Agency.
23. All reports required to be submitted to BOEM must also be submitted in PDF format to BSEE Alaska Region at AKOCScompliance@bsee.gov.
24. All vessel operators, employees and contractors associated with drilling operations must be briefed on and comply with marine trash and debris awareness. Posted information and information used in briefings should be generally consistent with BSEE NTL No. 2012-G01 (Marine Trash and Debris Awareness and Elimination).
25. Report all facility-related sheens to BSEE within 24 hours of initial observation.

26. Prior to initiating operations, Shell will facilitate a tabletop exercise based on the Critical Operations Curtailment Plan (COCP); this exercise will involve BSEE and other key representatives, as listed in Section 9 of the COCP.
27. Prior to initiating drilling operations, Shell will facilitate a tabletop exercise on board the Noble Discoverer, based on the Drilling Ice Management Plan (DIMP); this exercise will involve BSEE and other key representatives, as listed in Section X of the DIMP.
28. Report any noncompliance with the above conditions of approval to the BSEE Alaska Region as soon as you become aware of it, but not later than 24 hours after it is discovered.
29. BSEE inspectors must be given unfettered access to all areas of the rigs and support vessels, with notice provided as appropriate, and as long as such access can be accomplished in compliance with Shell safety procedures and considerations.

ENCLOSURE 2

Well Records Submittal

This document defines the procedures on how lessees/operators submit well records required by 30 CFR 250.468 and 469, and clarifies the specific well record formats you must submit, the required submittal dates of the various well records, and the locations where you must send these well records.

BSEE collects, verifies, and stores data by the well's unique 12-digit American Petroleum Institute (API) number we assign. The BSEE Alaska Outer Continental Shelf Region (AKOCS) uses the data collected to make informed regulatory decisions based on your timely submittal of complete and accurate well records. We define "submittal date" as the original date the data are due to the appropriate office.

I. Well Records to Submit

According to 30 CFR 250.468(a), "you must submit copies of logs or charts of electrical, radioactive, sonic, and other well-logging operations; directional and vertical well surveys; velocity profiles and surveys; and analysis of cores to BSEE." Processing steps and processing history are also required with submittals. In accordance with 30 CFR 250.469(b), the AKOCS will also require submittal of paleontological reports as well as washed and dried samples collected from the well. According to 30 CFR 250.469(d), BSEE AKOCS may also require additional well reports and records of operations. Under these authorities, the well records that you must submit to the BSEE AKOCS include the following:

A. Well Log Data

1. Log Curve Requirements: Provide all log curve data in digital form from open hole and cased hole acquisitions, including measurement or logging while drilling, wireline, or other means of acquisition. Examples of what to submit include, but are not limited to, acoustic, gamma ray, caliper, porosity, etc.

- If the original presentations are generated specifically in color (e.g., NMR, borehole imaging), submit color images. Include MWD/LWD, wireline generated well logs, and mudlogs.
- The offices where the data should be sent are listed in Attachment 1 to this document.

Note: Submit digital data for Formation Tester, Borehole Image, and Computed Dipmeter to GOMR TDM. For mudlog specifications, see section Part I, Section G of this document. You will be required to submit an image file for these types of logs to TGS Technologies.

2. Well Log Image File: For logs submitted as digital curve data, submit accompanying image files in one of the formats listed below of composite logs comparable to the digital curve data. For Formation Tester type logs, the summary logs will suffice. For mudlog specifications, see Part I, Section G of this document. Detailed 5-inch image logs must be composited, but individual runs do not need to be spliced.

For all vertical wells, as defined in 30 CFR 250.461, submit image files for:

- Measured depth (MD) 1-inch correlation and 5-inch formation evaluation logs, and
- Any additional scales you obtained.

For all non-vertical wells, as defined in 30 CFR 250.461, submit image files for:

- True vertical depth (TVD) 1-inch correlation and 5-inch formation evaluation logs,
- Measured depth (MD) 1-inch correlation and 5-inch formation evaluation logs, and
- Any additional scales you obtained.

Image File Formats: If the original log is in color, the submitted image file must also be in color.

(a) The following image file formats (or general equivalents) are acceptable:

- Computer Graphic Metafile (CGM)
- Baker Metafile
- Schlumberger PDS (PDS files are usually for one logging run; any borehole with multiple runs should submit composited file format)
- Halliburton CGM
- Weatherford DPK

(b) If TIFF Images are submitted, the image files should be formatted as follows:

Black and White TIFF Images:

- Header tags as per TIFF standard
- Resolution – 200 dpi
- Compression – CCITT group IV
- Tiling – No

Color TIFF Images:

- Header tags as per TIFF standard
- Resolution – 200 dpi
- Palette color – 256 colors
- File format LZW Compressed TIFF
- Tiling - No

Clearly label each well log image with its associated API number, bottomhole lease number, well name, well name suffix (eg A, B, 1, 2, etc), log type, scale and depth domain (MD or TVD). Do not submit additional image copies, field print images, or images of separate interim runs unless requested by the BSEE AKOCS.

3. Digital (Vector) Well Log Data: Submit composite digital curve data (one value per curve for each depth value) in the Canadian Well Log Society Log ASCII Standard (LAS), Version 2.0 format unwrapped or Digital Log Interchange Standard (DLIS). Ensure that the curve data are in an MD composite layout, including full headers for each wireline and MWD/LWD logging run and curve description for all curves. Ensure that all log curves represented on the log image file are also included in the digital file. If you collect logging data from more than one logging vendor in a single borehole, submit a separate set of composited log curves from each individual vendor. Do not splice digital curves from different vendors to form a set of composited log curves.

Full header information, including the following:

- 12-digit API number
- Well name suffix
- Bottomhole lease number
- Bottomhole area and block
- Well name
- Run number

Information for each tool run, including the following:

- Borehole fluids
- Depth interval
- Mud
- Filtrate resistivity and temperatures
- Casing information
- Bottomhole or maximum recorded temperature

Full Logging tool parameters (ie matrix values), position of logging tool (i.e., centered or eccentric), and logging engineer's comments; and adequate curve description and

Tool-specific and service provider-specific curve and parameter mnemonics (names and abbreviations) maintained as originally acquired.

Submit digital and image logs on CD or DVD ROM (read-only memory). Digital and image logs may be submitted on the same CD or DVD.

B. Directional Surveys

Submit one digital copy of the final composite directional survey in NAD83. For the Digital Directional Survey format, see NTL 2009-N10.

- Submit, on CD or DVD ROM these survey results coded in ASCII.
- According to 30 CFR 250.461(d) (2), "You must correct all surveys to Universal-Transverse-Mercator-Grid-north or Lambert-Grid-north after making the magnetic-to-true-north correction."

Do not submit copies of separate interim runs to the BSEE AKOCS. Send final composites only. If your use of more than one vendor prevents the consolidation of the separate surveys within a well, submit the final composite survey from each vendor.

C. Velocity Profiles and Surveys

1. Vertical Seismic Profiles: Submit the results from all borehole seismic data (in cased or uncased holes), as well as concurrently run directional surveys for both vertical and directional wells, if they are different from directional surveys referred to in Part I, Section B. Tabular data should include both the measured depth and the true vertical depth. The VSP should be submitted as a SEG-Y file with a

seismic processing report. Submit, on CD or DVD ROM, digitally recorded data in industry standard formats (LAS, DLIS, ASCII, CGM, TIFF, JPG, SEG Y, DOC), that include, but are not limited to,

- Normal Incidence VSP;
- Acoustic Log Calibration Report;
- Final VSP and Corridor stacks for 2D data and final stacked and migrated volume for 3D VSP data;
- Composite plot with VSP, Corridor stacks, synthetic seismogram, and well logs;
- Any referenced information within the report correlative with the acquisition, such as 2-way time indexed depths and velocities, survey parameters, digital images, and computed survey data and directional; and
- If acquired, BSEE format time/depth pairs.

2. Velocity Surveys (Time-Depth Pairs/Checkshots): Submit, on CD or DVD ROM, one digital copy coded in ASCII BSEE format (see Attachment 2). The report should include or be annotated with the following:

- API number
- Well name and number
- Well name suffix
- Contractor or service provider
- Contact name (phone number or e-mail address)

Note: the digital format has been modified to expand the columns for True Vertical Depth and One-Way Travel Time from five to eight to include two decimal places for each column.

D. Geochemical Analyses/PVT Studies/Reports and Information

Submit one copy of the Geochemical Analyses/Reports and Information in the original digital format (i.e. comma or tab-separated ASCII, Adobe PDF, JPEG, TIFF if you conducted any geochemical analyses/reports, including internal company or external contractor interpretation reports on

- Cuttings,
- Sidewall or conventional cores, and
- Fluid samples from the well.

The term “fluid sample” encompasses:

- Hydrocarbon gases, specifically methane through pentanes and C6+ hydrocarbons;
- Non-hydrocarbon gases (carbon dioxide, hydrogen sulfide, argon, helium, and radon); and
- Any liquid hydrocarbons (such as condensate, crude, and bitumen) encountered by the well in cuttings or shows and from any other well sampling or fluid testing.

The analyses, reports, and interpretations to be submitted include, but are not necessarily limited to, the following types of data:

- Total organic carbon

- Polycyclic aromatic hydrocarbons (PAHs)
- Rock-eval pyrolysis
- Stable isotope analyses of carbon and hydrogen
- Thermal chromatography-gas chromatography
- Compound-specific isotope ratio mass spectrometry
- Bulk pyrolysis & hydrous pyrolysis
- Isotope ratio mass spectrometry
- Gas chromatography
- Kerogen isolation & bitumen separation
- Pyrolysis/gas chromatography
- Organic petrography
- Complete saturated & aromatic hydrocarbon biomarker analysis by GC MS
- Vitrinite reflectance
- Elemental analysis of kerogen
- Chemostratigraphic data for major and minor oxides and trace and rare metals

In addition, submit all data and reports on geochemical characterization of produced oils, including:

- All whole-oil GC, GC MS on oils,
- SARA (Saturates, Asphaltenes, Resins, Aromatics),
- Isotopes on the fractions,
- Molecular and isotopic analyses of C1-C5 hydrocarbons
- Pressure, Volume, Temperature (PVT) Data
- metals data, and
- Any other geochemical data used from production samples intended for reservoir characterization studies.

Submit, on CD or DVD ROM, digitally recorded data in industry standard formats.

E. Detailed Paleontological Reports and Information

As soon as the final and/or revised paleontological information and/or data become available to you, submit one copy in digital format of the entire, detailed paleontological report(s), chart(s), striplog(s), checklist(s), and any other paleontological records. In certain situations, the BSEE AKOCS may require that you submit preliminary or interim reports. Include the following:

- The range of samples taken,
- Sample analysis identifying fossils and lithology by MD,
- Summary and interpretation (based on identification of foraminifera, nannofossils, or other microfossils) of all biostratigraphic markers, zones, tops, or local markers,
- Description of paleontological ecological zones with water depth at the time of deposition (e.g., Middle Shelf/Neritic 20-100 meters, Outer Shelf/Neritic 100-200 meters),
- Sequence analysis interpretations based on histograms of faunal abundance,
- Identification of all rock units by depth to the top of relative chronostratigraphic stages (e.g., Upper Pleistocene, Middle Miocene, or Lower Oligocene, etc), and
- Biostratigraphic chart noting the relative ages of the biostratigraphic zones you used in the detailed paleontological reports.

- In accordance with 30 CFR 250.469(b), the AKOCS will also require submittal of washed and dried samples collected from the well. We request that washed samples be retained by the operator for submission once sample data become public.

Submit, on CD or DVD ROM, one copy of the detailed paleontological report in the original digital format (i.e. comma or tab-separated ASCII, Adobe PDF, JPEG, TIFF). Spreadsheet format is preferred for data tables.

F. Detailed Analysis of Percussion Sidewall, Rotary Sidewall, Conventional Cores/Reports and Information, Wireline Formation Tests and Drill Stem Tests

If you conduct any of the following:

- Percussion sidewall , Rotary sidewall or Conventional core analysis or equivalent,
- Wireline formation tests - include any logs (summary logs are acceptable) and associated lab results, or
- Drill stem tests.

As soon as the final and/or revised Percussion Sidewall, Rotary Sidewall and/or Conventional core reports and/or data become available to you, send one digital copy of the entire, detailed report. Such reports include, but are not limited to, the following:

- Standard analyses for porosity, permeability, oil saturation, and water saturation
- Compaction analyses
- Capillary pressure studies
- Laser grain size analyses
- Scanning electron microscopy
- Stressed brine porosity and permeability analyses
- Thin section description, analysis, and interpretation
- Rock mechanics studies
- X-ray diffraction analyses
- Water extraction and core gamma logs
- Core photos

In addition, provide one copy of all studies you performed on the core(s) for the purpose of describing and characterizing the reservoir architecture through detailed stratigraphic or depositional analyses. In certain situations, the BSEE AKOCS may require that you submit preliminary or interim reports.

Submit, on CD or DVD ROM, one copy of the rotary sidewall and/or conventional core reports in the original digital format (i.e., comma or tab-separated ASCII, Adobe PDF, JPEG, TIFF, CGM, and TIFF).

G. Mudlogs and Reports

Submit one image copy and one digital copy of the following types of Mudlogs, if acquired:

- Physical Formation Log

- Pore Pressure Log
- Engineering Log
- Show Report Log
- Equivalent circulating density

Include drilling parameters (ROP, Bit weight, mud weight, pump pressure, etc.).

1. Image File Formats for Mudlogs: If the original log is in color, the submitted image file must also be in color.

The following image file formats are preferred:

- TIFF
- Geologix - geo draft file (.gdf)
- Geologix - output data file (.odf)

If TIFF images are submitted, the following specifications should be used:

Black and White TIFF Images

- Header tags as per TIFF standard
- Resolution – 200 dpi
- Compression – CCITT group IV
- Tiling – No

Color TIFF Images

- Header tags as per TIFF standard
- Resolution – 200 dpi
- Palette color – 256 colors
- File format LZW Compressed TIFF
- Tiling – No

Submit one copy of the following types of Mudlogs reports, if collected:

- Show reports – composite into one file
- Mud reports – composite into one file
- End of Well reports – composite into one file
- Daily Drilling reports – composite into one file

Submit, on CD or DVD ROM, digitally recorded data in industry standard formats.

H. End of Operations Report (Form BSEE-0125) and Attachments

Pursuant to 30 CFR 250.465(a), you must submit End of Operations Report (Form BSEE-0125) and the required attachments.

I. Additional Information

Pursuant to 30 CFR 250.469(d), the BSEE AKOCS may require that you submit additional well reports or records for a specific well(s).

II. When to Submit Well Records

Operators should submit one copy of the digital data on a CD or DVD in a read-only format. Each CD or DVD should be properly labeled with the Area, Block, OCS, Well Number, Well Suffix, API, and the data type (i.e., Paleo Report, Conventional Core Report, Vertical Seismic Survey, etc.). Additionally, as stated in Part I, Section.A.1, digital and image NMR data must be submitted on separate physical media and nomenclature for NMR data files and tool codes should clearly identify them as NMR datasets.

The BSEE AKOCS recognizes that you need adequate time to submit complete and accurate well records. If you request it, BSEE AKOCS may grant you a departure under § 250.142 for a new required date for submitting the data pertaining to that wellbore. Well records are divided into four groups for the timely submittal of the data.

A. Well Log Data, Directional Surveys, Velocity Surveys, Analyses of Percussion Sidewall Cores, Wireline Formation Test Logs, Drill Stem Tests and Mudlogs/Reports

1. Final Data to submit:

- Well log data,
- Directional surveys,
- Velocity surveys (time/depth pairs),
- Percussion sidewall analysis of cores,
- Wireline formation tests logs (summary log), and
- Drill stem tests (initial report)

Submit within **30 days** of the “Date Operations Completed” of the last logging run (MWD/LWD or wireline) that you report in Item 7 of the Open Hole Data Report (Form BSEE-0133S) or the Well Data Inventory of the eWell Open Hole Report for each 12-digit wellbore, sidetrack, and/or bypass. Note: “Date Operations Completed” for MWD/LWD is when the data is retrieved from the drill string.

The BSEE AKOCS recognizes that in certain situations (e.g., hole or mechanical problems) it is not practical to submit individual sidetrack or bypass data for short penetrated intervals. In those cases, you may request a departure from us by fax or e-mail for the timely submittal of such data. If you request it, the BSEE AKOCS may grant you a departure, under 30 CFR 250.142, for a new required date for submitting the data pertaining to that well.

B. Detailed Paleontological, Detailed Rotary Sidewall and Conventional Core Analyses, and Vertical Seismic Profile Reports and Information

For each wellbore in which these data were collected, submit:

- Detailed paleontological reports and information,
- Detailed rotary sidewall and conventional core analyses/reports and information, and
- Detailed vertical seismic profile reports

Submit no later than **120 days** after the “TD DATE” you report in Item 10 of the Well Activity Report (Form BSEE-0133) or the Wellbore Information on the eWell Well Activity Report. If you request it, the BSEE AKOCS Office may grant you a departure, under 30 CFR 250.142, for a new required date for submitting the data pertaining to that wellbore. Submit these well records when the report is completed, even if the report is generated by you and/or third party (i.e., academic partners, non-lessee partners, and/or consultants) years after the wellbore is completed.

C. Geochemical Analyses and PVT Analysis of Fluid Samples

For each wellbore in which these data were collected, submit geochemical analyses and/or PVT Analysis of Fluid Samples no later than **120 days** after the “TD DATE” that you report in Item 10 of the Well Activity Report (Form BSEE-0133) or the Wellbore Information on the eWell Well Activity Report. Submit these well records when the report is completed, even if the report is generated by you and/or third party (i.e., academic partners, non-lessee partners, and/or consultants) years after the wellbore is completed.

D. End of Operations Report (Form BSEE-125)

For each wellbore, submit an End of Operations Report (Form BSEE-0125) and all its attachments no later than **30 days** after the “END DATE” you report in Item 10 of the Well Activity Report (Form BSEE-133) or the Wellbore Information on the eWell Well Activity Report.

The BSEE AKOCS uses the Well Activity Report (Form BSEE-0133 or eWell) and Open Hole Data Report (Form BSEE-0133S or eWell) to track well activity; therefore, it is crucial that you submit a complete and accurate report to the appropriate BSEE AKOCS District Office in a timely manner. We will treat delinquent and/or incomplete reports in the same manner as delinquent and/or incomplete well data, and such violations may result in the BSEE AKOCS exacting an appropriate remedy, such as issuing an Incident of Non-compliance (INC).

The BSEE AKOCS may request that you submit well logging data, directional surveys, velocity profiles and surveys, percussion sidewall analyses of cores, wireline formation tests, and drill stem tests before the 30-day limit when we determine that circumstances warrant such action. When we determine that circumstances so warrant, we may also request that you submit preliminary reports of analytical data, before the respective 90-day or 120-day limits, namely:

- Geochemical analyses/reports and information,
- PVT analyses of fluid samples,
- Detailed paleontological reports and information,
- Detailed rotary sidewall core analysis and information, and
- Detailed conventional core analysis and information

III. Where to Submit Well Records

Operators will submit digital well records for all wells (12-digit API number) as directed in Attachment 1, using the following relevant addresses as appropriate.

TGS Geological Products and Services
1010 Common Street
Suite 2040
Attn: BSEE Well Records
New Orleans, LA 70112
Office telephone: (504) 524-3450

Bureau of Safety and Environmental Enforcement
Technical Data Management
Mail Stop GE-573E
1201 Elmwood Park Blvd.
New Orleans, La. 70123-2394
Office telephone: (504)736-2887

Bureau of Safety and Environmental Enforcement
Alaska OCS Office
3801 Centerpoint Drive, Suite 500
Anchorage, AK 99503
Office Phone: 907-334-5300

We strongly recommend that you provide a transmittal letter when you submit any well records. This transmittal should contain the following information:

- Operator's Name
- Operator's Contact Name and Telephone Number
- Bottomhole Location: Area/Block/Lease/Well Name and Number/API Number
- Date Well Records Sent
- Detailed List of Well Records

It is your responsibility to ensure that BSEE and TGS Technologies receive all well data and information within the specific periods. If we notify you of delinquent data, we will initiate an appropriate remedy, such as issuing an Incident of Non-Compliance (INC). If you choose to use a third party to submit well data, it remains your responsibility to ensure that the data are timely received. Realizing that you may need time beyond the specified deadlines to prepare unique data or information, we will address the submission of such on an individual basis.

IV. Well Naming and Numbering

Show the API Number and well name assigned by the BSEE AKOCS Office on all well records you submit to us. You can find these on the approved Application for Permit to Drill (Form BSEE-0123) for the original hole, sidetracks, and/or bypasses

Attachment 1
Well Records Submission Summary

Record types to be submitted, indicated entities and time frames.	BSEE		TGS	Submit required information within:
	GOMR	AKOCS		
Image File of the Final Composite Well Logs Comparable to the Digital Copy.			X	30 days after "DATE OPERATIONS COMPLETED" on Form BSEE-0133S
Image File of the Final Composite Borehole Image, Nuclear Magnetic Resonance, Computed Dipmeter, and Formation Tester Logs.			X	30 days after "DATE OPERATIONS COMPLETED" on Form BSEE-0133S
Image File of the Final Composite Mudlog and One Digital Copy of the Final Composite Reports			X	30 days after "DATE OPERATIONS COMPLETED" on Form BSEE-0133S
Digital Data of the Final Composite Well Logs (including Nuclear Magnetic Resonance)			X	30 days after "DATE OPERATIONS COMPLETED" on Form BSEE-0133S
One Digital Copy of the Final Composite Directional Survey.	X			30 days after "DATE OPERATIONS COMPLETED" on Form BSEE-0133S
One Digital Copy of the Final Composite Velocity Survey.	X			30 days after "DATE OPERATIONS COMPLETED" on Form BSEE-0133S
One Digital Copy of Percussion Sidewall Core Analysis Reports, Wireline Formation Tests Results, and Drill Stem Test.	X			30 days after "DATE OPERATIONS COMPLETED" on Form BSEE-0133S
One Digital Copy of the Final Vertical Seismic Profile Report.	X			90 days after "TD DATE" on Form BSEE-0133
One Digital Copy of Detailed Paleontological Reports.	X			90 days after "TD DATE" on Form BSEE-0133
One Digital Copy of Detailed Conventional Core or Rotary Sidewall Core Analysis Report.	X			90 days after "TD DATE" on Form BSEE-0133
One Digital Copy of the Final PVT or Fluid Sample Analysis Report.	X			120 days after "TD DATE" on Form BSEE-0133
One Digital Copy of Geochemical Analyses and/or reports.	X			120 days after "TD DATE" on Form BSEE-0133
One Public Information Copy and Two Complete Copies of the End of Operations Report (Form BSEE-0125)		X		30 days after "END DATE" on Form BSEE-0133

All digital data is to be submitted on CD or DVD ROM.

Note: "Date Operations Completed" for MWD/LWD is when the data is retrieved from the drill string.

Attachment 2

Velocity Surveys Digital Exchange Format

Definition of terms

1. A record consists of 80 bytes, including the carriage-return and line-feed (HEX 'ODOA').
2. A file is a group of header records and data records physically separated by an inter-record gap (a blank record) and terminating with a control Z (HEX '1A').

Specifications for digital reporting of data on CD or DVD ROM.

1. ASCII mode standard, unwrapped,
2. A file cannot span multiple discs.
3. A disc may contain numerous velocity surveys.
4. The CD/DVD label should identify each wellbore with a 12-digit API number, Lease Number, Well Name/Number, and Well Name Suffix.
5. The label should identify the name, address, and telephone number of the person to contact if problems occur when the data are loaded.

Subdivision of contents

1. A velocity survey will contain header record(s), data record(s), and terminate with an end-of-file marker.
2. Header records should precede the first data record in the file. There should be a set of header records for each borehole with a unique 12-digit API number.
3. As many data records as necessary may be used within a file.

Format for headers

The header records format should consist of the following items. Identify each header record with an "H" as the first character of the record, a blank space, and then the relevant data. There should be a set of header records for each borehole with a unique 12-digit API number. Header lines should not exceed 80 columns (characters). Also, enter a <carriage return> after the last column used in each header record in lieu of blank spaces.

Header #1 - This is a mandatory formatted first header record.

1. Header Record ID - The letter H to identify the record as a header record in column 1, followed by a space in column 2.
2. API Number (12 numeric characters available beginning in column 3) - The 12-digit unique identifier to a wellbore assigned by the BSEE District Office. The

full 12-digit identifier that identifies the well and the wellbore, as prescribed by the American Petroleum Institute D-9 Committee, appears in Bulletin D-12 published April 1966. This data element occupies columns 3 through 14, followed by a space in column 15.

3. Date Survey Conducted (6 numeric characters available beginning in column 16)
- The year, month, and day (in format YYYYMMDD) the final survey was conducted. This data element occupies columns 16 through 23. End with a <carriage return>.

An example header record on line 1 would read: **H 608123456701 20050113**<carriage return>

Optional header records

In addition to the mandatory, formatted first header record, it is strongly recommended that other relevant information pertaining to the conditions under which the survey was conducted be included in the header section. Examples of other header records are

Type of Survey - The method used to conduct the velocity survey, e.g., Borehole seismic analysis, seismic acquisition tool, vertical seismic profile, etc.

Example: **H Survey Type Check Shot**<carriage return>

Contractor - The name of the company (up to 78 characters beginning in column three) that conducted the survey.

Example: **H Marine Surveys**<carriage return>

Total Depth of Well - The total measured depth of the well in feet.

Example: **H TD 13700**

Other recommended record headers would include the following:

- Area Code of the block at the bottomhole location (2 characters in format AA);
- Block Number of the block at the bottomhole location (6 characters in format ANNNNA);
- Bottomhole Lease Number (6 characters in format ANNNNN);
- Well Name/Number (5 characters);
- Well Name Suffix (8 characters in format AANNAANN) - The name submitted that identifies the borehole as a sidetrack (e.g., ST01BP00) or bypass (e.g., ST01BP01). The original borehole suffix would be stated as ST00BP00.

An example header record containing these items would read:
H HI 999 G99999 SD001 ST01BP00 <carriage return>

Format for data records

Each survey data record should contain information recorded at a given measurement point in the wellbore. Provide a data record for each measurement point. Arrange survey data records beginning from surface to the bottom of the wellbore.

Item	Column	Format	Description
1.	1-8	NNNNN.NN	TVD: The vertical distance, in feet, from sea level to the measurement point. Use a zero in column 1 when the depth is less than 10000 feet. Spaces or commas should not be used.
2.	9-16	NNNNN.NN	One-Way Travel Time: The one-way vertical travel time in milliseconds, corrected to sea level.
3.	17-80		Unused space for future use.

Complete file format recommended for velocity surveys

H□NNNNNNNNNN (API #)□YYYYMMDD (Date Velocity Run)
H□Type of Survey
H□Survey Company
H□Total Depth
H□Area Code, Block#, Lease#, Well Name, Well Name Suffix
Data Records – (*Depth*) NNNNN.NN (*One-Way Travel*) NNNNN.NN

Generic example of the format for velocity surveys

H 608123456701 20050113
H Check Shot
H Marine Surveys
H TD 10271
H HI 999 G99999 SD001 ST01BP00

00119.3300023.44
08881.3301233.44
09381.3301287.44
09881.3301338.44
10271.3301378.44