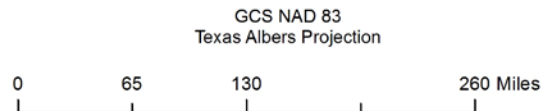
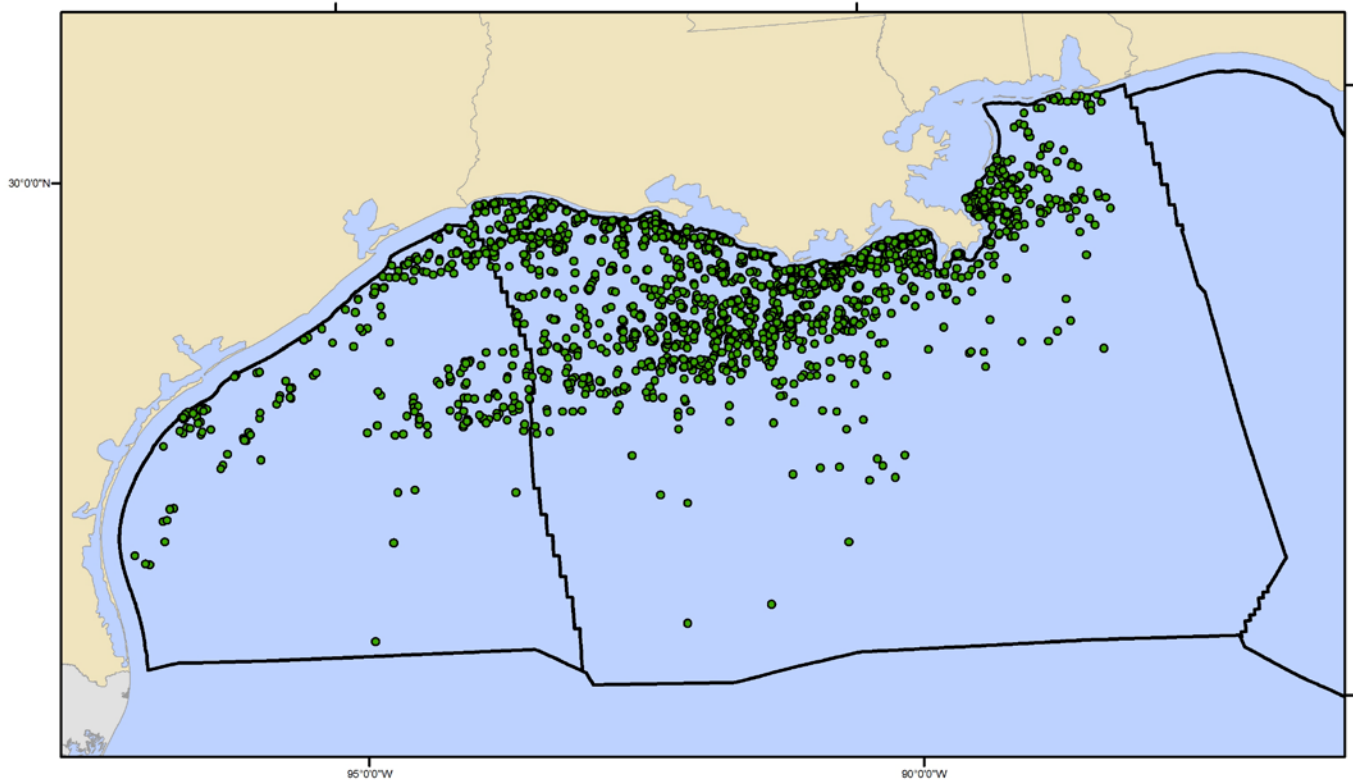




Draft User's Guide for the 2017 Gulfwide Offshore Activities Data System (GOADS-2017)



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1. INTRODUCTION

The Bureau of Ocean Energy Management (BOEM), formerly Minerals Management Service, mandated that offshore operators in the Gulf of Mexico on the Outer Continental Shelf (OCS) participate in an annual survey program for the years 2000, 2005, 2008, 2011, and 2014. BOEM collected emissions information related to offshore oil and gas operations to establish the Gulfwide emission inventory. For the 2000, 2005, 2008, 2011, and 2014 inventory efforts, BOEM Gulfwide Offshore Activities Data System (GOADS) software was provided in order to assist offshore operators in complying with the BOEM mandate. The GOADS software assists users in recording information regarding emissions-related offshore activities and generates data files that can be delivered to BOEM for calculation of emissions. For calendar year 2017, BOEM has again provided an updated version of the software, GOADS-2017.

1.1 CHANGES MADE IN GOADS-2017

The following updates were made to GOADS-2017:

- A new BOEM email address is provided to request static (descriptive) 2014 GOADS data and for GOADS-2017 submittals, which is OCSEmissionsInventory@boem.gov.
- Water depth is requested on the Structure screen (note that this field will be imported from the GOADS-2014 static files provided by BOEM upon your request).
- A QC check was added to flag platforms with no equipment activity reported, but platform fuel use, production, or throughput values are populated on the Structure screen.
- The requested Amine Unit unprocessed natural gas concentrations were expanded to add CO₂, N₂, and O₂.
- The Drilling Rig equipment type is now called Drilling Equipment. If a rig is a fixed, permanent structure on a platform, it should be accounted for, and the platform drilling rig name is to be included if known. This is a new field so if you imported your static data, you must remember to populate this field. If a drilling rig is a mobile source, those sources will be included in BOEM's non-platform emissions inventory based on data from the Bureau of Safety and Environmental Enforcement (BSEE) Field Operations Division.
- For Combustion Flares, you can now indicate if the pilot fuel feed rate is included in the total volume flared value.
- The requested Fugitives data includes noting if an active LDAR program is in place on the platform, and if the component count is specific to the platform in question. This is a new field so if you imported your static data, you must remember to populate this field.
- The control device options for Natural Gas Engines and Natural Gas Turbines now include selective catalytic reduction (SCR).
- Pressure/Level Controllers are now referred to as Pneumatic Controllers, and you must indicate the type of controller (high bleed, low bleed, intermittent, or zero bleed).
- Fuel gas usage rates for Pneumatic Controllers and Pneumatic Pumps are no longer optional. This is a new field so if you imported your static data, you must remember to populate this field.

Like the GOADS-2014 data collection effort, the reported monthly GOADS-2017 volume vented and flared data must be consistent with the information provided to the Office of Natural Resources Revenue (ONRR) Oil and Gas Operations Report (OGOR) forms, including data reported based on metered volumes.

Like GOADS-2014, **users must enter activity information for all oil and gas production platforms** (i.e., you can no longer simply flag platforms as minor sources) **and temporary sources and equipment that operates intermittently**, with the exception of equipment which is intended for use exclusively in the event of equipment failure or for emergency response purposes. Activities not associated with oil and gas production (e.g., painting, sanding, welding) can be excluded.

Other revisions focused on programming errors associated with the QC checks and QA Summary Form checks. As with previous data collection efforts, the GOADS-2017 QA Summary Form must be submitted with the activity data file(s). If you are unable to generate this form, send an email to OCSEmissionsInventory@boem.gov for assistance.

1.2 PRINCIPLES OF USE AND SYSTEM REQUIREMENTS

The GOADS-2017 requires an IBM-compatible personal computer (PC) equipped with the Microsoft® Windows® XP, Windows® Vista, or Windows® 7, 8, or 10 operating systems. The user should possess a modest familiarity with the Windows® operating environment and should understand a few of its common features, such as point-and-click, file management, menu-driven selection, and text boxes.

1.3 INSTALLATION

The GOADS-2017 website (<http://www.boem.gov/Gulfwide-Offshore-Activity-Data-System-GOADS-2017/>) includes the User's Guide, Installation Guide, lookup tables with BOEM information such as operator IDs and other structure data, and the GOADS2017 SETUP.EXE file.

To install GOADS-2017, follow the steps below:

1. Download the GOADS-2017 installation files from the Internet and copy them to your hard drive. It is highly recommended that you create a folder (e.g. C:\GOADS2017InstallFiles) to store the files before downloading them in order to keep track of them. There are 3 files that need to be downloaded:
 - a. GOADS.CAB
 - b. Setup.exe
 - c. SETUP.LST
2. Navigate to the save location and double click on the file, "setup.exe".
3. Follow the instructions that appear on each successive screen. You will be asked to select a folder on your computer where GOADS-2017 will be installed. The default and recommended location is C:\GOADS\GOADS2017.

It is important to note that this will be the location of your initial working database (GOADS.MDB).

4. After you have identified the location where GOADS-2017 should be installed, click the big button in the top left of the window to complete the installation.

During the installation, several “Version Conflict” messages may be displayed. This is a notification that the file being copied over from the application is an older version than the current file. For each instance this message box pops up, select the “Yes” option to keep the more current version of the file.

If you encounter any problems during installation of GOADS-2017, please send an email to OCSEmissionsInventory@boem.gov.

5. After installation is complete, you can start the GOADS-2017 program by following the instructions in Section 2.1 below. Alternatively, you may create a shortcut to the application on your desktop by following these steps:
 - Navigate to the folder where GOADS-2017 was installed. The default location is C:\GOADS\GOADS2017
 - Locate GOADS.EXE and right click the file, a menu will appear.
 - Skim down the menu that appears and left click the Send To item on the list, a new menu appears
 - Left click the Desktop (create shortcut) item on the list. This action creates a desktop shortcut to the file on your desktop
 - Once you close or minimize all the open windows, your desktop appears. Look around for the new GOADS desktop shortcut. Simply double click the new desktop icon to open the GOADS-2017 application.
6. The GOADS database should be backed up periodically by copying to a secure location. The name of this file is GOADS.MDB, and it will be in the folder where you installed GOADS. If you create other GOADS databases, the GOADS.MDB file will be in the folder where you created it.
7. If you plan to have several people in your organization performing data entry, install GOADS on each of their computers, then have one person “Create New GOADS Database” on a shared file server. Each person performing data entry will then open that shared database using the “Open a Different GOADS Database” option on the file menu.
8. If you are a contractor doing data entry for multiple operators, use the “Create New GOADS Database” option on the File menu to create separate databases for each operator. You should give each new folder a name that will allow you to easily identify it when you are opening it.
9. When supplying your activity data, if you do NOT select **No Emissions to Report** BOEM will assume that the platform or equipment is operating that month, and surrogate data will be used to develop



emission estimates if necessary. BOEM will also assume that activity values that are left blank (Null) should be populated with surrogate data.

2. USING THE 2017 GULFWIDE OFFSHORE ACTIVITIES DATA SYSTEMS (GOADS-2017)

The GOADS-2017 software helps users complete monthly surveys of air emissions-related activities that are associated with offshore OCS facilities. GOADS-2017 queries the user regarding emissions-related operating data, saves the data on the user's PC, and guides the user to create copies of the data for backup or delivery to BOEM. Figure 1 describes the steps in populating the GOADS-2017 database.

- You should run GOADS-2017 to enter new operating data for each month. For example, if production or throughput volumes change from month-to-month, this new information should be entered for every month. Parameters that remain constant do not need to be entered every month.
- A saved data set corresponding to one month is called a “survey” or a “monthly survey.” When you create a survey, you should enter information that represents your offshore facility and all emissions-producing equipment on the facility. GOADS-2017 provides a fill-in-the-blank approach to generate structure, equipment, and production/throughput data.
- As you enter and save data, the GOADS software performs numerous quality control (QC) checks, including range checks and flags for missing required data, to assist you in entering all required values and highlighting potentially incorrect values. GOADS-2017 performs the following types of error checks:
 - Completeness: to identify missing data entries
 - Range: to determine when data entries fall outside of typical ranges
 - Consistency: to determine whether data entries are consistent with one another
 - Month-to-month: to determine whether information that typically varies by month has been reviewed and edited appropriately or to flag items that change radically from one month to the next
- The QC checks implemented are too extensive to list here, but the results in the QC Results tab describe the errors found. These descriptions include: required field left blank, value not in expected range (with the expected range provided), etc. If you enter values that are correct but flagged as outside of the expected range, please enter a comment that the value is valid as entered.
- After the data are submitted, BOEM will attempt to reconcile missing or unusual data by reviewing the comments or contacting you by email or telephone, so please make sure your contact information is correct in the GOADS software.

2.1 STARTING AND EXITING GOADS-2017

To open the Start menu, click the Start button  in the lower-left corner of your screen. Or press the Windows® logo  on your keyboard. Upon starting GOADS-2017 for the first time, the “New User” screen will appear (Figure 2). At this point you must fill in the requested contact information in order to proceed. You will be able to revise this information if necessary each time the Main Window (Figure 3) appears.

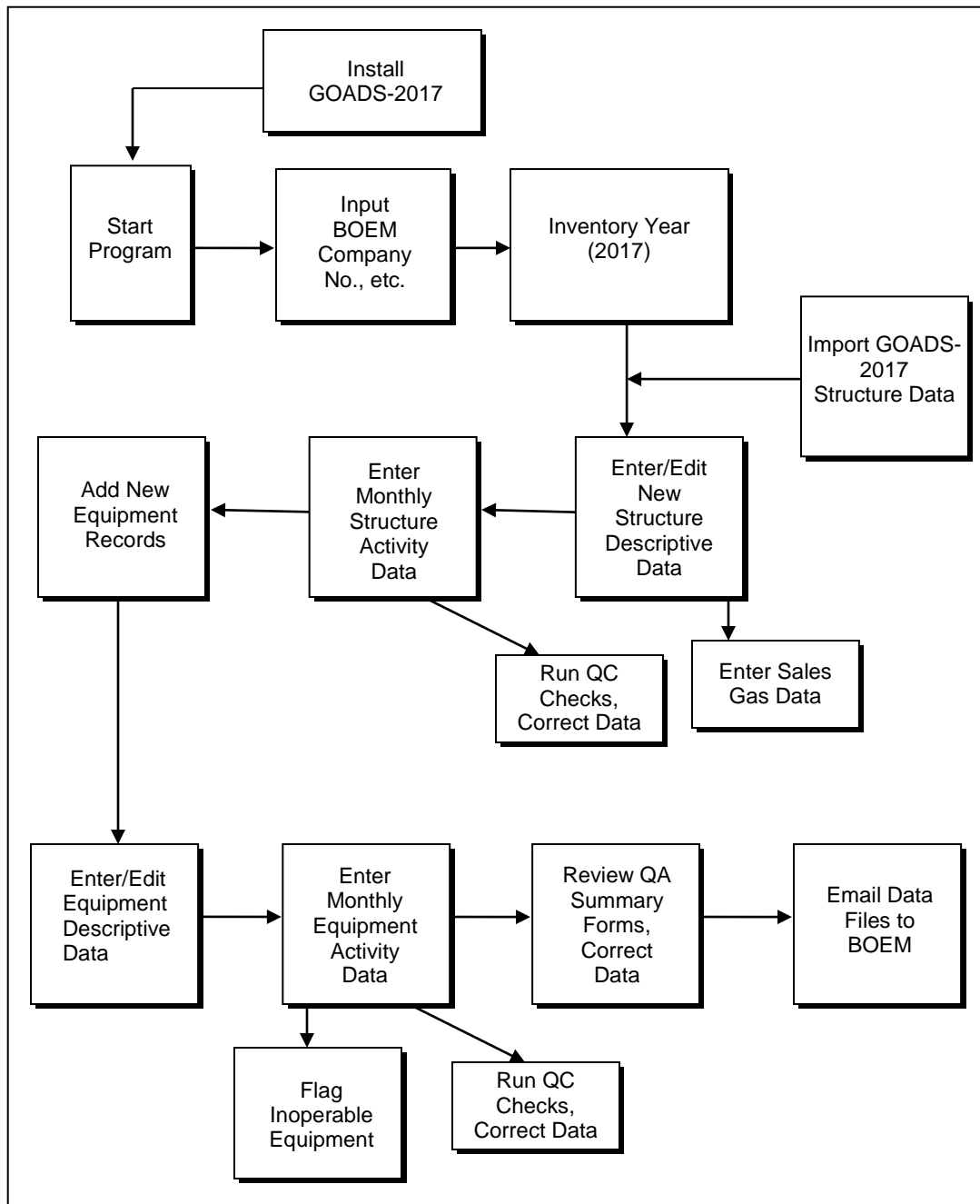
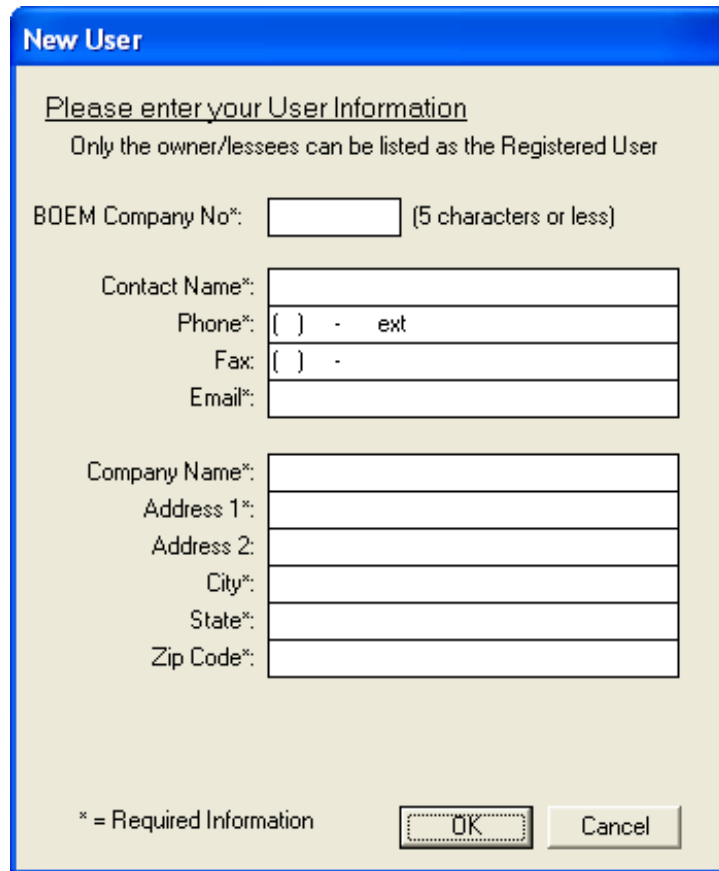


Figure 1. Populating GOADS-2017.



New User

Please enter your User Information
Only the owner/lessees can be listed as the Registered User

BOEM Company No*: (5 characters or less)

Contact Name*:

Phone*: () - ext

Fax: () -

Email*:

Company Name*:

Address 1*:

Address 2:

City*:

State*:

Zip Code*:

* = Required Information

Figure 2. New User screen.

The “New User” screen asks for “BOEM Company No.” It is extremely important that you use the correct BOEM Company Number. It can be found in a separate file posted with the program and User’s Guide. This ID cannot be changed once entered. For contact information, please enter the lessee/operator contact name, address, phone number, and email. Not third party (contractor) information.

New User

Please enter your User Information
Only the owner/lessees can be listed as the Registered User

BOEM Company No*: 12345 (5 characters or less)

Contact Name*: Holti Ensz
 Phone*: (703) 787 - 1629 ext
 Fax: () -
 Email*: DCSemiissionsinventory@boem.gov

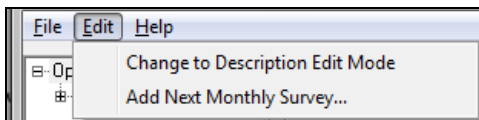
Company Name*: BOEM
 Address 1*: 45600 Woodland Road
 Address 2:
 City*: Sterling
 State*: VA
 Zip Code*: 20166

* = Required Information

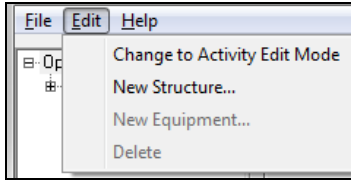
OK Cancel

Figure 3. GOADS-2017 main window.

The GOADS-2017 program has a feature that distinguishes between static (descriptive) and dynamic (activity) data. This feature is designed to reduce data entry time by requesting static platform and equipment data only once (rather than every month). The title bar at the top of the screen indicates the current edit mode. When you select Edit > Change to Description Edit Mode from the main menu, or **Edit Description Data** on the lower left side of any screen, the program allows you to enter or edit data that do not change from month to month. To edit the descriptive data, select **Edit Data** on the lower right side of any screen.



When you select Edit > Change to Activity Edit Mode from the main menu, or **Edit Activity Data** on the lower left side of any screen, the program allows you to enter or edit monthly activity data that are likely to change from month to month. In this mode you see the descriptive data, but it cannot be edited. Edit the activity data, select **Edit Data** on the lower right side of any screen.



From the Main Window (Figure 4), you may perform the following tasks:

- Import platform and equipment descriptions (will be made available by BOEM as GOADS-2017 import files).
- Edit user identification information (initially entered during program installation).
- View, create new, edit, save, or delete data for monthly surveys, facilities, or equipment.
- Run QC on a selected monthly survey, platform, or piece of equipment.
- Export the structure or equipment descriptions to a spreadsheet. (You must first save and exit GOADS-2017 and re-open the program for this feature to work.)
- Print the current screen.
- Directly access the BOEM GOADS Internet Site with Frequently Asked Questions (FAQs) and this User's Guide (Figure 5).
- Export a saved monthly survey or entire annual database to CD for backup or delivery to BOEM.
- Export the QA Summary Form (must be provided when file is submitted to BOEM; highlights key data elements that are missing) (see Section 3.3).

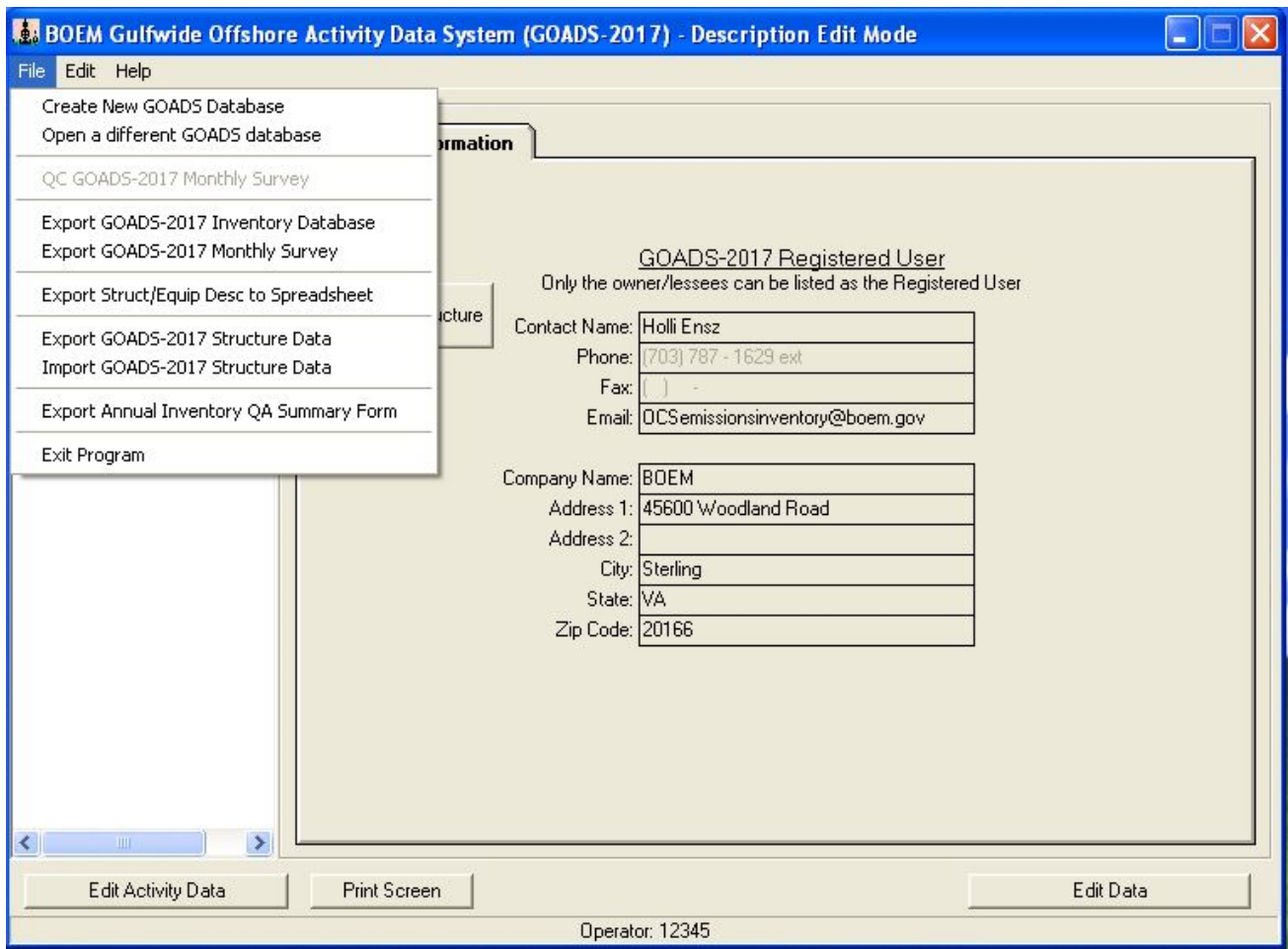


Figure 4. GOADS-2017 main menu.

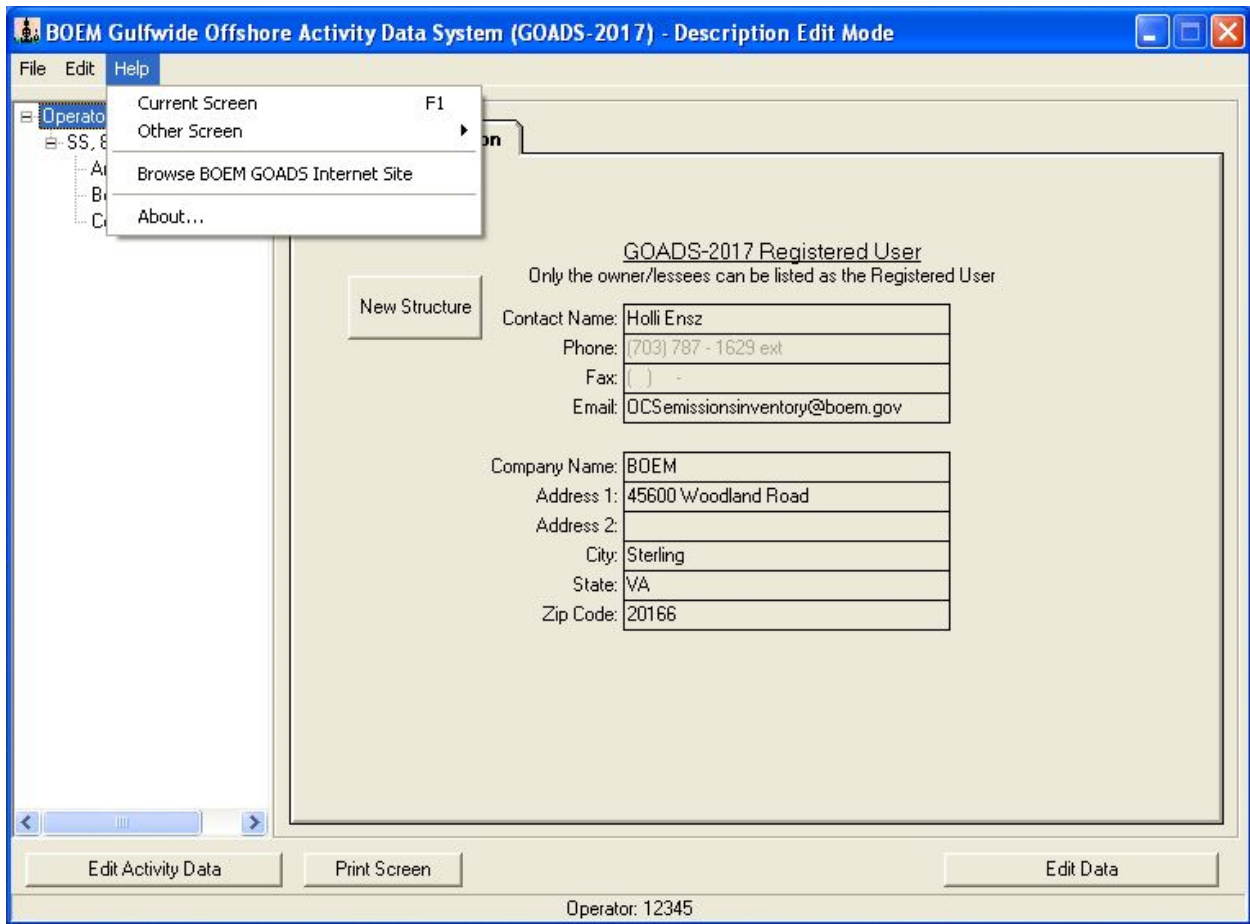


Figure 5. GOADS-2017 help menu.

Use one of the following two ways to exit the program: (1) click File | Exit Program from the Main Window menu, or (2) click the ☒ symbol at the upper right to close the program window.

If GOADS-2014 data were not submitted for these facilities, you can skip this section and go directly to Section 2.2 “Creating and Editing Data.” If GOADS-2014 data were submitted for these facilities, you should read this section before proceeding.

You can request your GOADS-2014 platform and equipment descriptive static data from BOEM by sending an email request to: OCSEmissionsInventory@boem.gov along with your Company name, BOEM Company number, and the Complex/Structure IDs that you own/operate and are requesting data for.

Do not use the “Open a different GOADS database” menu option to open a GOADS-2014 database. Updates have been made in the underlying GOADS-2017 database structure that will cause program errors if you attempt to open a 2014 file.

You can then import the GOADS-2014 descriptive data file supplied by BOEM into GOADS-2017 before proceeding (described below). This descriptive data may be slightly different from

your original submittal to BOEM; it has undergone extensive QA/QC by BOEM and may have been adjusted as a result. **You can and must edit the descriptive data after importing it to reflect any structural or equipment changes since 2014. In addition, GOADS-2017 has additional required data fields that will not be populated after import. These are listed in Section 1.1 of this User’s Guide.**

To import the BOEM-provided GOADS-2014 data, select File|Import GOADS-2017 Structure data. (Named as such because the 2014 data are in the GOADS-2017 required structure.) A dialog box will appear which lists any descriptive data that have been previously imported. The first time you import a file, this list will be blank. Enter the path and file name of the GOADS-2014 file you want to import in the box labeled “Import File Path and Filename.” You can also use the “Browse” button to find the file you wish to import (Figure 6). After you have selected a file, select **Import Selected Structures**. The GOADS-2014 file will be imported as January 2017 (this may take a few seconds). When the import process is complete, the survey name and its associated structures and equipment types should appear in the Navigation tree on the left of the screen. You must repeat this import process for all of your GOADS-2014 files (if you received multiple 2014 files).

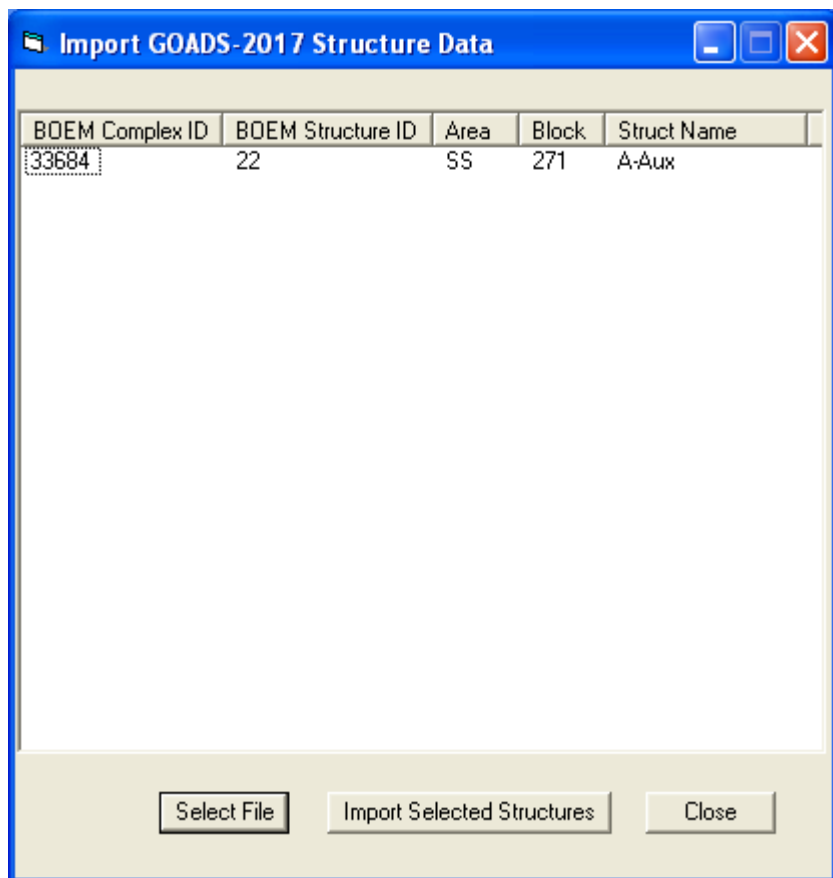


Figure 6. GOADS-2017 import screen.

You can also use the File|Import GOADS-2017 Structure data feature to upload data for a structure that has been purchased in 2017 from another company. The User ID in the imported file will automatically be updated to your User ID. This process will import descriptive and monthly activity data, as available. The previous operator of that structure uses the corresponding File|Export GOADS-2017 Structure data to create this file (Figure 7).

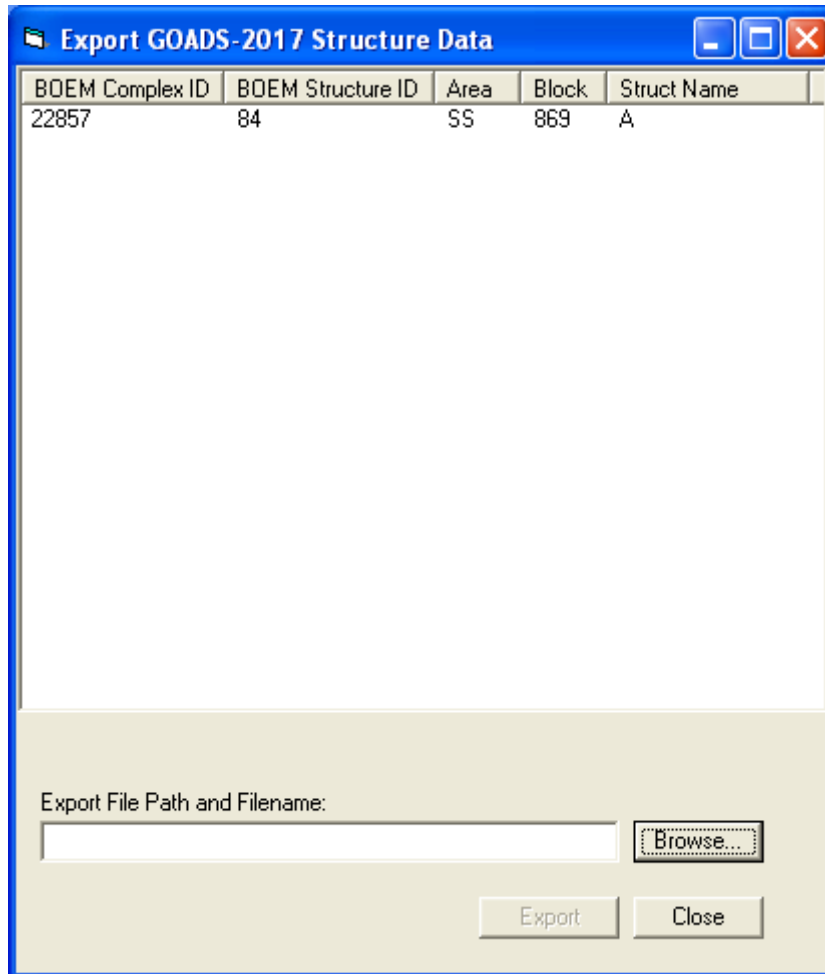
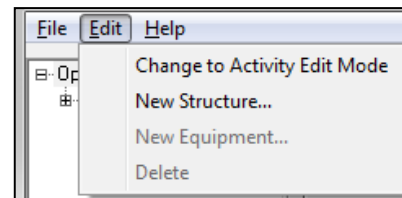


Figure 7. GOADS-2017 export screen.

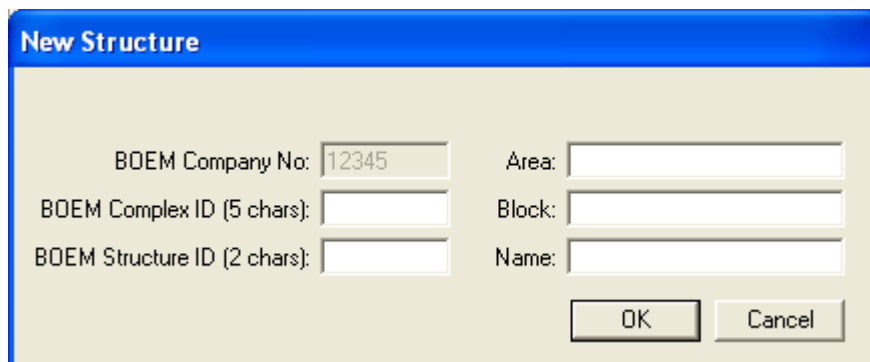
2.2 CREATING AND EDITING DATA

2.2.1 Creating and Editing Structure Data



To create new structure data, from the Description Edit Mode, select Edit | New Structure from the Main Window menu.

A New Structure Dialog Box will appear to request vital identification data for the structure (Figure 8). See Section 4 for guidance on entering these data correctly.



The image shows a 'New Structure' dialog box with a blue title bar. The main area is light beige and contains several input fields arranged in two columns. The first column has three fields: 'BOEM Company No:' with the value '12345', 'BOEM Complex ID (5 chars):', and 'BOEM Structure ID (2 chars):'. The second column has three fields: 'Area:', 'Block:', and 'Name:'. At the bottom right of the dialog are two buttons: 'OK' and 'Cancel'.

Figure 8. New structure dialog box.

Enter the information and click **OK**. An icon for the new structure will appear in the Navigation Tree on the left side of the Main Window. Highlight the new structure icon to view the Structure Screen.

Figures 9 and 10 show the Structure screen in Description Edit Mode and Activity Edit Mode.

In the Description Edit Mode, the Structure Screen contains three tabs: General Information, Sales Gas, and QC Results. General Information shows contact and other general information for the current structure. Note that production is the quantity of petroleum that was extracted from the ground at the structure; throughput is the total quantity of petroleum handled at the structure, including petroleum extracted at another location and transferred to the structure. Sales Gas presents the volumetric composition of the natural gas processed at the structure and transferred off the structure (Figure 11). QC Results tabulates any quality control errors that may be encountered as data are completed for the current structure and its associated equipment (see Section 2.3). In the Activity Edit Mode, the Sales Gas tab is not visible because it contains data that do not change from month to month. If the Sales Gas information is not provided, the default values listed in Table 1 will be applied during emissions calculation.

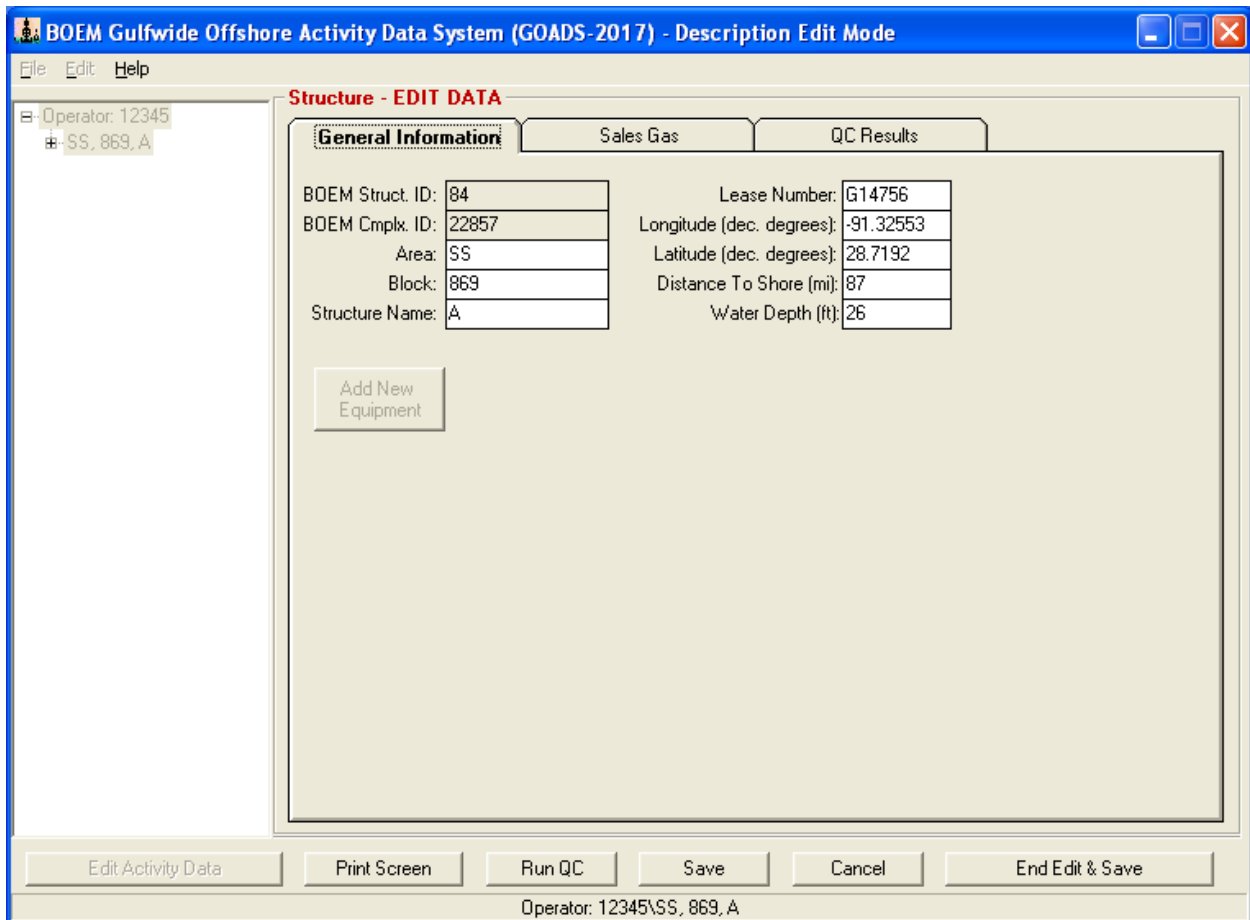


Figure 9. Structure screen in description edit mode.

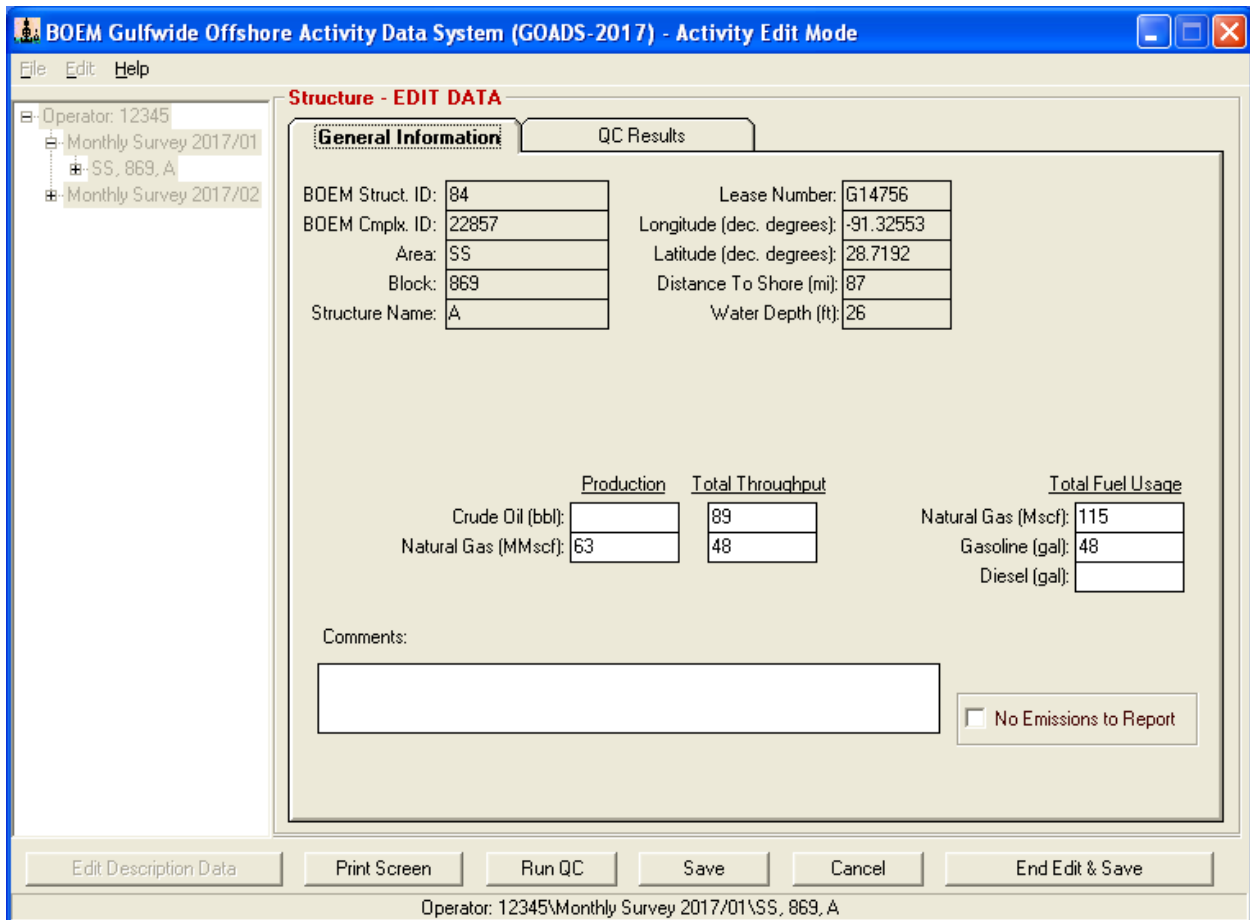


Figure 10. Structure screen in activity edit mode.

The following buttons are available on the Structure Screen from either the Description Edit Mode or the Activity Edit Mode:

- **Edit Data** launches Edit Mode so that changes or new data may be entered.
- **Run QC** runs quality control checks on all data saved for the current structure and its associated equipment.
- **Print Screen** to print the current screen for review.

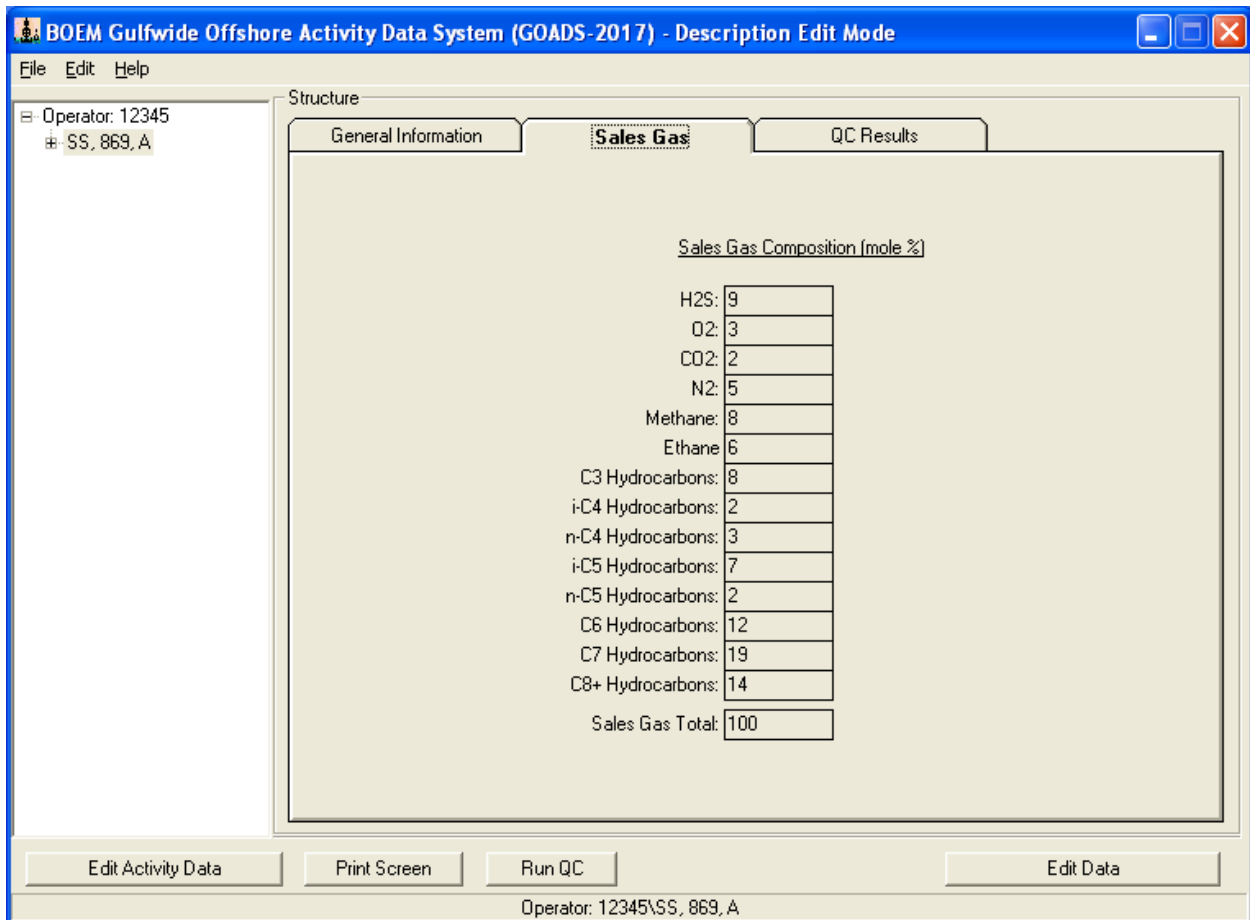


Figure 11. Sales gas screen.

Table 1.

Default Sales Gas Composition

| Component | Default Mol% | Mole Weight (lb/lb-mole) |
|-------------------------------|--------------|--------------------------|
| CO ₂ | 0.80 | 44.010 |
| CH ₄ | 94.50 | 16.043 |
| C ₂ H ₆ | 3.33 | 30.070 |
| C ₃ Hydrocarbons | 0.75 | 44.097 |
| i-C ₄ Hydrocarbons | 0.15 | 58.124 |
| n-C ₄ Hydrocarbons | 0.15 | 58.124 |
| i-C ₅ Hydrocarbons | 0.05 | 72.150 |
| n-C ₅ Hydrocarbons | 0.05 | 72.150 |
| C ₆ Hydrocarbons | 0.099 | 86.177 |
| C ₇ Hydrocarbons | 0.011 | 100.272 |
| C ₈₊ Hydrocarbons | 0.007 | 114.231 |

Four additional buttons become available in the Activity Edit Mode:

- **Save** (only available in Edit Mode) incrementally saves work and returns to Edit Mode.
- **Cancel** (only available in Edit Mode) discard recent changes and close Edit Mode.
- **End Edit & Save** (only available in Edit Mode) saves changes and exits Edit Mode.
- **No Emissions to Report** to flag a structure as inactive for a given month.

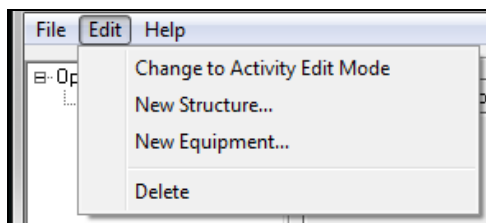
From the Activity Edit Mode, new monthly surveys can be created. An icon for the new survey will appear in the Navigation Tree on the left side of the Main Window. Previously entered equipment descriptive data (see Section 2.2.2) will automatically be copied into the new monthly survey. Highlight the survey icon to view the Survey Screen. The Survey Screen contains only one tab: QC Results. QC Results tabulates any quality control errors encountered during data entry (see Section 2.3).

2.2.2 Creating and Editing Equipment Data

GOADS-2017 queries for information regarding the following sources of emissions:

- Amine gas sweetening unit
- Boiler/heater/burner
- Drilling equipment
- Combustion flare
- Fugitive losses
- Gasoline/diesel engine
- Glycol dehydrator
- Loading operation
- Losses from flashing
- Mud degassing
- Natural gas engine
- Natural gas, diesel, or dual-fuel turbine
- Pneumatic pumps
- Pneumatic controllers (formerly called pressure/level controllers)
- Storage tank
- Cold vent

To create new equipment data, go to the Navigation Tree on the left side of the Main Window and select the appropriate structure (into which the new equipment data will be placed). Select Edit | New Equipment from the Main Window menu.



A New Equipment Dialog Box will request vital identification data for the equipment, such as equipment ID number and equipment type (e.g., flares, turbines, etc.) (Figure 12). Enter the information, then click **OK**. An icon for the new equipment will appear in the Navigation Tree on the left side of the Main Window and a new screen will automatically open, specific to the equipment type entered. You can return to this equipment screen at any time by highlighting the equipment.

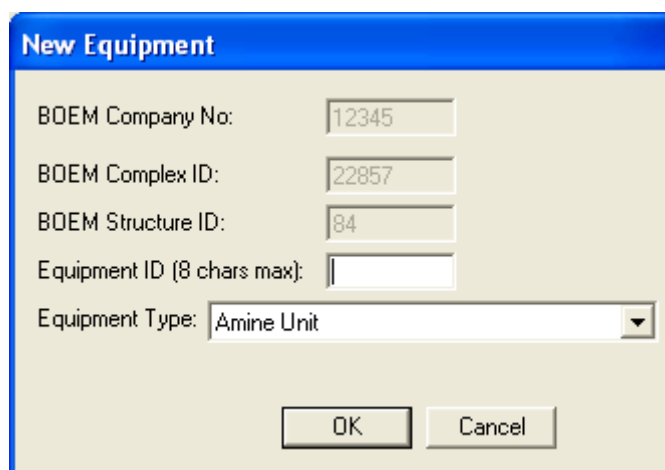


Figure 12. New equipment dialog box.

Depending on the equipment type and the edit mode, the equipment screen will contain two to four tabs: General Information, Exhaust/Ventilation System, Control Equipment, and QC Results. General Information shows operating parameters for the current equipment. From the Description Edit Mode, you can populate or edit static equipment description data that do not change from month to month. When you create a new monthly survey, these data are automatically copied. From the Activity Edit Mode, you are prompted to enter activity data that can vary from month to month. These data are not copied automatically when a new monthly survey is created.

Exhaust/Ventilation System presents variables that are related to equipment exhaust systems; this screen is not visible when you are in Activity Edit Mode. Control Equipment permits users to describe installed pollution control devices that were not accounted for on the General

Information tab; this screen is also not visible when you are in Activity Edit Mode. QC Results tabulates any quality control errors that may be encountered as data are completed for the equipment (see Section 2.3).

In you can select for a given month for the entire platform or specific pieces of equipment. This is an important feature; BOEM will assume that the platform or equipment are NOT operating for months flagged as such, regardless of other values that may be populated for the month. The user does not have to fill in the forms with zeros for inactive structures or equipment, merely check this box. Records flagged as no emissions to report will not be QC checked in the inventory development process.

If you do NOT select , BOEM will assume that the platform or equipment is operating that month, and surrogate data will be used to develop emission estimates if necessary.

BOEM will also assume that activity values that are left blank (Null) should be populated with surrogate data.

The following buttons are available on the Description Edit Mode and Activity Edit Mode Equipment Screens:

- launches Edit Mode so that changes or new data may be entered.
- runs quality control checks on data for the current equipment.
- to print the current screen for review.

Four additional buttons become available only in Activity Edit Mode:

- (only available in Edit Mode) incrementally saves work and returns to Edit Mode.
- to flag equipment as inactive for a given month.
- (only available in Edit Mode) discard recent changes and close Edit Mode.
- (only available in Edit Mode) saves changes and exits Edit Mode.

2.3 QUALITY CONTROL TESTS

After you enter and save data, GOADS-2017 automatically runs a series of QC checks before saving the data. If any entries are incomplete, atypical, or suspect, a pop-up message will appear, and a list of QC errors will appear on the QC Results tab (Figure 13). You may choose to return and correct the problems, to override QC check(s) (a comment is required), or to ignore message(s) and save changes anyway. If QC problems remain uncorrected and uncommented when the data are submitted, BOEM staff will attempt to reconcile missing, atypical, or suspect data by reviewing the comments or contacting you.

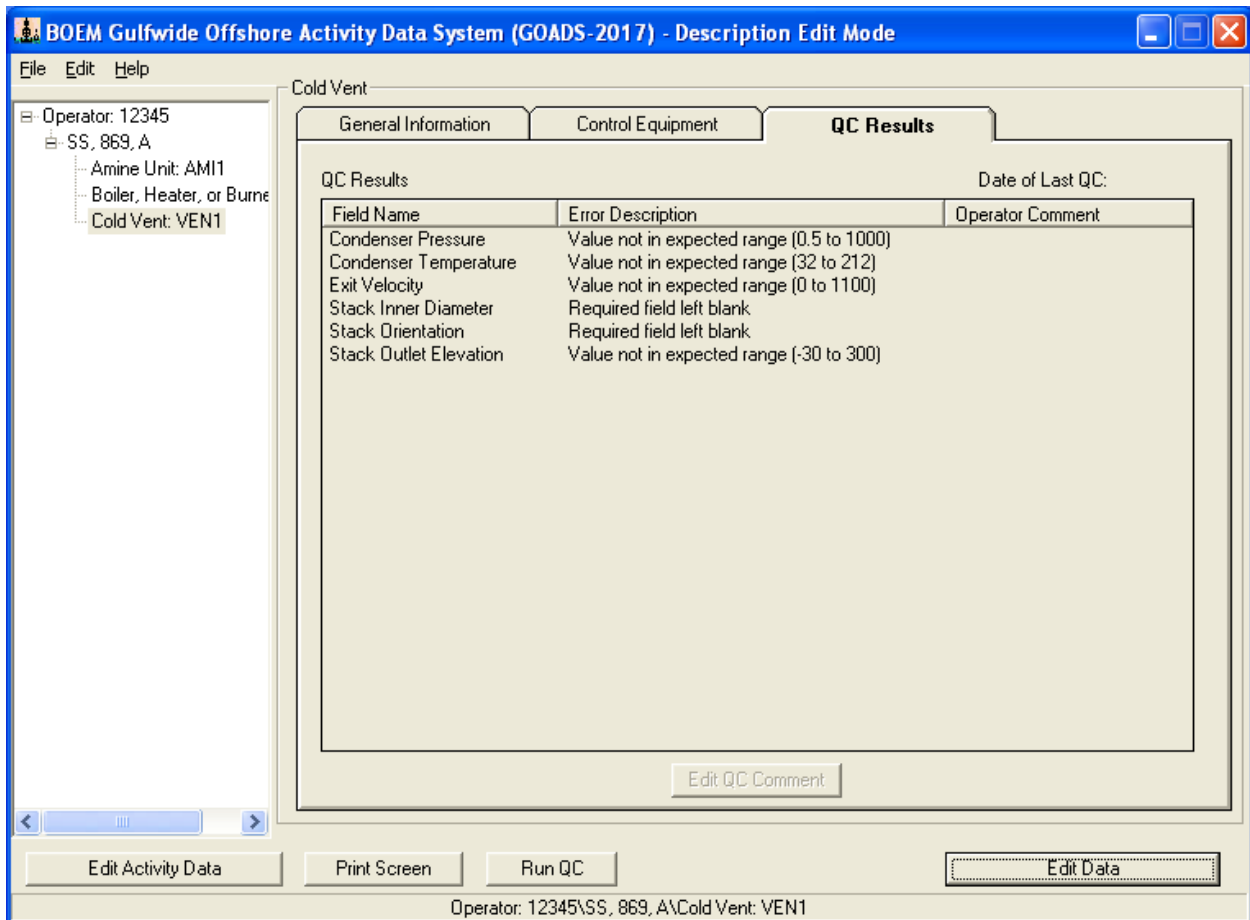


Figure 13. QC results tab.

2.4 SAVING AND BACKING UP WORK

It is very important to periodically store data to a secure location other than the hard drive (such as a CD). This minimizes data loss in the event of a computer failure or other mishap.

After you complete and save data, the entries are saved to a working file on the hard drive. (To discard changes, click **Cancel** instead of **End Edit & Save**.) To store data in an alternate location, select **File|Export GOADS-2017 Inventory Database** on the main menu. A dialog box will appear which will allow you to enter a File Path and Filename or browse to the location in which you wish to create the file. After entering the path and file name, hit “OK.” You can then copy the file you have created to CD or another secure location.

2.5 SETTING STATUS OF FACILITIES AND EQUIPMENT

If equipment or an entire structure becomes inactive for an entire monthly survey period, the change in status should be noted by selecting **No Emissions to Report** but only for the affected survey period(s). Note that when a piece of equipment or a structure is active for any part of a survey period, its status should NOT be set to No Emissions to Report.

Open an affected survey in the Navigation Tree on the left side of the Main Window. (Double-click the survey icon, or click the symbol immediately to its left.) Select the affected structure or equipment, and click in order to launch Edit Mode. Use the Set Status data entry boxes to change the status. Indicate the new status and its effective date and click in order to record the change in status.

2.6 FINDING HELP AND EXTRA INFORMATION

Each screen has an associated help text file that contains technical details about the required data entries, such as definitions, quality control checks, typical values, estimation methods, etc. Access help by pressing the key. You can also go to the Help menu and select “current screen” to view the help file for the current screen or select “other screen” and see a list of all available help files. Help files are reprinted in Section 4 of this User’s Guide. In addition, you can directly access the BOEM GOADS Internet Site with Frequently Asked Questions (FAQs) and this User’s Guide from within GOADS-2017.

3. UPON SURVEY COMPLETION

3.1 HOW, WHEN, AND WHERE TO DELIVER DATA FILES

When the entire inventory is completed (12 monthly surveys), it should be exported to your hard-drive for submittal to BOEM. To export the inventory, select File|Export GOADS-2017 Inventory Database on the main menu. A dialog box will appear which will allow you to enter a File Path and Filename or browse to the location in which you wish to create the file. After entering the path and file name, click “OK.” You can then copy the file you have created to the appropriate medium for your internal file storage.

Files must be submitted to BOEM electronically through the following email address: OCSEmissionsInventory@boem.gov. BOEM should receive all calendar year 2017 data files before April 17, 2018.

3.2 FAILED QUALITY CONTROL TESTS

When saving the file for delivery to BOEM, GOADS-2017 stores the results of all QC tests. If the user returns to GOADS-2017 in order to address QC problems, the error messages may be reviewed from the QC Results tab on the Survey Screen. If you ignore errors and submit the data anyway, BOEM staff will attempt to reconcile the problems by reviewing comments or contacting you.

3.3 QA SUMMARY FORM

From the Main Window (Figure 4), the File | Export Annual Inventory QA Summary Form may be selected at any time to view and obtain an Adobe file of key missing and inconsistent data elements (Figure 14). These data elements are critical if BOEM is to develop emission estimates for the equipment listed. Many times BOEM will err on the side of caution and will calculate higher emissions than what was intended if there is a discrepancy in the GOADS database, so please make sure you complete all required data fields and correct the errors or submit clarifying your intentions on all QC Results. The QA Summary Form Adobe file must be submitted with your data files to facilitate review by BOEM staff. Section 5 presents the key data elements in the QA Summary Form.

GOADS-2017 QA Summary Form

Missing data, outliers, and inconsistent data for entire Inventory.

Contact Information:
 Hollis Ensz
 BOEM
 (703) 787 - 1629 ext ____
 OCSEmissionsinventory@boem.gov

October 26, 2016

| Level | Equip Type | Company Mo. Number | Yr. | Complex ID | Structure ID | Equip ID | Time Stamp | Element | Problem Description | |
|-----------|---------------|-----------------------|-----|---------------|-----------------|-------------|------------|--------------------------------|----------------------------------|---------------------------|
| SUMMARY | | 12345 | | | | | | | 9 errors found in this dataset. | |
| <hr/> | | | | | | | | | | |
| STRUCTURE | | 12345 | 1 | 2017 | 22857 | 84 | | Crude oil production (barrels) | Required field left blank | |
| | | 12345 | 2 | 2017 | 22857 | 84 | | Crude oil production (barrels) | Required field left blank | |
| | | 12345 | 2 | 2017 | 22857 | 84 | | Gas production (MMscf) | Required field left blank | |
| <hr/> | | | | | | | | | | |
| EQUIPMENT | AMI | 12345 | 1 | 2017 | 22857 | 84 | | AMI1 | Hours operated | Required field left blank |
| | AMI | 12345 | 1 | 2017 | 22857 | 84 | | AMI1 | Processed throughput(MMscf) | Required field left blank |
| | AMI | 12345 | 2 | 2017 | 22857 | 84 | | AMI1 | Processed throughput(MMscf) | Required field left blank |
| <hr/> | | | | | | | | | | |
| EQUIPMENT | BOI | 12345 | 1 | 2017 | 22857 | 84 | | BOI1 | Hours operated | Required field left blank |
| | BOI | 12345 | 2 | 2017 | 22857 | 84 | | BOI1 | Hours operated | Required field left blank |
| <hr/> | | | | | | | | | | |
| EQUIPMENT | VEN | 12345 | 1 | 2017 | 22857 | 84 | | VEN1 | Hours operated, excluding upsets | Required field left blank |

Figure 14. QA Summary Form screen.

4. HELP TEXT FILES

4.1 USER INFORMATION

4.1.1 General Information Tab

GOADS-2017 Registered User: Identifies the person to whom GOADS-2017 is registered; **an employee of the company that owns or operates structures in the Outer Continental Shelf.** This should be the primary lessee/operator contact person who is responsible for submitting surveys to BOEM and not a contractor. The following lessee/operator contact information should be provided:

- Name
- Phone number
- Fax number
- Email address
- Company name
- Street address
- City
- State
- Zip code

4.2 STRUCTURE INFORMATION

4.2.1 General Information Tab

BOEM Structure ID: A unique identifier code that is assigned to an offshore structure prior to its construction by BOEM. This identifier code is tracked in BOEM's records. Two digits.

BOEM Complex ID: A unique identifier code that is assigned to a group of related structures prior to construction by BOEM. This identifier code is tracked in BOEM records. Five digits.

Area Name: Designated name of the geographic area in which the structure is located.

Block Number: Designated number of the geographical block in which the structure is located.

Name: A name or identifier that denotes a structure within its Area/Block.

Lease Number: The lease number issued by BOEM for the construction and operation of an offshore structure.

Longitude (decimal degrees): An east-west coordinate that defines the position of an offshore structure. Specify to at least four decimal places. (If you are a lessee/operator in the Alaska OCS Region in the Chukchi, Beaufort, or the portion of the Hope Basin Planning Areas, which is the North Slope Borough of the State of Alaska, and plan to conduct oil and gas activities for calendar year 2017, please contact BOEM at OCSEmissionsInventory@boem.gov to obtain guidance on submitting activity data under the BOEM NTL No. 2016-N03.)

Latitude (decimal degrees): A north-south coordinate that defines the position of an offshore structure. Specify to at least four decimal places. (If you are a lessee/operator in the Alaska OCS Region in the Chukchi, Beaufort, or the portion of the Hope Basin Planning Areas, which is the North Slope Borough of the State of Alaska, and plan to conduct oil and gas activities for calendar year 2017, please contact BOEM at OCSEmissionsInventory@boem.gov to obtain guidance on submitting activity data under the BOEM NTL No. 2016-N03.)

Distance to shore (miles): The distance to the nearest U.S. shoreline. Specify to the nearest 1/10 mile.

Water Depth (feet): The estimated water depth at the facility location.

Production: Describes the natural gas or oil products that were extracted at this structure during the specific survey period.

- **Crude Oil Production (barrels):** The quantity of crude oil extracted at this structure.
- **Natural Gas Production (million standard cubic feet):** The quantity of natural gas extracted at this structure, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere).

Throughput: The total volume of natural gas or oil products handled at the current structure during the survey period, including production volumes and volumes transferred by pipeline from another location.

- Crude Oil Throughput (barrels): The total quantity of crude oil handled at the current structure.
- Natural Gas Throughput (million standard cubic feet): The total quantity of natural gas handled at the current structure, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere).

Total fuel usage: The quantity of fuel consumed at this structure during the specific survey period.

- Natural gas fuel usage (thousand standard cubic feet): The quantity of natural gas consumed at this structure.
- Gasoline usage (gallons): The quantity of gasoline consumed at this structure.
- Diesel fuel usage (gallons): The quantity of diesel fuel consumed at this structure.

No Emissions to Report: Indicates the status of the structure for the specific survey period.

“No Emissions to Report”: Indicates that the structure and all of its equipment were unused for the entire month-long survey period. The Enter Edit Mode button will be disabled for all equipment belonging to the structure, and all equipment will be treated as inactive.

Comments: A space for general user comments about this structure, with a maximum length of 255 characters.

4.2.2 Sales Gas Data

Sales Composition (mole percent): The volumetric composition (percent by volume = mole percent) of the natural gas processed at the structure and transferred off the structure. If a constituent is not present, enter 0. The composition should sum to 100%.

4.2.3 QC Results Tab

Error Source: List of input variables, structures, and equipment for this survey that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user’s explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click “Add QC Comment”.)

4.3 AMINE GAS SWEETENING UNIT

4.3.1 General Information Tab

Processed throughput (million standard cubic feet): The total volume of natural gas processed by this amine unit during the specific monthly survey period, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere).

Hours operated: The total number of hours that this amine unit was in operation during the specific monthly survey period.

Unprocessed natural gas concentrations (percent by volume): The volumetric concentrations of constituents present in the unprocessed natural gas stream, including the following:

- Carbon dioxide (CO₂)
- Nitrogen (N₂)
- Oxygen (O₂)
- Hydrogen Sulfide (H₂S)
- Methane (CH₄)
- Ethane (C₂H₆)
- C3 Hydrocarbons (hydrocarbons with 3 carbon atoms in their molecular structure)
- C4 Hydrocarbons
- C5 Hydrocarbons
- C6 Hydrocarbons
- C7 Hydrocarbons
- C8+ Hydrocarbons (hydrocarbons with 8 or more carbon atoms in their molecular structure)

Specify emissions by model inputs. Proceed to the model inputs screen.

4.3.2 Model Inputs Tab

Amine type: Indicates the type of amine used in this unit, monoethanolamine (MEA), diethanolamine (DEA), tertiaryethanolamine (TEA), methyldiethanolamine (MDEA), diglycolamine (DGA).

Unprocessed sour gas feed pressure (pounds per square inch gauge): The pressure of the unprocessed sour gas feed.

Unprocessed sour gas feed temperature (degrees Fahrenheit): The temperature of the unprocessed sour gas feed.

Equipped with a flash tank? (yes/no): Indicates whether the system is equipped with a flash tank.
Flash tank temperature (degrees Fahrenheit): The temperature of the flash tank.

Flash tank pressure (pounds per square inch gauge): The pressure of the flash tank.

Destination of flash gas: Indicates if the gas is vented to the atmosphere, routed to a separator, recycled to an absorber, or burned in a flare.

Number of absorber trays: Indicates the number of absorber trays on this amine unit.

Lean amine feed pressure (pounds per square inch gauge): The pressure of the lean amine feed.

Lean amine feed temperature (degrees Fahrenheit): The temperature of the lean amine feed.

Lean amine volumetric flowrate (gallons per minute): The rate of amine circulation through the unit.

Lean amine feed amine content (percent by weight): The amine content of the lean amine feed.

Lean amine feed H₂S concentration (percent by volume): The volumetric concentration of H₂S present in the lean amine feed.

Lean amine feed CO₂ concentration (percent by volume): The volumetric concentration of CO₂ present in the lean amine feed.

No Emissions to Report: Indicates the status of the amine unit for the specific survey period.

- “No Emissions to Report” – Indicates that the equipment was unused for the entire month-long survey period.

Comments: A space for general user comments about this structure, with a maximum length of 255 characters.

4.3.3 Ventilation System Tab for Acid Gas from the Reboiler

Emissions destination: Indicates whether the emissions from this equipment are vented or flared locally, or at some distance from the equipment.

Low-pressure vent/flare ID: Indicates the destination vent or flare identifier code (if emissions are not vented or flared locally). It may be necessary to first create a vent or flare before it will appear in the list (using the Edit|New Equipment menu).

Outlet height (feet above mean sea level): The elevation of the stack outlet above mean sea level.

Outlet inner diameter (inches): The effective diameter of a process vent/flare.

Exit velocity (feet/second): The exit velocity of emissions through the outlet of a process vent/flare.

Exit temperature (degrees Fahrenheit): The temperature of gaseous emissions measured at the outlet of a process vent.

Outlet orientation (degrees): The deviation of the outlet from vertically upward. 0 indicates an upward pointing outlet; 180 indicates a downward pointing outlet.

Flare feed rate (standard cubic feet per hour): The volumetric feed rate to a process flare.

Combustion temperature (degrees Fahrenheit): The combustion temperature of a process flare.

Combustion efficiency (percent): The combustion efficiency of a process flare, or the completeness of hydrocarbon conversion to carbon dioxide (as CO₂).

Installed control equipment: Indicates which common types of control devices are installed for this equipment.

Condenser temperature (degrees Fahrenheit): The operating temperature of a condenser installed as a control device.

Condenser pressure (absolute pounds per square inch): The operating pressure of a condenser installed as a control device.

Sulfur recovery efficiency (percent): The efficiency for a sulfur recovery unit that is installed as a control device (as a percent of total sulfur).

4.3.4 Control Equipment Tab

Other control device? (yes/no): Indicates whether additional controls are installed, other than the common control devices listed on the Ventilation System Tab.

Description: If present, a description of other control devices is required (other than those listed on the Ventilation System Tab).

SO_x efficiency (percent): The total combined reductions in sulfur oxides emissions achieved by all other installed control devices (other than those listed on the Ventilation System Tab).

NO_x efficiency (percent): The total combined reductions in nitrogen oxides emissions achieved by all other installed control devices (other than those listed on the Ventilation System Tab).

CO efficiency (percent): The total combined reductions in carbon monoxide emissions achieved by all other installed control devices (other than those listed on the Ventilation System Tab).

VOC efficiency (percent): The total combined reductions in volatile organics emissions achieved by all other installed control devices (other than those listed on the Ventilation System Tab).

PM₁₀ efficiency (percent): The total combined reductions in PM₁₀ emissions (particulate matter under 10 microns in diameter) achieved by all other installed control devices (other than those listed on the Ventilation System Tab).

4.3.5 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user's explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click "Add QC Comment".)

4.4 BOILER/HEATER/BURNER

4.4.1 General Information Tab

Hours operated: The total number of hours that this boiler/heater/burner was in operation during the specific monthly survey period.

Fuel type: The type of fuel burned by the equipment.

Fuel H₂S content (parts per million by volume): The concentration of hydrogen sulfide in gaseous fuel types.

Fuel sulfur content (percent by mass): The sulfur content in liquid fuel types.

Fuel heating value (British thermal units/standard cubic feet): The energy content of gaseous fuel types.

Fuel heating value (British thermal units per pound): The energy content of liquid fuel types.

Max rated heat input (million British thermal units per hour): The manufacturer's maximum rated heat input rate.

Average heat input (million British thermal units per hour): The average heat input rate during operation this survey period.

Max rated fuel usage (standard cubic feet per hour): The maximum rate of gaseous fuel usage, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere).

Average fuel usage (standard cubic feet per hour): The average rate of gaseous fuel usage during operation this survey period, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere).

Max rated fuel usage (pounds per hour): The maximum rate of liquid fuel usage.

Average fuel usage (pounds per hour): The average rate of liquid fuel usage during operation this survey period.

Total fuel used (thousand standard cubic feet): Total gaseous fuel used during this survey period, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere). If you do not monitor actual fuel use for a boiler, heater, or burner, a value may be calculated using:

$$[\text{Hours operated} * \text{average heat input (MMBtu/hr)} * (10^6 \text{ Btu/MMBtu})] \div [\text{fuel heating value (1,050 Btu/scf)} * (1,000 \text{ scf/Mscf})].$$

Total fuel used (pounds): Total liquid fuel used during this survey period. If you do not monitor actual fuel use for a boiler, heater, or burner, a value may be calculated using:

$$\frac{[\text{Hours operated} * \text{average heat input (MMBtu/hr)} * (10^6 \text{ Btu/MMBtu})]}{[\text{fuel heating value (19,300 Btu/lb)}]}$$

Note that the fuel heating value shown above is for diesel fuel.

No Emissions to Report: Indicates the status of the boiler/heater/burner for the specific survey period.

- “No Emissions to Report”: Indicates that the equipment was unused for the entire month-long survey period.

Comments: A space for general user comments about this structure, with a maximum length of 255 characters.

4.4.2 Exhaust System Tab

Outlet height (feet above mean sea level): The elevation of the stack outlet above mean sea level.

Outlet inner diameter (inches): The inner diameter of the exhaust outlet.

Exit velocity (feet/second): The exit velocity of emissions through the exhaust outlet.

Exit temperature (degrees Fahrenheit): The temperature of gaseous emissions measured at the exhaust outlet.

Outlet orientation (degrees): The deviation of the exhaust outlet from vertically upward. 0 indicates an upward pointing outlet; 180 indicates a downward pointing outlet.

Emission controls: Indicates which common types of control devices are installed for this equipment.

4.4.3 Control Equipment Tab

Other control device? (yes/no): Indicates whether additional controls are installed, other than the common control devices listed on the Exhaust System Tab.

Description: If present, a description of other control devices is required (other than those listed on the Exhaust System Tab).

SO_x efficiency (percent): The total combined reductions in sulfur oxides emissions achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

NO_x efficiency (percent): The total combined reductions in nitrogen oxides emissions achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

CO efficiency (percent): The total combined reductions in carbon monoxide emissions achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

VOC efficiency (percent): The total combined reductions in volatile organics emissions achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

PM₁₀ efficiency (percent): The total combined reductions in PM₁₀ emissions (particulate matter under 10 microns in diameter) achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

4.4.4 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user's explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click "Add QC Comment".)

4.5 DIESEL OR GASOLINE ENGINE

4.5.1 General Information Tab

Hours operated: The total number of hours that this engine was in operation during the specific monthly survey period.

Fuel type: The type of fuel burned by the equipment.

Fuel sulfur content (percent by mass): The sulfur content in liquid fuel types.

Fuel heating value (British thermal units per pound): The energy content of liquid fuel types.

Max rated horsepower (horsepower): The manufacturer's maximum rated horsepower output.

Operating horsepower (horsepower): The operating horsepower during operation this survey period.

Max rated fuel usage (British thermal units per horsepower-hour): The manufacturer's maximum rate of fuel usage.

Average fuel usage (British thermal units per horsepower-hour): The average rate of fuel usage during operation this survey period.

Total fuel used (gallons): Total liquid fuel used during this survey period. If you do not monitor actual fuel use for an engine, a value may be calculated using:

$$[\text{Hours operated} * \text{average fuel usage (Btu/hp-hr)} * \text{operating horsepower}] \div [\text{fuel heating value (19,300 Btu/lb)} * (7.05 \text{ lbs/gal})].$$

Note that the fuel heating value and fuel density (7.05 lbs/gal) shown above are for diesel fuel.

No Emissions to Report: Indicates the status of the engine for the specific survey period.

- “No Emissions to Report”: Indicates that the equipment was unused for the entire month-long survey period.

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.5.2 Exhaust System Tab

Outlet height (feet above mean sea level): The elevation of the stack outlet above mean sea level.

Outlet inner diameter (inches): The inner diameter of the exhaust outlet.

Exit velocity (feet/second): The exit velocity of emissions through the exhaust outlet.

Exit temperature (degrees Fahrenheit): The temperature of gaseous emissions measured at the exhaust outlet.

Outlet orientation (degrees): The deviation of the exhaust outlet from vertically upward. 0 indicates an upward pointing outlet; 180 indicates a downward pointing outlet.

4.5.3 Control Equipment Tab

Other control device? (yes/no): Indicates whether additional controls are installed, other than the common control devices listed on the Exhaust System Tab.

Description: If present, a description of other control devices is required (other than those listed on the Exhaust System Tab).

SO_x efficiency (percent): The total combined reductions in sulfur oxides emissions achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

NO_x efficiency (percent): The total combined reductions in nitrogen oxides emissions achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

CO efficiency (percent): The total combined reductions in carbon monoxide emissions achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

VOC efficiency (percent): The total combined reductions in volatile organics emissions achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

PM₁₀ efficiency (percent): The total combined reductions in PM₁₀ emissions (particulate matter under 10 microns in diameter) achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

4.5.4 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user's explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click "Add QC Comment".)

4.6 DRILLING EQUIPMENT

4.6.1 General Information Tab

Hours operated: The number of hours that drilling equipment was present and working at this structure.

Total diesel fuel usage (gallons): The total diesel fuel used by the drilling equipment during the survey period.

Total gasoline fuel usage (gallons): The total gasoline fuel used by the drilling equipment during the survey period.

Total natural gas fuel usage (thousand standard cubic feet): The total natural gas used by the drilling equipment during the survey period, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere).

Mobile Platform Drilling Rig Name (if available): Indicate the name of the platform drilling rig associated with this facility.

No Emissions to Report: Indicates the status of the drilling equipment for the specific survey period.

- “No Emissions to Report”: Indicates that the drilling equipment was absent for the entire month-long survey period.

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.6.2 Exhaust System Tab

Outlet height (feet above mean sea level): The elevation of the stack outlet above mean sea level.

Outlet inner diameter (inches): The inner diameter of the exhaust outlet.

Exit velocity (feet/second): The exit velocity of emissions through the exhaust outlet.

Exit temperature (degrees Fahrenheit): The temperature of gaseous emissions measured at the exhaust outlet.

Outlet orientation (degrees): The deviation of the exhaust outlet from vertically upward. 0 indicates an upward pointing outlet; 180 indicates a downward pointing outlet.

4.6.3 Control Equipment Tab

Other control device? (yes/no): Indicates whether controls are installed.

Description: If present, a description of other control devices is required.

SO_x efficiency (percent): The total combined reductions in sulfur oxides emissions achieved by all other installed control devices.

NO_x efficiency (percent): The total combined reductions in nitrogen oxides emissions achieved by all other installed control devices.

CO efficiency (percent): The total combined reductions in carbon monoxide emissions achieved by all other installed control devices.

VOC efficiency (percent): The total combined reductions in volatile organics emissions achieved by all other installed control devices.

PM₁₀ efficiency (percent): The total combined reductions in PM₁₀ emissions (particulate matter under 10 microns in diameter) achieved by all other installed control devices.

4.6.4 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user's explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comment, select an error message, then click "Add QC Comment".)

4.7 COMBUSTION FLARE

4.7.1 General Information Tab

Note that flared emissions are combusted. If emissions are not combusted, create a Cold Vent record.

Hours operated, including upsets: The total number of hours that the flare was operated during the survey period, including periods of upset flaring.

Volume flared (thousand standard cubic feet), including upsets: The total volume of gas flared during the survey period, including periods of upset flaring, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere). The GOADS volume flared should match the Office of Natural Resources Revenue (ONRR)'s volume flared reported on the Oil and Gas Operations Report (OGOR).

Pilot fuel feed rate included in total volume flared (yes/no): Indicate if pilot fuel feed rate is included in total volume flared provided.

Flare gas H₂S Concentration (parts per million by volume): The concentration of hydrogen sulfide present in the flare feed gas.

Is there a continuous pilot? (yes/no): Indicates whether the flare stack is equipped with a continuous pilot light.

Pilot fuel feed rate (thousand standard cubic feet per day): The feed rate of natural gas to a continuous pilot light.

Flare combustion efficiency (percent): The flare combustion efficiency, or the completeness of hydrocarbon conversion to carbon dioxide (as CO₂).

Smoking condition: A qualitative assessment of the level of smoke emitted from the flare:

- None (Soot emissions are approximately 0 pounds per million British thermal units of flare gas consumed.)
- Light (Soot emissions are approximately 40 pounds per million British thermal units of flare gas consumed.)
- Medium (Soot emissions are approximately 177 pounds per million British thermal units of flare gas consumed.)
- Heavy (Soot emissions are approximately 274 pounds per million British thermal units of flare gas consumed.)

Stack outlet elevation (feet above mean sea level): The elevation of the flare stack outlet above mean sea level.

Stack inner diameter (inches): The effective diameter of the flare stack at its outlet.

Average exit velocity (feet per second), excluding upsets: The average exit velocity of flare feed gas at the flare stack outlet during the survey period, excluding periods of upset conditions.

Average combustion temperature (degrees Fahrenheit): The average flare combustion temperature during the survey period.

Stack orientation (degrees): The deviation of the stack outlet from vertically upward. 0 indicates an upward pointing outlet; 180 indicates a downward pointing outlet.

No Emissions to Report: Indicates the status of the flare for the specific survey period.

- “No Emissions to Report”: Indicates that the flare was unused for the entire month-long survey period.

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.7.2 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user’s explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (to add Operator Comments, select an error message, then click “Add QC Comment”.)

4.8 FUGITIVES

4.8.1 General Information Tab

Stream type: Indicates the type of process stream handled by the set of components to be inventoried. (Components for different process streams at the same structure should be inventoried separately.)

- Light oil (API gravity $\geq 20^\circ$ API)
- Heavy oil (API gravity $< 20^\circ$ API)
- Oil/water mixture
- Oil/water/gas mixture
- Natural gas
- Natural gas liquids

Facility Size: Indicates a rough estimate of the total count of all components at this facility that handle the selected stream type.

Average VOC weight percent of fugitives: The average VOC content of fugitive emissions for the inventoried components and the selected stream type. You may find it beneficial to use the information in Table 2 as a starting point.

Table 2.

Speciation Fractions for Total Hydrocarbon (THC) Emissions by Stream Type

| THC Fraction | Gas | Light Oil (≥ 20 API Gravity) | Heavy Oil (< 20 API Gravity) | Water/Oil* |
|-------------------------------------|--------|---------------------------------------|------------------------------------|------------|
| Methane | 0.945 | 0.612 | 0.942 | 0.612 |
| Volatile Organic Compounds (VOC) | 0.0137 | 0.296 | 0.030 | 0.296 |

* Water/oil refers to water streams in oil service with a water content greater than 50% from the point of origin to the point where the water content reaches 99%. For water streams with a water content greater than 99%, the emission rate is considered negligible.

Average equipment elevation (feet above mean sea level): A good estimate is half the elevation of the top deck.

Active leak detection and repair (LDAR) program in place (yes/no): Indicates if facility routinely assesses and repairs leaking fugitive components.

Number of months between inspections: Indicates the LDAR program inspection frequency.

Method of inspection: Indicates if the LDAR program is based on the use of optical instrumentation, vapor analyzer, or visual inspection.

Equipment inventory (number of components): An inventory of each type of component that handles the selected process stream at this structure. You are encouraged to prepare an equipment inventory by making direct counts of your components by service type.

Actual or default component counts: Identifies whether or not a facility-specific component count is provided.

If you must use default component counts, you may find it beneficial to use the information provided in Table 3 as a starting point. This information was compiled for BOEM by the Offshore Operators Committee, and can be adjusted by service type for each component for each part of the production train (i.e., for each skid type). Counts must be reported for each service type (gas, heavy oil, light oil, oil/water).

Table 3.

Summary of Equipment Inventory Data (Number of Components) by Skid Type

| Skid Type | Valves | Pump Seals | Threaded Connections | Flanges | Open Ended Lines | Compressor Seals* | Diaphragms | Drains | Dump Arms | Hatches | Instruments | Meters | Pressure Relief Valves | Polished Rods | Other Relief Valves |
|----------------------------|--------|------------|----------------------|---------|------------------|-------------------|------------|--------|-----------|---------|-------------|--------|------------------------|---------------|---------------------|
| Separator Skid | 34 | 0 | 13 | 73 | 0 | 0 | 0 | 2 | 0 | 0 | 15 | 1 | 1 | 0 | 0 |
| Heater Treater Skid | 98 | 0 | 70 | 114 | 0 | 0 | 0 | 3 | 0 | 0 | 25 | 0 | 3 | 0 | 0 |
| LACT Charge Pump Skid | 21 | 3 | 6 | 47 | 0 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 0 | 0 | 0 |
| LACT Skid | 62 | 1 | 75 | 69 | 0 | 0 | 0 | 1 | 0 | 0 | 34 | 4 | 6 | 0 | 0 |
| Pipeline Pumps Skid | 39 | 3 | 12 | 78 | 0 | 0 | 0 | 2 | 0 | 0 | 70 | 0 | 3 | 0 | 0 |
| Pig Launcher/Receiver Skid | 13 | 0 | 14 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 9 | 0 | 1 | 0 | 0 |
| Compressor Skid | 119 | 0 | 113 | 138 | 0 | 4 | 0 | 1 | 0 | 0 | 69 | 0 | 9 | 4 | 0 |
| Filter/Separator Skid | 30 | 0 | 25 | 37 | 0 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 1 | 0 | 0 |
| Gas Dehydration Skid | 23 | 0 | 14 | 40 | 0 | 0 | 0 | 1 | 0 | 0 | 12 | 0 | 1 | 0 | 0 |
| Glycol Regeneration Skid | 134 | 0 | 110 | 194 | 0 | 0 | 0 | 4 | 0 | 0 | 45 | 1 | 7 | 6 | 1 |
| Gas Meter | 10 | 0 | 11 | 26 | 0 | 0 | 0 | 1 | 0 | 0 | 21 | 2 | 0 | 0 | 0 |
| Fuel Gas Skid | 62 | 0 | 47 | 85 | 0 | 0 | 0 | 1 | 0 | 0 | 32 | 1 | 4 | 0 | 0 |
| Flotation Cell Skid | 41 | 1 | 34 | 70 | 0 | 0 | 1 | 1 | 0 | 15 | 8 | 0 | 2 | 0 | 2 |
| Scrubber | 13 | 0 | 13 | 18 | 0 | 0 | 0 | 1 | 0 | 0 | 9 | 0 | 1 | 0 | 0 |
| Amine Unit | 226 | 8 | 166 | 391 | 0 | 0 | 1 | 5 | 0 | 0 | 121 | 2 | 12 | 0 | 1 |
| Line Heater | 30 | 0 | 46 | 18 | 0 | 0 | 0 | 1 | 0 | 0 | 10 | 0 | 0 | 0 | 1 |
| Production Manifold | 108 | 0 | 31 | 148 | 0 | 0 | 0 | 1 | 0 | 0 | 43 | 0 | 0 | 7 | 0 |
| Wellhead | 15 | 0 | 6 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 11 | 0 | 0 | 0 | 0 |
| Import or Export Pipeline | 3 | 0 | 0 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

* Because there is a large variation in emissions for compressor seals, you are asked to specify the compressor and seal type:

- Centrifugal: wet seal;
- Centrifugal: dry seal;
- Reciprocating: shaft packing; or
- Other (specify).

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.8.2 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user's explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click "Add QC Comment".)

4.9 GLYCOL DEHYDRATOR UNIT

4.9.1 General Information Tab

Note that the fire tube is considered to be a boiler/heater/burner. Information about the fire tube should be entered on the data entry screen for boiler/heater/burner. Access the boiler/heater/burner data entry screen by selecting Edit|New Equipment from the GOADS main menu. Select “Boiler, Heater, or Burner” as the new equipment type.

Also note that recovered vapors, which are combusted elsewhere at the facility, should be accounted for by the equipment type where they are combusted. Vapors that are vented or flared locally or that are collected into the facility manifold system may be accounted for on the Ventilation System Tab.

Processed throughput (million standard cubic feet): The total volume of natural gas processed by this glycol unit during the specific monthly survey period, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere).

Wet gas temperature (degrees Fahrenheit): The temperature of the natural gas prior to glycol dehydration.

Wet gas pressure (pounds per square inch gauge): The pressure of the natural gas prior to glycol dehydration.

Equipped with a flash tank? (yes/no): Indicates whether the system is equipped with a flash tank (or separator) that vents to the atmosphere.

Destination of flash gas: Indicates if the gas is routed back into the system, vented to the atmosphere, or burned in a flare.

Flash tank temperature (degrees Fahrenheit): The temperature of the flash tank.

Flash tank pressure (pounds per square inch gauge): The pressure of the flash tank.

Uses stripping gas?: Indicates what type of stripping gas (if any) is used in the regenerator to improve water removal from the rich glycol.

- None
- Dry gas
- Flash gas: Exhaust from the flash tank
- Nitrogen: From a nitrogen supply

Stripping gas flow rate (standard cubic feet per minute): The flow rate of stripping gas to the regenerator, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere).

No Emissions to Report: Indicates the status of the glycol dehydrator for the specific survey period.

- “No Emissions to Report”: Indicates that the equipment was unused for the entire month-long survey period.

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.9.2 Ventilation System Tab – For Still Column Vent Only

Emissions destination: Indicates whether the emissions from this equipment are vented or flared locally, or at some distance from the equipment.

Low-pressure vent/flare ID: Indicates the destination vent or flare identifier code (if emissions are not vented or flared locally). It may be necessary to first create a vent or flare before it will appear in the list (using the Edit|New Equipment menu).

Outlet height (feet above mean sea level): The elevation of the stack outlet above mean sea level.

Outlet inner diameter (inches): The inner diameter of a process vent/flare.

Exit velocity (feet/second): The exit velocity of emissions through the outlet of a process vent/flare.

Exit temperature (degrees Fahrenheit): The temperature of gaseous emissions measured at the outlet of a process vent.

Outlet orientation (degrees): The deviation of the outlet from vertically upward. 0 indicates an upward pointing outlet; 180 indicates a downward pointing outlet.

Flare feed rate (standard cubic feet per hour): The volumetric feed rate to a process flare.

Combustion temperature (degrees Fahrenheit): The combustion temperature of a process flare.

Combustion efficiency (percent): The combustion efficiency of a process flare, or the completeness of hydrocarbon conversion to carbon dioxide (as CO₂).

Installed control equipment: Indicates which common types of control devices are installed for this equipment.

Condenser temperature (degrees Fahrenheit): The operating temperature of a condenser installed as a control device.

Condenser pressure (absolute pounds per square inch): The operating temperature of a condenser installed as a control device.

4.9.3 Control Equipment Tab

Other control device? (yes/no): Indicates whether additional controls are installed, other than the common control devices listed on the Ventilation System Tab.

Description: If present, a description of other control devices is required (other than those listed on the Ventilation System Tab).

SO_x efficiency (percent): The total combined reductions in sulfur oxides emissions achieved by all other installed control devices (other than those listed on the Ventilation System Tab).

NO_x efficiency (percent): The total combined reductions in nitrogen oxides emissions achieved by all other installed control devices (other than those listed on the Ventilation System Tab).

CO efficiency (percent): The total combined reductions in carbon monoxide emissions achieved by all other installed control devices (other than those listed on the Ventilation System Tab).

VOC efficiency (percent): The total combined reductions in volatile organics emissions achieved by all other installed control devices (other than those listed on the Ventilation System Tab).

PM₁₀ efficiency (percent): The total combined reductions in PM₁₀ emissions (particulate matter under 10 microns in diameter) achieved by all other installed control devices (other than those listed on the Ventilation System Tab).

4.9.4 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user's explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click "Add QC Comment".)

4.10 LOADING OPERATION

4.10.1 General Information Tab

Average elevation (feet above mean sea level): The approximate elevation of loading operations, measured from mean sea level to the point of dispensing.

Storage tank paint color: The exterior paint color of the dispensing storage tank.

Storage tank paint condition: The exterior paint condition of the dispensing storage tank.

Product Reid vapor pressure (absolute pounds per square inch): The Reid vapor pressure of the liquid contained within the dispensing storage tank.

Average percent by weight of VOCs in tank vapor (percent): The VOC content of vapors in the storage tank headspace, measured as weight percent.

Average molecular weight of VOCs in tank vapor (pounds per pound-mol): The average molecular weight of VOCs present in the storage tank headspace.

Volume loaded (barrels): The quantity of liquid hydrocarbon loaded into ships or barges at this structure.

Bulk liquid temperature (degrees Fahrenheit): The bulk temperature of the liquid contained within the dispensing storage tank.

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.10.2 Ventilation System Tab

Emission destination: Indicates whether the emissions from this equipment are vented or flared locally, or at some distance from the equipment.

Remote vent/flare ID: Indicates the destination vent or flare identifier code (if emissions are directed through a low-pressure vent/flare manifold system). It may be necessary to first create a vent or flare before it will appear in the list (using the Edit|New Equipment menu).

Outlet height (feet): The height at the outlet of a process vent/flare above the loading operation (measured from the point of dispensing to the top of the outlet).

Outlet inner diameter (inches): The inner diameter of a process vent/flare.

Exit velocity (feet/second): The exit velocity of emissions through the outlet of a process vent/flare.

Exit temperature (degrees Fahrenheit): The temperature of gaseous emissions measured at the outlet of a process vent.

Outlet orientation (degrees): The deviation of the outlet from vertically upward. 0 indicates an upward pointing outlet; 180 indicates a downward pointing outlet.

Flare feed rate (standard cubic feet per hour): The volumetric feed rate to a process flare.

Combustion temperature (degrees Fahrenheit): The combustion temperature of a process flare.

Combustion efficiency (percent): The combustion efficiency of a process flare, or the completeness of hydrocarbon conversion to carbon dioxide (as CO₂).

Installed control equipment: Indicates which common types of control devices are installed for this equipment.

Condenser temperature (degrees Fahrenheit): The operating temperature of a condenser installed as a control device.

Condenser pressure (absolute pounds per square inch): The operating temperature of a condenser installed as a control device.

4.10.3 Control Equipment Tab

Other control device? (yes/no): Indicates whether additional controls are installed, other than the common control devices listed on the Ventilation System Tab.

Description: If present, a description of other control devices is required (other than those listed on the Ventilation System Tab).

VOC efficiency (percent): The total combined reductions in volatile organics emissions achieved by all other installed control devices (other than those listed on the Ventilation System Tab).

4.10.4 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user's explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click "Add QC Comment".)

4.11 LOSSES FROM FLASHING

4.11.1 General Information Tab

Type of vessel: Indicates the type of vessel (separator, heater treater, surge tank, other) where the flashing occurs.

API gravity of stored oil (degrees API): The API gravity of the oil/condensate contained within the vessel where the flashing occurs.

Operating pressure of vessel (pounds per square inch gauge): Indicates the pressure setting of the vessel where the flashing occurs.

Operating temperature of vessel (degrees Fahrenheit): Indicates the operating temperature of the vessel where the flashing occurs.

Oil/condensate throughput (barrels): Indicates the actual throughput volume of oil/condensate for each vessel for the specific monthly survey period.

Operating pressure **immediately** upstream of vessel (pounds per square inch gauge): Indicates the operating pressure upstream of the vessel.

Operating temperature **immediately** upstream of vessel (degrees Fahrenheit): Indicates the operating temperature upstream of the vessel.

Standard cubic feet of flash per barrel of oil (SCF/barrel): Indicate the SCF of flash per barrel of oil/condensate specific to your source.

No Emissions to Report: Indicates the status of the vessel for the specific survey period.

- “No Emissions to Report”: Indicates that the vessel was empty and unused for the entire month-long survey period.

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.11.2 Ventilation System Tab

Emissions destination: Indicates whether the emissions from this equipment are vented or flared locally, or at some distance from the equipment.

Low-pressure vent/flare ID: Indicates the destination vent or flare identifier code (if emissions are not vented or flared locally). It may be necessary to first create a vent or flare before it will appear in the list (using the Edit|New Equipment menu).

Outlet height (feet above mean sea level): The elevation of the stack outlet above mean sea level.

Outlet inner diameter (inches): The inner diameter of a process vent.

Exit velocity (feet/second): The exit velocity of emissions through the outlet of a process vent.

Exit temperature (degrees Fahrenheit): The temperature of gaseous emissions measured at the outlet of a process vent.

Outlet orientation (degrees): The deviation of the outlet from vertically upward. 0 indicates an upward pointing outlet; 180 indicates a downward pointing outlet.

4.11.3 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user's explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click "Add QC Comment".)

4.12 MUD DEGASSING

4.12.1 General Information Tab

Days per month of drilling with mud (i.e., drilling fluid): The total number of 24-hour days that drilling (with mud) occurred during the specific monthly survey period.

Type of mud: Indicates the type of mud used (drilling fluid) (water-based, oil-based, or synthetic).

No Emissions to Report: Indicates the status of the operation for the specific survey period.

- “No Emissions to Report”: Indicates that the equipment was unused for the entire month-long survey period.

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.12.2 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user’s explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click “Add QC Comment”.)

4.13 NATURAL GAS ENGINE

4.13.1 General Information Tab

Hours operated: The total number of hours that this engine was in operation during the specific monthly survey period.

Manufacturer: The company name of the engine manufacturer.

Model No.: The manufacturer's model number of the engine.

Engine stroke: Indicates whether the engine is a 2-stroke design or a 4-stroke design.

Engine burn: Indicates the fuel burn conditions (lean-burn, rich-burn, or clean-burn).

Fuel H₂S content (parts per million by volume): The concentration of hydrogen sulfide in gaseous fuel types.

Fuel heating value (British thermal units per standard cubic feet): The energy content of gaseous fuel types.

Max rated horsepower (horsepower) – The manufacturer's maximum rated horsepower output.

Operating horsepower (horsepower): The operating horsepower during operation this survey period.

Max rated fuel usage (British thermal units per horsepower-hour): The manufacturer's maximum rate of fuel usage.

Average fuel usage (British thermal units per horsepower-hour): The average rate of fuel usage during operation this survey period.

Total fuel used (thousand standard cubic feet): Total gaseous fuel used during this survey period, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere). If you do not monitor actual fuel use for an engine, a value may be calculated using:

$$[\text{Hours operated} * \text{average fuel usage (Btu/hp-hr)} * \text{operating horsepower}] \div [\text{fuel heating value (1,050 Btu/scf)} * (1,000 \text{ scf/Mscf})]$$

No Emissions to Report: Indicates the status of the engine for the specific survey period.

- “No Emissions to Report”: Indicates that the equipment was unused for the entire month-long survey period.

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.13.2 Exhaust System Tab

Outlet height (feet above mean sea level): The elevation of the stack outlet above mean sea level.

Outlet inner diameter (inches): The inner diameter of the exhaust outlet.

Exit velocity (feet/second): The exit velocity of emissions through the exhaust outlet.

Exit temperature (degrees Fahrenheit): The temperature of gaseous emissions measured at the exhaust outlet.

Outlet orientation (degrees): The deviation of the exhaust outlet from vertically upward. 0 indicates an upward pointing outlet; 180 indicates a downward pointing outlet.

Emission controls: Indicates which types of control device is installed for this equipment.

4.13.3 Control Equipment Tab

Other control device? (yes/no): Indicates whether additional controls are installed.

Description: If present, a description of other control devices is required.

SO_x efficiency (percent): The total combined reductions in sulfur oxides emissions achieved by all other installed control devices.

NO_x efficiency (percent): The total combined reductions in nitrogen oxides emissions achieved by all other installed control devices.

CO efficiency (percent): The total combined reductions in carbon monoxide emissions achieved by all other installed control devices.

VOC efficiency (percent): The total combined reductions in volatile organic compound emissions achieved by all other installed control devices.

PM₁₀ efficiency (percent): The total combined reductions in PM₁₀ emissions (particulate matter under 10 microns in diameter) achieved by all other installed control devices.

4.13.4 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user's explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click "Add QC Comment".)

4.14 NATURAL GAS, DIESEL, OR DUAL FUEL TURBINE

4.14.1 General Information Tab

Manufacturer: The company name of the turbine manufacturer.

Model No.: The manufacturer's model number of the turbine.

Engine purpose of use: The purpose for which this turbine is used.

- Electricity Generation
- Product Pressurization
- Other

Natural Gas Usage

Operating horsepower (horsepower): The operating horsepower during operation this survey period.

Average fuel usage (British thermal units per horsepower-hour): The average rate of gaseous fuel usage during operation this survey period.

Fuel H₂S content (parts per million by volume): The concentration of hydrogen sulfide in gaseous fuel types.

Fuel heating value (British thermal units per standard cubic feet): The energy content of gaseous fuel types.

Max rated horsepower (horsepower): The manufacturer's maximum rated horsepower output.

Max rated fuel usage (British thermal units per horsepower-hour): The manufacturer's maximum rate of gaseous fuel usage.

Hours operated: The total number of hours that this turbine was in operation during the specific monthly survey period.

Total fuel used (thousand standard cubic feet): Total gaseous fuel used during this survey period, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere). If you do not monitor actual fuel use for a turbine, a value may be calculated using:

$$[\text{Hours operated} * \text{average fuel usage (Btu/hp-hr)} * \text{operating horsepower}] \div [\text{fuel heating value (1,050 Btu/scf)} * (1,000 \text{ scf/Mscf})]$$

Diesel Fuel Usage

Operating horsepower (horsepower): The operating horsepower during operation this survey period.

Average fuel usage (British thermal units per horsepower-hour): The average rate of diesel fuel usage during operation this survey period.

Fuel sulfur content (percent by mass): The sulfur content of diesel fuel.

Fuel heating value (British thermal units per pound): The energy content of diesel fuel.

Max rated horsepower (horsepower): The manufacturer's maximum rated horsepower output.

Max rated fuel usage (British thermal units per horsepower-hour): The manufacturer's maximum rate of fuel usage.

Hours operated: The total number of hours that this engine was in operation during the specific monthly survey period.

Total fuel used (gallons): Total liquid fuel used during this survey period. If you do not monitor actual fuel use for an engine, a value may be calculated using:

$$[\text{Hours operated} * \text{average fuel usage (Btu/hp-hr)} * \text{operating horsepower}] \div [\text{fuel heating value (19,300 Btu/lb)} * (7.05 \text{ lbs/gal})].$$

No Emissions to Report: Indicates the status of the turbine for the specific survey period.

- “No Emissions to Report”: Indicates that the equipment was unused for the entire month-long survey period.

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.14.2 Exhaust System Tab

Outlet height (feet above mean sea level): The elevation of the stack outlet above mean sea level.

Outlet inner diameter (inches): The inner diameter of the exhaust outlet.

Exit velocity (feet/second): The exit velocity of emissions through the exhaust outlet.

Exit temperature (degrees Fahrenheit): The temperature of gaseous emissions measured at the exhaust outlet.

Outlet orientation (degrees): The deviation of the exhaust outlet from vertically upward. 0 indicates an upward pointing outlet; 180 indicates a downward pointing outlet.

Emission controls: Indicates which type of control device is installed for this equipment.

4.14.3 Control Equipment Tab

Other control device? (yes/no): Indicates whether additional controls are installed, other than the common control devices listed on the Exhaust System Tab.

Description: If present, a description of other control devices is required (other than those listed on the Exhaust System Tab).

SO_x efficiency (percent): The total combined reductions in sulfur oxides emissions achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

NO_x efficiency (percent): The total combined reductions in nitrogen oxides emissions achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

CO efficiency (percent): The total combined reductions in carbon monoxide emissions achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

VOC efficiency (percent): The total combined reductions in volatile organics emissions achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

PM₁₀ efficiency (percent): The total combined reductions in PM₁₀ emissions (particulate matter under 10 microns in diameter) achieved by all other installed control devices (other than those listed on the Exhaust System Tab).

4.14.4 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user's explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click "Add QC Comment".)

4.15 PNEUMATIC PUMPS

4.15.1 General Information Tab

Manufacturer: The company name of the equipment manufacturer. Examples include: Wilden diaphragm pumps (M-1, M-2, M-4, M-8, M-15); and Texsteam chemical injection and diaphragm pumps.

Model: The manufacturer's model number of the pump. Only include pumps that are in natural gas service. Do not include pumps in compressed air service.

Fuel gas usage rate (standard cubic feet per hour): The rate of natural gas usage during operation this survey period. **This information is no longer optional.** You should obtain the fuel gas usage rate for each specific make and model from the equipment vendor.

Hours operated: The total number of hours that the pump was in operation during the specific monthly survey period.

No Emissions to Report: Indicates the status of the pump for the specific survey period.

- “No Emissions to Report” – Indicates that the pump was unused for the entire month-long survey period.

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.15.2 Ventilation System Tab

Emissions destination: Indicates whether the emissions from this equipment are vented or flared locally, or at some distance from the equipment.

Low-pressure vent/flare ID: Indicates the destination vent or flare identifier code (if emissions are not vented or flared locally). It may be necessary to first create.

Outlet height (feet above mean sea level): The elevation of the stack outlet above mean sea level.

Outlet inner diameter (inches): The inner diameter of a process vent.

Exit velocity (feet/second): The exit velocity of emissions through the outlet of a process vent.

Exit temperature (degrees Fahrenheit): The temperature of gaseous emissions measured at the outlet of a process vent.

Outlet orientation (degrees): The deviation of the outlet from vertically upward. 0 indicates an upward pointing outlet; 180 indicates a downward pointing outlet.

4.15.3 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user's explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click "Add QC Comment".)

4.16 PNEUMATIC CONTROLLERS

4.16.1 General Information Tab

Service Type: Indicates whether the equipment is in pressure control (PC), level control (LC), flow control (FC), or other service.

[Note that service type options have been expanded to include flow control and other (e.g., temperature control).]

Manufacturer: The company name of the equipment manufacturer. Only include equipment that is in natural gas service. Do not include equipment in compressed air service.

Model: The manufacturer's model number of the equipment.

Number of this make-model: Number of equipment of this **exact** make and model.

Bleed rate: Indicate if device is:

- High-bleed (>6scfh)
- Low-bleed (<6scfh)
- Intermittent
- Zero-bleed

[Note bleed rate is a new field so if you imported your static data, you must populate this field.]

Fuel gas usage rate (standard cubic feet per hour): The rate of natural gas usage during operation this survey period. **This information is no longer optional.** You should obtain the fuel gas usage rate for each specific make and model from the equipment vendor.

Hours operated: The total number of hours that the equipment was in operation during the specific monthly survey period.

Equipment elevation (feet above mean sea level): A good estimate is half the elevation of the top deck.

No Emissions to Report: Indicates the status of the equipment operations for the specific survey period.

- “No Emissions to Report”: Indicates that the equipment was unused for the entire month-long survey period.

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.16.2 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user's explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click "Add QC Comment".)

4.17 STORAGE TANK

4.17.1 General Information Tab

Product throughput (barrels): The volume of liquid hydrocarbon turned over through the storage tank during the survey period.

Tank orientation (horizontal/vertical): Indicates whether the tank is elongated and narrow in the horizontal direction (horizontal), or otherwise (vertical).

Tank shape (cylindrical/rectangular): Indicates whether the tank is cylindrical or rectangular in shape.

Average liquid height (feet): The average height of stored liquid during the survey period, measured from the bottom of the storage space to the top of the liquid.

Tank shell diameter (feet): The diameter of a cylindrical tank (either horizontal or vertical).

Tank shell height (feet): The vertical height of a cylindrical tank (oriented vertically) or of a rectangular tank (oriented vertically or horizontally).

Tank shell length (feet): The longest horizontal dimension of a horizontal tank.

Tank shell width (feet): The horizontal width of a rectangular tank (oriented vertically or horizontally).

2nd Tank shell width (feet): The 2nd horizontal width of a rectangular tank (oriented vertically).

Is the roof fixed (not floating)? (yes/no): Indicates whether the tank has a fixed or floating roof.

Roof shape: Indicates the shape of a vertical tank's roof.

- Cone: cylindrical tanks
- Dome: cylindrical tanks
- Flat: cylindrical or rectangular
- Peaked: rectangular

Roof height above shell (feet): The height of a fixed roof measured from the top of the tank shell to the highest point of the roof.

Breather vent pressure setting (pounds per square inch gauge): The pressure setting of the tank breather valve.

Breather vent vacuum setting (pounds per square inch gauge): The vacuum setting of the tank breather valve.

Paint color: The exterior paint color of the storage tank.

Paint condition: The exterior paint condition of the storage tank.

Bulk liquid temperature (degrees Fahrenheit): The bulk temperature of the liquid contained within the storage tank.

Product type (crude/condensate): Indicates whether the storage tank contains crude oil or condensates. It is not mandatory that you enter data for jet fuel storage tanks.

API gravity (degrees API): The API gravity of the liquid contained within the storage tank.

Product Reid vapor pressure (absolute pounds per square inch): The Reid vapor pressure of the liquid contained within the storage tank.

Average percent by weight of VOCs in tank vapor (percent): The VOC content of vapors in the storage tank headspace, measured as weight percent.

Average molecular weight of VOCs in tank vapor (pounds per pound-mol): The average molecular weight of VOCs present in the storage tank headspace.

Equipped with a flash tank? (yes/no): Indicates whether the storage tank is equipped with an upstream flash tank.

No Emissions to Report: Indicates the status of the storage for the specific survey period.

- “No Emissions to Report”: Indicates that the tank was empty and unused for the entire month-long survey period.

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.17.2 Ventilation System Tab

Emissions destination: Indicates whether the emissions from this equipment are vented or flared locally, or at some distance from the equipment.

Low-pressure vent/flare ID: Indicates the destination vent or flare identifier code (if emissions are not vented or flared locally). It may be necessary to first create.

Outlet height (feet above mean sea level): The elevation of the stack outlet above mean sea level.

Outlet inner diameter (inches): The inner diameter of a process vent or the effective diameter of a flare.

Exit velocity (feet/second): The exit velocity of emissions through the outlet of a process vent/flare.

Exit temperature (degrees Fahrenheit): The temperature of gaseous emissions measured at the outlet of a process vent.

Outlet orientation (degrees): The deviation of the outlet from vertically upward. 0 indicates an upward pointing outlet; 180 indicates a downward pointing outlet.

Flare feed rate (standard cubic feet per hour): The volumetric feed rate to a process flare.

Combustion temperature (degrees Fahrenheit): The combustion temperature of a process flare.

Combustion efficiency (percent): The combustion efficiency of a process flare, or the completeness of hydrocarbon conversion to carbon dioxide (as CO₂).

Installed control equipment: Indicates which common types of control devices are installed for this equipment.

Condenser temperature (degrees Fahrenheit): The operating temperature of a condenser installed as a control device.

Condenser pressure (absolute pounds per square inch): The operating pressure of a condenser installed as a control device.

4.17.3 Control Equipment Tab

Other control device? (yes/no): Indicates whether additional controls are installed, other than the common control devices listed on the Ventilation System Tab.

Description: If present, a description of other control devices is required (other than those listed on the Ventilation System Tab).

VOC efficiency (percent): The total combined reductions in volatile organics emissions achieved by all other installed control devices (other than those listed on the Ventilation System Tab).

4.17.4 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user's explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click "Add QC Comment".)

4.18 COLD VENT

4.18.1 General Information Tab

Note that vented emissions are NOT combusted. If emissions are combusted, create a Combustion Flare record.

Hours operated, including upsets – The total number of hours that the vent was operated during the survey period, including periods of upset venting.

Volume vented (thousand standard cubic feet), including upsets: The total volume of gas vented during the survey period, including periods of upset venting, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere). The GOADS volume vented should match the Office of Natural Resources Revenue (ONRR)'s volume vented reported on the Oil and Gas Operations Report (OGOR).

Vent type: Indicates whether vent gases are released at high pressure or low pressure.

Vent gas H₂S Concentration (parts per million by volume): The concentration of hydrogen sulfide present in the vented gas.

Vent gas VOC Concentration (parts per million by volume): The concentration of volatile organic compounds present in the vented gas.

Average molecular weight of VOCs (lb/lb-mol): The average molecular weight of VOCs present in the vented gas.

Stack outlet elevation (feet above mean sea level): The elevation of the vent stack outlet above mean sea level.

Stack inner diameter (inches): The inner diameter of the vent stack at its outlet.

Average exit velocity (feet per second): The average exit velocity of vented gas at the stack outlet.

Exit temperature (degrees Fahrenheit): The average temperature of vented gas at the stack outlet.

Stack orientation (degrees): The deviation of the stack outlet from vertically upward. 0 indicates an upward pointing outlet; 180 indicates a downward pointing outlet.

Installed control equipment: Indicates which common types of control devices are installed on the vent.

Condenser temperature (degrees Fahrenheit): The operating temperature of a condenser installed as a control device.

Condenser pressure (absolute pounds per square inch): The operating pressure of a condenser installed as a control device.

No Emissions to Report: Indicates the status of the vent for the specific survey period.

- “No Emissions to Report”: Indicates that the vent was unused for the entire month-long survey period.

Comments: A space for general user comments regarding this structure, with a maximum length of 255 characters.

4.18.2 Control Equipment Tab

Other control device? (yes/no): Indicates whether controls are installed.

Description: If present, a description of other control devices is required.

VOC efficiency (percent): The total combined reductions in volatile organics emissions achieved by all other installed control devices.

4.18.3 QC Results Tab

Error Source: List of input variables for this equipment that have been flagged with QC error messages.

Error Description: List of the reasons that QC error messages were assigned.

Operator Comment: List of user’s explanations for unusual or unexpected values that were flagged with QC error messages. An operator comment indicates that the user wishes to override the QC error message. (To add Operator Comments, select an error message, then click “Add QC Comment”.)

5. GOADS-2017 QA SUMMARY FORM DATA FIELDS

This section indicates the data fields that will be flagged in the QA Summary Form if they are missing or inconsistent from month to month. If all of your GOADS-2017 entries are complete and the values are within two standard deviations of the average for all values in that field, the QA Summary Form will be blank.

The data fields in the QA Summary Form are critical to developing emission estimates. If an element appears on the QA Summary Form printout, you should re-evaluate your GOADS-2017 file and complete or correct the data you entered for the equipment or month shown. If the flagged value is legitimate, you may annotate the QA Summary Form using colored ink, or attach additional sheets which specify why a value is valid and does not need to be changed.

You must export the GOADS-2017 QA Summary Form and submit it with your data files. If any values are flagged as incomplete or inconsistent, BOEM may contact you. Please make sure you review the QA Summary Form closely, correct any errors that are flagged, and provide separate documentation to note that flagged entries that are valid. The following table lists the type codes used on the QA Summary Form.

Table 4.

GOADS-2017 QA Summary Form Equipment Type Codes

| | |
|-----|--|
| AMI | Amine gas sweetening unit |
| BOI | Boiler/heater/burner |
| DIE | Diesel or gasoline engine |
| DRI | Drilling equipment |
| FLA | Combustion flare |
| FUG | Fugitives |
| GLY | Glycol dehydrator unit |
| LOA | Loading operation |
| LOS | Losses from flashing |
| MUD | Mud degassing |
| NGE | Natural gas engine |
| NGT | Natural gas, diesel, and dual-fuel turbine |
| PNE | Pneumatic pumps |
| PRE | Pneumatic controllers |
| STO | Storage tank |
| VEN | Cold vent |

Table 5.

GOADS-2017 QA Summary Form Data Fields

| |
|--|
| General Operator Information |
| Lessee/operator name and phone number |
| Company name |
| Survey Information |
| 12 surveys included |
| Structure Information |
| Area/Block/Name |
| Longitude/latitude |
| Distance to shore |
| Gas production |
| Crude oil production |
| Natural gas usage for all 12 months consistent with survey data |
| Diesel fuel usage for all 12 months consistent with survey data |
| Gasoline usage for all 12 months consistent with survey data |
| Equipment records present for active platform |
| Number and unique pieces of equipment consistent for all 12 mos. |
| Sales gas composition |

Table 5.

GOADS-2017 QA Summary Form Data Fields (continued)

| |
|---|
| Equipment Information |
| <i>Amine Gas Sweetening Unit</i> |
| Processed throughput |
| Hours operated |
| Unprocessed natural gas concentration (% by volume) |
| Amine type |
| Equipped with a flash tank (yes/no) |
| Disposition of flash gas |
| Vented into low-pressure system |
| Gases vented or flared |
| <i>Boiler/heater/burner</i> |
| Fuel type |
| Maximum rated heat input |
| Hours of operated |
| Average heat input |
| Same equipment units reported for each month/survey |
| <i>Diesel or Gasoline Engine</i> |
| Fuel type |
| Maximum rated horsepower |
| Hours operated |
| Operating horsepower |
| Maximum rated fuel usage |
| Average fuel usage |
| Same equipment units reported for each month/survey |
| <i>Drilling Equipment</i> |
| Hours operated |
| Total diesel fuel usage |
| Total gasoline usage |
| Total natural gas fuel usage |

Table 5.

GOADS-2017 QA Summary Form Data Fields (continued)

| |
|--|
| Equipment Information |
| <i>Combustion Flare</i> |
| Volume flared reported for continuous and episodic flaring |
| Continuous pilot |
| Pilot fuel feed rate |
| <i>Fugitives</i> |
| Stream type (gas, heavy oil, light oil, or water/oil) |
| Average VOC weight % |
| Number of components that handle the stream type |
| <i>Glycol Dehydrator Unit</i> |
| Processed throughput |
| Equipped with a flash tank (yes/no) |
| Disposition of flash gas |
| <i>Loading Operation</i> |
| Volume loaded to ships and barges |
| Tank color |
| Tank condition |
| <i>Losses from Flashing</i> |
| Type of vessel |
| API gravity of stored oil |
| Operating pressure of each vessel |
| Operating temperature of each vessel |
| Operating pressure upstream of vessel |
| Operating temperature upstream of vessel |
| Oil/condensate throughput for each vessel |
| Disposition of flash gas |
| <i>Mud Degassing</i> |
| Number of drilling days (with mud) |
| Mud type used (water-based, synthetic, oil-based) |

Table 5.

GOADS-2017 QA Summary Form Data Fields (continued)

| |
|---|
| Equipment Information |
| <i>Natural Gas Engine</i> |
| Engine stroke |
| Engine burn |
| Hours operated |
| Operating horsepower |
| Maximum rated fuel usage |
| Average fuel usage |
| Same equipment units reported for each month/survey |
| <i>Natural Gas, Diesel, or Dual-Fuel Turbine</i> |
| Hours operated |
| Operating horsepower |
| Maximum rated fuel usage |
| Average fuel usage |
| Same equipment units reported for each month/survey |
| <i>Pneumatic Pumps</i> |
| Manufacturer |
| Model |
| Hours operated |
| <i>Pneumatic Controllers</i> |
| Manufacturer |
| Model |
| Bleed rate |
| Hours operated |
| Service type |

Table 5.

GOADS-2017 QA Summary Form Data Fields (continued)

| |
|-------------------------------------|
| Equipment Information |
| <i>Storage Tank</i> |
| Product throughput |
| Product type |
| Tank color |
| Tank condition |
| Tank shape |
| Tank orientation |
| Tank shell height |
| Tank shell diameter |
| Tank shell width |
| Roof shape |
| Roof height above shell |
| Equipped with a flash tank (yes/no) |
| <i>Cold Vent</i> |
| Hours operated, including upsets |
| Volume vented, including upsets |
| Control device identified |
| Average vent feed |