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

NTL No. 2004-G07 Effective Date: April 20, 2004

NOTICE TO LESSEES AND OPERATORS OF FEDERAL OIL AND GAS LEASES IN THE OUTER CONTINENTAL SHELF, GULF OF MEXICO OCS REGION

## Well Records Submittal

This Notice to Lessees and Operators (NTL) supersedes NTL Nos. 97-06, 98-18 and restates addresses in 98-18 (Addendum 1). In this NTL, the Minerals Management Service (MMS) Gulf of Mexico OCS Region (GOMR) defines the new procedures on how lessees/operators submit well records required by 30 CFR §§ 250.468 and 469, specifying the well records you must submit; the delinquent dates of the various well records; and the correct locations where you must send these well records.

The MMS collects, verifies, and stores data by the well's unique 12-digit API number we assign. The MMS GOMR 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 date the data are due to the appropriate office. This NTL applies to all wells that reach total depth on or after April 20, 2004, the effective date of this NTL.

### 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 MMS." The MMS may also require additional well reports and records of operations (30 CFR § 250.469). Under these authorities, the well records that you must submit to the MMS GOMR include the following:

#### A. Well Log Data

**1.** Submit final composite log(s) of the following logs or curve types, if you obtained them in the **open-hole** in a wellbore, sidetrack, or bypass:

| | | |
|---|---|---|
| • Acoustic or Sonic | • Bulk Density | • Caliper |
| • Conductivity | • Density Correction | • Dipmeter (computed) |
| • Gamma Ray | • Resistivity/Induction | • Spontaneous Potential |
| • Magnetic Resonance | • Mudlogs/Formation Eval. | • Neutron |
| • Tension | • Porosity | • Borehole Image |
| • Formation Tester* | • Rwa | |

* Formation Tester is considered any wireline logging tool that collects pressure, fluid and/or temperature data from the borehole. All logs and fluid analysis must be submitted.

**2.** Submit all log curves associated with the generic log type, including:

- Measurement or logging while drilling (MWD/LWD)
- Wireline generated well logs
- High-resolution data, if acquired

Attachment 1 of this NTL identifies the specific locations to send the digital and hardcopy data.

***Note that you do not send digital or hardcopy data to IHS for formation tester, magnetic resonance, borehole image, and mudlogs. You do not need to submit well log data for workover or recompletion operations to the MMS GOMR unless requested for a specific well.***

Although American Petroleum Institute (API) Recommended Practice (RP) 31A is not incorporated by reference in MMS regulations, you may use it for guidance on providing complete and accurate well information.

If you log resistivity and gamma ray and/or spontaneous potential, submit measured depth (MD) 1-inch correlation and 5-inch detail logs.

For all non-vertical wells, as defined in 30 CFR § 250.461, submit:

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

If the original presentations are generated specifically in color (e.g., NMR, borehole imaging), submit color copies. Include MWD/LWD, wireline generated well logs, and mudlogs. Consistent with current practice, you need to submit field prints and/or cased-hole logs only in special circumstances, as requested by the GOMR MMS.

We encourage direct submittal of the completed log data set from the acquiring service company.

**3. Paper Copy Well Logs:** Submit paper composite copies comparable to the digital data. If logging data from more than one logging vendor are collected in a borehole, you may submit either:

(a) logging data from all vendors composited into a single set of logs

***or***

(b) a set of composited logs from each individual vendor.

Clearly label each well log with its associated API number, bottomhole lease number, well name, and well name suffix. ***Do not submit additional copies, field prints, or copies of separate interim runs unless requested by the MMS GOMR.***

**4. Digital Well Log Data:** Submit composite digital curve data in the Canadian Well Log Society Log ASCII Standard (LAS), Version 2.0 format or Log Interchange Standard (LIS) format. Ensure that the curve data are in an MD composite layout, including full headers for each log curve provided for the well and MWD/LWD log curves. Ensure also that each digital curve you submit is represented on the paper log presentations you submit. 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.**

You may compress well log data to fit on one diskette using the PKZIP compression program. Submit digital data on IBM PC compatible 3.5-inch diskettes, 4-mm or 8-mm data cartridges. Submit digital data in MD and include:

(a) Full header information, including:

| | |
|---|---|
| • the 12-digit API number | • well name suffix |
| • bottomhole lease number | • the bottomhole area and block |
| • well name | |

(b) Information for each tool run, including:

| | |
|---|---|
| • borehole fluids | • depth interval |
| • mud | • filtrate resistivity and temperatures |
| • casing information | • bottomhole or maximum recorded temperature |

(c) Logging tool parameters (matrix values), position of logging tool (i.e., centered or eccentered), and logging engineer's comments; and

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

**B. Directional Surveys**

Submit one digital copy and one paper copy of the final composite directional survey. See Attachment 2 for digital Directional Survey format.

- Make sure that the paper copy is comparable to the digital copy.
- Submit these survey results on IBM PC compatible 3.5-inch diskettes or CD ROM coded in ASCII (see Attachment 2 of this NTL).

- 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 MMS GOMR. 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.***

We encourage direct submittal of the completed survey from the acquiring service company.

### C. Velocity Profiles and Surveys

#### 1. Velocity Seismic Profiles

Submit the results from *all velocity measuring surveys* (in cased or uncased holes) as well as concurrently run directional surveys for *both vertical and directional* wells if different from directional surveys generated in paragraph B above. Submit *digitally* recorded data on an IBM PC compatible formatted diskette or CD ROM in industry standard formats (LAS, DLIS, ASCII, CGM, TIFF, JPG, SEGY, DOC), to include but not limited to:

- the Normal Incidence VSP
- Acoustic Log Calibration Report
- any referenced information within the report correlative with the acquisition, such as digital images, digital raw and computed survey data and directionals

We encourage direct submittal of the completed survey from the acquiring service company.

#### 2. Velocity Surveys (Time-Depth Pairs/Checkshots)

Submit one digital copy and one paper copy of the velocity survey (time-depth pairs/checkshots). Make sure that the paper copy is comparable to the digital copy. Submit these survey results on IBM PC compatible 3.5-inch diskettes or CD ROM's coded in ASCII (see Attachment 3 of this NTL). Legible, exact copies of service company report or log should be submitted. The report should include or be annotated with:

- API number
- well name and number
- well name suffix
- contractor or service provider
- contact name (phone number or e-mail address)

***Note that the format has been modified to expand the columns for True Vertical Depth and One-Way Travel Time from 5 to 8 to include two decimal places for each column.***

We encourage direct submittal of the completed survey from the acquiring service company.

**D. Analysis of Sidewall Cores, Wireline Formation Tests, and Drill Stem Tests**

If you conduct any of the following:

- sidewall core analysis or equivalent
- wireline formation tests (include any logs and associated lab results)
- drill stem tests

Submit one copy in either readable digital or paper format. We encourage direct submittal of the completed sidewall core analysis, wireline formation tests and drill stem tests from the acquiring service company.

**E. Geochemical Analyses/Reports and Information**

If you conducted any geochemical analyses/reports, including internal company or external contractor interpretation reports on

- cuttings
- sidewall or conventional cores
- fluid samples from the well

submit one copy in either readable digital or paper format.

The term "sample" encompasses:

- hydrocarbon gases, specifically methane through pentanes and C6+ hydrocarbons
- non-hydrocarbon gases (carbon dioxide, hydrogen sulfide, argon, helium and radon)
- 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 | • polynuclear aromatic hydrocarbons |
| • rock-eval pyrolysis | • stable isotope analyses of carbon & 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 biomarker & aromatic hydrocarbon analysis by GC MS | • vitrinite reflectance |
| | • elemental analysis of kerogen |

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

- all whole-oil GC, GC MS on oils
- SARAH (or SARA)
- isotopes on the fractions
- molecular and isotopic analyses of C1-C5 hydrocarbons metals data
- any other geochemical data used from production samples intended for reservoir characterization studies

**F. 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 either digital (preferable) or paper format of the entire, detailed paleontological report(s), chart(s), striplog(s), checklist(s), and any other paleontological records. In certain situations, the Region may require the submittal of preliminary or interim reports. Include:

- the range of samples taken
- a sample analysis identifying fossils and lithology by MD
- a summary and interpretation (based on identification of foraminifera, nannofossils, or other microfossils) of all biostratigraphic markers, zones, tops, or local markers
- a 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)
- a biostratigraphic chart noting the relative ages of the biostratigraphic zones you used in the detailed paleontological reports

**G. Detailed Analysis of Conventional Cores/Reports and Information**

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

| | |
|---|---|
| • standard analyses for porosity, permeability, and water saturation | • compaction analyses |
| | • laser grainsize analyses |
| • capillary pressure studies | • stressed brine porosity and permeability analyses |
| • scanning electron microscopy | |
| • thin section description, analysis, and interpretation | • rock mechanic studies |
| | • water extraction and core gamma logs |
| • x-ray diffraction analyses | • core photos |

In addition, provide one copy of any 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 Region may require the submittal of preliminary or interim reports.

**H. End of Operations Report (Form MMS-125) and Attachments**

Pursuant to 30 CFR § 250.465(a), you must submit End of Operations Report (Form MMS-125) and the required attachments.

**I. Additional Information**

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

**II. When to Submit Well Records**

The MMS GOMR recognizes that you need adequate time to submit complete and accurate well records. Well records are divided into four groups for the timely submittal of the data.

**A. Well Log Data, Directional Surveys, Velocity Profiles and Surveys, Analyses of Sidewall Cores, Wireline Formation Tests, and Drill Stem Tests**

Submit:

- well log data
- directional surveys
- velocity profiles and surveys
- sidewall analysis of cores

- wireline formation tests
- drill stem tests

within 30 days of the "Date Operations Completed" of the last logging run (MWD/LWD or wireline) that you report in Item 13 of the Well Activity Report (Form MMS-133) for each 12-digit wellbore, sidetrack, and/or bypass.

The MMS GOMR 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 email for the timely submittal of such data. If you request it, the MMS GOMR Technical Data Management Section (TDMS) Office 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 Reports and Information and Detailed Conventional Core Analyses/Reports and Information**

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

- detailed paleontological reports and information
- detailed conventional core analyses/reports and information

no later than 90 days after the "TD DATE" you report in Item 10 of the Well Activity Report (Form MMS-133). If you request it, the MMS GOMR TDMS 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., academia, non-lessee partners and/or consultants) years after the wellbore is completed.

**C. Geochemical Analyses/Reports and Information**

For each wellbore in which these data were collected, submit geochemical analyses/reports and information no later than 120 days after the "TD DATE" you report in Item 10 of the Well Activity Report (Form MMS-133). If you request it, the MMS GOMR TDMS 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., academia, non-lessee partners and/or consultants) years after the wellbore is completed.

### D. End of Operations Report (Form MMS-125)

For each wellbore, submit an End of Operations Report (Form MMS-125) and all its attachments no later than 30 days after the "END DATE" you report in Item 10 of the Well Activity Report (Form MMS-133).

The MMS GOMR uses the Well Activity Report (Form MMS-133) to track well activity; therefore, it is crucial that you submit a complete and accurate report to the appropriate MMS GOMR 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 MMS GOMR exacting an appropriate remedy such as issuing an Incident of Non-compliance (INC).

The MMS GOMR may request that you submit well logging data, directional surveys, velocity profiles and surveys, sidewall analyses of cores, wireline formation tests, and drill stem tests before the 30-day limit when we determine that circumstances warrant such action. We may also request that you submit preliminary reports of analytical data:

- geochemical analyses/reports and information
- detailed paleontological reports and information
- detailed conventional core analysis/reports and information

before the 120/90-day limit when we determine that circumstances warrant such action.

## III. Where to Submit Well Records

Operators will submit digital well log records and a paper copy of the well logs for all wells (12 digit API number) that have reached total depth on or after April 20, 2004 to the following Agent:

**IHS Energy Log Services, Inc.**
**5333 Westheimer, Suite 100**
**Attention: MMS Well Log Data**
**Houston, Texas 77056**
**Phone: (713) 840-8282**

Submit complete sets of documents and data to the appropriate designated locations. Attachment 1 of this NTL provides a "Well Records Submission Summary" for an overview of

the various well records, including which entity receives which well records and the addresses and contact numbers of the appropriate MMS GOMR District Office, the MMS GOMR TDMS Office, and IHS Energy Log Services, Inc. (IHS). 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

You should also be aware that we use the ***"submittal date"*** and not the received date to determine when well data and information become eligible for release to the public under 30 CFR § 250.196. We will no longer extend the release date on the basis of delinquent submission of data or information.

It is your responsibility to ensure that the MMS GOMR and IHS receive all well data and information within the specific periods. If we notify you of delinquent data, and the required data are not received within five working days, 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 by the MMS GOMR and IHS. 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. We will address INC's issued by the MMS GOMR TDMS Office for the delinquent data submittal at your yearly performance review or through other appropriate and timely measures.

## IV. Well Naming and Numbering

Show the API Number and well name assigned by the MMS GOMR District Office on all well records you submit to us. You can find these on the approved Application for Permit to Drill (Form MMS-123) for the original hole, sidetracks, and/or bypasses or on the MMS Internet website at: http://www.gomr.mms.gov/homepg/fastfacts/api/master.asp.

**Paperwork Reduction Act of 1995 Statement:** The collection of information referred to in this NTL provides clarification, description, or interpretation of requirements contained in 30 CFR § 250, subpart D, and on Form MMS-125. The Office of Management and Budget (OMB) approved the information collection requirements and assigned OMB control numbers 1010-0141 for the subpart D regulations and 1010-0046 for Form MMS-125. This NTL does not impose additional information collection requirements subject to the Paperwork Reduction Act of 1995.

**MMS GOMR Contact:** If you have any questions on this NTL, you may contact **Steve Kennedy** by telephone at (504) 731-7821 or by e-mail at stephen.kennedy@mms.gov.

Chris C. Oynes

Chris C. Oynes
Regional Director

Attachments

# Attachment 1

## Well Records Submission Summary

| **Record types to be submitted to the Minerals Management Service Gulf of Mexico OCS Region and IHS.** | MMS GOMR | | IHS | Submit required information within: |
|---|---|---|---|---|
| | TDMS | Districts | | |
| Paper Copy of the Final Composite Well Logs Comparable to the Digital Copy | X | | X | 30 days after "DATE OPERATIONS COMPLETED" on MMS FORM 133 |
| Digital Copy of the Final Composite Well Logs | | | X | 30 days after "DATE OPERATIONS COMPLETED" on MMS FORM 133 |
| Paper Copy of the Final Composite Borehole Image, Magnetic Resonance, and Mudlogs | X | | | 30 days after "DATE OPERATIONS COMPLETED" on MMS FORM 133 |
| One Digital and One Paper Copy, Comparable to the Digital Copy, of the Final Composite Directional Survey | X | | | 30 days after "DATE OPERATIONS COMPLETED" on MMS FORM 133 |
| One Digital and One Paper Copy of the Final Composite Velocity Survey | X | | | 30 days after "DATE OPERATIONS COMPLETED" on MMS FORM 133 |
| Sidewall Core Analysis Reports, Wireline Formation Tests Results, and Drill Stem Test | X | | | 30 days after "DATE OPERATIONS COMPLETED" on MMS FORM 133 |
| Digital or Paper Copy of Detailed Paleontological Reports | X | | | 90 days after "TD DATE" on MMS FORM 133 |
| Detailed Conventional Core Analysis Report | X | | | 90 days after "TD DATE" on MMS FORM 133 |
| Digital or Paper Copy of Geochemical Analyses and/or Reports | X | | | 120 days after "TD DATE" on MMS FORM 133 |
| One Public Information Copy and Two Complete Copies of the End of Operations Report (Form MMS-125) | | X | | 30 days after "END DATE " on MMS FORM 133 |

## Addresses

### MMS District Offices

**New Orleans District (MS 5250)**
990 N. Corporate Drive, Suite 100
New Orleans, LA 70123-3392
Phone: (504) 736-2504 Fax: (504) 736-2836

**Houma District (MS 5260)**
3804 Country Drive
P.O. Box 760
Bourg, LA 70343
Phone: (985) 868-4033 Fax: (985) 879-2738

**Lafayette District (MS 5280)**
201 Energy Parkway, Suite 410
Lafayette, LA 70508
Phone: (337) 262-6632 Fax: (337) 262-6620

**Lake Charles District (MS 5271)**
620 Esplanade Street, Suite 200
Lake Charles, LA 70607-2984
Phone: (337) 480-4600 Fax: (337) 477-9889

**Lake Jackson District (MS 5270)**
Oak Park Center
102 Oak Park Drive, Suite 200
Clute, TX 77531
Phone: (979) 265-7147 Fax: (979) 265-7206

**Corpus Christi Subdistrict**
Send information to Lake Jackson District.

### Minerals Management Service

Technical Data Management Section
Mail Stop 5020
1201 Elmwood Park Boulevard
New Orleans, LA 70123-2394

Phone: (504) 736-2887
Fax: (504) 736-2857
E-mail: TDMS@mms.gov

### IHS Energy Log Services, Inc.

5333 Westheimer, Suite 100
Attention: MMS Well Log Data
Houston, Texas 77056

Phone: (713) 840-8282

**IHS** is contracted by the MMS to verify and store digital Wireline/MWD/LWD well log data on behalf of the MMS as per 30 CFR § 250.468(a).

## Attachment 2

### *Directional Survey 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 diskette or compact disc*

1. IBM PC compatible.

2. 3.5" diskette or compact disc.

3. ASCII mode standard.

4. A file cannot span multiple diskettes or compact discs.

5. A diskette or compact disc may contain numerous directional surveys.

6. The label should identify each wellbore with a 12-digit API number, Lease Number, Well Name/Number, and Well Name Suffix.

7. The label should identify the name, address, and telephone number of the person to contact should problems occur when loading the data.

### *How to report through E-mail (GOM OCS only)*

In lieu of data submittal via mail, GOMR data may be forwarded to the GOMR TDMS via E-mail at tdms@mms.gov. **Note: The MMS gateway is not encryption-protected at this time.** When submitting digital data by E-mail, provide:

1. File suitable for any IBM PC computer or compatible.

2. ASCII mode standard.

3. One directional survey per file.

4. The label should identify each wellbore with a 12-digit API number, Lease Number, Well Name/Number, and Well Name Suffix.

5. Identify the name, address, and telephone number of the person to contact should problems occur when loading the file.

### *Subdivision of content*

1. A directional survey file should contain header record(s), data record(s), and terminate with an end-of-file marker.

2. A maximum of 10 header records may be used within each directional survey file. 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 directional survey file.

4. The diskette or compact disc may contain numerous directional surveys as long as each file and diskettes or disc are adequately labeled.

### *Header information, character length, and line format*

The header records should be in a format that consists of the following items. Identify each header record with an "H" as the first character of the record, a blank space, then followed by the relevant data. There should be a set of header records for each borehole with a unique 12-digit API number. There can be a maximum of 10 header records used within each file for a directional, and header lines should not exceed 80 columns (characters). In addition, enter a <carriage return> after the last column used in each header record in lieu of blank spaces.

**Header #1**

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 - The 12-digit API Number assigned by the MMS District to the well in columns 3 through 14.

3. Date Survey Conducted - The year, month, and day (yyyymmdd) the survey was completed in columns 15 through 22.

An example header record on line 1 would read: **H 177671234500 19900701**<carriage return>

**Header #2**
Type of Instrument Used (e.g., magnetic single shot, magnetic multi-shot, gyroscopic, etc).

An example header record on line 2 would read: **H magnetic multi-shot** <carriage>

**Header #3**
Contractor or Service Provider - The name of the company that conducted the survey.

An example header record on line 3 would read: **H Hamberger Well Services** <carriage return>

**Header #4**
Survey Interval - The depths, in feet, of the beginning and ending measurement points.

An example header record on line 4 would read: **H 66666 99999**<carriage return>

### *Survey point line format (17-digit format)*

Each survey data record should contain information recorded at a given measurement point in the **borehole**. Provide a data record for each measurement point. Order survey data records beginning from the surface to the bottom of the **borehole**. The number of columns for each survey data record should total 18. Use a <carriage return> after each directional survey record in lieu of spaces after the 17th column. The content and column structures of the data records are

| Item | Column | Format | Description |
|---|---|---|---|
| 1. | 1-5 | NNNNN | **Measured Depth:** The distance in feet from the RKB to the measurement point; do not use spaces. Please use a zero in column 1 when the depth is less than 10,000 feet. Other punctuation should not be used. |
| 2. | 6-7 | NN | **Degrees** } **Inclination Angle:** The angle, in degrees, minutes, and seconds, the borehole deviates from vertical at the measurement point. Do not use spaces or other punctuation in columns. |
| | 8-9 | NN | **Minutes** } |
| | 10-11 | NN | **Seconds** } |
| 3. | 12-17 | NNN.NN | **Azimuth:** The azimuth, in degrees, of the **borehole** at the measurement point. The azimuth should range from $000^0$ to $360^0$ north. Use zeros in lieu of empty spaces. A decimal point is placed in the 15th column. The two numbers to the right of the decimal represent tenths and hundredths of a degree. |
| 4. | 18 | | Enter a <carriage return> in the 18th column. |

### *Complete file format recommended for directional surveys*

H□NNNNNNNNNNNN*(API #)* □YYYYMMDD(*Date Survey Run*)
H□Type of Instrument
H□Contractor or *Survey Company* □Contact Name □Phone □E-mail address
H□Survey Interval

Data Records – (***Depth)*** NNNNN (***Angle)*** NNNNNN (***Azimuth)*** NNN.NN

***Key:*** *N = Numeric value; A = Alphabetic value; YYYY = year, MM = month, DD = day; 19980113 = January 13, 1998.* □ *= Blank space*

### *Generic example of the format for directional surveys*

H 608184000801 19980705
H magnetic multi-shot
H Hamberger Well Services Ron Don 555-555-5555 Ron @ logger.com
H 66666 99999

00000000000000.00
00100003000040.00

### *Directional survey report paper copy format*

1. Legible, exact copies of service company reports shall be furnished.

2. The report should include or be annotated with:

   a. The 12-digit API number assigned by the MMS District to the borehole and survey conducted, lease number, well name and number, and well name suffix, and datum/datum transformation

   b. Type of instrument used

   c. Contractor or service provider

   d. Survey interval

   e. Survey date(s)

   f. North Reference

   g. Datum, map projection, Spheroid

h. Magnetic declination(s), and

i. Grid convergence(s)

For more information refer to:

http://www.gomr.mms.gov/homepg/mmsforms/REPHANDBK_DIRSVY.pdf

## Attachment 3

***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 diskette or compact disc***

1. Suitable for any IBM PC computer or compatible.

2. 3.5" diskette or compact disc.

3. ASCII mode standard.

4. A file cannot span multiple diskettes or compact discs.

5. A diskette or compact disc may contain numerous velocity surveys.

6. The diskette or CD label should identify each wellbore with a 12-digit API number, Lease Number, Well Name/Number, and Well Name Suffix.

7. The label should identify the name, address, and telephone number of the person to contact should problems occur when loading the data.

***How to report through E-mail (GOM OCS only)***

In lieu of data submittal via mail, data may be forwarded to TDMS via E-mail at tdms@mms.gov. **Note: The MMS gateway is not encryption-protected at this time.** When submitting digital data E-mail, provide:

1. File suitable for any IBM PC computer or compatible.

2. ASCII mode standard.

3. May contain numerous velocity surveys.

4. Identify the name, address, and telephone number of the person to contact should problems occur when loading the data.

***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 should be in a format that consists of the following items. Identify each header record with an "H" as the first character of the record, a blank space, then followed by 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 MMS District office. The full 12-digit identifier that identifies the well and the wellbore, as prescribed by the American Petroleum Institute D-9 Committee, appearing 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 YYMMDD) the final survey was conducted. This data element occupies columns 16 through 21. End with a <carriage return>.

An example header record on line 1 would read: **H 608123456701 980113**<carriage return>

**Optional header records**

In addition to 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:

- 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)
- OCS lease number assigned to the well by the MMS to the lease that occupies the bottomhole location of the borehole (5 characters in format NNNNN).
- 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<br>. | 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<br>. | 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□NNNNNNNNNNNN *(API #)*□YYMMDD (*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 980113
H Check Shot
H Marine Surveys
H HI 999 G99999 SD001 ST01BP00

08881.3301233.44
09381.3301287.44
09881.3301338.44
10271.3301378.44

For more information refer to:

http://www.gomr.mms.gov/homepg/mmsforms/REPHANDBK_VELSVY.pdf