

Instructions for Completing Form BOEM-0127

Sensitive Reservoir Information (SRI) Report

To properly complete Form BOEM-0127, follow the instructions below. Please contact the BOEM Regional Office listed at the end of this document if you need assistance or have any questions about how to complete or submit Form BOEM-0127. You may copy any portion or this entire document for your use.

Reporting Requirements

Regulation [30 CFR 550.1155](#) requires that an operator submit Form BOEM-0127 for each producing sensitive reservoir, and regulation [30 CFR 550.1154](#) states that all oil reservoirs with associated gas caps be initially classified as sensitive. Submit the original plus two copies of Form BOEM-0127. Mark one of the copies "Public Information," with confidential Item Nos. 124-168 blanked out. A copy of Form BOEM-0127 is available on the Internet at www.boem.gov, as a Portable Document File (.pdf) with an overlay or in Rich Text Format (.rtf) for downloading to a word processor.

Additional Reporting Requirements

In accordance with 30 CFR 550.1166(c), additional reporting is required for developments in the Alaska OCS Region. Each time you are required to submit Form BOEM-0127 pursuant to 30 CFR 550.1155, you must request an MER for each producing sensitive reservoir in the Alaska OCS Region, unless otherwise instructed by the BOEM Alaska Regional Supervisor.

Establishment of Initial SRI

Submit Form BOEM-0127 for each producing sensitive reservoir within 45 days of discovering that a reservoir is sensitive. Also, submit a reservoir structure map along with any other appropriate supporting information (i.e., log sections, well tests, pressure surveys).

If lease operatorship is transferred, the new operator must submit Form BOEM-0127 for all sensitive reservoirs (even though they may currently have an approved SRI under the previous operator). We will consider the new operator's form as an initial submittal (a reservoir structure map is required).

The effective date of the SRI submittal for a reservoir will be the first day of the month in which each Region receives Form BOEM-0127.

Supporting Data

Provide the following with all SRI forms (including the Annual Review):

1. Update all data to reflect current reservoir conditions. Therefore, for all SRI revisions, update items that have changed, including volumetric and production data. Also, include the date of the current measured pressure (if required annually) or, if granted a departure, the date the departure was granted. A reservoir designated oil w/associated gas cap requires both sets of parameters (oil and gas) along with all other basic data.
2. Submit the most recent reservoir structure map (original plus one copy) for initial submittals or if the reservoir has been remapped or renamed. Show on the map the field, operator, wells (with well names and reservoir penetration points), reservoir name (including fault block designation), correct scale, all depth contours and hydrocarbon limits (i.e., gas/oil contact, lowest known gas, lowest know oil, oil/water contact, etc.). Report all reservoir penetration points and hydrocarbon limits in subsea depths. Also note how the hydrocarbon limits were determined (i.e., gas/oil contact as seen in Well A-1, oil/water contact estimated from bottom of sand plus one sand thickness).
3. Give a brief description of any enhanced recovery operation activity or plans in the remarks section of Form BOEM-0127.
4. Fill in both the oil and gas reserve parameters in Item Nos. 124-187 for oil reservoirs with a gas cap. If such a reservoir has a completion that is producing an associated gas cap (by virtue of a well completed in the gas cap, across the gas/oil contact, or for a well in which gas coning is occurring), you will need prior approval from the appropriate Bureau of Safety and Environmental Enforcement (BSEE) regional office to produce such a well (30 CFR 250.1157).
5. Include a list of all active completions (the number of completions in the reservoir that are currently open to production; these completions can be currently producing or shut-in). This list should correspond with Item No. 175.

Revision of SRI

1. Submit Form BOEM-0127 with the appropriate supporting information as previously noted to propose a revised SRI.
2. Review Form BOEM-0127 at least once a year (12 months from the effective date of the last submittal) and submit a revised Form BOEM-0127 with the appropriate supporting information as previously noted.
3. Submit Form BOEM-0127 with appropriate supporting information to request the reclassification of a reservoir from sensitive to nonsensitive.

FORM OVERVIEW

Reservoir Identification

Box 1. Original/Correction: Indicate whether the submission is an original Form BOEM-0127 or corrected copy of a previously submitted request.

Box 8. Field Name: Same as Item No. 8 on Form BSEE-0126, “Well Potential Test Report (WPT)”.

Box 50. Reservoir Name: As designated by the lease operator. The reservoir name will be stored in BSEE/BOEM information systems in no more than twelve numerical and/or alphabetic characters including blank spaces. NOTE: Do not use the slash (/) designation in a reservoir name unless the BSEE has approved downhole commingling.

Box 117. Drive Mechanism: water, partial water, gas cap, depletion, solution gas, or some combination of these (WTR, PAR, GCP, DEP, SLG, COM).

Box 26. Contact Name: Lease operator representative whom BOEM should contact regarding any problems found with the Form BOEM-0127 submittal. Please type or print the name of the person to contact regarding problems with the submittal.

Box 11. Operator Name and Address: Enter the legal company name as given by the lease documents or approved Form BOEM-1123, “Designation of Operator,” and the complete address of the submitting office.

Box 10. BOEM Operator Number: The lease owner designee on Form BOEM-1123 and filed with BSEE/BOEM by the lease owner of record, or the reservoir unit operator stated in the BSEE unit agreement.

Box 118. Year of Discovery: The year the reservoir was first penetrated by a well showing paying quantities.

Box 121. Type of Request

Initial Submittal: Check if this is an initial SRI request.

Revision: Check if this is a miscellaneous change such as renaming of a reservoir, remapping, adding or changing producing wells, etc.

Annual Review: Check if this is an Annual Review required under [30 CFR 550.1155\(b\)](#).

Reclassify Reservoir: Check if requesting to reclassify the reservoir.

NOTE: If lease ownership is transferred, the new operator must submit Form BOEM-0127 for all

reservoirs in the lease involved. We will consider the new form as an initial SRI and the most recent reservoir structure map and appropriate supporting information for the reservoir is required.

Box 89. Attachments: Check to indicate the attachments submitted with this request.

Box 122. Reservoir Type: Check reservoir type under “Operator Req.”

Oil: Check for a reservoir that contains hydrocarbons predominantly in a liquid state (single phase).

Gas: Check for a reservoir that contains hydrocarbons predominantly in a gaseous state (single-phase).

Oil w/associated gas cap: Check for a reservoir that contains hydrocarbons in both a liquid and a gaseous state (two-phase).

NOTE: [30 CFR 550.1154\(a\)\(1\)](#) requires all oil reservoirs with associated gas caps initially to be classified as sensitive.

Box 123. Reservoir Classification: Check reservoir classification under “Operator Req.” to change the classification of a reservoir, submit a formal written request along with substantiating information to support the classification. In addition, submit Form BOEM-0127 with the appropriate classification.

Sensitive: Check if the ultimate recovery of the reservoir may be decreased by high reservoir production rates. Refer to [30 CFR 550.1154](#).

Volumetric Data

124. Upper Ø Cut-offs: The upper porosity cut-off is the highest porosity calculated from a well log or measured from a core sample (Fraction).

125. Lower Ø Cut-offs: The lowest porosity at which flow will still occur (fraction).

126. Upper K Cut-offs: The highest permeability expected from the reservoir (md).

127. Lower K Cut-offs: The lowest possible permeability from the reservoir (md).

128. G/O Interface: The maximum depth (expressed in feet subsea) at which free gas can be found in the reservoir at current conditions.

129. W/O Interface: The minimum depth (expressed in feet subsea) at which the water front exists in the reservoir at current conditions.

130. G/W Interface: The minimum depth (expressed in feet subsea) at which the water front exists in the reservoir at current conditions.

NOTE: Item Nos. 124-130 may be determined from well logs, estimated (from adjacent reservoirs, etc.), or assumed. If assumed, indicate so and give method used.

131. A_g (acres): The areal extent of the gas cap portion of the reservoir expressed in acres.

132. A_o (acres): The areal extent of the original oil zone expressed in acres.

133. V_o (acre-feet) (Item No. 132 x Item No. 136): The volume of the original oil-bearing portion of the reservoir.

134. V_g (acre-feet) (Item No. 131 x Item No. 138): The volume of the current gas-cap-bearing portion (free gas) of the reservoir.

135. H_o (feet): The gross thickness of the original oil zone.

136. h_o (feet): The net thickness of the original oil zone.

NOTE: These thicknesses are found for individual wells from well logs. The average reservoir gross and net oil thicknesses can then be calculated by:

$H_o = (\text{sum of } H)/N$ or $h_o = (\text{sum of } h)/N$ where

H = gross thickness (ft) h = net or pay thickness (ft) N = number of producing completions

137. H_g (feet): Same as Item No. 135 above except in the current gas zone.

138. h_g (feet): Same as Item No. 136 above except in the current gas zone.

139. ϕ_e (fraction): The effective porosity is a measure of the interconnected void space in a reservoir rock. Porosity is the pore volume per unit volume of formation; it is the fraction of the total volume of a sample that is occupied by pores or voids.

140. S_w (fraction): The connate or irreducible water saturation is the water saturation that is indigenous to a particular reservoir rock. This water saturation will exist after depletion of the reservoir. (Water saturation is the fraction of the pore volume that contains formation water.) Connate (irreducible) water saturation may be determined from electric logs or cores.

141. S_g (fraction): Gas saturation present in the gas cap.

$S_g = 1 - S_{wg} - S_{or}$

S_{wg} = water saturation present in the gas cap (Item No. 140)

S_{or} = residual oil saturation

142. S_o (fraction): Original oil column saturation present in the oil rim.

$$S_o = 1 - S_{wo}$$

S_{wo} = initial water saturation present in the oil rim (Item No. 140)

143. B_{oi} (Units are in RB/STB, ex: $B_{oi} = 1.327$): The initial oil formation volume factor is the reservoir volume in barrels that one stock tank barrel occupies in the reservoir. B_{oi} is reported from a PVT analysis of the reservoir fluid. If not measured, it may be estimated from correlations related to dissolved gas-oil ratio and temperature or from PVT analysis of the reservoir fluids of an adjacent reservoir (RB/STB).

144. B_{gi} (Units are in cu.ft./SCF, ex: $B_{gi} = .0025$ cu.ft./SCF): The initial/current gas formation volume factor is the volume occupied in a gas phase at reservoir pressure (P) and temperature (T), by a unit volume of gas at standard pressure and temperature. The following equation is used to calculate B_{gi} (cu.ft./SCF) using standard conditions of 15.025 psi and 60 °F.

$$B_{gi} = .02829 ZT / P \text{ (cu.ft./SCF)}$$

Z = Gas deviation factor at reservoir conditions (estimated from correlations related to pressure and temperature)

T = Temperature at reservoir conditions (°R = °F + 460)

P = Pressure at reservoir conditions (psia)

NOTE: As the reservoir commences production, replace B_{gi} (the initial gas formation volume factor) with B_g (the gas formation volume factor at present conditions).

Volumetric Method for Calculating Oil or Gas “inplace”: Be sure data required for volumetrics (Item Nos. 124-155) calculate to initial oil in place (Item No. 145) and current gas in place (Item No. 146) and are updated at every submittal to reflect a current picture of the reservoir. To do so, use basic data numbers or volumetric formulas listed below in Item Nos. 145 and 146.

NOTE: If reserves have been re-estimated since the initial SRI submittal, enter new reserve figures and indicate how these reserve figures were arrived (i.e., decline curve analyses, material balance, reservoir simulations).

145. $N = (7758 \times \text{Item No. 133} \times \text{Item No. 139} \times \text{Item No. 142} / \text{Item No. 143})$ (Units in STB)

OR

$$N = 7758 (A) h (\emptyset) S_o (1/B_{oi}):$$

N = Initial oil in place (STB)

A = Area of initial oil zone (AC)

h = Initial net height of oil zone (ft)

\emptyset = Porosity (Fraction)

S_o = Initial oil saturation (Fraction)

B_{oi} = Initial oil formation volume factor (RBL/STB)

146. $G = (43560 \times \text{Item No. 134} \times \text{Item No. 139} \times \text{Item No. 141}) / \text{Item No. 144}$ (Units in SCF)

OR

$G = 43560 (A) h (\emptyset) S_g (1/B_{gi})$:

G = Current gas in place (SCF)

A = Area of current gas zone (AC)

h = Net height of current gas zone (ft)

\emptyset = Porosity (Fraction)

S_g = Initial gas saturation (Fraction)

B_{gi} = Current gas formation volume factor (cu.ft. / SCF)

NOTE: G should reflect current free gas in place. Example: for initial conditions: G = initial free gas in place in the gas cap for annual reviews or revisions: G = initial gas plus evolved unproduced solution gas plus injected gas that was migrated to the gas cap.

147. K_h (millidarcies): Horizontal permeability is a measure of the ability of a reservoir rock to transmit fluids in a horizontal direction. Horizontal permeability is directly measured in the lab using core samples or indirectly by the following methods: Perm. Vs. porosity correlations, capillary pressure correlations, flow and pressure build-up tests, and from resistivity and porosity logs using empirical correlations.

148. K_v (millidarcies): The vertical permeability is a measure of the ability of a reservoir rock to transmit fluids in a vertical direction. The vertical permeability is obtained using the same procedures as the horizontal permeability.

149. Average Well Depth (ft. subsea) = The sum of (T + B) (ft) /N

T = True vertical depth at the top of productive pay minus Kelly bushing elevation. (The Kelly bushing is Item No. 9 on Form BSEE-0133, Well Activity Report, and also found on log headings).

B = True vertical depth at base of productive pay minus Kelly bushing elevation.

N = Number of producing completions.

150. R_{io} (fraction): The estimated oil recovery efficiency is the estimated fractional recovery of in-place hydrocarbons. This recovery efficiency depends, among other factors, on drive mechanism, structure, and well locations.

151. R_{ig} (fraction): The estimated gas recovery efficiency is the estimated fractional recovery of in-place hydrocarbons. This recovery efficiency depends, among other factors, on drive mechanism, structure, and well locations.

152. R_{oN} (STB): For oil: $R_{oN} = \text{Item No. 152} = N \times \text{Items No. 150}$ (STB)

NOTE: The ultimate recoverable oil reserve is the product of Item Nos. 145 and 150. In the latter stages of development, it may be determined from production performance.

153. $R_{ig}G$ (MCF): For gas: $R_{ig}G = \text{Item No. 153} = G \times \text{Item No. 151}$ (MCF)

NOTE: The ultimate recoverable gas reserve is the product of Item Nos. 146 and 151. In the latter stages of development, it may be determined from production performance.

154. $N_p(2)/N$ (fraction): = Item No. 154 = Item No. 182 divided by N

155. $G_p(2)/G$ (fraction): = Item No. 155 = (Item No. 184 divided by G) times 1000

NOTE: Use basic data formulas above to get depletion of reserves-in-place. This item can exceed 1.0 in oil with associated gas-cap reservoirs since associated gas and condensate are not included in Item No. 146.

Fluid Analysis Data

156. API (Degrees): The API gravity is a measure of the specific gravity of the produced liquid (specific gravity is the ratio of the density of the stock tank liquid as compared to the density of water at standard conditions). $\text{API (Degrees, API)} = 141.5 - 131.5 \times \text{Specific gravity of fluid at } 60^\circ\text{F}$.

157. Specific gravity (fraction): The ratio of the density of a gas to the density of air at standard conditions (60 °F and atmospheric pressure). This can be calculated from a gas analysis or can be estimated.

158. R_{si} (SCF/STB): In the absence of gas liberation tests on a bottomhole sample, the gas-oil ratio from production (Item No. 178 x 1000 divided by Item No. 176, from initial SRI submittal only) is used for the initial solution gas-oil ratio.

159. μ_{oi} (centipoise, cp): The initial viscosity for a reservoir liquid is normally reported from a pressure-volume-temperature (PVT) test. If PVT test was not conducted, this item is not required.

160. μ_o (centipoise, cp): The reservoir oil viscosity at the current reservoir pressure is obtained in the same manner as the initial oil viscosity.

161. T_{avg} (°F at datum depth): The average reservoir temperature is found by averaging the temperature of wells within the reservoir.

162. P_i (psig): The lessee must conduct a static bottom-hole pressure survey for each new reservoir. This survey will be conducted within three months after the date of first continuous production. The pressure should be referred to a common reservoir datum depth (Item No. 168).

163. P_i Date: The date the initial static bottom-hole pressure survey was conducted.

164. P_{ws} (psig): For each producing reservoir with three or more producing completions, a current static bottom-hole pressure must be conducted annually on key wells that are representative of the entire reservoir in order to establish the average reservoir pressure.

165. P_{ws} Date: The date the pressure was recorded.

166. P_b (psig): The bubble-point pressure (P_b) for an undersaturated oil reservoir is the pressure at which bubbles of free gas first appear. P_b is reported from PVT analysis or estimated from correlations related to pressure, temperature, API gravity, and specific gravity.

167. P_d (psig): The dew point pressure (P_d) for a gas reservoir is the pressure at which liquids begin to condense.

168. Datum Depth (ft. subsea = ft. TVD – KB elevation): Reference depth for all bottom-hole pressures in the reservoir.

Production Data

169. GOR (SCF/STB): The gas-oil ratio for a specified month (include date on form) is the total monthly gas production from all wells divided by the total monthly oil production from all wells in the reservoir, multiplied by 1000.

170. GOR Date: The year and month for which the latest GOR in Item No. 169 was calculated.

171. WOR (STBW/STBO): The water-oil ratio for a specified month (include date on form) is the total monthly water production for all producing wells divided by the total monthly oil production from all wells in the reservoir.

172. WOR Date: The year and month for which the latest WOR in Item No. 171 was calculated.

173. No. of Injection Completions: The number of completions that are currently injecting fluids into the reservoir.

174. No. of Abandoned Completions: The number of completions in the reservoir that have been squeezed and plugged and abandoned (does not include shut-in wells).

175. No. of Active Completions: The number of completions in the reservoir that are currently open to production (non-squeezed); these completions can be currently producing or shut in. These are the completions that must be shown in the "Active Completions in Reservoir" list (Item No. 115).

176. $N_p(1)$; 178. $G_p(1)$; 180. $W_p(1)$: The cumulative oil, gas, and water, respectively, produced from the reservoir at the time of last submission (STBO, MCFG, BBLW). If oil and condensate are produced from the same reservoir, include the total oil and condensate number here, but list the amount of produced condensate in the remarks section. Same for gas-well, gas, and associated gas.

177. $N_p(1)$ Date; 179. $G_p(1)$ Date; 181. $W_p(1)$ Date: Dates of cumulative oil, gas, and water production for last submittal.

182. $N_p(2)$; 184. $G_p(2)$; 186. $W_p(2)$: The cumulative oil, gas, and water, respectively, produced for present submittal. See explanation for Item No. 176.

183. $N_p(2)$ Date; 185. $G_p(2)$ Date; 187. $W_p(2)$ Date: Dates of cumulative oil, gas, and water production for present submittal.

115. **Active Completions in Reservoir:** A list of completions in the reservoir or the reservoir unit producing, injecting, or shut in (including wells that have not been squeezed). The total number of completions must coincide with Item No. 175 in the Production Data Section. Designate Reservoir Unit completions operated by someone else. Obtain the correct lease number, well number (completion number), and API number from your approved copy of the Form BSEE-0124, "Application for Permit to Modify (APM)."

Lease Number: See Item No. 10 on Form BSEE-0124

Well Name: See Item No. 1 on Form BSEE-0124

API Well Number: See Item No. 5 on Form BSEE-0124

119. **Present MER:** Current Maximum Efficient Rate of reservoir. This is required ONLY for the Pacific and Alaska Regions.

120. **Requested MER:** Requested Maximum Efficient Rate for reservoir. This is required ONLY for the Pacific and Alaska Regions.

This Space for BOEM Use Only

Requested MER: Although the Gulf of Mexico Region (GOMR) no longer requires a Maximum Efficient Rate, the GOMR region does reserve the right to set one. The Pacific and Alaska Regions still require a requested MER and will notify the operator via Form BOEM-0127 whether the requested rate has been accepted or rejected.

BOEM Authorizing Official: Signature of BOEM authorizing official.

Approved By: Signature of BOEM approving official.

Effective Date: BOEM assigned effective date.

Operator Information

116. **Remarks:** Any pertinent information pertaining to the application as provided by the operator, such as: well reclassification, inclusion of secondary gas, calculated in-place figures, reservoir name change, geologic reinterpretation, etc.

27. **Telephone Number:** Telephone number of company representative (named in Item No. 26).

32. **Contact E-Mail Address:** E-Mail address of company representative (named in Item No. 26) who may be contacted for further information.

28. **Authorizing Official (Type or Print name):** Typed name of lease operator's representative.
29. **Title:** Title of authorizing official.
30. **Authorizing Signature:** Signature of lease operator's representative (named in Item No. 28).
31. **Date:** Date signed by lease operator's representative.

BOEM Regional Program Office Contacts for Completing Form BOEM-0127

BOEM Alaska OCS Region

Attention: Regional Supervisor
Office of Resource Evaluation
3801 Centerpoint Drive, Suite 500
Anchorage, AK 99503-5823

BOEM Gulf of Mexico OCS Region

Attention: Regional Supervisor
Office of Resource Evaluation
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New Orleans, LA 70123-2394
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BOEM Pacific OCS Region

Attention: Regional Supervisor
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Camarillo, CA 93010-6095