Outer Continental Shelf
Air Quality System
(OCS AQS)

Operator User Manual v.1.7

The Outer Continental Shelf Air Quality System

February 25, 2022

Revision History

Date	Document Version	Software Version	Changes
2/25/22	1.7	1.13	• Minor updates, typo fixes
1/27/22	1.6	1.13	• Appendix A – Updated descriptions and screenshots • Appendix A – Updated control approach descriptions for select calculators • Appendix A – Added Appendix A – List of Figures
1/14/22	1.5	1.12	• Appendix A – Calculator Descriptions has been updated to reflect the revisions done to the calculators
11/3/21	1.4	1.12	• Reviewed and expanded all sections as it pertains to the operator version of the application • Submitting Inventories has been moved and expanded under 2 (Dashboards). • Updated most screenshots
9/14/21	1.3	1.10	• Added 3.2.3 Importing Amine & Glycol Emissions • Removed Delete Release Point section • Updated QA/QC functionality during data entry and saving • Updated 3.2.13 Calculate Emissions • Added 3.2.14 Global Warming Potential Details • Updated 4.2.5 Add/Delete Lease Operation Processes • Updated Calculator Appendix • Removed GHG - Global Warming Potential section from GHG chapter • Removed Facility Transfer from Tools chapter • Updated Documents Section • Updated Reports Section • Updated Settings Section • Updated Acronyms section
5/24/21	1.2	1.7	• Updated 3.2.4 Emission Units Add Sources • Updated 3.2.11 Calculate Emissions • Update 6.1.1 Documents Viewing • Updated calculators in Appendix A with new Data Request Fields
3/23/21	1.1	1.6	• New Login page • Updated Flare release point guidance

			• Moved Release Point access in AEM
			• Updated Calculator Report
			• Expanded GWP description
			• Revised Documents module
			• Improved Map Overview feature
			• Revised Lease Operation edits for processes
2/4/21	1.0	1.5	• New facility structure fields to describe platform parameters
			• "From Facility Location" button in Georeference Panel
			• Orphan Release Points Report
			• QA/QC link in inventory submittal feature
			To reflect these changes and also provide enhanced descriptions/clarifications for existing features, the following sections have been added or modified:
			• 3.2.4.1 (Structure Details) – new
			• 3.2.6 (Decommissioned Facilities) – new
			• 3.2.7.4 (Create New Release Point) – updated
			• 4.2.4 (Add Lease Operation Source) – updated
			• 7.1 (Using the Map Module) – updated
			• 7.2 (Gridded Emissions) – updated
			• 7.3 (Displayed Feature Information) – new
			• 8.2.10 (Other Reports) – updated
			• 9 (Submitting Inventories) – new
			• App A Calculator updates
12/30/20	0.2	1.4.26	Updated OCS AQS URL information (Section 1.2).
12/17/20	0.1	1.4.26	The following sections have been revised to reflect OCS AQS v. 1.4 release:
			• Section 1.8 (removed reference to the Admin module)
			• Section 2.1 (added a description for the new Operator Submittal dashboard)
			• Section 2.2 (new section describing the updated inventory submission functionality)
			• Section 5 (removed submittal description, now given in Section 2)
			• Section 8 (additional and updated information on various report features)
			• Appendix A – Calculator Descriptions (updated descriptions)
12/1/20	0	1.3	Original Version

Acronyms

AEM	Activity & Emissions Manager
BOEM	Bureau of Ocean Energy Management
BSEE	Bureau of Safety and Environmental Enforcement
CERS	Consolidated Emissions Reporting Schema
CSV	Construction Support Vessel
DOI	Department of the Interior
EF	Emission Factor
e-GGRT	Electronic Greenhouse Gas Reporting Tool
EIS	Emissions Inventory System
FAQs	Frequently Asked Questions
GHG	Greenhouse Gas
GOADS	Gulfwide Offshore Activities Data System
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LO	Lease Operations
LOEM	Lease Operations Emissions Manager
MSL	Mean Sea Level
NPLO	Non-Point Lease Operations
OCS AQS	Outer Continental Shelf Air Quality System
OPD	Official Protraction Diagram
USEPA	US Environmental Protection Agency

Units of Measure

Units	Description
%	percentage
bbl	US barrel (42 gallons)
Btu/hp-hr	British thermal unit per horsepower-hour
Btu/lb	British thermal unit per pound
Btu/scf	British thermal unit per standard cubic foot
days	24 hour period
days/month	days per calendar month
deg F	degree Fahrenheit
ft	Feet
ft^3/month	cubic feet per month
wt%	percent of total weight
gallons/hr	gallons per hour
gallons/month	gallons per month
hp	horsepower
hr	hour
kW	kiloWatts
lb CH_4/lb	fraction of methane in total weight
lb CO_2/lb	fraction of carbon dioxide in total weight
lb VOC/lb	fraction of volatile organic compounds in total weight
lb/hr	pounds per hour
lb/lb-mol	pounds per mole
lb/month	pounds per month
MMBtu/hr	Million Btus per hour
months	calendar months
Mscf	Thousand standard cubic feet
Mscf/hr	Thousand standard cubic feet per hour
Mscf/month	Thousand standard cubic feet per month
ppm	parts per million
ppmv	parts per million volume
psia	pounds per square inch, atmosphere
psig	pounds per square inch, gauge
scf	standard cubic feet
scf/hr	standard cubic feet per hour
scf/month	standard cubic feet per month
year	calendar year

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1   Getting Started with OCS AQS

The Outer Continental Shelf Air Quality System (OCS AQS) is a comprehensive web-based software solution for managing and reporting OCS emission source data in the Gulf of Mexico and Alaska regions, including inputting activity data, calculating emissions, performing quality assurance and control, and submitting the emissions results. OCS AQS provides an intuitive user interface to facilitate the participation by the offshore operators in the annual survey program mandated by the Bureau of Ocean Energy Management (BOEM).

1.1   This Document

This User Manual was prepared to assist the operators in their use of OCS AQS to complete the 2021 OCS Emissions Inventory in compliance with 30 CFR 550.303(k) and 550.304(g). As OCS AQS is a web solution that supports regular updates, the User Manual will serve as a living document which will be updated periodically to reflect software updates to OCS AQS.

> *IMPORTANT:* This document is for operators ONLY. While officials at BOEM have access to a broader range of functionality, it is not described here.

Please note that OCS AQS replaces the legacy Gulfwide Offshore Activities Data System (GOADS), but includes the same required data input fields. Key differences between OCS AQS and GOADS include:

- OCS AQS is a web-based system that can be accessed from a web browser and does not require a separate software installation.

- OCS AQS has dashboards, reports, and mapping features to provide user-friendly and content-rich interface.

- OCS AQS includes historical emissions inventories (2000, 2005, 2008, 2011, 2014, and 2017) for reference and review by operators and lessees.

1.2   Accessing OCS AQS

In order to access OCS AQS, the following steps must be completed:

1. BOEM/BSEE will send an invitation email with instructions on how to access OCS AQS. If you are an operator (or authorized consultant) and did not receive an email, please send an account request to ocs.aqs_support@weblakes.com.

2. If you did receive the invitation email, follow the instructions, including the requirement to create a login.gov account. When setting up your login.gov account, you must use the same email address in which you received the OCS AQS invitation. If you would like to use a different email address, please send your request to ocs.aqs_support@weblakes.com.

3. Once your login.gov account has been created, you can log into OCS AQS and access your operating company's emission inventory at the following website: https://ocsaqs.doi.gov. Click the **Operators** button and proceed to enter your login.gov (additional details below). In certain cases, the OCS AQS Systems Administrator may

require 24 hours to complete the account setup process, so please keep this in mind the first time you log into the system.

1.3 Supported Browsers

OCS AQS can be accessed by authorized users from any computer with an internet connection. OCS AQS supports most major browsers including:

- Microsoft Edge^{TM}
- Mozilla Firefox^{TM}
- Google Chrome^{TM}

Other browsers may run OCS AQS without significant issues, but they are not explicitly supported.

> *IMPORTANT:* OCS AQS does not support Microsoft Internet Explorer^{TM}.

1.4 Logging in the First Time

Once you have successfully created your login.gov account, go to the following website:

https://ocsaqs.doi.gov

You should see a login screen similar to Figure 1. All users should login using the **Operators** button.
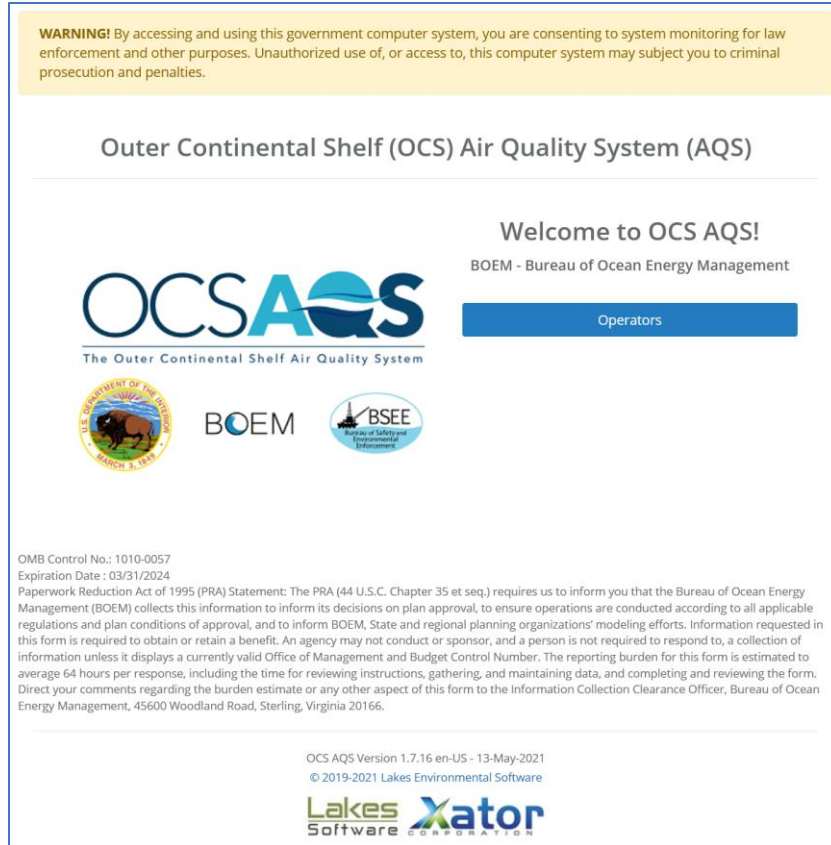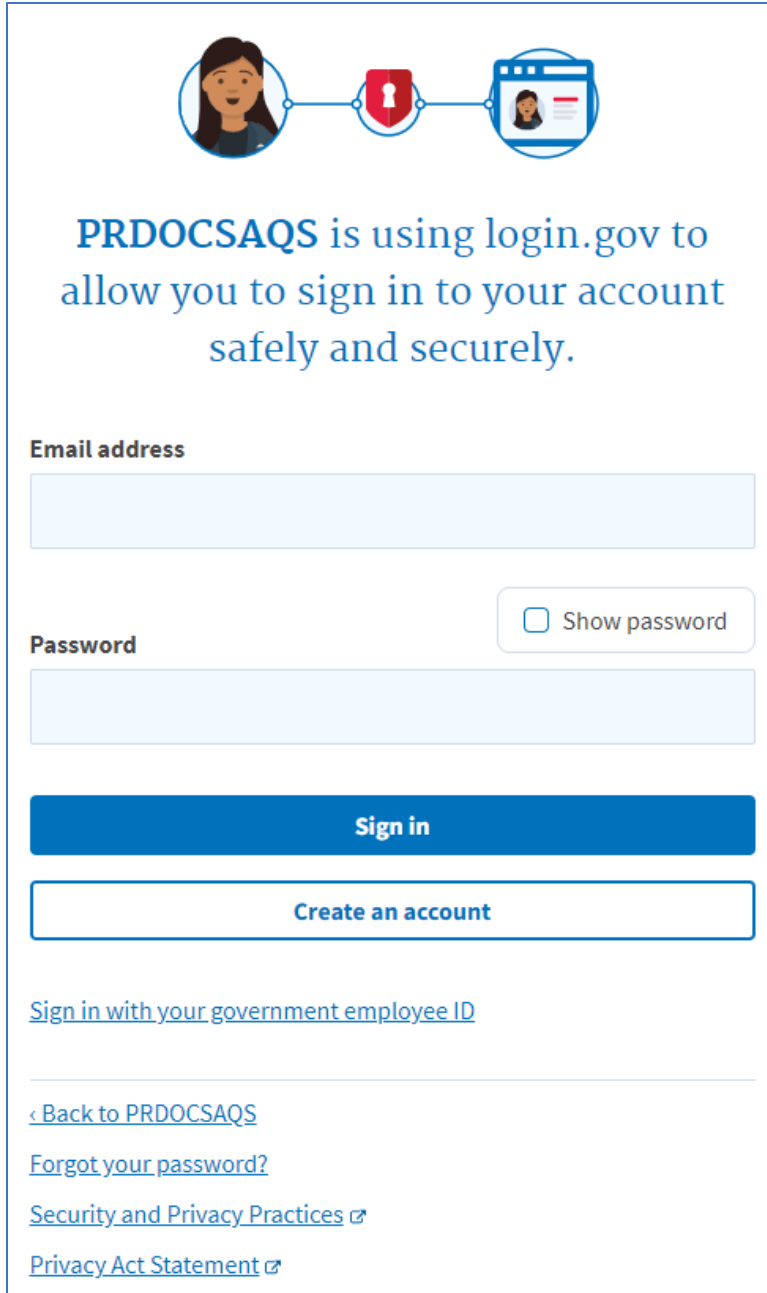
Figure 1: OCS AQS login screen

Click the **Operators** button and this will take you to the login.gov screen as shown in Figure 2. Enter your login.gov credentials and click the **Sign in** button. Since this is your first time accessing OCS AQS through login.gov, depending on the two-factor authentication option you selected when you created your login.gov account, you will be prompted with additional instructions. For example, if you elected to use text messaging, login.gov will send a code to the phone you specified with instruction on how to enter the code to complete the two-factor authentication process. If you run into any problems with login.gov, please contact login.gov technical support.

Figure 2: Main login.gov page

Once successfully logged in, your initial landing page (and home page) is the Dashboard module, similar to the one shown in Figure 3 below.

Main Dashboard
Home / **Main Dashboard**

Inventory: 2021 - Demo Company Inventory
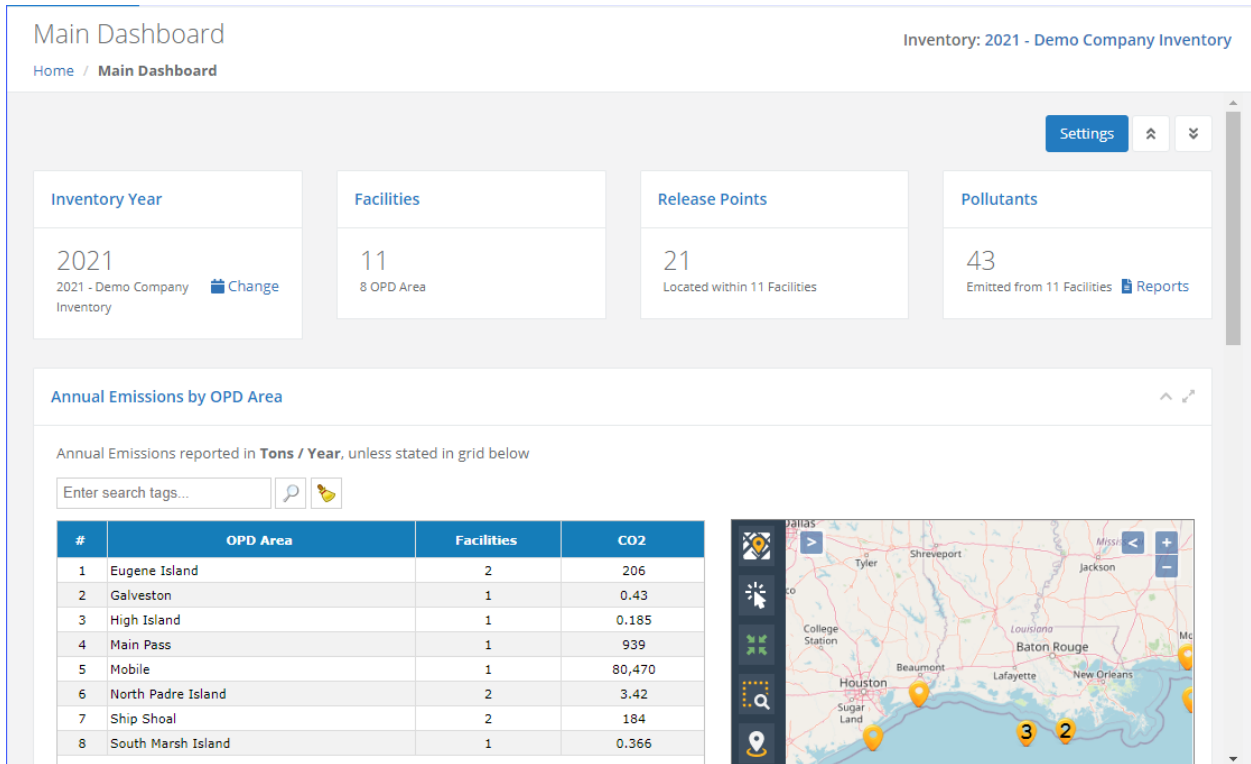
Figure 3: Main dashboard after login

The number of different dashboards available to you in the Navigation Panel may vary depending on assigned access rights while the displayed data may vary due to the default inventory in your account.

1.5   System Security

1.5.1   Automatic Logout

Due to the U. S. Department of Interior (DOI) security requirements, if you do not use the system for more than 15 minutes, you will be automatically logged out and you will have to log back in again. You will be given a one-minute warning prior to the automatic logout during which time you can refresh your session and prevent the automatic end-of-session.

> *IMPORTANT*: If you are logged out while in **Edit** mode, any unsaved changes will be lost.

1.5.2   Password Recovery

If you forget your password, simply click the **Forgot your password?** button (as shown toward the bottom of Figure 2 earlier) and follow the instructions provided.

1.6   Navigating the System

1.6.1   Overview

Once you log in, you will see a screen similar to Figure 4 shown below. While the content of each screen will vary based on available level of access and the location within the application, the main navigation tools are always located in the same area for easy reference. For the current submittal year, users will only have access to their specific inventories and facilities. Users have access to all facilities for past, final inventories that are publicly available, and these inventories are locked.

The main navigation tools are as follows and are indicated in Figure 4:
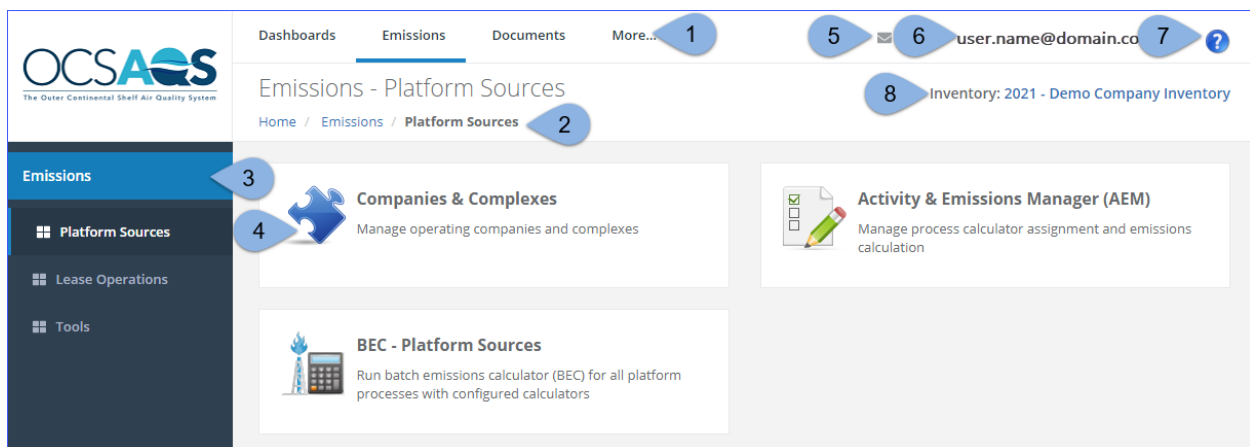
Figure 4: Example home screen

1. **Module Tabs:** These tabs provide access to the OCS AQS modules (see next section for a description of each module). The module you are in is underscored by a blue line.

2. **Breadcrumbs:** This link shows your current location within the web hierarchy and thus provides contextual information to the current page. Clicking on any text will take you to that particular page. Clicking on **Home** takes you back to the first page you see after login.

3. **Navigation Panel:** These folders provide navigation options for a given module and the steps you are taking. For pages other than the Dashboard, there will be **Navicons** to access different pages and wizards.

4. **Navicons:** Icons and headings that represent sections and tools included in each section.

5. **Notification Indicator:** This icon shows if you have system messages related to OCS AQS operations.

6. **User ID:** Displays the ID of the user currently using the application. Clicking the user ID or the down arrow beside it allows you to log out of the system.

7. **Help Button:** Click to load context-sensitive help for the current page.

8. **Inventory Selector:** This tool is used to select the emissions inventory that you will be working in. Depending on your user rights, your access may be limited to a single inventory. Past inventories (2017, 2014, etc.) will be locked ( ) and available for review only.

1.6.2 Using Windows and Tables

Detailed data in OCS AQS is organized and presented using windows and tables. An example of a table that lists emission units for platform sources (to be covered later) is shown in Figure 5. A number of tools are available to navigate, search, manipulate, and export the information in the tables. These tools are identified in the same figure and described below.

Figure 5: Window and table tools

1. The **Search Tool** in the upper left of the window allows you enter keywords to find specific records. Keywords can include partial spellings like "pneu" for "pneumatic" and are not case sensitive. The [magnifying glass] button executes the search and the [brush] button removes all text in the search bar.

   a. **Advanced Search** ( ) allows you to search the table by utilizing multiple keywords for the different categories in any given table. Categories can include items such as: Emission Unit ID, Equipment Type, and Unit Type Code for the Emission Units table. This type of search is not available in every table.

2. **Available Records** in the lower left corner of the window shows the number of records available in the table.

3. **Page Controls** in the lower center of the window allow you to navigate the table page by page, jump directly to a specific page, and control the number of rows displayed per page using the drop-down menu.

4. **Data Tools** in the lower right of the window allow you to perform a more customized search ( ) and reload the table after the query ( ). The export icon (up arrow) allows the user to export the table's records in Excel or CSV format. The table can also be printed from this icon.

1.6.3 Panel Controls

The OCS AQS interface uses data panels to organize information and for ease of navigation. Each panel, depending on context, will have one or more of the following controls:

?   Click to access panel/dialog-specific help

∧/∨   Collapse/expand the panel. Collapsing a panel will hide the panel content, leaving only the panel header and reducing the amount of space it occupies. Recommended for smaller screens.

↗   Maximize panel. Maximizing the panel will stretch it to fit the entirety of the available screen space. Recommended when viewing content-heavy panels (e.g. dashboards) on a small screen.

1.6.4 Getting Help

OCS AQS is designed to be easy to use and intuitive. Additional tools are provided to assist you. These include:

- Online Help

  Press the 🛈 icon on the top right-hand corner of any page to go to a help section for the page or the ? button in the top right corner of a data panel (if available) as seen in Figure 6.
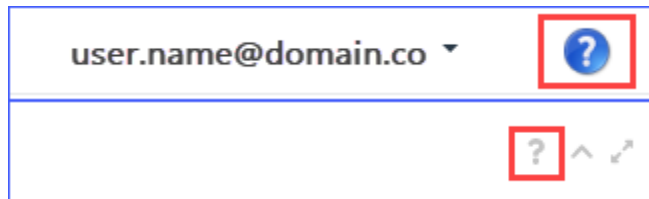
  Figure 6: Help buttons

- Full Help

  In the Online Help window, press the **View Full Help** link as seen in Figure 7. This will provide a searchable help feature.
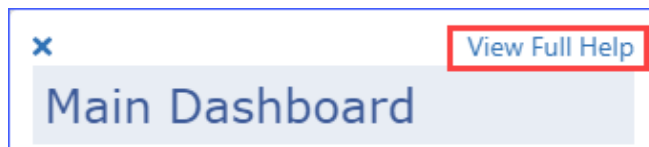
  Figure 7: View Full Help

- User Manual (this document)

  The User Manual provides in-depth assistance with easy-to-follow examples and indexed content.

- OCS AQS support team

  For help not covered above, contact tech support for OCS AQS at ocs.aqs_support@weblakes.com.

Technical support is available by clicking on the OCS AQS Technical Support link in the bottom part of the screen after you log in as shown in Figure 8. Clicking on the link opens up the OCS AQS Technical Support page that gives contact information for both technical support and BOEM inquiry email address (OCSEmissionsInventory@boem.gov).
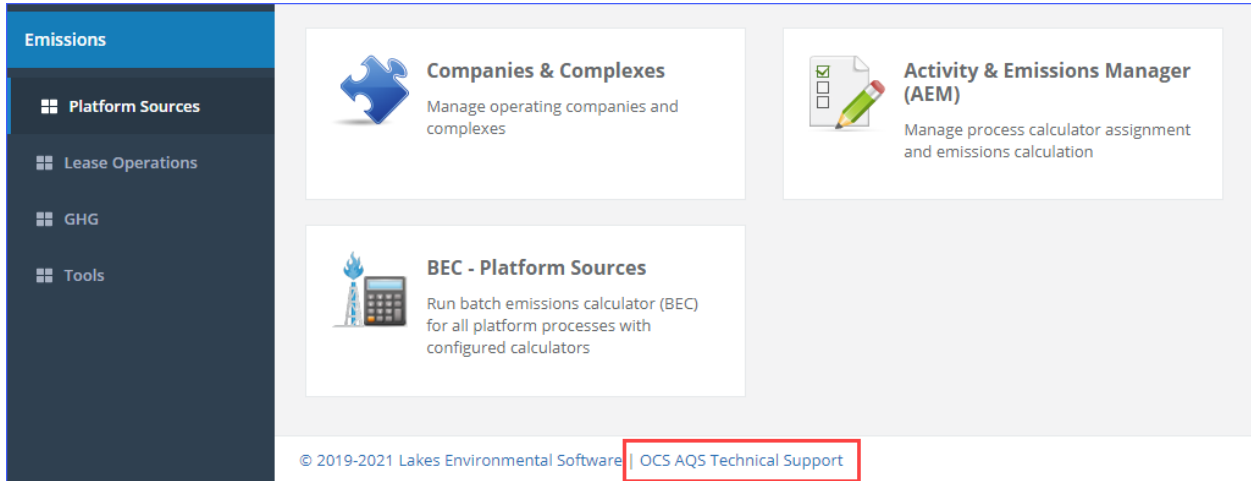
Figure 8: Technical support link

> *IMPORTANT*: When requesting technical support, please let us know which web browser you are using, so that we can tailor our response to your requirements. Each browser displays content slightly differently.

1.7   Selecting Inventories

The selected emissions inventory determines the year and emissions scenario you will be working with. It is therefore extremely important to make sure you select the correct inventory before you begin working. By default, upon the initial login users will automatically be directed to the most recent inventory, which should be the 2021 inventory. Contact your OCS AQS representative at OCSEmissionsInventory@boem.gov to determine which inventory you should be using if you have questions.

Operators also have the ability to create and save sandbox (test) inventories. In addition, users have the ability to select historical inventories. To change or select a specific inventory, click on the **Inventory Selector** link (as described in Section 1.6.1). This will take you to the **Inventory Configuration** page (as described in section 9.1.1). Click on the desired inventory name. The name of the selected inventory should appear in the **Inventory Selector** area, similar to the example shown in Figure 9. In some cases, when you initially log in, there may be only one inventory.
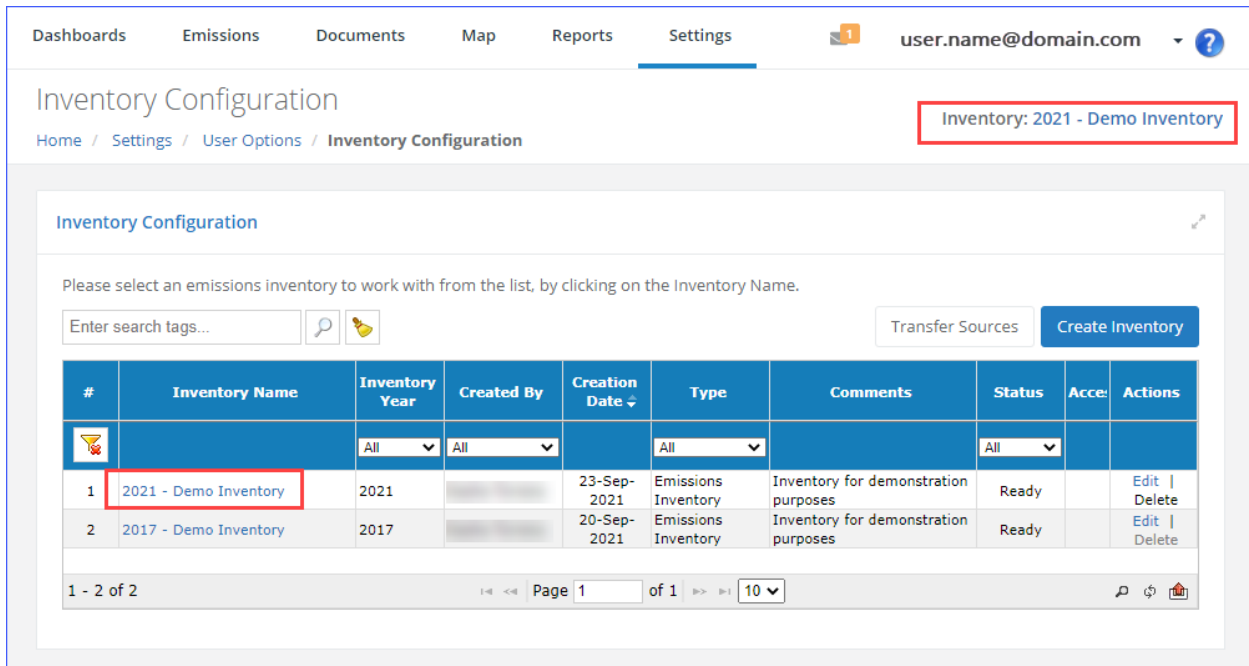
Figure 9: Inventory configuration page

Use the **Module Tabs** or **Breadcrumbs** to navigate to other pages.

1.8   OCS AQS Modules

OCS AQS has several modules that group functionalities for easy navigation. Switch between the modules by clicking on the **Module Tabs** as shown previously in Figure 4. The available modules are:

- **Dashboards**: This module presents a snapshot of activities based on your access rights. The Navigation Panel has several options you can choose from. You can customize what data is displayed on some dashboards the **Settings** button located in the upper right corner of the page.

- **Emissions**: This module provides all the resources you will need to add and update emission sources and pollutant totals.

- **Documents**: This module allows you to upload and access supporting documentation such as stack tests or proposed alternate emissions factors.

- **Map**: This module provides an interactive GIS style map with different layers for sources, emissions, and shapefiles. Sources are linked to pages in the **Emissions** module for easy reference.

- **Reports**: OCS AQS comes with several prepared reports ready to use. Each report has its own wizard to guide you through criteria selection to help create a report specific to your requirements.

- **Settings**: This module allows you to review your activity in the system as well as access the inventory list.

1.9　OCS AQS Definitions

OCS AQS uses the same nomenclature as GOADS in reference to hierarchies and definitions. The following terms are used throughout this manual:

- **Company** refers to the organization or legal entity that owns and operates assets and has the requirement and responsibility to submit the OCS Emissions Inventory.

- **Lease** refers to the legal agreement between the company and BOEM to operate in a specified manner in a specified location.

- **Lease Operations** refer to specific activities taken by the Lessee as part of the Lease. Lease Operations include platform sources; however, for OCS AQS, lease operations refer only to drilling operations in which the drilling rig is connected to the sea bed and construction support vessels installing new platforms or pipelines.

- **Complex** refers to a group of related structures within a lease area that is assigned a BOEM Complex ID.

- **Facility** refers to an individual structure (Complex-Structure ID). A single facility or multiple facilities can make up a complex.

- **Emission Source** refers to a process or piece of equipment on a facility that generates air emissions and releases it to the environment. For OCS AQS, an Emission Source consists of an Emission Unit and a Release Point. In some cases, such as fugitive emissions, the Emission Unit and the Release Point are the same.

- **Emission Unit** refers to the process or equipment type on a facility capable of generating air emissions. In some cases, such as fugitive emissions, the Emission Unit is a collection of components that may be located throughout a facility.

- **Release Point** refers to the physical properties of an emission source that release emissions into the environment.

- **Process** refers to the physical and chemical reactions that take place in an Emission Source that converts throughput material into air emissions.

1.10　OCS AQS Function Map

An outline of all OCS AQS modules and their function located within the Navigation Panel selections is shown in Figure 10.
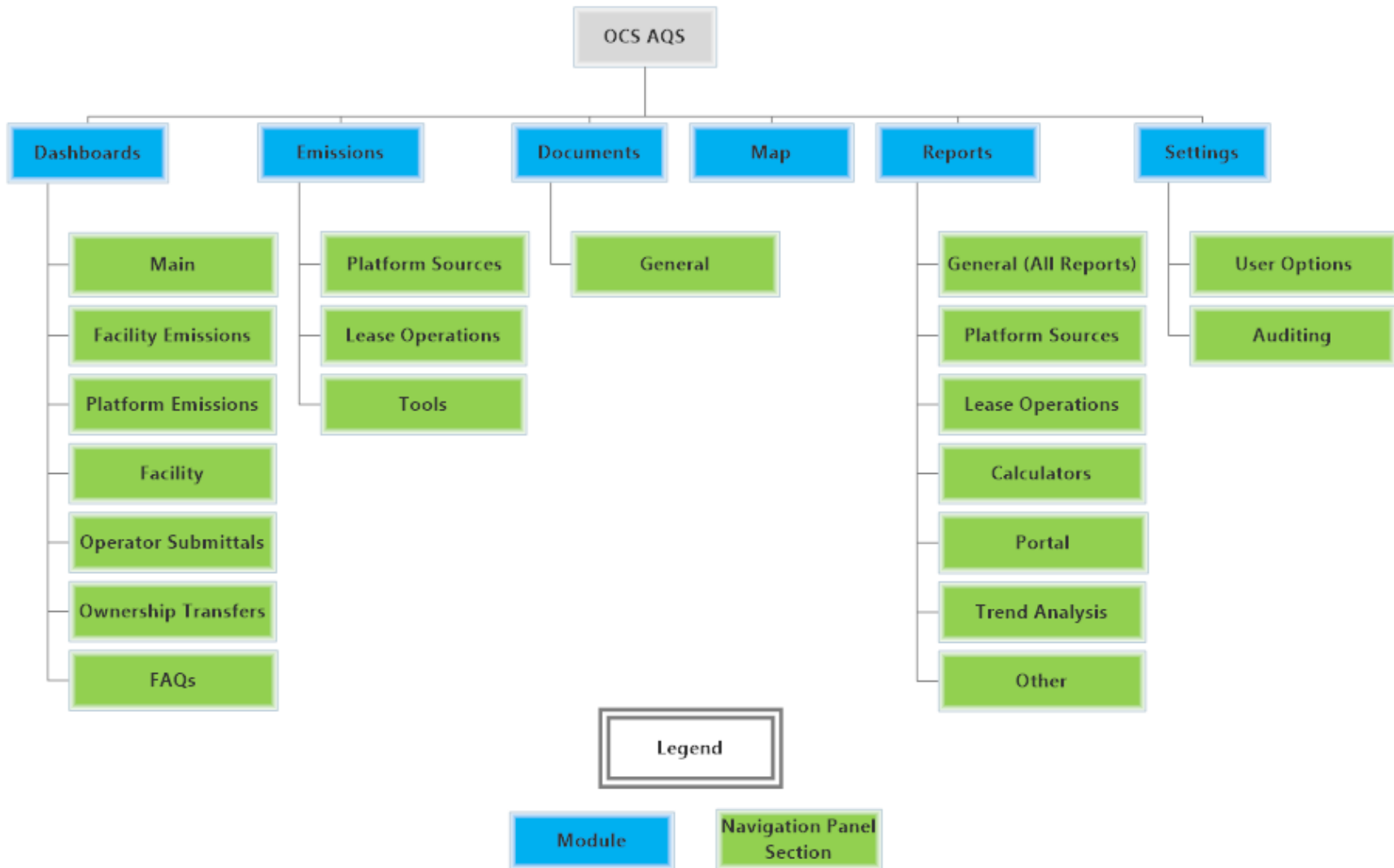
Figure 10: OCS AQS function map for operators

1.11 Layout of User Manual

The rest of the User Manual is laid out in the following sections:

- Section 2 – Dashboards
- Section 3 – Emissions: Platform Sources
- Section 4 – Emissions: Lease Operations
- Section 5 – Emissions: Other Emissions Functions
- Section 6 - Documents
- Section 7 – Map
- Section 8 - Reports
- Section 9 - Settings

The **Emissions** module is broken into three parts in order to describe in greater detail each section within the module.

Each section will have a more detailed map of the functions accessed through the Navigation Panel.

2   Dashboards

Dashboards provide a summary of key OCS AQS data using tables, maps, and graphs. There are multiple dashboard screens available, all accessible on the Navigation Panel as shown on the module map in Figure 11. The specific dashboards available to you will depend on your access rights.
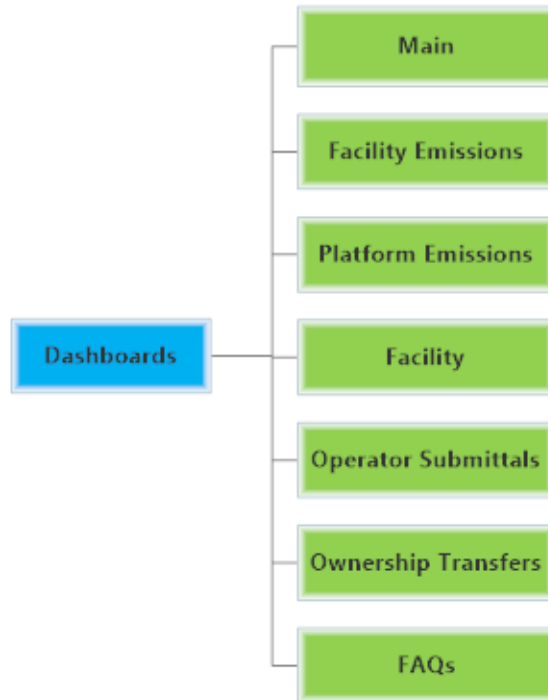
Figure 11: Dashboard module map showing panels available to operators

2.1   Dashboard Overview

The dashboard pages share several common features:

- Graphs and visuals on the page can be changed by clicking on the **Settings** button on the top right of the page. Select (or deselect) the options you want to see on the dashboard page and click **Save** to apply the changes. Some pages do not have a **Settings** feature.

- Selecting the 3 bars next to a graph gives you the option to save the graph figure in .png or .jpg format.

- Scrolling over graphs reveals the data tables.

  IMPORTANT: Information in the dashboards is arranged vertically. Scroll down to see additional content.

  TIP: If you do not see the data on a Dashboard page that you want, check the inventory and make sure you are working in the right inventory year.

The available Dashboards include:

- **Main** – This is the main dashboard that will be displayed when you log in. It shows the inventory year and includes a summary of facilities, release points, and pollutants inventoried. This dashboard also includes a map of the facility (or facilities) and summary graphs of selected pollutant emission totals. Data is organized by Official Protraction Diagram (OPD) Areas. An example of this dashboard is shown in Figure 12.

Inventory Year	Facilities	Release Points	Pollutants
2021	11	21	24
2021 - Demo Company Inventory	8 OPD Area	Located within 11 Facilities	Emitted from 11 Facilities

Annual Emissions by OPD Area

Annual Emissions reported in **Tons / Year**, unless stated in grid below

#	OPD Area	Facilities	CO2
1	Eugene Island	2	206
2	Galveston	1	0.43
3	High Island	1	0.185
4	Main Pass	1	939
5	Mobile	1	3.37
6	North Padre Island	2	3.42
7	Ship Shoal	2	184
8	South Marsh Island	1	0.366
	Total:	**11**	**1,337**

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Annual Emissions by Pollutant and OPD Area

CO2 / CO graphs (Tons / Year)

Legend: Eugene Island, Galveston, High Island, Main Pass, Mobile, North Padre Island, Ship Shoal, South Marsh Island

Figure 12: Main dashboard for operators

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Additional Dashboards that are available are:

- **Facility Emissions**: This dashboard is similar to the Main Dashboard but shows a breakdown of emissions by facility across a region.

- **Platform Emissions**: This dashboard provides an overview of emissions (groups or individual pollutants) for each emission period aggregated by location (platform) as bar charts.

- **Facility**: This dashboard provides facility level data details as well as a list of pollutant totals emitted by the facility.

- **Operator Submittals**: This dashboard provides controls to submit the completed inventory to BOEM and the status of facility inventory submittals. This dashboard is discussed in greater detail in the next section.

- **Ownership Transfers**: This dashboard shows the status of facility transfers made by BOEM on behalf of companies that have bought/sold a facility.

- **FAQs**: This is not technically a dashboard but provides a collection of Frequently Asked Questions (FAQs) about the OCS AQS software, emissions inventories and other topics. The FAQs are grouped in the following categories:
    - General Questions
    - Emissions Calculations
    - Lease Operations
    - Dashboards
    - Maps
    - Reports

Some dashboard pages, especially the **Main** and **Facility Emissions** dashboards, have quick links in the top row of summary information. These allow you to access the tables or reports that are associated with the displayed data.

2.2 Inventory Submission

Completed inventories are submitted to BOEM through the Operators Submittals dashboard. The dashboard shows facilities broken down by the status as shown in Figure 13.
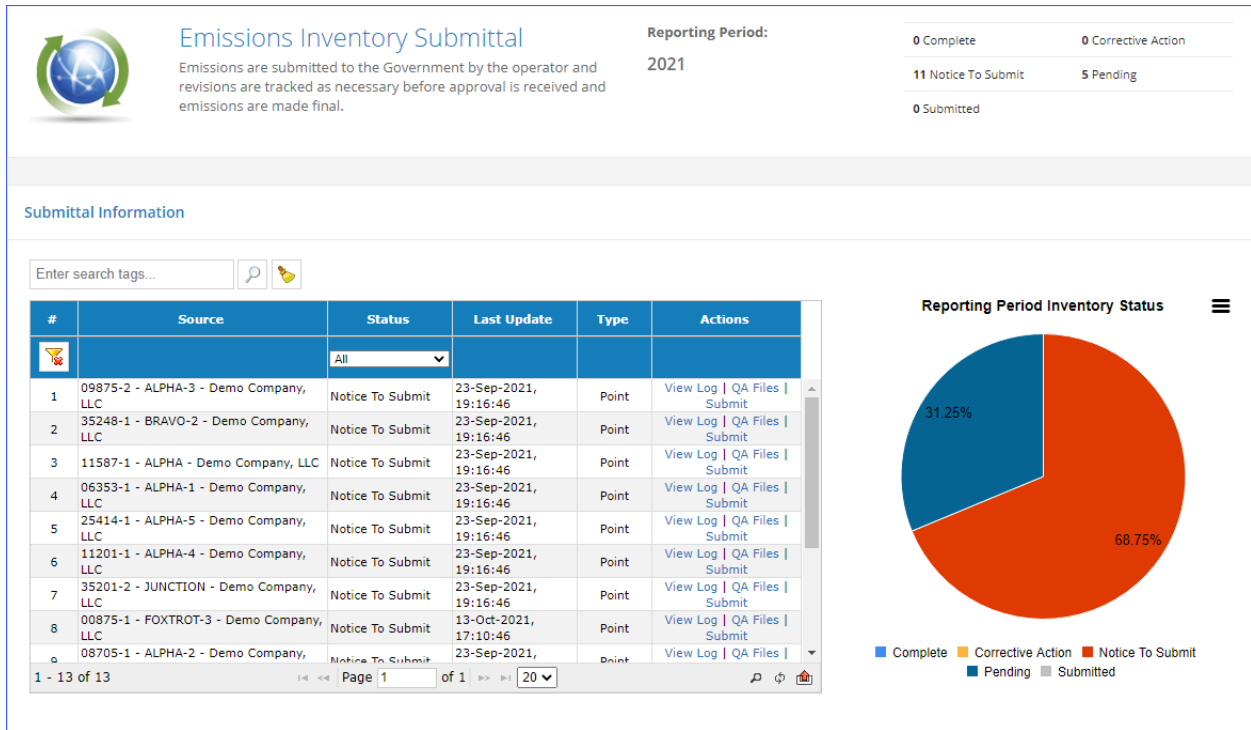
Figure 13: Operator Submittal Dashboard

The different statuses include:

- **Pending**: This identifies a facility that is registered with BOEM but is not ready for data entry or submittal. The status changes to **Notice to Submit** once the source is ready to be accepted by BOEM.

- **Notice to Submit**: This identifies a facility that could potentially be submitted to BOEM. Before it is submitted, a QA/QC evaluation must be performed and passed.

- **Submitted**: This identifies a source whose emissions inventory was submitted after clearing all QA/QC errors. If BOEM/BSEE review the submitted inventory, they may return it to the operator and reset the status to **Corrective Action**. Notes will be provided on why the inventory was returned.

- **Corrective Action**: This identifies a facility that was submitted to BOEM and was returned to the operator for corrections. An error log has been generated and can be downloaded by clicking the **QA/QC Files** link under the **Actions** column.

- **Complete**: This identifies a facility whose submitted inventory has been accepted by BOEM.

A pie chart shows the qualitative state of available submissions.

IMPORTANT: Once all sources in the inventory are of the status **Submitted** or **Complete**, the inventory will be locked and cannot be edited. If any source is set by

BOEM to **Corrective Action**, the inventory will be unlocked and you will be able to address the issues.

In addition to the **Status** type, the table shows the date and time of **Last Update**, the source **Type** (**Point** for platform sources and **Non-Point Lease Operations**), and available **Actions**.

The **Actions** include:

- **View Log:** This allows you to look at previous activities associated with the individual activity such as when it was submitted and sent back.

- **QA Files:** This provides a link the Excel QA/QC file generated during the QA/QC process. A QA file is generated regardless of any errors. If a QA file is not available in the link it means that the inventory has not been processed for submission yet and therefore has not generated a QA/QC report.

- **Submit:** This begins the submittal process starting with a QA/QC check of the designated inventory. If no errors are identified, the check will generate a QA file and submit to BOEM. If there are errors, it will generate a QA file that highlights the error in an Excel spreadsheet. The Submit link will not appear for facilities that successfully passed the QA/QC check and were submitted to BOEM.

Inventories can be submitted by facility and lease operation.

An inventory is ready to be submitted to BOEM when:

- All required parameters for all sources (point and lease operations) are complete with no QA/QC error

- Emissions are calculated based on the latest parameters

- A metadata file is generated for each facility

All submitted inventories go through a QA/QC check that looks for missing or inappropriate data. The check generates a QA/QC report in Excel format that highlights the errors.

2.2.1   Begin Submission Process

To submit a new source inventory that has a **Notice to Submit** status, click the **Submit** link in the **Actions** column for the facility or lease operations source you want to process. This begins a QA/QC wizard process that reviews the inventory data. Depending on the size of the facility, this may take several minutes.

If errors are found, a pink warning will be displayed and you will be unable to continue. The QA file generates a report similar to Figure 14. The orange shaded sections show failed areas. The report includes detailed datasheets corresponding to report status.
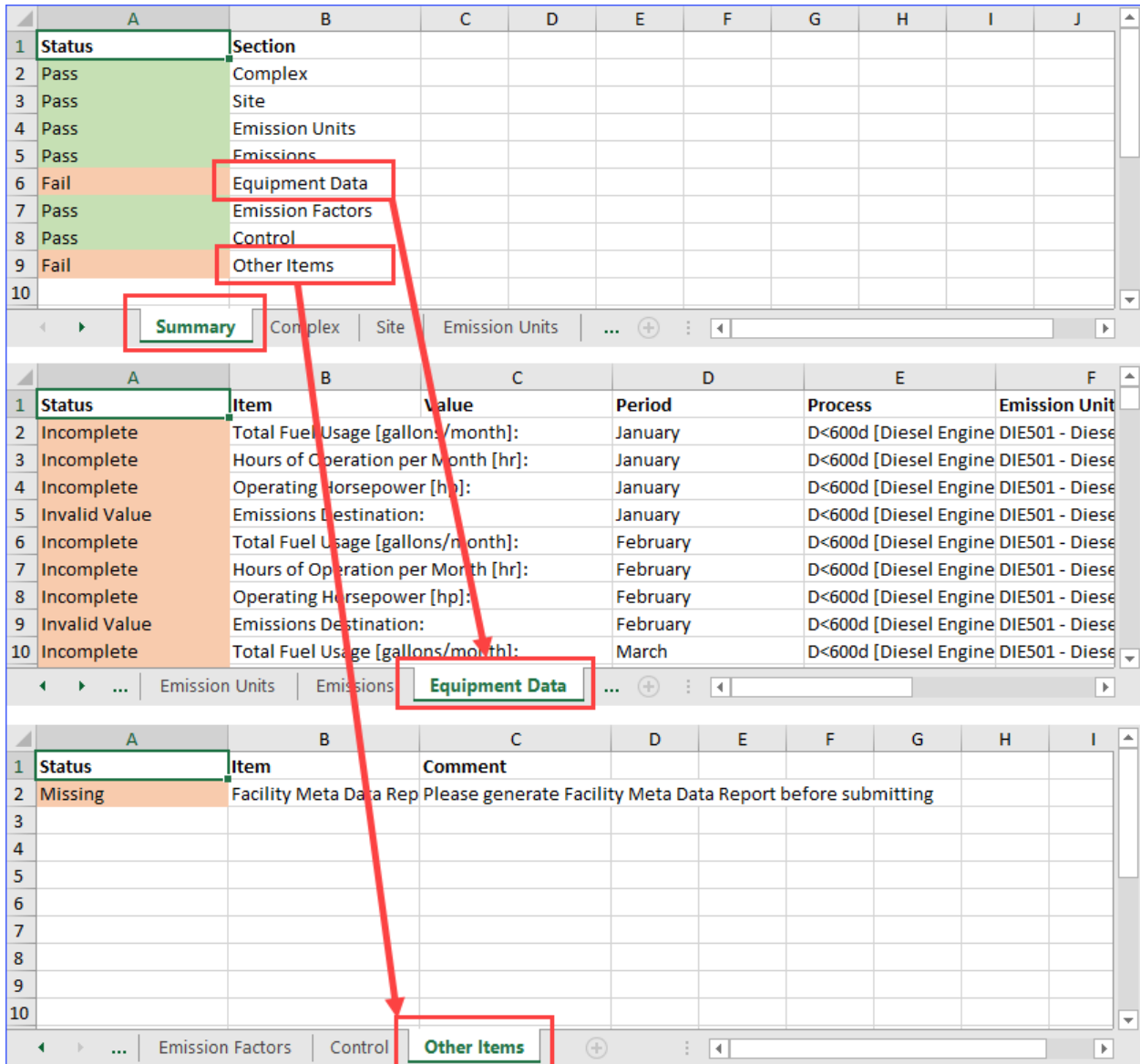
Figure 14: Sample QA file report

2.2.2   Generate Metadata Report

A metadata report must be submitted for each facility that provides BOEM recordkeeping information in XML format. Prior to submitting the facility, generate a report for each facility as described in Section 5.1.3.

If the metadata report is available, it will be automatically linked to the submission and sent to BOEM.

2.3 Submittal Corrective Action

Once submitted, BOEM will review the source inventory. If there are questions regarding the inventory data, BOEM may send it back with comments for corrective action and resubmission.

If this happens, correct the inventory, address the comments, and re-submit using the same procedure described above.

3   Emissions: Platform Sources

Platform sources make up the majority of emission sources and pollutant emissions in OCS AQS. You can manage all platform sources in the **Emissions** module. When you select the **Emissions** module, you are automatically taken to the **Emissions – Platform Sources** page. The **Platform Sources** page provides links to several different options as shown in Figure 15 with the various navicons. Navigation to other **Emissions** module functions is done using links on the Navigation Panel.
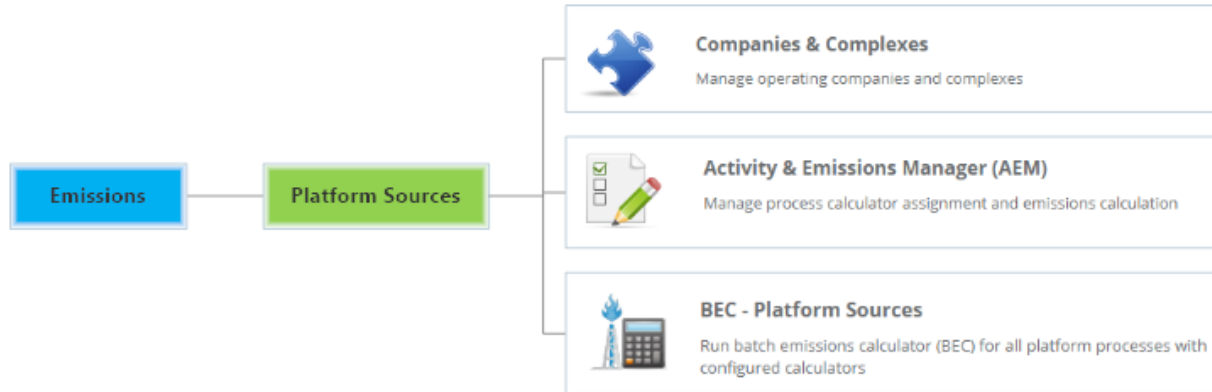
Figure 15: Emissions main page functions

3.1   Platform Sources Workflow

OCS AQS is designed to make updating and editing emission sources easy. Updating and editing platform sources is handled in the **Activity & Emissions Manager (AEM)**. The AEM provides a one-stop shop for all platform emission source functions. The basic workflow using the AEM is shown in Figure 16.
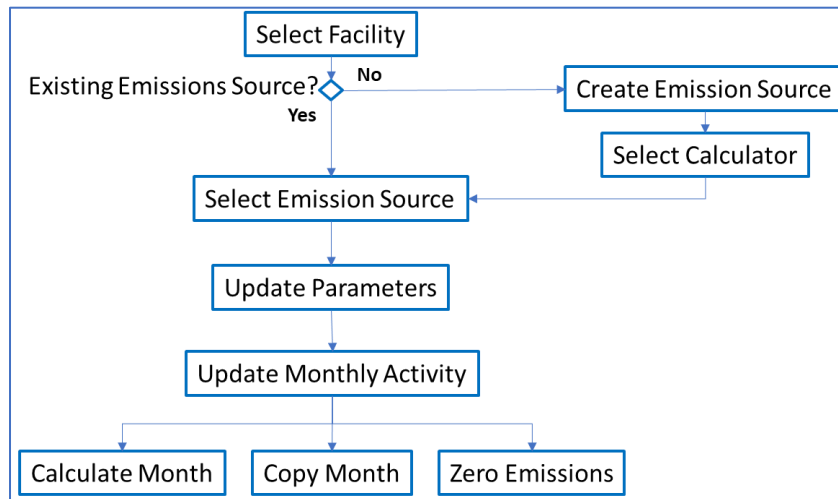
Figure 16: Emission source workflow using the Activity & Emissions Manager (AEM)

To implement this workflow, OCS AQS uses integrated toolsets and prepared import/export templates for all emission processes.

3.2   Using the Activity & Emissions Manager

To access the AEM, click on the **Activity & Emissions Manager (AEM)** navicon (shown in Figure 15 above). This takes you to the list of facilities in the inventory. Select the facility to work with by clicking the hyperlink in the **Facility ID** column or clicking on **View** in the **Actions** column, as shown in Figure 17 below. If your facility is not in the list, please contact OCS AQS support.

Facilities

Click on the **Facility ID** link to manage Facility details.

#	Facility ID	Structu ID	Facility Name	Complex	Area/Block ID	OPD Area	Structure Type	Actions
1	00875-1	1	FOXTRO 3	00875 (99999 - Demo Company, LLC) - Lease: OCS-G-04018	MO855	MO (Mobile)	FIXED (Fixed Leg Platform)	View
2	03687-1	1	NOVEME 7	03687 (99999 - Demo Company, LLC) - Lease: OCS-G-32521	MP248	MP (Main Pass)	FIXED (Fixed Leg Platform)	View
3	06353-1	1	ALPHA-1	06353 (99999 - Demo Company, LLC) - Lease: OCS-G-21148	EI201	EI (Eugene Island)	FIXED (Fixed Leg Platform)	View
4	08705-1	1	ALPHA-2	08705 (99999 - Demo Company, LLC) - Lease: OCS-G-22541	BA538	SS (Ship Shoal)	FIXED (Fixed Leg Platform)	View
5	09875-2	2	ALPHA-3	09875 (99999 - Demo Company, LLC) - Lease: OCS-G-87754	GA425	GA (Galveston)	FIXED (Fixed Leg Platform)	View
6	11201-1	1	ALPHA-4	11201 (99999 - Demo Company, LLC) - Lease: OCS-G-44154	HI164	HI (High Island)	FIXED (Fixed Leg Platform)	View

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Figure 17: Selecting a facility in the AEM

3.2.1   Activity & Emissions Manager Details Page

Selecting the facility takes you to the **Activity & Emissions Manager Details** page with a view similar to Figure 18. This page allows you to make changes in designated fields as well as perform certain other operations.

Figure 18: Default view of the AEM Details page

3.2.1.1 Main Features of AEM Details Page

The AEM Details page has a number of features which can be seen by scrolling down the page. These features and their use will be described in detail in the sections that follow.

First, in the upper right part of the page, there are buttons to update annual **Production** and throughput values and **Sales Gas** composition for the selected facility. Below them, you can see the **Emission Units & Processes** section, which shows the different emission units within the facility in tabular form and includes buttons to **Add Emission Unit**, **Activity Data Options** (which allows you to import and export activity data for the selected), and **Facility-Wide Zero Emissions**.

The second section encompasses the **Process** section which includes the following sections:

- **Calculator Parameters & Requests**: Provides the activity data entry for emission calculation parameters and associated metadata for individual sources. This will be described in greater detail below.

- **Release Point & Apportionment**: View and update release point parameters associated with an emission source.

- **Calculated Emissions**: Shows the calculated emissions for an emission unit for the entire year by month based on calculator parameters provided in the Process feature.

- **Attached Files**: Contains emission source files for the amine and glycol units.

  IMPORTANT: The **Attached Files** panel only becomes available after a data file has been imported.

- **Tags**: View and update keywords related to the process.

- **Trade Secrets**: View, update, or request a "trade secret" designation.

- **Data Entry QA and Log**: Shows when updates were made and by whom.

3.2.1.2 Edit Mode

It is important to note that you will automatically be in Edit mode when you enter the **AEM Details** page. You can confirm this if you are able to edit or otherwise make changes to fields in the **Process** section.

> *TIP:* If you are not in Edit mode and cannot load it by clicking the **Edit** button, check to make sure that your inventory is not locked – a locked inventory would have the 🔒 displayed in front of the inventory name. A locked inventory appears in the **Inventory Selector** as follows: Inventory: 🔒 2021 - Demo Inventory

If you are <u>not</u> in Edit mode, the data will be read-only and many options and buttons will not be available. You can exit Edit mode by clicking either **Save** or **Cancel** button under the **Emission Units & Processes** panel.

To save data, click on the **Save** button in the upper right corner of the **Process** Section. This will update the **Process** section and hide several buttons and selectors. To return to Edit mode, highlight the desired **Emission Unit** in the table at the top of the screen and click on the **Edit** button where the **Save** button used to be.

> *IMPORTANT:* If you do not save your work, it will be lost if you are automatically logged off or navigate away.

3.2.2 Updating Annual Production Rate and Sales Gas Composition

3.2.2.1 Annual Production Rates

Production rates can be updated by clicking on the **Production** button in the upper right corner. This will open a window with fields for annual production, throughput and usage. To edit the values, click on **Edit** in the top or bottom right corner as shown in Figure 19. Be aware that input fields are for specific energy type (crude oil, natural gas, and diesel) based on the units and field descriptions. All values must be greater than or equal to 0.

Figure 19: Production data

Click **Save** to save updates and get out of Edit mode. Click **Close** to close the window.

3.2.2.2 Sales Gas Composition

Update sales gas composition by clicking on the **Sales Gas** button and the **Edit** button similar to the Production procedure described above.

The input fields for the different mole fraction components will automatically sum in the lower right box (**Sales Gas Total [mole%]**). If the final sum does not equal 100%, you can normalize the value clicking on the **Normalize** button that will appear in the upper right corner of the window. The **Normalize** button will add or subtract from the non-zero elements in the fields by a linear weighting method that allows the composite total to sum exactly to 100.00%. If the sum is equal to 100.00%, the **Normalize** button will not appear.

An example of the Sales Gas update screen with a sum not equal to 100.00% is shown in Figure 20.

Figure 20. Sales Gas Components page

3.2.3   Importing Amine & Glycol Emissions

Calculated emissions for amine and glycol processes generated by AMINECalc©[1] and GRI-GLYCalc[TM, 2], respectively, can be imported for any relevant process directly in AEM. To import the emissions, follow these steps:

> *IMPORTANT:* You can only import amine emissions for amine gas sweetening units and glycol emissions for glycol dehydrator units.

1. In the **Emission Units & Processes** table locate and select an amine unit (with calculator type AMI-000) or a glycol unit (with calculator type GLY-000).

2. An **Import Amine Emissions** or **Import Glycol Emissions** button will become available in the **Calculator Parameters & Requests** panel, depending on your selection. Click this button.

---

1 API PUBL 4679 Amine Unit Emissions Model AMINECalc Version 1.0

2 www.gastechnology.org

Figure 21. Import Amine & Glycol Emissions options

3. Click **Yes** in the message confirming that your any unsaved work will be saved.

4. Click **Select file** button. Navigate to and select the file that contains the emissions data. Click **Next**.

5. Check the box for each **Stream** you wish to import. If a stream you are looking for is not available, the data file may be corrupted. Click **Next**.

6. Select the **Emission Periods** for which emissions will be imported. You can only select an emission period if:

   • The **Hours of Operation** have been specified in the **Data Request** tab of the **Calculator Parameters & Requests** panel, and

   • The period has not been set to **Zero Emissions**

7. Click **Next**.

8. Review the summary of the selections made. If all information is correct, click **Finish** to complete the import.

The emissions data will be displayed in the **Calculated Emissions** panel and the imported file is added to the **Attached Files** panel (as seen in Figure 22), from where it can be downloaded if needed.

> *IMPORTANT:* The emissions values in the amine and glycol data files are provided in lb/hr. OCS AQS uses the **Hours of Operation per Month** value under the **Data Request** tab to convert those hourly values into total per month.

Figure 22: Amine Import

3.2.4 Updating Facility Details

To check structure details such as design specifics, sales gas composition, and location click on the **Facility** name hyperlink above the **Emission Units & Processes** table as shown in Figure 23. A window will pop up with facility details. Scroll down to review available facility details.

Figure 23: Facility details link location.

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To edit information about the facility, click the blue **Edit** button in the top or bottom right corner of the window to enter the edit mode. Click **Save** to complete the updates.

> *IMPORTANT:* Fields colored in green are required and you will not be able to save any changes if any of the green fields are blank.

Production Rates and **Sales Gas Composition** can be edited in this window as well as the individual windows described in sections 3.2.2.1 and 3.2.2.2 respectively.

3.2.4.1   Structure Details

The **Facility Details** page allows you to enter physical parameters associated with the platform structure, including:

- Platform Base Height Above MSL
- Platform X Length
- Platform Y Length
- Platform Angle
- Maximum Height of the Buildings

Platform base height should be measured from MSL to the topmost layer where emission sources will be located. Maximum building height should be the top of the highest enclosed structure measured from MSL. Fixtures mounted on the building such as satellite dishes, cranes or other open frames should not be considered part of the building for measurement purposes. Measurement references are shown in Figure 24.
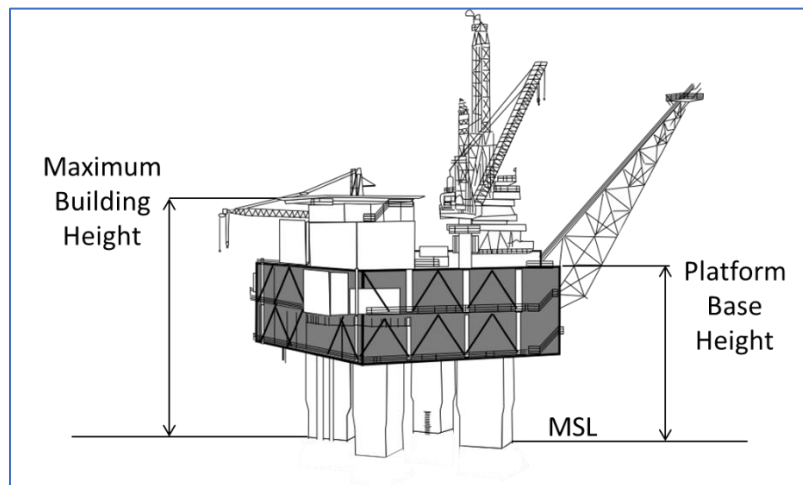
Figure 24: Measuring references for structure parameters.

Platform X Length should be the dimension closest to the East-West orientation and **Platform Y Length** should be the dimension closest to the North-South axis.

The **Platform Angle** is the offset angle of the platform from true North.

3.2.5 Emission Units & Processes

The **Emissions Units & Processes** table includes all emission units and a summary of key information including:

- Process ID and description of each emission unit
- The Source Classification Code (SCC)
- The assigned calculator
- The date and time of the last emission calculation (if applicable)

3.2.5.1 Select Emission Unit

Emission units associated with a particular facility are shown in the table at the top of the **AEM Details** page. To view the details of any emission unit process, click anywhere in the row for that emission unit (<u>other than the hyperlinks</u>) to select it, as shown in Figure 25. This will update the **Process** section under the table. Clicking on the **View** or **Edit** hyperlinks in the **Actions** column will open the **Details of Emission Unit** window for viewing emission unit information.

Figure 25: View Process Details

3.2.5.2 View/Edit an Emission Unit

To view the details of an emission unit, click the **View** hyperlink in the **Actions** column. Edit the emission unit by selecting **Edit** in the **Actions** column. Green fields represent required data that must be included before you can save the item. Click **Save** to save changes.

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Figure 26: View Emission Unit Details

3.2.5.3 Add an Emission Unit

Adding a new emission unit will also create the associated process and automatically assign an appropriate calculator based on a template.

To add a new emission unit:

1. Click the **Add Emission Unit** button above the **Emission Units & Processes** table. A wizard will begin starting with **Emission Unit Template Selection**.

   The table on this page lists all emission unit types for which templates have been created. A template will determine what process is created for the new emission unit and the emissions calculator that will be assigned to that process based on the emission unit type and description.

2. Select the template that best fits the emission unit you wish to create.

3. Click **Next**.

4. Fill out the necessary data (fields colored in green) for the emissions unit – you may need to scroll down to reach all necessary fields.

5. Click **Next**.

6. The next step allows you to specify a release point for the new emission unit. You MUST define a release point before you can calculate emissions, but you do not have to do it to finish the wizard. There are three options you can use:

   a. Use an **Existing Release Point**. If you check this option, select a release point from the list of ones already defined for the structure and click **Next**.

   b. Create a **New Release Point**. If you check this option, enter all required parameters (green fields) and click **Next**.

      TIP: To be created, a release point must be properly georeferenced. If you do not know the exact coordinates of the release point, click the **From Facility Location**

button in the **Georeference** panel to assign the release point the same coordinates as the structure.

    c. **Skip Release Point**. You can finish the wizard without creating a release point, but you will not be able to calculate emissions for the new emission unit until you specify a point of release for it. Click **Next**.

7. Review selected options and click **Finish** to create the new release unit.

The new unit will be available for selection from the **Emission Units & Proces**ses table and the assigned release point (if this was done during the procedure) will be displayed in the **Release Point & Apportionment** panel.

When you create an emission unit, the associated process will have the appropriate calculator assigned based on the template defined by BOEM. Calculators have been prepared for the following processes found on platforms, as shown in Table 1.

Table 1. Available platform calculator types

Code	Description
AMI	Amine Gas Sweetening Unit
BOI	Boilers
DIE	Diesel and gasoline engines
DRI	Drilling Equipment
FLA	Flares
FUG	Fugitive emissions
GLY	Glycol dehydrators
LOA	Loading operation emissions
LOS	Losses from flashing
MUD	Mud degassing
NGE	Natural gas engines
NGT	Natural gas/diesel dual-fuel turbines
PNE	Pneumatic pumps
PRE	Pneumatic controllers
STO	Storage tanks
VEN	Cold vents

A complete description of each calculator and Data Request input field is provided in Appendix A.

3.2.5.4   Copy an Emission Unit

To copy an Emission Unit, select the click the **Copy** link under the **Actions** column and a short wizard will guide you through the process. The fields will all copy from the original emission unit; however, you are required to change the **Emission Unit ID**, as shown in Figure 27. Click **Next** to move to the next step. The summary step allows you to review the specified information. Click **Finish** to create the new emission unit.
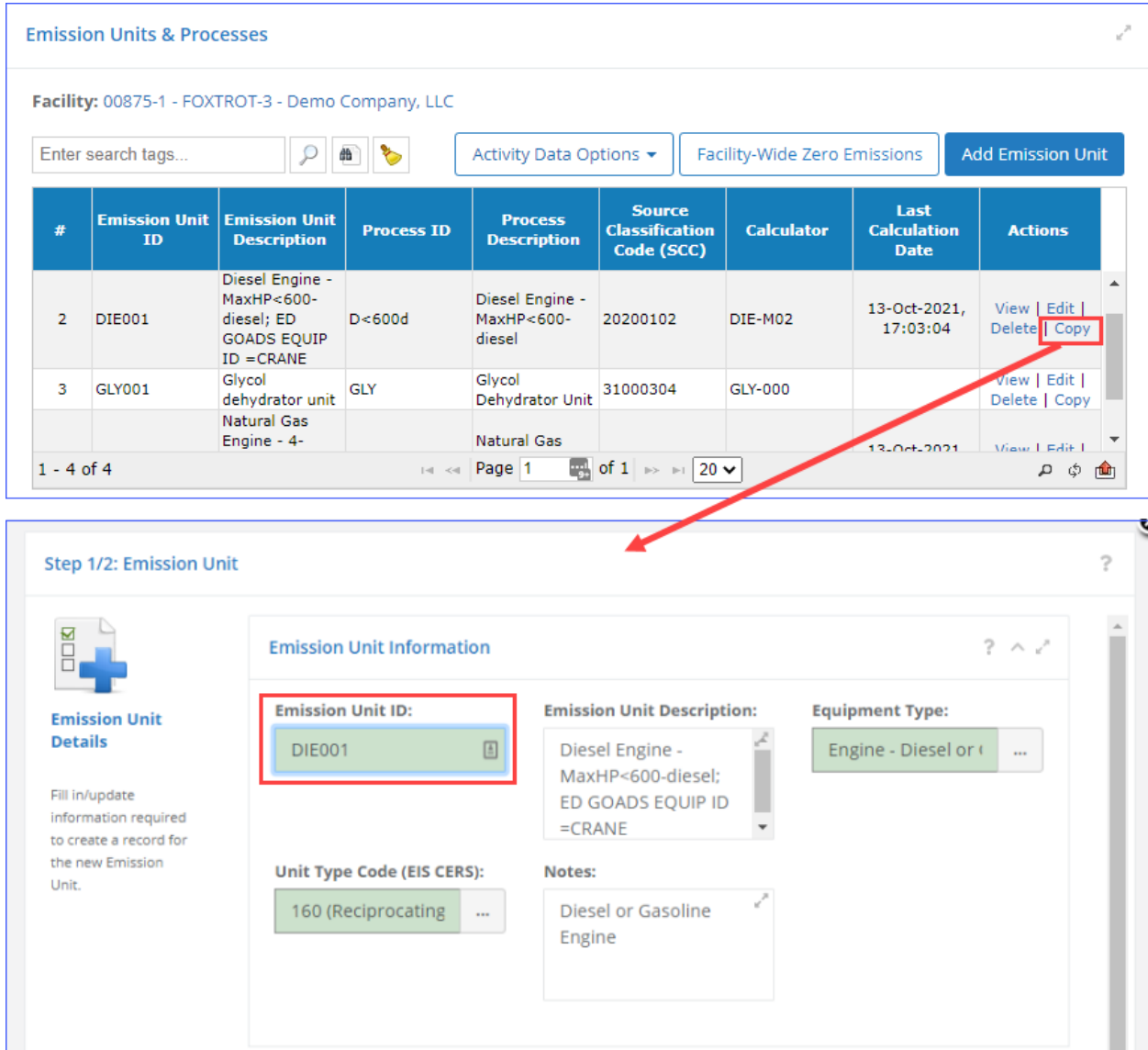
Figure 27: Copy Emission Unit

3.2.5.5   Bulk Import/Export

Parameters required to calculate emissions produced by various units can be easily reviewed and updated by exporting them into an Excel spreadsheet and then importing them back into OCS AQS. This is done by clicking on the **Activity Data Options** button above the table of the **Emission Units & Processes** and is described below in Section 3.2.9.1.

3.2.5.6 Facility Wide Zero Emissions

If no emissions are generated for the entire facility for a specific month (or months) due to inactivity, maintenance, or natural disaster, you can zero out emissions for all sources by month without updating each unit individually.

Click the **Facility-Wide Zero Emissions** button above the **Emission Units & Processes** table to load the **Facility-Wide Zero Emissions** dialog as shown in Figure 28.
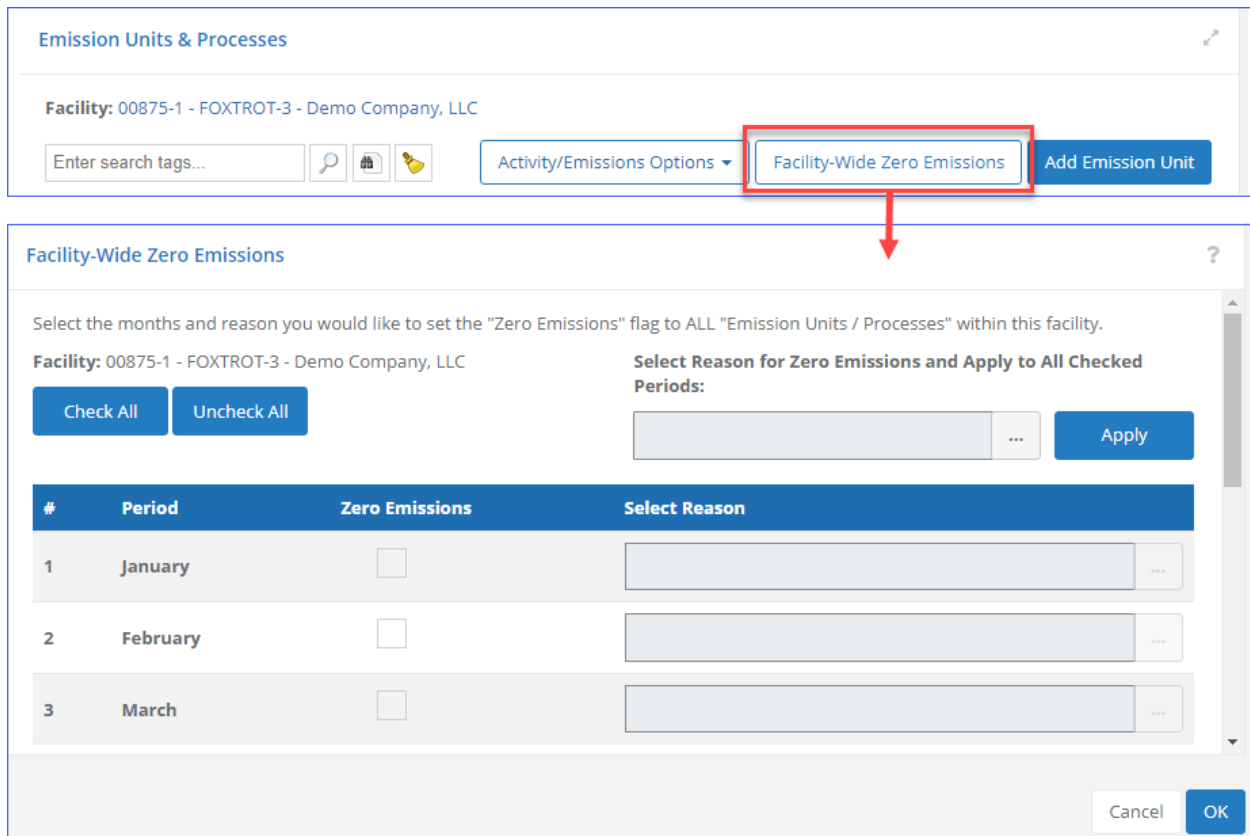
Figure 28. Facility-Wide Zero Emissions window

Check the box for the month (or months) of zero emissions that took place for the entire facility and click the **[…]** button to load the list of reasons why the facility did not produce emissions. Select the appropriate reason and click **OK**. Repeat the procedure for all months the facility has been idle. Click **OK** to commit the changes. A verification message allows you to confirm the selection. Figure 29 illustrates the process.
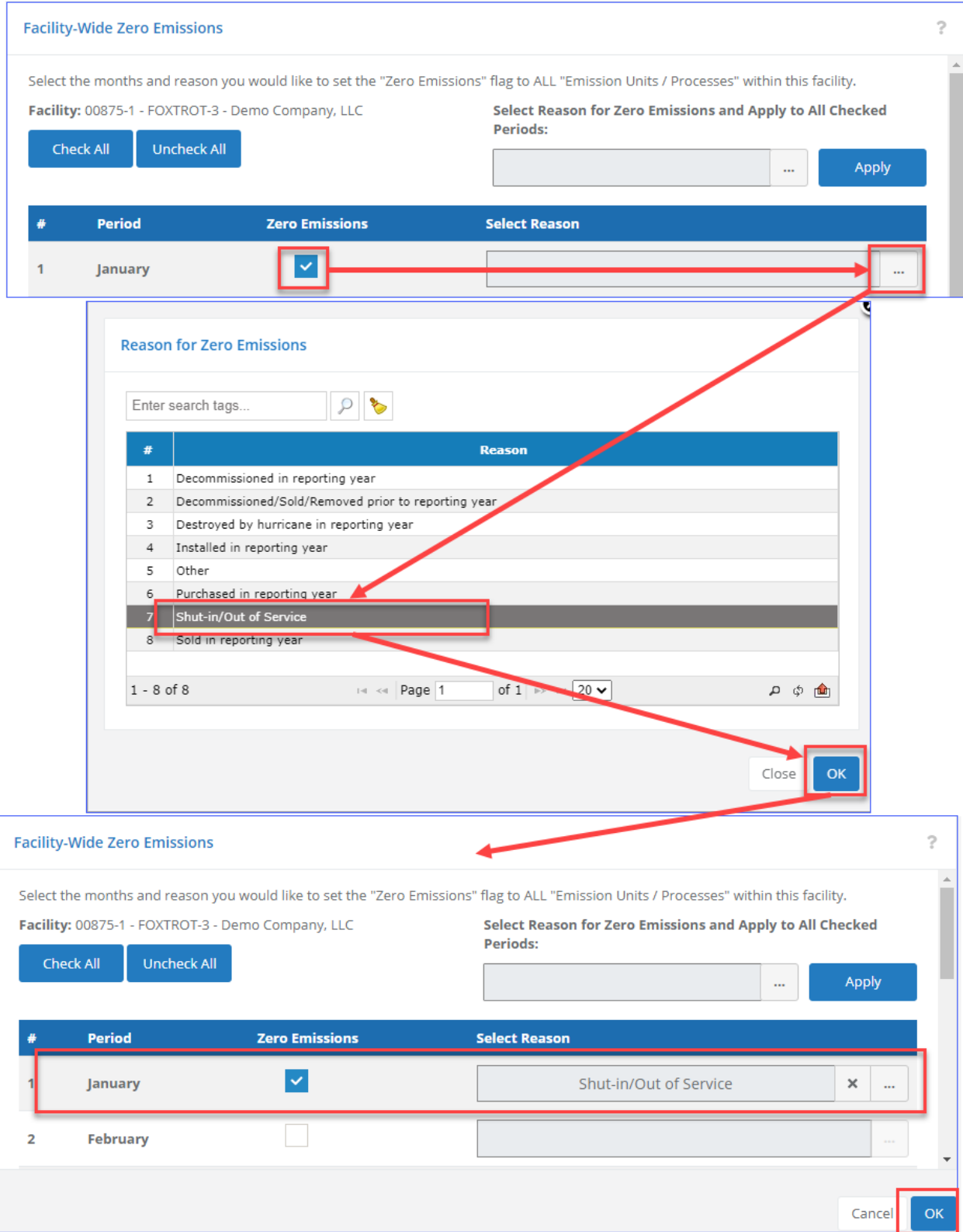
Figure 29: Set Facility-Wide Zero Emissions

>*IMPORTANT:* If you need to show zero emissions for a particular emission unit, you can do that in the **Calculator Parameters & Request** section as described in section 3.2.10.

If the facility has not been producing for the entire year (decommissioned, sold, etc.), you can select all months at the same time by clicking the **Check All** button and set the same reason by selecting it in the selection at the top of the dialog and clicking **Apply** as seen in Figure 30. Once you commit the changes all processes will be set to zero emissions for all months.

Figure 30:Facility-Wide Zero Emissions for all months

>*IMPORTANT:* This procedure sets the emissions for all processes and emissions periods for this facility to 0 and deactivates data entry for the **Calculator Parameters & Requests** panel. If you then reactivate a specific process for a specific month, the facility-wide zero emissions setting for that month will be removed, but the other processes at the facility will still be set to zero emissions for that month.

3.2.6   Decommissioned Facilities

If a facility is listed in the 2017 inventory but is not being used or was decommissioned before the 2021 reporting period, it will still show up in the 2021 inventory. Zero out the facility with the appropriate reason.

3.2.7   Release Point & Apportionment

Release points are used to designate where emissions transfer from a process into the atmosphere and are required for source characterization. All elevations for release points are measured from Mean Sea Level (MSL).

Apportionment refers to the amount of emissions generated by a process that is sent to an individual release point. In OCS AQS, all apportionments are assumed to be 100%, meaning that all emissions from an emission unit goes to one release point.

>*IMPORTANT:* Emissions will not be calculated for any emission unit that is not connected to a release point. Make sure that a release point is specified before calculating emissions.

3.2.7.1 Assign Release Point to an Emission Unit

To assign a release point to an emission unit:

1. Select the emission unit you want to assign by choosing it in the **Emissions Unit & Processes** table.

2. Scroll down to the **Release Point & Apportionment** panel.

3. To create a new release point for the emission unit, click the **New Release Point** button and fill in the required information (see section 3.2.7.4).

4. To select an existing release point, click the **[…]** to the right of the field and select a release point from the list of available ones (see section 3.2.7.2).

5. If needed, once a release point is specified you can edit its information by clicking **Details/Edit** button (see section 3.2.7.3).

Figure 31:Assign Release Point

3.2.7.2 Select an Existing Release Point

If a release point that the emission unit vents to already exists, you can select it as follows:

1. Click the **[…]** button to the right of the field.

2. Highlight the release point you wish to use.

3. Click **Select**.

The release point ID will now appear in the **Release Point** field.

3.2.7.3 Edit a Release Point

Once a release point is selected, a **Details/Edit** button will appear. Click this button to view details about the selected release point. You can edit the release point by clicking the **Edit** button at the top or bottom of the screen.

3.2.7.4 Create New Release Point

To create a new release point:

1. Click the **New Release Point** button.

2. The **Add Release Point** window will open.

3. Complete the required information in green fields. You may need to scroll down to access all data panels.

     Some required data depends on the **Release Type** you select:

    - If the stack type is Vertical, the following parameters are required:

        - **Stack Height** in feet

        - **Stack Diameter** in feet

        - **Exit Temperature** in deg F

        - **Exit Velocity** in ft/s

        - **Flow Rate** in ft^3/s

TIP: You only need to enter two parameters of the **Stack Diameter**, **Exit Velocity**, and **Flow Rate**. The remaining value can be calculated by pressing the ▦ button on the right side of the field using the following relationship:

$$Vs = 4V/\pi d^2$$

Where:

Vs is **Exit Velocity**
V is **Flow Rate**
d is **Stack Diameter**

    - If the stack type is a Fugitive, the following parameters are required:

        - **Release Height** in feet

        - **Length of X side** (closest to East-West axis) in feet

        - **Length of Y side** (closest to North-South axis) in feet

        - **Orientation Angle** in degrees from true North

The geometry of the Fugitive release point is shown in Figure 32.
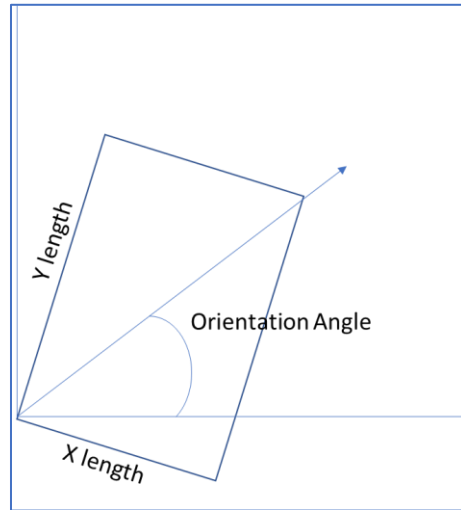
Figure 32: Geometry of a Fugitive release point

4. In the **Georeference** section, you can use latitude/longitude coordinates in decimal degrees instead of UTM coordinates. OCS AQS automatically converts one coordinate system to the other.

5. You MUST specify the coordinates for the release point. If you do not know the coordinates of the release point, a **From Facility Location** button is available, as shown in Figure 33, that fills in the coordinates with default facility values. You can update these coordinates at any point, should the exact coordinates become available.
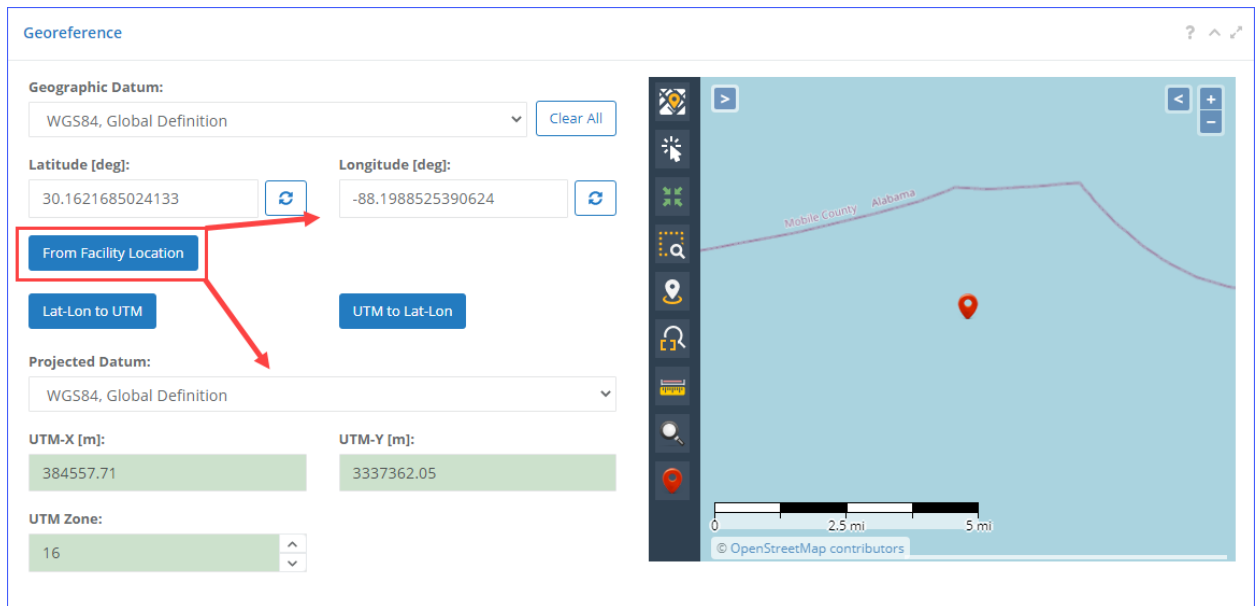
Figure 33: Set coordinates from facility

6. Click **Save** to save the release point information.

While not required, it is recommended to provide a release point description to make it easier to identify.

3.2.7.5 Orphaned Release Points

Release points can be made but not assigned to sources. These unassigned, or orphaned, release points have no impact on emission calculations but should be used or deleted. A report is available to identify orphaned release points under the **Reports** module, **Other Reports**. See Section 8 - Reports. At this time the operators cannot delete release points. If you have a list of release points that needs to be deleted, please contact OCS AQS technical support.

3.2.8 Calculator Parameters & Requests

In the **Process** section, the **Calculator Parameters & Requests** panel contains the main functionality of the **Activity & Emissions Manager**. It allows you to set the following parameters for each emission unit by month:

- Select input and physical parameters by month

- Copy inputs from a month to one or more other months

- Assign zero emissions for a month

- Enter required throughput and calculation parameters in required fields (green boxes) and optional fields (white boxes)

- Provide process control information

- View emission factors for each pollutant

- Perform range checks and other QA for input parameters

Each emission unit has different input parameters based on the assigned calculator. For example, the input parameters for a combustion flare will differ significantly from the input parameters for fugitive emissions.

Input parameters used for emission calculations and process descriptions are called **Data Requests** while parameters used to describe the pollution control technology are described under **Control Requests**. Each field allows annotation and comments with the **QA** button to the right of the field as shown in Figure 34 below.

The following tabs are available, to be described further in the sections that follow.

- **Data Requests** allow input of required and optional data used for emissions calculations and process metadata.

- **Control Requests** are used to provide input data that describes the pollution control technology used for an individual source (if applicable).

- **Emission Factors** provide engineering parameters to calculate individual pollutant emissions.

3.2.8.1 Data Requests

A typical **Data Requests** tab is shown in Figure 34. Green backgrounds indicate fields that are required, while white backgrounds indicate optional fields. Most processes contain some green fields.
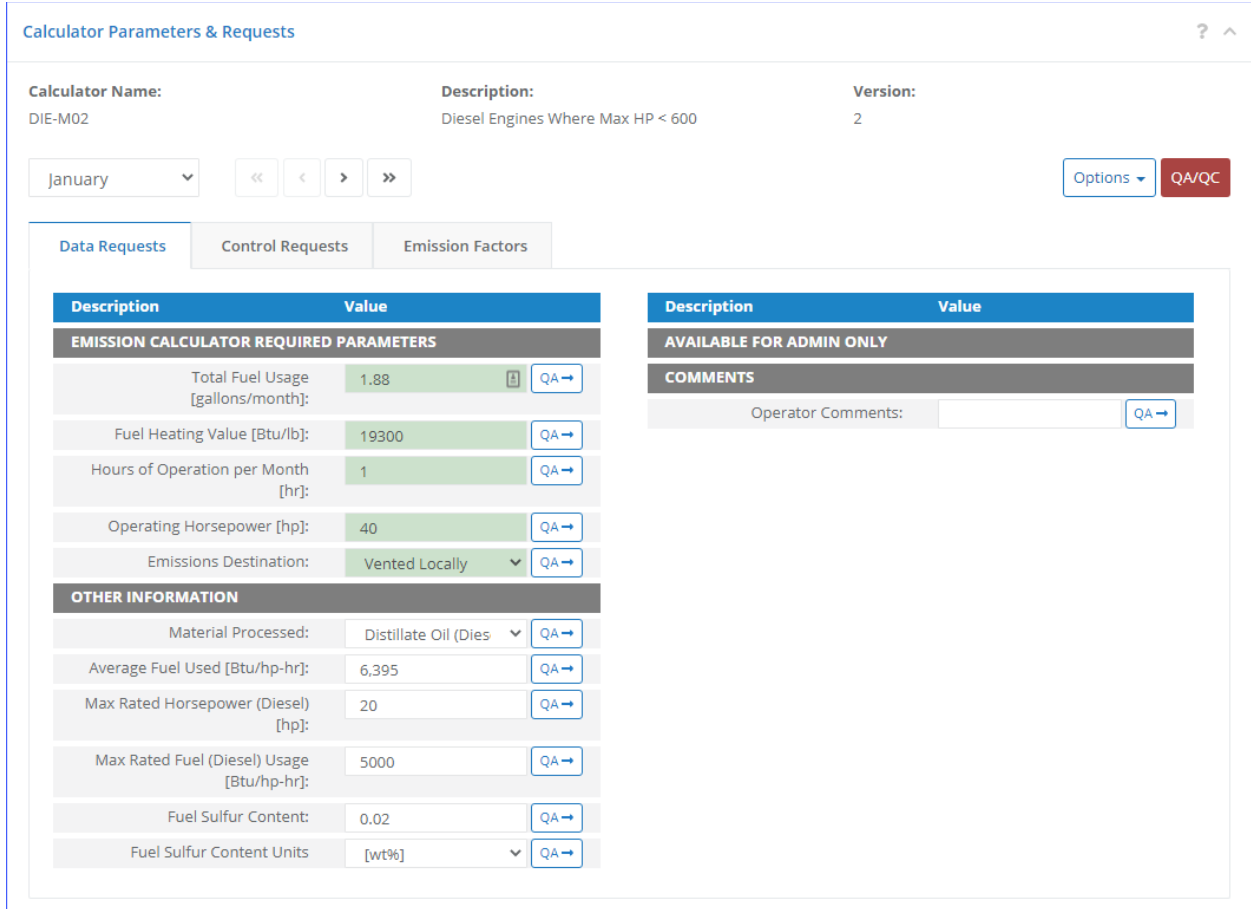
Figure 34. Data Request tab

> **IMPORTANT:** While it is recommended that you complete as much information as possible, you can save your data even if not all information is complete. If only partial data is available, you can still enter it and save the changes to the process. You will not be able to calculate emissions for a particular month unless you have entered all required information for that month.

Please note that certain white fields will auto-calculate results based on inputs to the required fields – for example, the **Average Fuel Used** shown in Figure 34 is calculated using the following formula:

$$Average\ Fuel\ Used = \frac{7.5 * Total\ Fuel\ Usage * Fuel\ Heating\ Value}{Operating\ Horsepower * Hours\ of\ Operation\ per\ Month}$$

Equation 1: Average Fuel Used calculation

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The calculated result will appear automatically once the required input fields are filled.

Some input fields have drop-down menus with selection associated with the process, such as **Emissions Destination**, **Material Processed**, and **Fuel Sulfur Content** shown in Figure 34. If a selection is not available for your process, contact the OCS AQS Support Team and let them know what additional options are required.

Finally, certain fields have pre-defined ranges of inputs to prevent out-of-range values or values with the wrong format (text in a numerical field). All field values must be within the defined ranges and format before they can be saved. A list of fields with ranges and the range values is provided for each calculator in Appendix A – Calculator Descriptions, but you can check the available range for any field by moving the mouse pointer over the field in question as shown on Figure 35.

Figure 35: View field value range

3.2.8.2   Control Requests

Control requests only capture information regarding pollution control technology used by the individual source. Unlike the **Data Requests** tab, **Control Requests** tab has a set number of input fields with reduction efficiencies for five pollutants (PM$_{10}$, CO, SOx, NOx, and VOCs). For some calculators, only VOC reduction efficiency is requested since the process does not involve combustion or chemical transformation. A typical **Control Request** tab is shown in Figure 36.

Figure 36. Control Requests tab

Control Request tab input fields include:

- **Control Device?**: Is a control device or end of pipe treatment included in the process? This is a Yes/No question.

- **Primary Type of Control Equipment:** If a control device is part of the process, what kind of device or technology is it? A drop-down menu is provided for most processes to select the primary type of equipment. If the equipment is not on the list, select **Other (Explain in Comments)** and describe it in the **Operator Comments** field.

Figure 37: Describe "Other" type of control equipment

- **Is a Factory Acceptance Test Certificate attached for primary control equipment?:** This field allows you to specify if functionality certification paperwork is available for the control equipment.

- **Description of Control Equipment Chain:** This field allows you to describe the control equipment chain if more than one type of technology is used.

- **Reduction Efficiency – pollutant [%]:** This describes the average reduction of emitted pollutant using the control technology. If the total reduction of VOCs using a vapor recovery unit is 65%, enter "65" in the field.

   IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

3.2.8.3   Emission Factors

Emission factors are assigned to each calculator based on published values from USEPA AP-42 or other BOEM approved references. The values cannot be updated by operators. An example is shown in Figure 38.

Data Requests	Control Requests	Emission Factors

Pollutant	Code	LB/MMBTU
Sulfur Dioxide	SO2	0.29
Volatile Organic Compounds	VOC	0.36
Nitrogen Oxides	NOX	4.41
Particulate Matter Less Than 10 Microns	PM10	0.31
Particulate Matter Less Than 2.5 Microns	PM25	0.31
Carbon Monoxide	CO	0.95
Carbon Dioxide	CO2	164
Acetaldehyde	75070	0.000767
Benzene	71432	0.000933
Formaldehyde	50000	0.00118
PAH, total	130498292	0.000168
Toluene	108883	0.000409
Xylenes (Mixed Isomers)	1330207	0.000285

Figure 38: Emission Factors tab

A pollutant can have one of the following values:

- **Numeric value**: This value has been specified by BOEM and cannot be changed.
- **Implicit**: This code is displayed when the value has been incorporated into the calculator equation. This usually takes place if there is a conditional statement in the algorithm that uses two or more emission factors, depending on the process condition.

3.2.9   Updating Monthly Data

Input parameters can be updated for each emission source on a month-by-month basis. OCS AQS provides two different ways to update data:

- Batch updates using the **Activity Data Options Import/Export** tool
- Manual updates using the **Calculator Parameter & Requests** feature described above

3.2.9.1 Download Monthly Data Using the Import/Export Tool

To use the import/export tool, it is advisable to **export** the existing parameters first:

1. After selecting the facility and arriving at the **Activity & Emissions Manager Details** page, click the **Activity Data Options** button in the above the **Emission Units & Processes** table as shown in Figure 39.
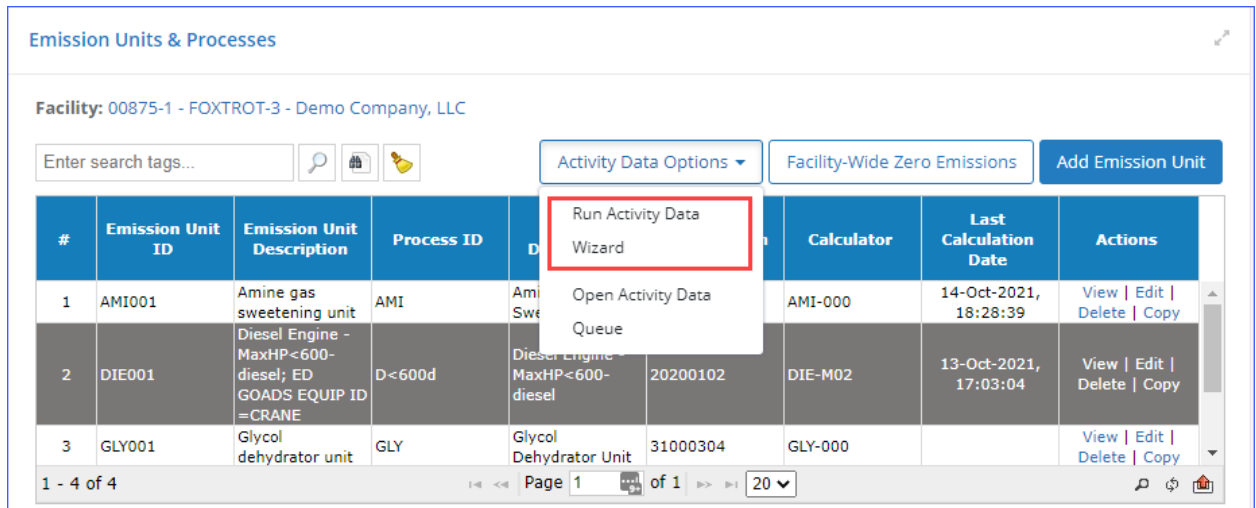
Figure 39: Import/Export Activity Data selection

2. Select **Run Activity Data Wizard** from the drop-down box.

3. Select **Export** from the **Import/Export Activity Data** wizard mode selection. Click **Next** in the bottom right corner of the wizard window.

4. Select the emission sources to be exported by checking the square for each source, or select all sources available at the facility by clicking on the [icon] box near the search bar. Once completed, select **Finish** on the bottom right corner to process the request, **Previous** to go to the previous step, or **Cancel** to abort the operation.

5. Select the processed request from the **Job Queue - Activity Data** page by selecting the **Files** hyperlink under the **Actions** column as shown in Figure 40. The most recent request will be at the top of the table, but the table can be sorted or searched to find a specific request.

   IMPORTANT: To come back to the **Job Queue**, select **Open Activity Data Queue** from the drop-down box shown previously in Figure 39.

6. To save the processed Excel file to your computer, click the **Files** hyperlink in the **Actions** column. The link will take you to a **Job Files** page.

7. Click the **Download** link and save the file to your computer. Please note that most browsers support file renaming, so users can enter the specific file name they want to use. If the browser does not allow changing file names, save using the default name and rename using the **File Explorer** – click twice (not double-click) rename the file.

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Figure 40: Export Activity Data – Queue and Download pages

3.2.9.2 Update Monthly Activity Data Using the Import/Export Template

Once you have downloaded the Excel sheet with your facility's emission sources, update the monthly activity data:

1. Open the Excel file for the emission source you want to update. The file has individual data tabs for each source data request and a tab for each control request that is used by at least one source. The **Summary** sheet provides hyperlinks to go to the individual emission source data and control requests.

   IMPORTANT: Do not change the data on the **Summary** sheet. Changing the **Summary** sheet may cause import errors.

Figure 41: Export summary sheet

2. Update parameters by month as shown in Figure 42. Note that the required fields for the emission calculators are listed in the top rows between **EMISSION CALCULATOR**

REQUIRED PARAMETERS and **OTHER INFORMATION** in column A. The cells for the monthly values for these parameters are colored in green and must be filled.

IMPORTANT: Match input values to the units of measure shown in the Description column of the spreadsheet. For example, input parameters for percentages [%] mean that a value of 0.05% should be entered as "0.05".

IMPORTANT: For Yes/No responses, the template uses "T" for Yes (True) and "F" for No (False).

IMPORTANT: The fields colored in light grey are auto-calculated. Regardless of the value in these fields at the time of import, it will be replaced by a calculated value based on the formula specified in the application.

TIP: The last two columns in each spreadsheet are **Value Range** and **Lookup Values** and display information that will allow you to properly fill in the data. For the lookup values, make sure that you copy and paste the appropriate selection to avoid typos that would prevent you from importing the file.

	A	B	C	D	E	F	G	H
1	Data Template Version:	2.0						
2								
3	Emission Unit:	DIE501						
4	Process:	D<600d						
5	Month:	January	February	March	April	May	June	July
6	EMISSION CALCULATOR REQUIRED PARAMETERS							
7	Total Fuel Usage [gallons/month]:	15662.9	15157.6	15662.9	15662.9	15662.9	15157.6	15662.9
8	Fuel Heating Value [Btu/lb]:	19300	19300	19300	19300	19300	19300	19300
9	Hours of Operation per Month [hr]:	744	720	744	744	744	720	744
10	Operating Horsepower [hp]:	403	403	403	403	403	403	403
11	Emissions Destination:	Vented Locally	Vented Locally	Vented Locally	Vented Locally	Vented Locally	Vented Locally	Vented Locally
12	OTHER INFORMATION							
13	Material Processed:						Distillate Oil (Diesel	Distillate Oil (Diesel	Distillate Oil (Diesel
14	Average Fuel Used [Btu/hp-hr]:							
15	Max Rated Horsepower (Diesel) [hp]:	403	403	403	403	403	403	403
16	Max Rated Fuel (Diesel) Usage [Btu/hp-hr]:	7000	7000	7000	7000	7000	7000	7000
17	Fuel Sulfur Content:	0.015	0.015	0.015	0.015	0.5	0.5	0.5
18	Fuel Sulfur Content Units:	[wt%]	[wt%]	[wt%]	[wt%]	[wt%]	[wt%]	[wt%]

Summary | **DIE-R02 (DIE501 D<600d)** | DIE-R02 (DIE700 D<600d) | VEN-R01 ... ⊕

Figure 42: Data request sheet

3.2.9.3 Updating Control Data Using the Import/Export Tool

The Control Request sheets do not have monthly columns like the Data Request sheets because it is assumed that conditions will not change significantly over the inventory reporting period. An example Control Data sheet is shown in Figure 43.

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Figure 43. Control request sheet

The assigned calculator shown on the **Summary** sheet will show which control is assigned to each Emission Unit. The calculator ID is similar to the Control ID except the Calculator has an M while the Control has a C (for example: BOI-M01 is the calculator and BOI-C01 is the Control).

Like the Data Request fields, Yes/No fields should be entered as "T" for Yes and "F" for No. Percentages should be entered as written ("98.5" for 98.5%).

3.2.9.4 Importing Monthly Data Using the Import/Export Tool

After updating the parameters in the exported file, you will need to import it back into OCS AQS:

1. Save the updated file with your revised parameters.

2. Click the **Activity Data Options** button in the above the **Emission Units & Processes** table as shown in Figure 39 and select **Run Activity Data Wizard**.

3. Select **Import** in the **Import/Export Activity Data** wizard mode selection. Click **Next** on the bottom right corner of the wizard window.

4. Click **Select file**, navigate to and select the Excel file to upload from your computer. To upload multiple facilities, select the corresponding facility files. The files should be in the same directory. Click **Finish** to import.

5. In the **Job Queue – Activity Data**, click **OK** to close it or check the uploaded job files by clicking on the **Files** hyperlink in the **Action** column.

6. If you click on **Files**, you will open a **Job Files** window that shows the files imported as well as an **Import log** spreadsheet. Download any of the files using the **Download** hyperlink next to the file in the **Download** column.
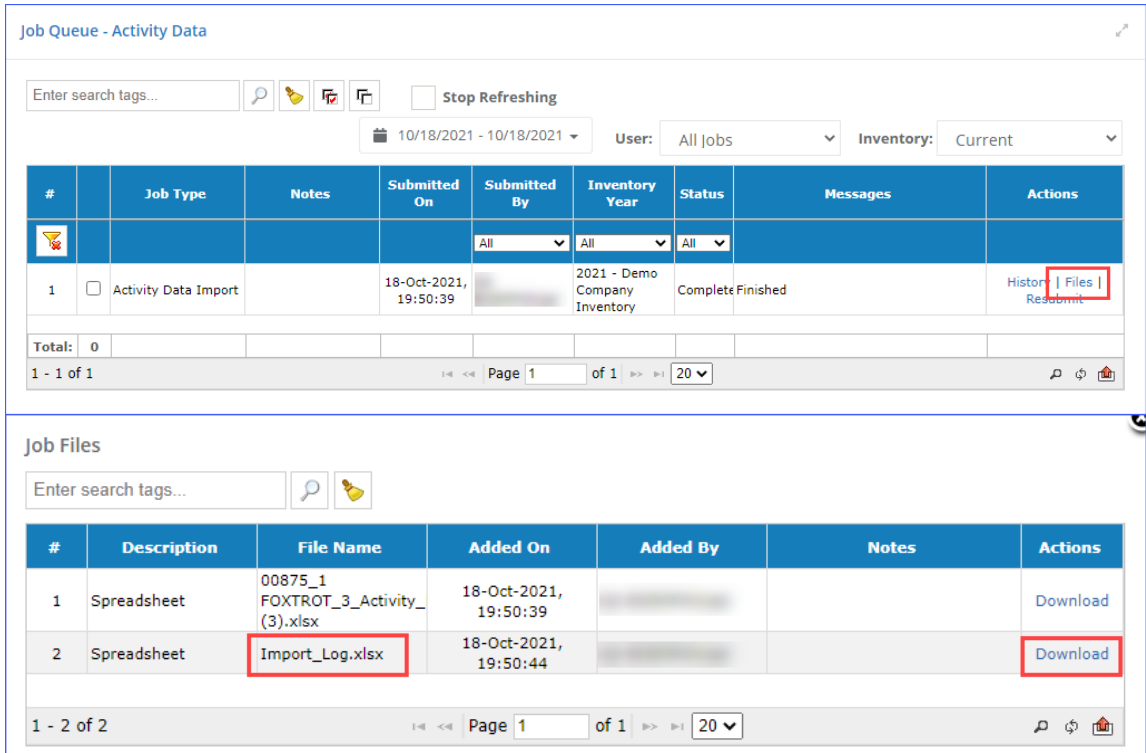
Figure 44: Import Activity Data – Queue and Download pages

7. The import log file, **Import_Log.xlsx**, will show the status of each imported source and the results of the QA/QC check. A summary of errors will be identified for the source and section (Summary, Data Requests, and/or Control Requests) on the Summary sheet as shown in Figure 45. Individual errors and location in the source worksheet are shown in the **Errors** sheet.
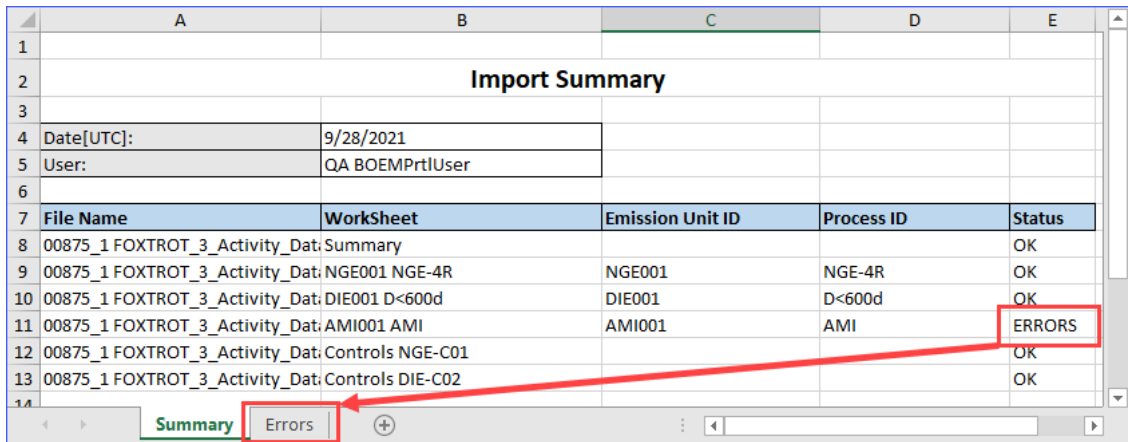
Figure 45: Example of import log with errors

It is highly recommended to fix errors and re-import before trying to calculate emissions.

Comment on errors in the AEM by clicking the QA→ button by the parameter in question.

3.2.9.5   Updating Using the Calculator Parameters & Requests Feature

For individual emission sources or small updates, the **Calculator Parameters & Requests**
allows fast and easy editing.

1. After arriving at the **Activity & Emissions Manager Details** page and selecting the
   emission source for editing, scroll down to the **Calculator Parameters & Requests**
   feature. The data is already in **Edit** mode and available for updating.

2. Select the month you want to update using the drop-down menu or the control arrows as
   shown in Figure 46.
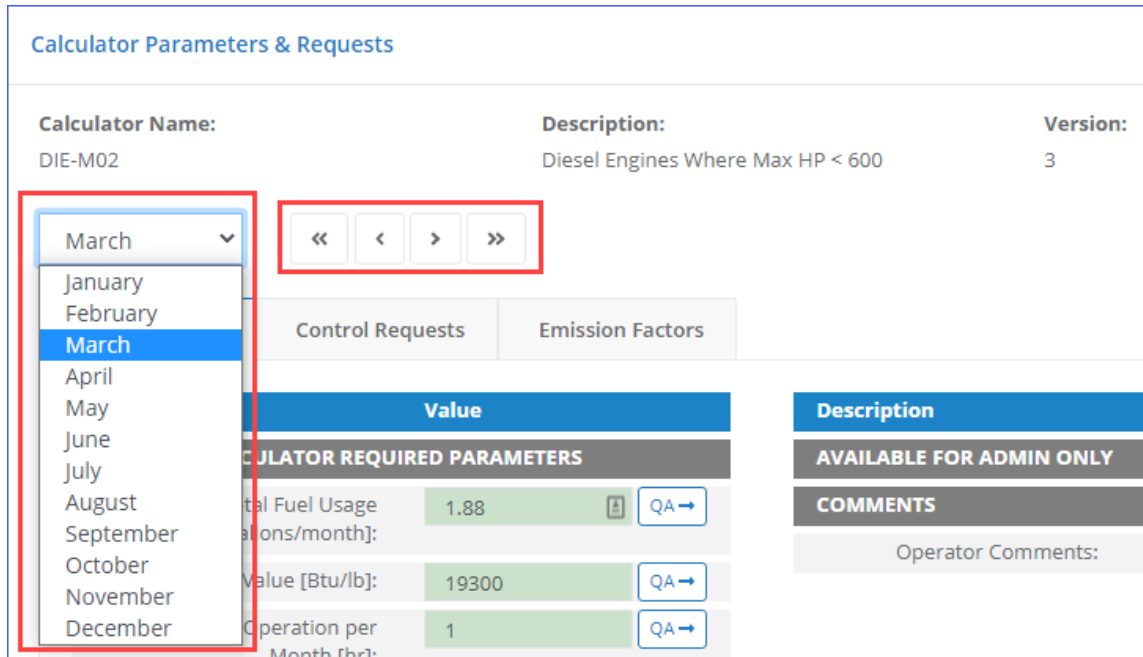
Figure 46: Month selection controls

3. For the selected month, update the parameters by completing the data fields. Green fields
   indicate required data and must be filled in. White fields are optional data. A
   button is available to the right of each field to add optional notes and comments regarding
   the specified value for each field.

4. Confirm the input parameters meet range and input requirements by clicking on the red
   QA/QC button, as shown in Figure 47. If there are no issues, a blue message will appear
   stating that there are no QA/QC issues for the emission source under edit. If there are
   errors, the specific field and month for the error will be identified similar to the example
   shown in Figure 47. In this example a required fields (**Total Fuel Usage**) is out of range
   in the **Data Requests** tab and the **Average Fuel Used** value (which is calculated using
   Total Fuel Usage) is invalid.
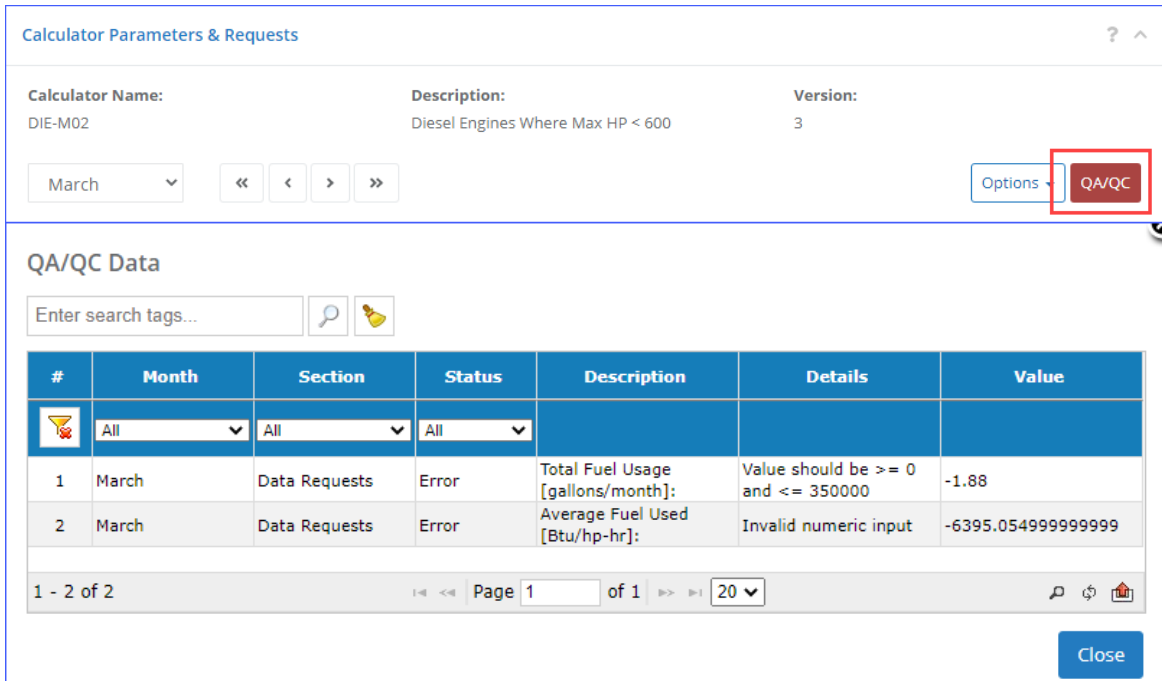
Figure 47: Example QA/QC report for emission source

5. Save the updated values by clicking **Save**. To return to Edit mode, click **Edit**.

3.2.10   Zero Emissions

This section describes how to specify that a certain emission unit did not produce emissions during specific months in the inventory year. If you wish to indicate that the entire facility did not produce emissions, see section 3.2.5.6.

To report zero emissions from an emission source for a month (or months):

1. After arriving at the **Activity & Emissions Manager Details** page and selecting the emission unit for editing, scroll down to the **Calculator Parameters & Requests** feature.

2. Select the **Options** pull-down menu next to the QA/QC button as shown in Figure 48 and select **Zero Emissions**.
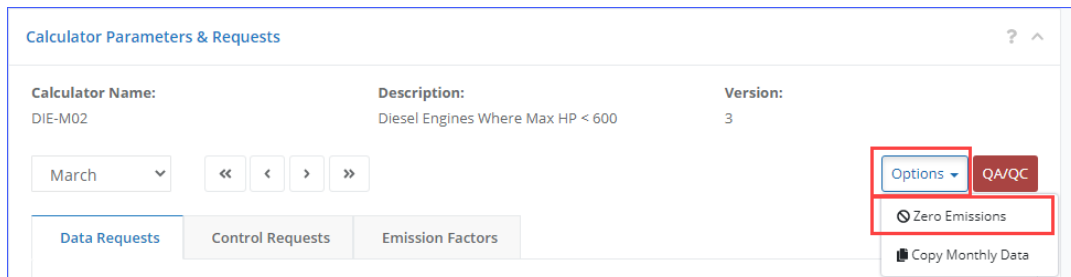
Figure 48: Options selection for Zero Emissions

3. Check the box for each month you want to declare as zero emissions.

4. Once a month is selected, the corresponding **Select Reason** box will be activated. Click on the **[…]** (extra options) button on the right of the box to open a list of possible reasons

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why the month has zero emissions. Select the most appropriate reason from the available choices for all months that have been marked as "zero emissions".
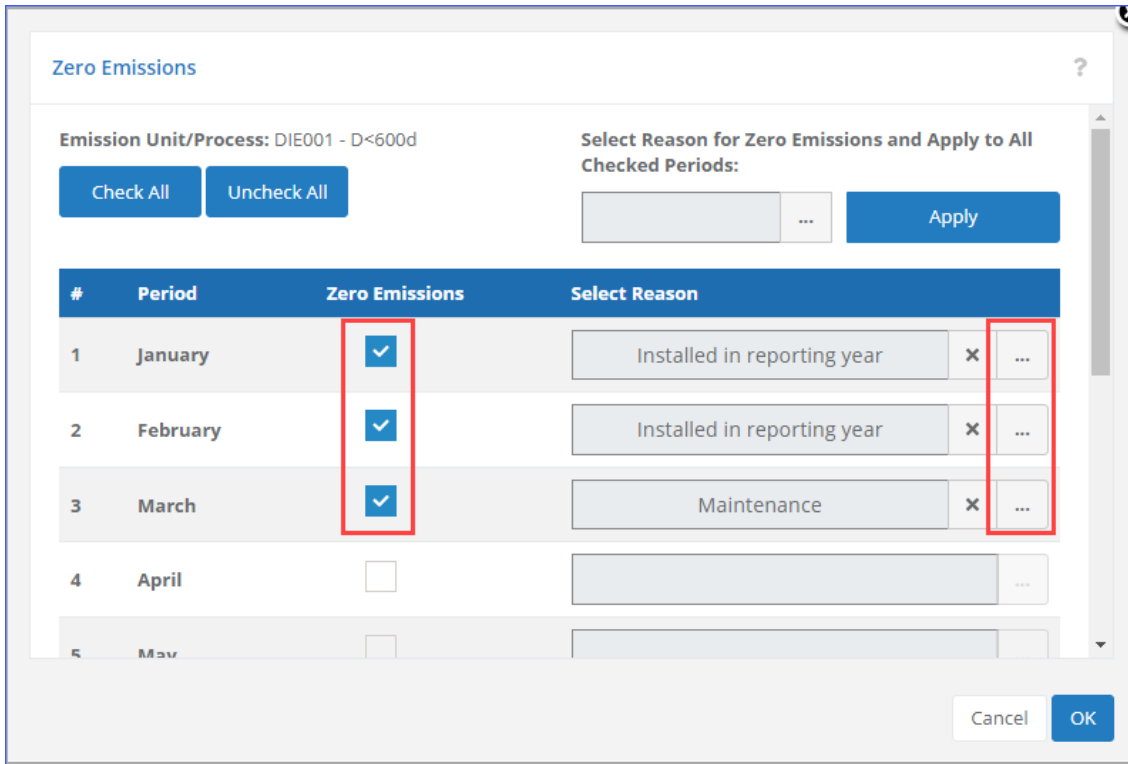
Figure 49: Emission Unit Zero Emissions

5. Click the **OK** button to save changes. A confirmation message will be displayed to ensure that appropriate number of months are zeroed for the specified process.

6. After selecting the months that should be zeroed out and closing the **Zero Emissions** dialog, all emissions - calculated or imported - will be set to 0 for the selected months.

3.2.11 Copying Months

Emission source parameters from one month can be quickly copied to all months or any individual month. This tool copies all parameters.

1. After arriving at the **Activity & Emissions Manager Details** page and selecting the emission source for editing in the **Emission Units & Processes** table, scroll down to the **Calculator Parameters & Requests** section.

2. Select the **Options** pull-down menu next to the **QA/QC** button as shown in Figure 50 and select **Copy Monthly Data**.
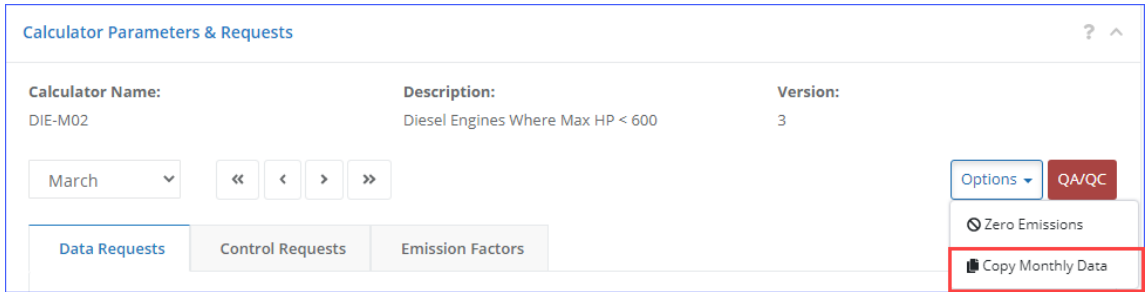
Figure 50: Options selection for Copy Monthly Data

3. The **Copy Monthly Data** window will open. Select the month to copy activity data parameters FROM (you can choose only one).

4. Select the months or months to copy data TO. A **Select All** button is available to copy to all months. Click **Copy** to complete the action. An example is shown in Figure 51. In the example, the month of January is copied to February and March.
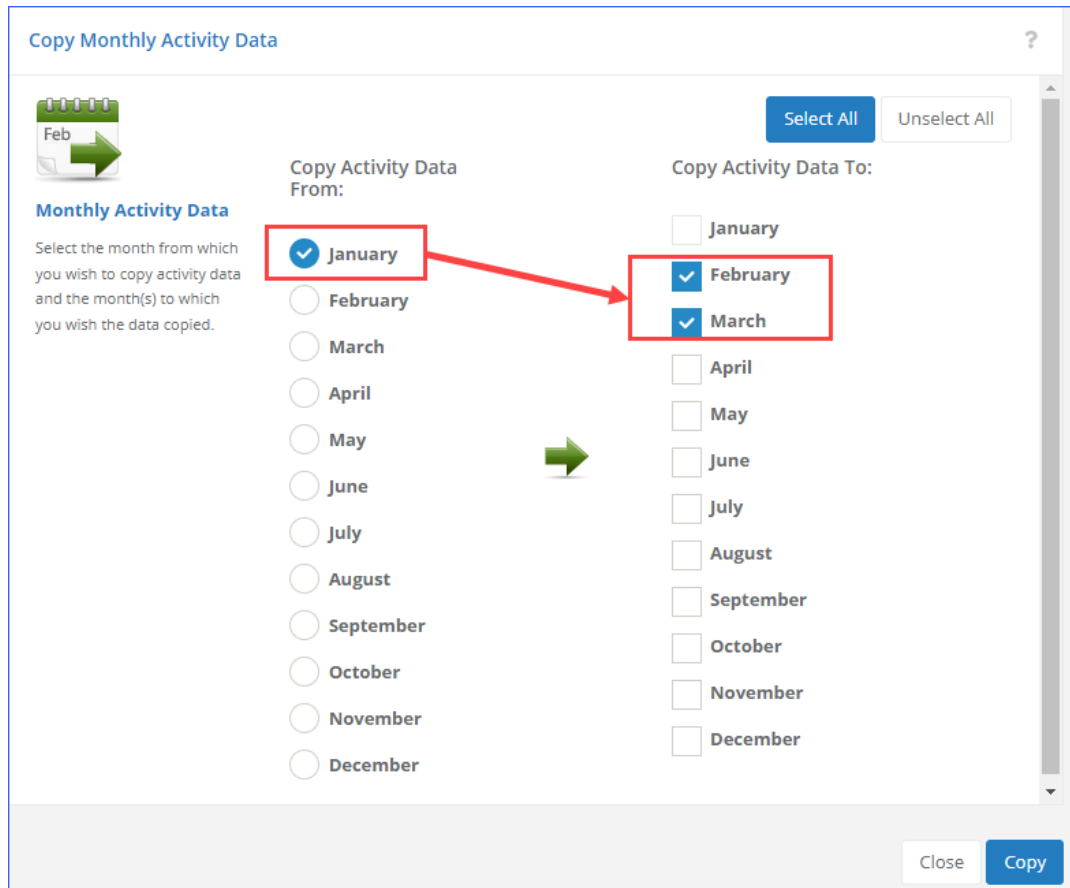
Figure 51: Example to copy data to months

3.2.12 Importing Amine and Glycol Emissions

While OCS AQS does not calculate emissions for amine gas sweetening units and the glycol dehydrator units, you can import emissions for these sources from third party calculators. See section 3.2.3 for a detailed process.

3.2.13 Calculate Emissions

Emissions from a source can be calculated within the **Activity & Emission Manager** by month using the input parameters from the assigned calculators and the information provided in the **Data Requests**, **Control Requests**, and **Emission Factors** tabs.

The assigned calculator is shown at the top of the **Calculator Parameters & Requests** section. More information about the individual calculator used, such as the actual equations and input variables used, can be found by running an **Emissions Equation Description** report under the **Calculators** section in the **Reports** module.

> *IMPORTANT:* You will only be able to calculate emissions if you have filled in all required parameters and specified a release point for the emission unit/process.

To calculate emissions with an existing calculator:

1. After arriving at the **Activity & Emissions Manager Details** page and selecting the emission source for which you wish to calculate emissions, scroll down to the **Calculated Emissions** section near the bottom of the page.

2. If emissions have never been calculated, you will see a **Calculate** button. If emissions have been previously calculated, you will see a **Re-Calculate** button. Selecting either the **Calculate** or **Re-Calculate** button will give you two options as shown in Figure 52.
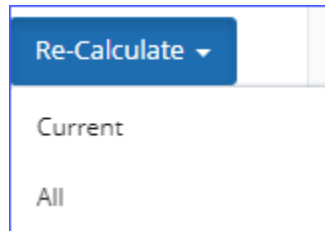
Figure 52: Calculate/Re-Calculate Options

   a. **Current**: This option allows operators to calculate only the active source you are working on. It is recommended when making updates only to a specific emission source.

   b. **All**: This option allows operators to calculate emissions for all sources assigned to the facility/platform.

> *IMPORTANT:* If either **Current** or **All** is not available it means that the months for which you are trying to calculate emissions are set to zero emissions.

> *WARNING:* Previous emission values will be lost and overwritten once the selection is made. For **Current** calculations, only the emissions for the active month will be overwritten.

IMPORTANT: You can only calculate emissions when in the **Edit** mode.

3. Once pressed, the calculations may take several seconds to process depending on the number of pollutants reported for the emission source.

4. A table will appear with monthly emissions that were either calculated (shown in the **Calculated?** column as **Yes**) or manually inserted (**No**) as shown in Figure 53.

#	Emission Period	Pollutant	Emission	Measurement Units	Calculated ?
	All	All			
1	January - Actual [ENTIRE PERIOD]	CO	1.223678E-04	Tons	Yes
2	January - Actual [ENTIRE PERIOD]	CO2	0.021125	Tons	Yes
3	January - Actual [ENTIRE PERIOD]	CO2-E	0.021125	Tons	Yes
4	January - Actual [ENTIRE PERIOD]	NOX	5.680442E-04	Tons	Yes
5	January - Actual [ENTIRE PERIOD]	PM10-FIL	0	Tons	No
6	January - Actual [ENTIRE PERIOD]	PM10-PRI	0	Tons	No
7	January - Actual [ENTIRE PERIOD]	PM25-FIL	0	Tons	No
8	January - Actual [ENTIRE PERIOD]	PM25-PRI	0	Tons	No
9	January - Actual [ENTIRE PERIOD]	PM-CON	0	Tons	No
10	January - Actual [ENTIRE PERIOD]	SO2	3.735438E-05	Tons	Yes

Calculated Emissions. By pressing "**Re-Calculate**", entered parameters and calculated emissions will be saved right away. Last Update: 29-Sep-2021, 18:08:36. 1 - 10 of 240. Page 1 of 24.

Figure 53: Table showing whether monthly emissions were calculated or manually inserted

3.2.14 Global Warming Potential Details

Global Warming Potential (GWP) values are a measure of how much energy the emissions of 1 ton of gas will absorb over a given period of time, relative to the emissions of 1 ton of carbon dioxide (CO_2). The global warming potentials used in the application were acquired from Second, Fourth, and Fifth IPCC Assessment Reports.

OCS AQS allows BOEM to create sets of GWP values that can then be assigned to operator inventories and used to calculate CO2-E values.

IMPORTANT: Operators cannot create or edit GWP values, sets, or assign these sets to inventories.

You can view the set of GWP values assigned to the inventory by clicking the **GWP Details** button in the **Calculated Emissions** section, as shown in Figure 54.
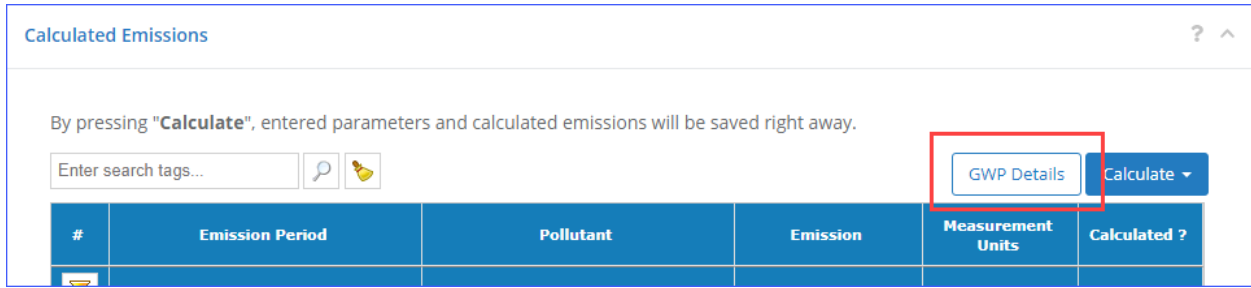
Figure 54: GWP Details button

Doing so will load the details of the GWP set used for calculations in the current inventory.
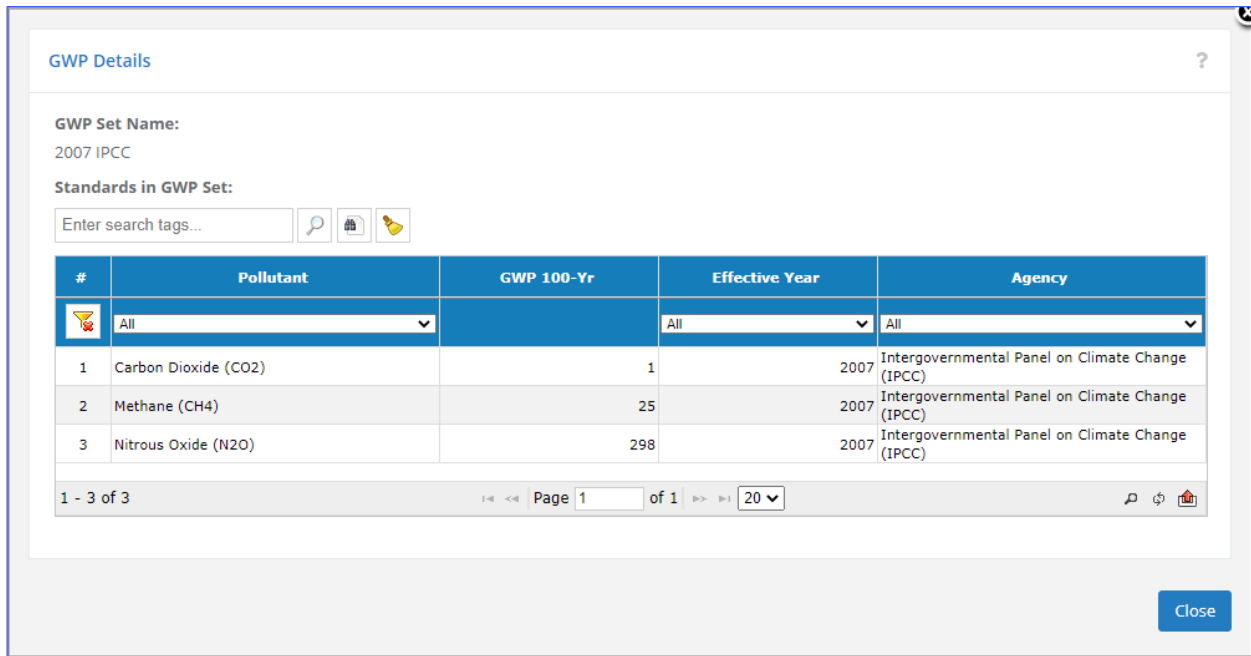
Figure 55: GWP Set Details

For each standard in the set the table displays the following information:

- **Pollutant**: The pollutant with which the standard value is associated

- **GWP 100-Yr**: Standard value used to calculate CO2e

- **Effective Year**: Year the standard was implemented

- **Agency**: Name of the agency that established the standard

3.2.15 Combustion Flares

OCS AQS breaks down each stationary emission source into a release point and an emission unit. The release point is the physical transfer location of emissions from a process to the atmosphere. For most processes, the release point is the top of a smokestack. For flares and open flames, it is the exterior surface of the flame as shown in Figure 56. Estimation of the flame height and diameter can be done using pseudo-parameter calculations.

However, for OCS AQS reporting purposes, only the physical flare stack height and tip diameter are required. If the flare has multiple tips or nozzles, the combined diameters should be used.
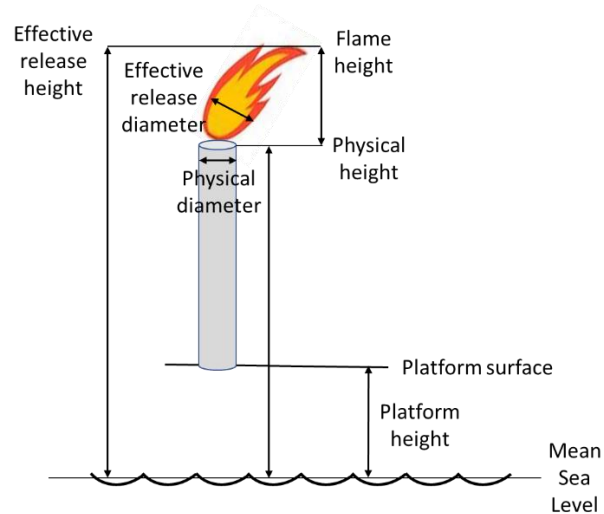
Figure 56: Flare release point parameters

For flares on platforms, the physical height assumes the height of the flare stack above mean sea level[3].

Users should create flares based on flare design specifications as listed in the manufacturer's information and use the total volume (including pilots).

3.3   Batch Emissions Calculator (BEC) – Platform Sources

Section 3.2.13 showed how to calculate emissions for a single emission unit over the reporting period. The BEC allows for the emissions from all emission units within a facility (or a collection of facilities) to be calculated together.

3.3.1   View Previous Facility Calculations

Select the **BEC – Platform Sources** navicon under the **Emissions** module, **Platform Sources** section. This will take you to a **Summary List** page as shown in Figure 57 that shows all previously run calculations. Historical results can be viewed by selecting **View Files** under the **Actions** column. If there is no link, that means a calculation is taking place.

> *IMPORTANT:* If the link does not appear after several minutes, refresh the screen.

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3 https://www.boem.gov/sites/default/files/environmental-stewardship/Environmental-Studies/Gulf-of-Mexico-Region/Air-Quality/Readme-2011-Gulfwide-Platform-file.doc

Batch Emissions Calculator

Figure 57: Batch Emissions Calculator (BEC) summary page

Downloaded files includes:

- **Emission calculations tabs**: Tab for each emission period (JAN, FEB, MAR, etc.) that contains parameters used to calculate the emissions for each process and the calculated total

- **BEC Calculation Status tab**: A list of individual steps in the BEC run

- **ERRORS:** List of errors encountered during calculations

- **CloudJobLog:** Log of details of the processing job

3.3.2 Run New Facility-Wide calculations

To run a new calculation, click the **Run BEC – Platform Sources** button above the **Summary List** table. This will take you to a wizard that will guide your selections.

1. Check the box for each facility for which you want to calculate.

2. Click **Next** to continue.

3. Select the time periods for which you wish to calculate the emissions. You can either check individual months or check the **Select All** option.

4. Add any notes related to the calculation run.

5. Click **Next** to continue.

6. Review your input selection.

   IMPORTANT: The **Create Missing Emission Period** option allows you to indicate that you want to calculate emissions for all time periods, even if emission periods are not defined for some months. This option is enabled by default.

7. Click **Finish** to begin the calculation process.

3.3.3 BEC Job Queue

You can follow the status of the calculations by going to the **Job Queue – Batch Emission Calculation** page. Select the **Job Queue** link on the Navigation Panel.

Figure 58: BEC Job Queue

3.4 Companies & Complexes

Selecting the **Companies & Complexes** navicon under the **Emissions** module allows you to view and manage operating companies and complexes.

3.4.1 Companies

Once you click on the **Companies & Complexes** navicon, you are taken to the page that displays the active company in your current inventory.

- View the company details by clicking either the link in the **Company Name** column or the **View** option in the **Actions** column.

- View the list of complexes that belong to the company by clicking **Complexes** in the Navigation Panel. An operator will only see complexes that belong to their company, while an administrative-level user will see all complexes in the database.

- View the list of facilities operated by the company by clicking **Facilities** in the Navigation Panel. An operator will see all facilities that belong to their company (not filtered by a specific complex), while an administrative-level user will see all facilities in the database.

3.4.1.1 Company Details

Selecting a company from the list (or clicking on the **View** option) will open the detailed editor page that provides information related to the company, including the list complexes and associated facilities. From this page, you can edit the information and add contacts by clicking the **Edit** button. Figure 59 shows an example of the detailed editor.
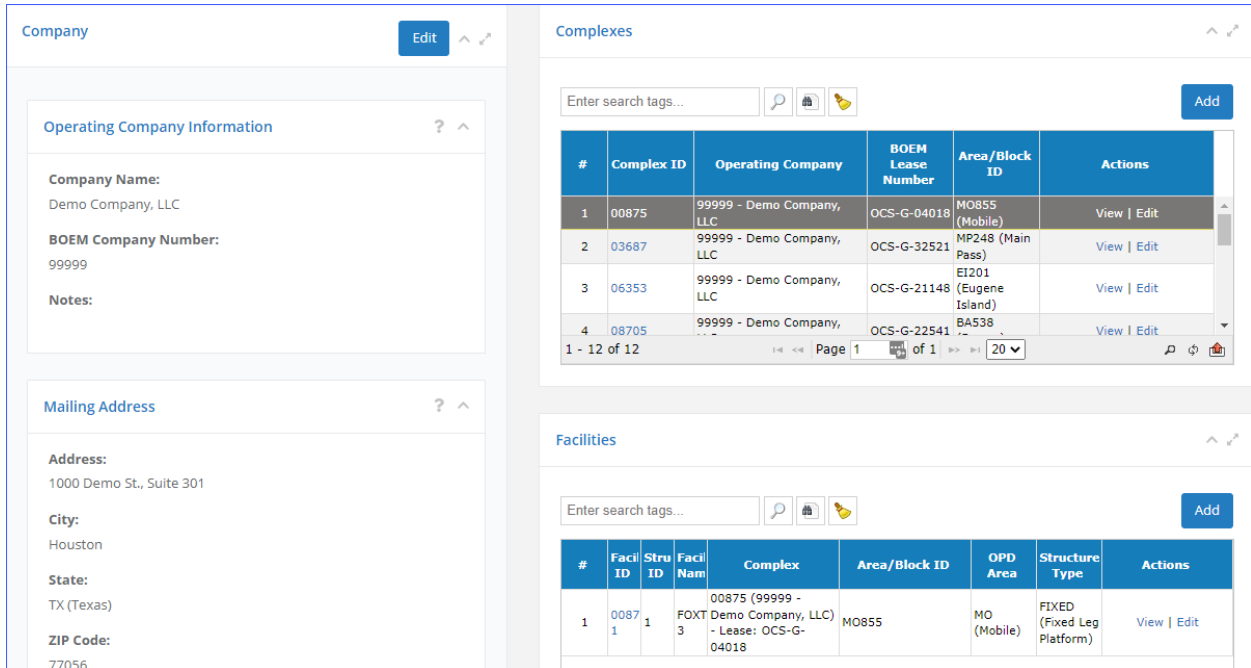
Figure 59. Company information page

In the detailed editor you can perform the following functions:

For the **Company:**

Action	Directions
Edit Details	Edit company details (including adding **Company Contacts** – see section 3.4.1.2) by clicking the **Edit** button in the **Company** panel. *IMPORTANT:* The **BOEM Company Number** parameter must be a 5-digit number. If the number is less than 5 digits, it must be padded with leading zeroes (e.g. 00123).

For the **Complexes:**

Action	Directions
Create New	Create a new complex for the company listed in the left side of the screen by clicking the **Add** button above the list of complexes in the **Complexes** panel.
View Details	View the details of an existing complex by clicking the link in the **Complex ID** column or the **View** link in the **Actions** column.
Edit Details	Edit the details of an existing complex by clicking the **Edit** link in the **Actions** column.
View Associated Facilities	View facilities located within the complex by selecting (highlighting) the complex in the table.

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For the **Facilities:**

Action	Directions
Create New	Create a new facility located inside the complex highlighted in the **Complexes** table by clicking the **Add** button above the list of facilities.
View Details	View the details of an existing facility by clicking the link in the **Facility ID** column or the **View** link in the **Actions** column.
Edit Details	Edit the details of an existing facility by clicking the **Edit** link in the **Actions** column.

3.4.1.2 Add Company Contacts

To add (or delete) contacts, go into Edit mode by clicking the **Edit** button in the top right corner of the **Company** details panel then scroll down to and click the **Add Contact** button in the **Company Contacts** panel as shown in Figure 60.
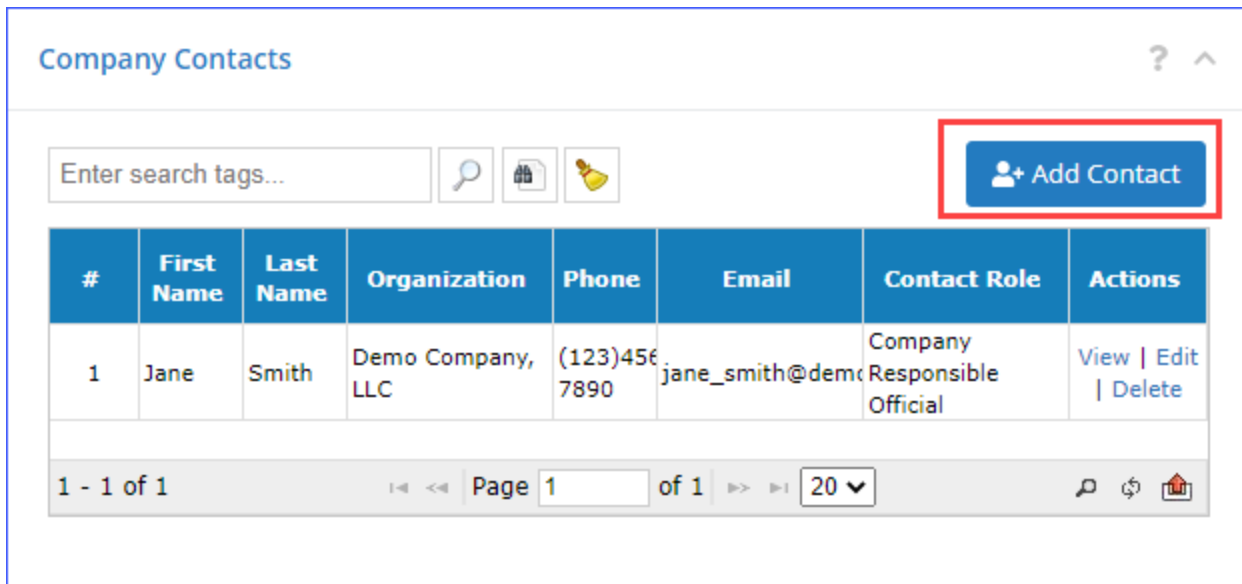
Figure 60: Company Contacts panel

The **Add Contact** data entry form will load:

1. **Existing Contact**: Select the name from the **Contact** list by clicking the **[…]** button and opening the option table and select the **Contact Role**.

   TIP: One person can have multiple roles., but you have to create a separate **Company Contact** records for that person's each role.

2. **New Contact**: Complete the contact information and assign a **Contact Role**.

3. Click **Save** to save entry.

Available **Contact Roles** are:

- Company Responsible Official

- Complex Responsible Official

- Facility Responsible Official

- Inventory Preparer

- Inventory Reviewer

- BOEM Representative

- BSEE Representative

    IMPORTANT: **Contact Roles** refer only to the person's involvement with the OCS Emissions Inventory and should not be confused with the actual job or job title of the person.

3.4.1.3   Edit/Delete Company Contacts

To edit or delete contacts, go into Edit mode for the <u>company</u> and select the **Edit** or **Delete** hyperlink under the **Actions** column for the contact you want.

If you are editing the contact, the contact details data entry form will load. Make edits and click **Save** to commit your changes.

3.4.2   Complexes

In the **Companies & Complexes** Navigation Panel, click on the **Complexes** option. The page will display a list of complexes that belong to the operating company. Select the complex you want to view from the list. This will take you to the **Complex Details** detailed editor page similar the one shown below in Figure 61.
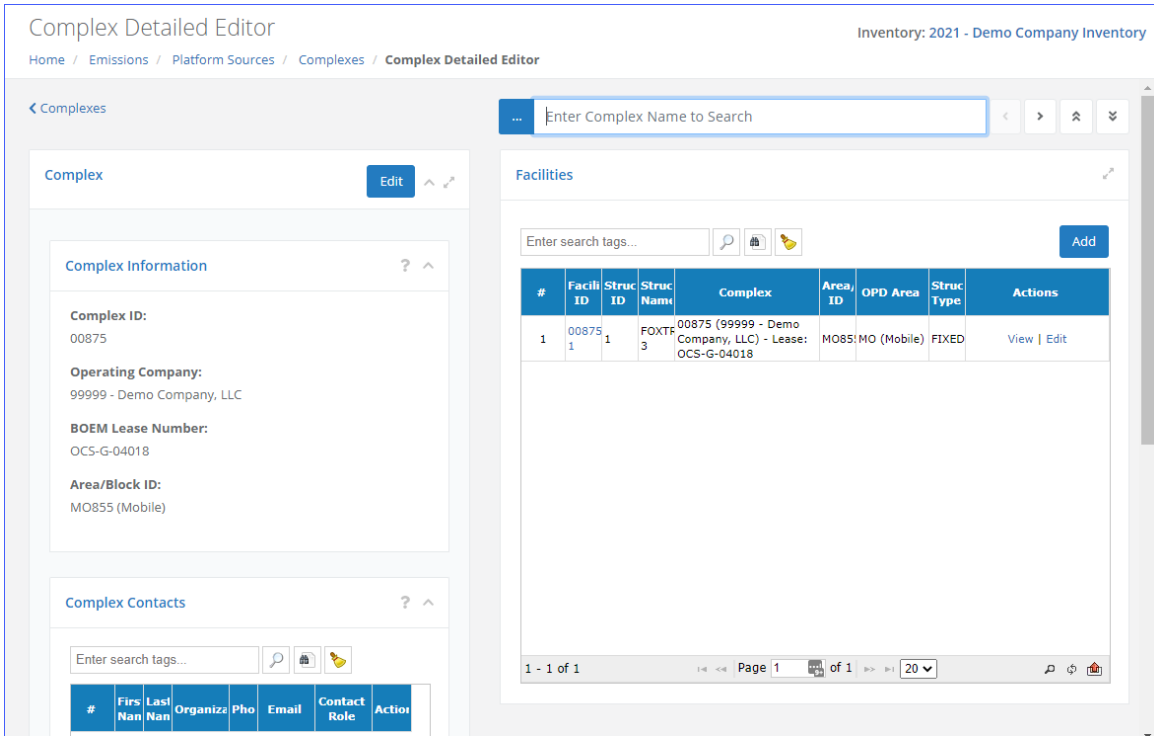
Figure 61. Complex details page

This page functions in a similar way to the **Company Details** page described in section 3.4.1.1.

In this detailed editor you can perform the following functions:

For the **Complex:**

Action	Directions
Edit Details	Edit complex details (including adding **Complex Contacts** – see section 3.4.1.2) by clicking the **Edit** button in the **Complex** panel.

For the **Facilities:**

Action	Directions
Create New	Create a new facility for the complex listed in the left side of the screen by clicking the **Add** button above the list of facilities in the **Facilities** panel.
View Details	View the details of an existing facility by clicking the link in the **Facility ID** column or the **View** link in the **Actions** column.
Edit Details	Edit the details of an existing facility by clicking the **Edit** link in the **Actions** column.

IMPORTANT: Please make sure that each facility has a **Company Responsible Official** contact.

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3.4.3 Facilities

In the **Companies & Complexes** Navigation Panel, click on the **Facilities** option. The page will display a list of facilities that belong to the operating company. This list is not filtered by complex in which the facilities are located, but this information is available in the table, in the **Complex** column.

From this table you can:

- View facility details by clicking either the **Facility ID** link or the **View** link in the **Actions** column for the facility in question.
- Open facility details in edit mode by clicking the **Edit** link in the **Actions** column.
- Create a new facility by clicking the **Add Facility** button and filling in the required details.

4 Emissions: Lease Operations

Operators are required to account for emissions from non-platform operation only if they include:

- Drilling rigs when connected to the seabed

- Construction support vessels (CSV) when performing the construction. Construction support vessels would be used during installation of a facility or a lease term of a pipeline.

Vessels underway do not have to be reported by operators.

The functions available to operators for Lease Operations (LOs) are shown in Figure 62 and can be accessed by first clicking on the **Lease Operations** section in the **Emissions** module Navigation Panel.
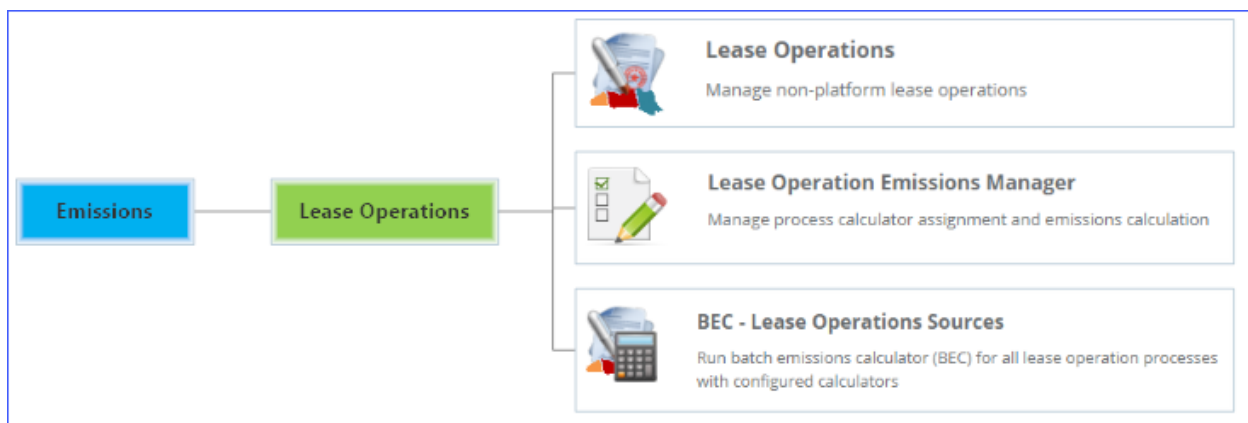
Figure 62. Lease Operations map

4.1 Managing Lease Operations

OCS AQS has imported all the known leases available on the BOEM Data Center website (https://www.data.boem.gov/). If new leases are required for the company, they can be added.

LOs can be managed using a process summarized in Figure 63.
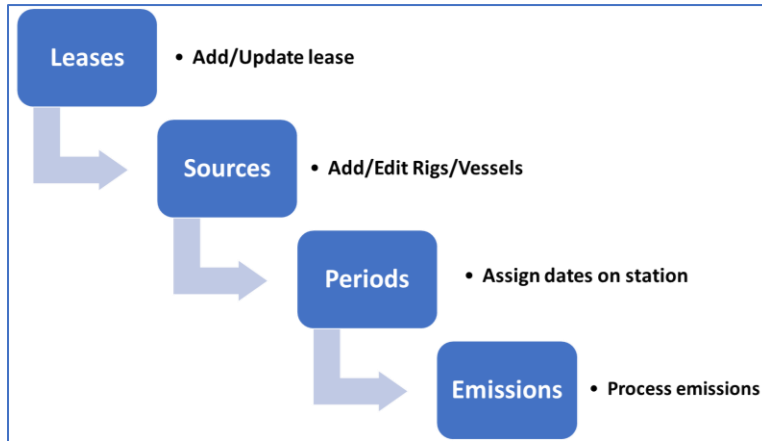
Figure 63. Summary of Lease Operations (LOs) emissions

4.2 Lease Operations Emissions Manager

The **Lease Operations Emissions Manager (LOEM)** is similar to the **Activities & Emissions Manager (AEM)** used in **Platform Sources**. However, this tool is specifically used to calculate emissions for non-platform sources such as drilling rigs connected to the seabed and construction support vessels when performing construction activities as noted above. You can create a lease operation process based on existing templates and enter parameters that describe the monthly activity. Then you can calculate the emissions generated by these non-point processes.

To use the LOEM, select the **Lease Operations** option from the Navigation Panel of the **Emissions** module and then click on the **Lease Operation Emissions Manager** navicon. This will take you to the **Leases** page, similar to what is shown in Figure 64. Click on the lease number in the **BOEM Lease Number** column of the Leases table or the **View** link in the **Actions** column to view the details of the lease and associated sources.

Figure 64. Leases page and selecting BOEM lease number

4.2.1 Add a Lease

If a lease is not shown, it must be added using the **Add Lease** button. Only official BOEM leases can be added.

In the Leases page, select the Add Lease button, which is located in the upper right corner of the page shown in Figure 64. This will take you to the **Add Lease** page as shown in Figure 65.

Figure 65. Add Lease page

If you wish to specify sources under an existing lease associated with a complex, check the **Part of a Complex** option and select the appropriate complex by clicking the **[…]** button for **Complex ID**. All associated fields will then be automatically filled with the appropriate information.

If you wish to define a brand new lease, check the **Not Part of a Complex** option and fill in the required information manually.

Save the new lease by clicking the **Save** button and it will appear in the list of available leases.

4.2.2 Lease Source vs Emission Process

The **Lease Sources & Processes** table displays information for two types of elements in the database – lease operation sources and their associated processes. In OCS AQS there are three main types of lease operations sources:

- Construction Support Vessel

- Drilling Rig for Crude Oil Exploration/Production Wells

- Drilling Rig for Natural Gas Exploration/Production Wells

There are processes associated with each source type, as described in Table 2 below:

Table 2. Processes created based on operation source type

Operation Type	Process ID	Process Description	SCC
Construction Support Vessel	FUG-PC	Fugitives - Platform Construction	31088811
	DIE-03M-LO	Diesel Engine, Construction Support Vessel Hotelling	28000218
Drilling Rig - Crude Oil	DIE-03M-DO	Drilling Rig, Crude Oil Production Drilling	31000101
	FUG-DR	Fugitive Emissions from Drilling Operations	31088811
	DRI-FLA	Flare, Drilling Operations	2310002305
	MUD-01-DR	Mud Degassing, Drilling Operations	31000101
Drilling Rig - Natural Gas	DIE-03M-NG	Diesel Engine, Drilling Rig, Natural Gas Production	31000210
	FLA-DRI	Flare, Well Drilling	2310002305
	FUG-DR	Fugitive Emissions from Drilling Operations	31088811

Each line in the **Lease Sources & Processes** table displays a specific process AND the source to which it belongs, as shown in .

Figure 66: Lease Operations and Processes

In the **Actions** column, the actions apply as follows:

- **View/Edit/Copy:** Lease operations source only

- **Delete:** Process only

4.2.3 Edit Existing Lease Operation Sources

A lease covers one or more emissions source.

To edit an existing Lease Operation Source, first select an existing BOEM Lease Number as previously shown in Figure 64.

Then, from the **Lease Sources & Processes** table, select the source you wish to edit. After that, click **Edit** under the **Actions** column. Figure 67 shows the source selection and the edit button.

Figure 67: Source Selection

The **Edit Lease Source** dialog will load allowing you to make the necessary changes. You many need to scroll down to reach all available panels. When finished, click **Save** as shown in Figure 68.

Figure 68. Edit Source Page

4.2.4 Add Lease Operation Source

To add a Lease Operation Source, click the **Add Lease Source** button above the **Lease Sources & Processes** table.

Follow the steps below to set up your new lease operations source.

1. Select the applicable **Lease Source Template**. The following equipment sources are provided for lease operations in Table 3.

Table 3. Sources for Lease Operations

Source ID	Source Type
CSV-PC	Platform Construction (PC)
DRI-Crude	Drilling, Crude Oil (DR)
DRI-NG	Drilling, Natural Gas (DR)

2. The following step allows you to specify required information regarding the drilling rig or support vessel involved based on the type of operation you selected as shown in Figure 69.

- For **Drilling Rigs:** In the **Drilling Rig Information** panel, click the **[…]** button and select a rig from the list of existing ones. The list displays general configuration and specifications of the rig. More specific information is provided in the **Process** details once the source and associated processes have been created. If the rig you wish to add is not on the list, contact OSC AQS support team and request that it be added.

- For **Support Vessels:** In the **Construction Support Vessel Information** panel type in the name of the vessel. There is no list to select from.

If the georeferenced location of the source is unknown, an estimate can be generated by clicking the **From Area Block Location button** (highlighted in red in Figure 69). This provides the center point of the block the lease is assigned to.

Figure 69: Lease Source location

3. Click **Finish** to save changes. OCS AQS will automatically generate processes associated with the operation you selected as shown in Table 2.

   IMPORTANT: The processes that are automatically generated are default processes that each operation source type should have. You can add or remove processes as needed.

Once the sources and processes are in place, you can specify the activity data in the **Data Request** tab of the **Calculator Parameters & Requests** panel, as described in section 4.2.6.

4.2.5   Add/Delete Lease Operation Processes

To **Add** a non-point lease operations (NPLO) process associated with an existing lease operation source, click the **Add NPLO Process** button, as shown in Figure 70.
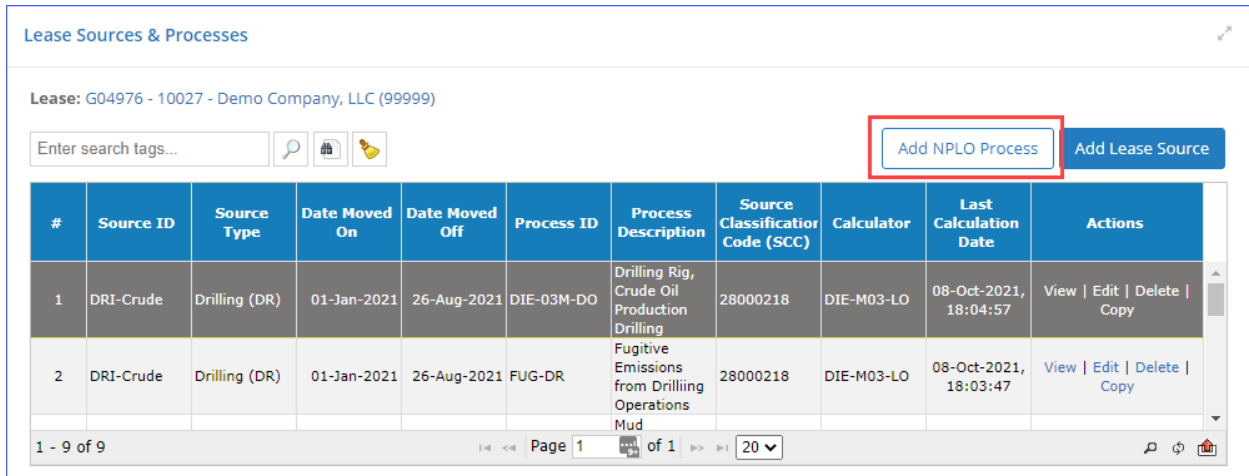
Figure 70: Add NPLO Process button

A one-step wizard allows you to specify all information required to create the process:

1. Select the **Source** for which you wish to create the process.

2. From the table of available calculation methods, select the one that will be used to calculate emissions for this process.

3. **Process ID** will be updated to match the **Name** of the estimation method and the **Process Description** will be updated to match the **Description** of the same method.

4. Click **Finish**.
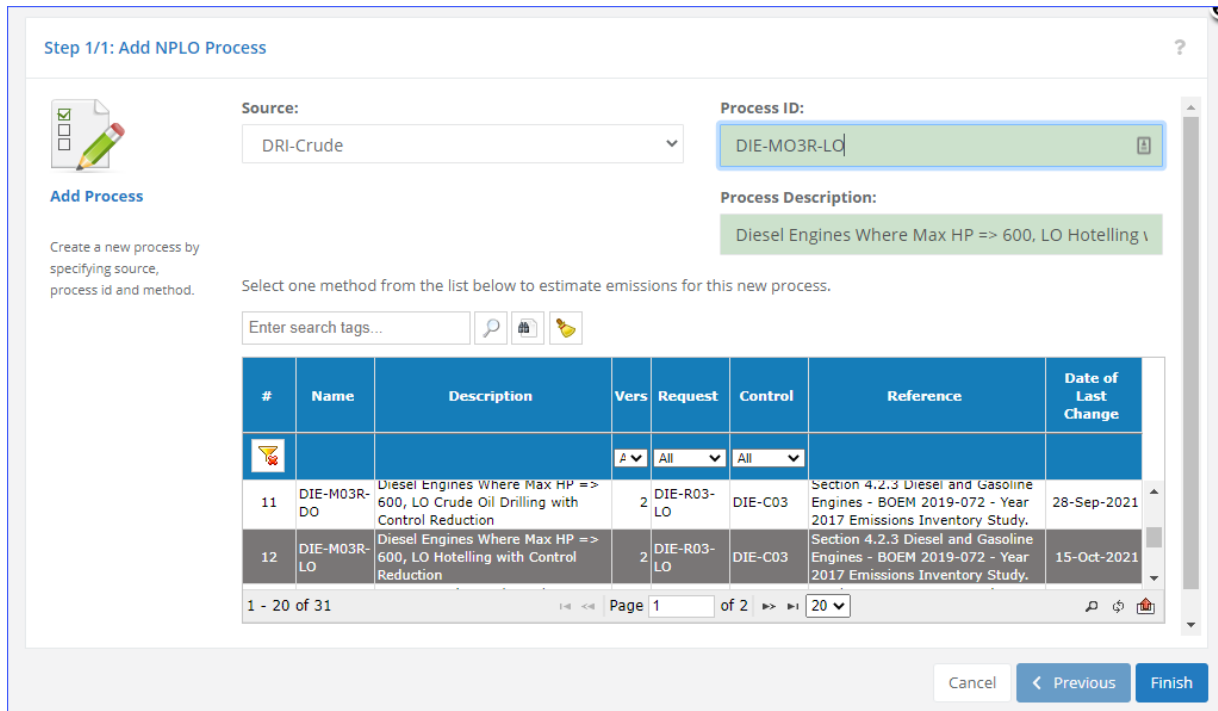
Figure 71: Add Lease Operation Process

To delete an individual process, select the **Delete** link under the **Actions** column of the process you want to remove. A confirmation window will be displayed, simply click **Delete** to remove the process from the source.

> ***IMPORTANT:*** Deleting a process will NOT delete the lease source as long as there are other processes under it.

Figure 72: Delete Lease Operation Processes

4.2.6   Calculator Parameters & Requests

In the **Process** section, the **Calculator Parameters & Requests** panel contains the main functionality of the **Lease Operations Emissions Manager**. It allows you to set the following parameters for each emission unit by period (time between **Date Moved On** and **Date Moved Off**):

- Select input and physical parameters

- Enter required calculation parameters in required fields (green boxes) and optional fields (white boxes)

- Provide process control information

- View emission factors for each pollutant

- Perform range checks and other QA for input parameters

Each process has different input parameters based on the assigned calculator. For example, the input parameters for a diesel engine will differ significantly from the input parameters for fugitive emissions.

Input parameters used for emission calculations and process descriptions are called **Data Requests** while parameters used to describe the pollution control technology are described under

Control Requests. Each field allows annotation and comments with the **QA** button to the right of the field as shown in Figure 34 below.

Calculator Name:	Description:		Version:
DIE-M03-LO	Diesel Engines Where Max HP => 600, Lease Operations Hotelling		1

Date Moved On: 01-Jan-2021
Date Moved Off: 26-Aug-2021   QA/QC

Data Requests	Control Requests	Emission Factors

Description	Value	
EMISSION CALCULATOR REQUIRED PARAMETERS		
Total Fuel Usage over Period [gallons]:	10000	QA →
Fuel Heating Value [Btu/lb]:	19300	QA →
Hours of Operation per Period [hr]:	235	QA →
Operating Horsepower [hp]:	23	QA →
Fuel Sulfur Content:	0.0015	QA →
Emissions Destination:	Vented Locally ⌄	QA →
Fuel Sulfur Content Units	[wt%] ⌄	QA →

Figure 73: Lease Operations Data Request tab

The following tabs are available:

- **Data Requests** allow input of required and optional data used for emissions calculations (for more information see section 3.2.8.1).

- **Control Requests** are used to provide input data that describes the pollution control technology used for an individual source (if applicable) (for more information see section 3.2.8.2).

- **Emission Factors** provide engineering parameters to calculate individual pollutant emissions (for more information see section 3.2.8.3).

4.2.7   Calculate Lease Operation Emissions

Emissions can be calculated for the reporting periods after all required data request fields are filled in. Check completeness and input ranges by clicking on the red **QA/QC** button. If input data is filled and within range expectations, a blue status will be displayed. Erroneous data fields will be highlighted with a red border and a pop-up window will load with the list of errors.

Click the **Calculate** (or **Re-Calculate** if emissions had been previously calculated) button if all input parameters are error-free. Depending on the calculator and the number of months in the period, the processing may take several minutes. Calculated emissions will appear in the table under the button.

Click the **GWP Details** button to review the global warming potential standards used to calculate the CO2e values. For more information on **GWP Details** see section 3.2.14.

Figure 74: Lease Sources Calculated Emissions

5   Emissions: Other Functions

The **Emissions** module includes additional resources that can assist in managing individual sources and emissions. Figure 75 shows the **Greenhouse Gas (GHG)** and **Tools** sections that can be found in the Emissions Navigation Panel, along with the tools that can be found in each section.

Figure 75: Other Emissions module functions

5.1   Tools

The **Tools** section of the **Emissions** module provides a number of different tools that help manage emission sources.

5.1.1   Facility Activity Data Import/Export

While you can import and export activity data for a specific emission unit directly in **Activity & Emissions Manager** (see section 3.2.9.1), you can also perform a batch import or export of activity data for all processes for multiple facilities.

To export activity data:

1.   Click the **Facility Activity Data Import/Export** navicon.

2.   Click the **Import/Export Facility Activity Data** button.

3.   Check the **Export** option and click **Next**.

4.   Check the box for each facility for which you wish to export activity data. The activity data for <u>all</u> processes at those facilities will be included.

5.   Click **Finish** to complete the wizard and generate the data file.

6.   You will be taken to the **Job Queue – Activity Data** page, which shows the progress of you export, as shown on Figure 76. Once the export is completed, the **Status** of the export is updated to **Complete**, and the generated files can be downloaded.

Figure 76: Facility Activity Data queue

7. In the **Actions** column of the table, click the **Files** link to view the exported file(s).

8. The **Job Files** dialog is shown. Click the **Download** link in Figure 77. to save the file to your computer.

Figure 77: Activity Data download link

Once the file is on your hard drive, you can open it and edit the values as needed. Once finished, you can import the file to update the activity data.

To import activity data:

1. Click the **Facility Activity Data Import/Export** navicon.

2. Check the **Import** option and click **Next**.

3. Click **Select file** button, navigate to and select the file that contains activity data.

4. If multiple files are being imported, repeat step 3 until all files have been specified.

5. Click **Finish** to complete the wizard and upload the activity data.

5.1.2   Facility e-GGRT Export

The USEPA's electronic Greenhouse Gas Reporting Tool (e-GGRT) supports facility and supplier reporting for the USEPA Greenhouse Gas Reporting Program (GHGRP). OCS AQS contains a tool capable of generating an e-GGRT file in the appropriate XML format for submission to USEPA for a single facility or a complex with multiple facilities.

To generate and export an e-GGRT report for a specific facility:

1. In the **Emissions** module go to the **Tools** section in the Navigation Panel.

2. Click on **Facility e-GGRT Export** navicon.

3. Click the **Export Facility e-GGRT** button in the **Summary List – Facility e-GGRT Export** screen as shown in Figure 78.
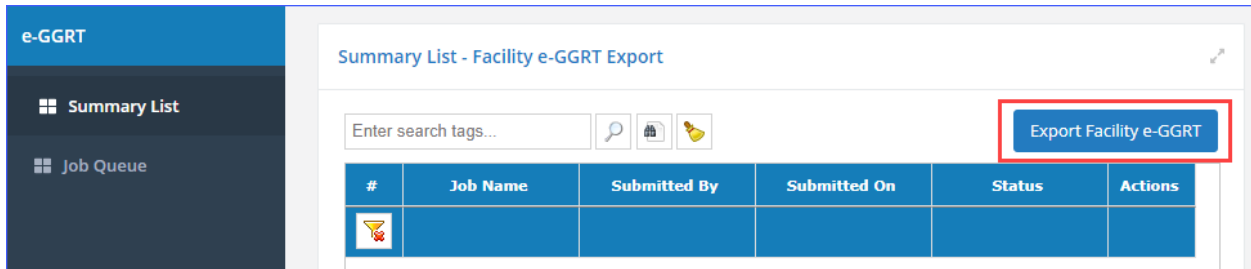
Figure 78: e-GGRT report export

4. Select the e-GGRT Export Mode you want. The options are:

- **By Facility (Individual)**: This option will generate a report for the facility selected only – go to step 6.

- **By Complex (Aggregated)**: This option will generate a report that sums the total GHGs for all the selected facilities and lists the emission units within one report – go to next step.

5. If you selected **By Complex**, highlight the complex where the facilities are located and click **Next**.

6. Check the box for each facility you wish to include in the export and click **Next**.

7. Review the summary information to confirm selected options and click **Finish** to complete the wizard and start the export.

8. You will be taken to the **Job Queue – Facility e-GGRT Export**, which shows the progress of your export as shown in Figure 79. Once the export is completed, the **Status** of the export is updated to **Complete**, and the generated files can be downloaded.
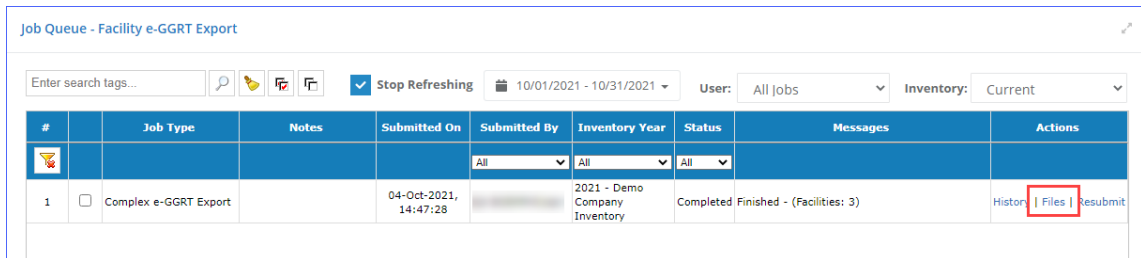
Figure 79: Facility e-GGRT Export queue

9. In the **Actions** column of the table, click the **Files** link to view the exported file(s).

10. The **Job Files** dialog is shown. Click the **Download** link in Figure 80 to save the file to your computer.
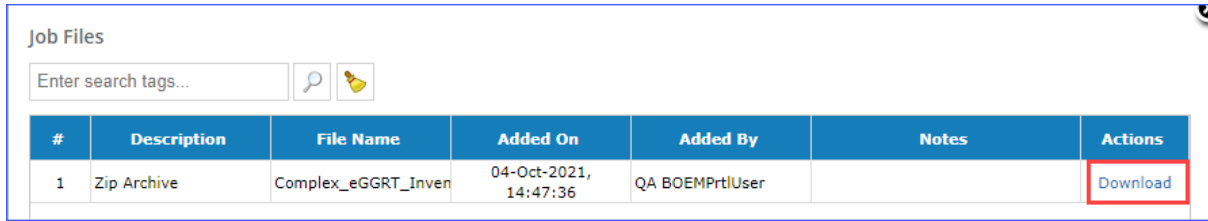
Figure 80: e-GGRT report download link

The downloaded file is in a .zip format with an Excel spreadsheet that contains an export report and individual XML files for each facility.

You can open the XML file on your computer using any editor. It is recommended that you use an editor capable to displaying XML files, or the content may be difficult to read. You can also open the file in a browser such as Microsoft Edge.

5.1.3 Facility Metadata Export

OCS AQS contains a tool capable of generating an XML file containing metadata for emissions inventory submissions to BOEM.

> *IMPORTANT:* The facility metadata file must be generated prior to submitting the completed inventory to BOEM.

To export a Metadata report for a particular facility:

1. Click the **Facility Metadata Export** navicon.

2. In the **Summary List – Facility Metadata Export** screen is shown in Figure 81 click the **Export Facility Metadata** button.
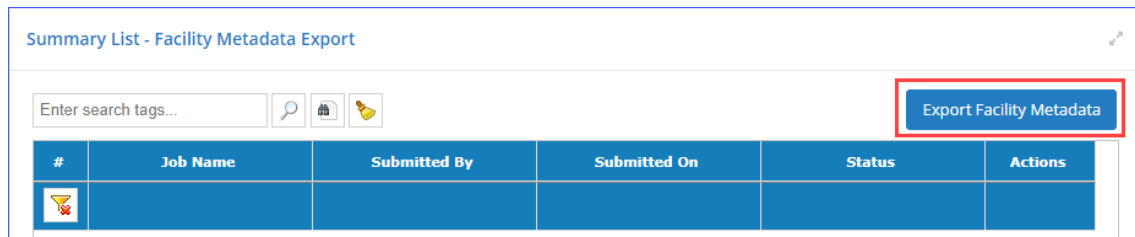
Figure 81: Metadata report page

3. Check the box for each facility (or facilities) for which you wish to generate a report. Individual reports will be generated for each facility.

4. Click **Next**.

5. In the **Summary** page confirm that the correct number of facilities is displayed and click **Finish** to complete the wizard and begin export.

6. You will be taken to the **Job Queue – Facility Metadata Export,** which shows the progress of your export, as shown in Figure 82. Once the export is completed, the **Status** of the export is updated to **Complete**, and the generated files can be downloaded.

Figure 82: Metadata export queue

7. In the Actions column of the table, you can click the **Files** link to view the exported file(s).

8. Click the **Download** link in the Job queue to save the file to your computer.

The downloaded file is in a .zip format with an Excel spreadsheet that contains an export report and individual XML files for each facility.

6   Documents

The **Documents** module allows you to access supplementary documentation as well as any files uploaded into, downloaded from, or generated by the application.
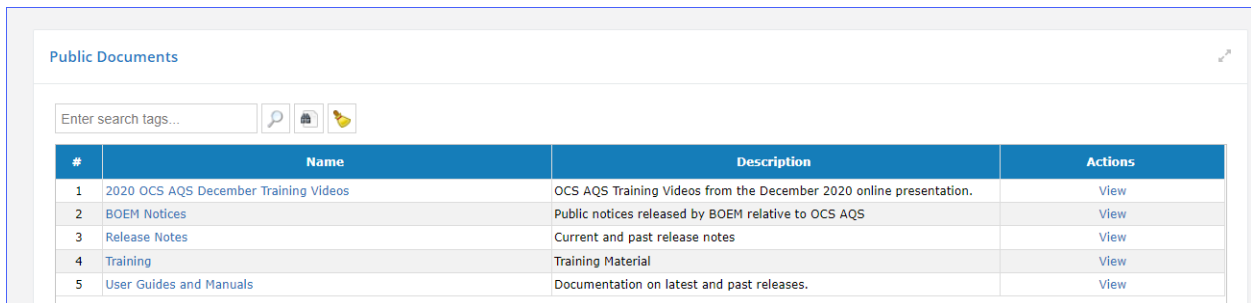
6.1   Documents

Click the **Documents** navicon to access the following features available in this section:

- **Public Documents:** Supplementary documentation uploaded by BOEM, such as the user guide. As an operator, you will not be able to manage files in this section, only view/download them.
- **My Documents:** Files imported into, exported from, or generated by the system.

6.1.1   Public Documents
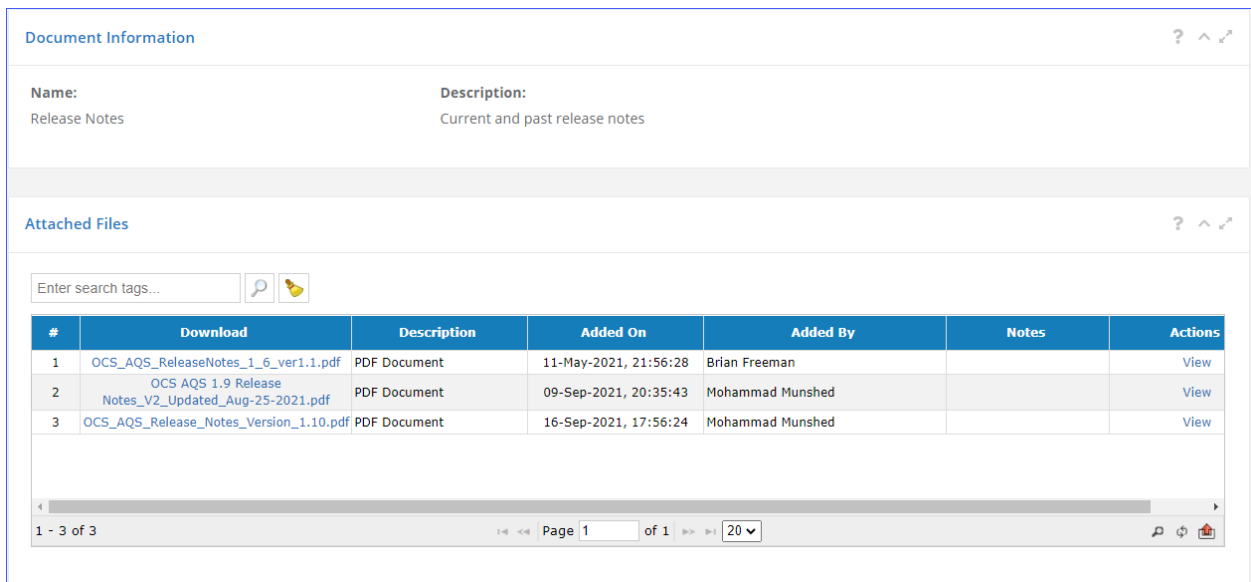
On the **Public Documents** page you will see a list of available supporting documentation.

#	Name	Description	Actions
1	2020 OCS AQS December Training Videos	OCS AQS Training Videos from the December 2020 online presentation.	View
2	BOEM Notices	Public notices released by BOEM relative to OCS AQS	View
3	Release Notes	Current and past release notes	View
4	Training	Training Material	View
5	User Guides and Manuals	Documentation on latest and past releases.	View

Figure 83: Public Documents list

To view a document in the **Public Documents** section, click the **View** link in the **Actions** column.

Document Information

Name:
Release Notes

Description:
Current and past release notes

Attached Files

#	Download	Description	Added On	Added By	Notes	Actions
1	OCS_AQS_ReleaseNotes_1_6_ver1.1.pdf	PDF Document	11-May-2021, 21:56:28	Brian Freeman		View
2	OCS AQS 1.9 Release Notes_V2_Updated_Aug-25-2021.pdf	PDF Document	09-Sep-2021, 20:35:43	Mohammad Munshed		View
3	OCS_AQS_Release_Notes_Version_1.10.pdf	PDF Document	16-Sep-2021, 17:56:24	Mohammad Munshed		View

1 - 3 of 3   Page 1   of 1   20 ▾

Figure 84: Documents in a set

Click on the link in the **Download** column to access the individual documents within the group. In some cases, there may be only one document in the group.

The PDF files will be loaded into a viewer. Use the toolbar above the document to navigate between the pages. To download the document, select the download icon in the document viewer as shown in Figure 85.
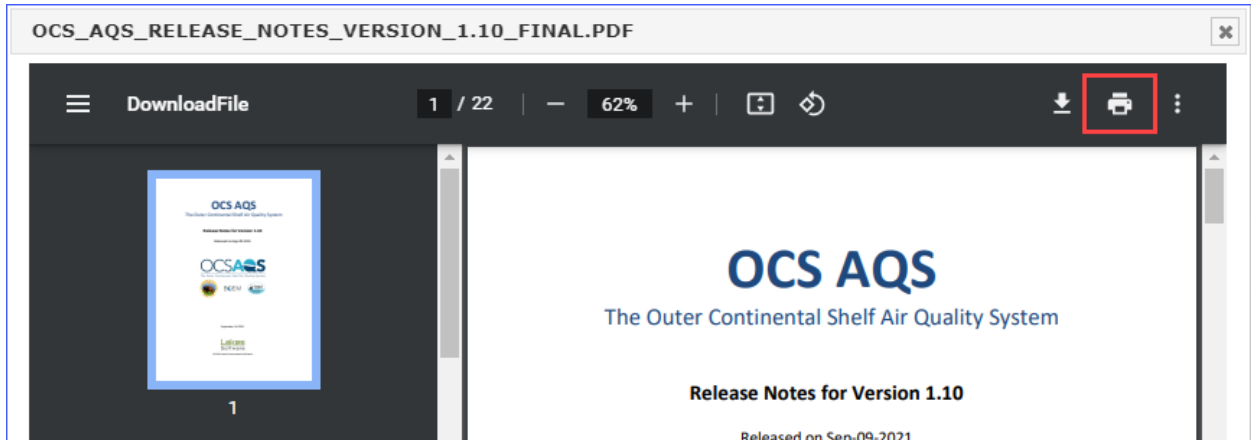
Figure 85: Document Viewer

6.1.2   My Documents

OCS AQS keeps copies of all files imported, exported, and generated by the system. These files can be downloaded and reviewed at any time by going to the **My Documents** section of the **Documents** module.
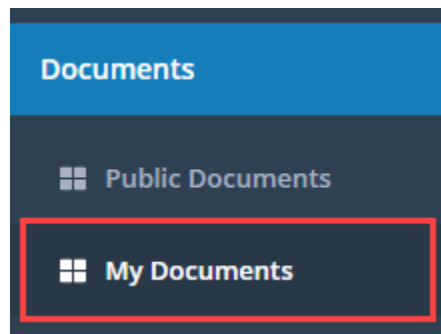
Figure 86: Documents - My Documents

The **My Documents** list displays all files that have been uploaded into the system, exported from the system, or generated by the system.

> *IMPORTANT:* The documents in this section are user-specific and are not visible to other users.

Figure 87: My Documents list

Click the name link in the **File** column to download the file for review or click **Delete** in the **Actions** column to remove the file from the records.

> *IMPORTANT:* Once deleted, the file cannot be recovered.

7 Maps

The OCS AQS **Map** module provides a graphical display of all georeferenced objects, such as platforms, on a map of the Gulf of Mexico or Alaska regions for the inventory selected. It also allows you to display gridded emissions, custom shapefiles, and query the database to locate and display specific objects. When the **Map** module is first loaded, it will display a default view showing all facilities and release point available in the current inventory.

An overview of features is shown in Figure 88.
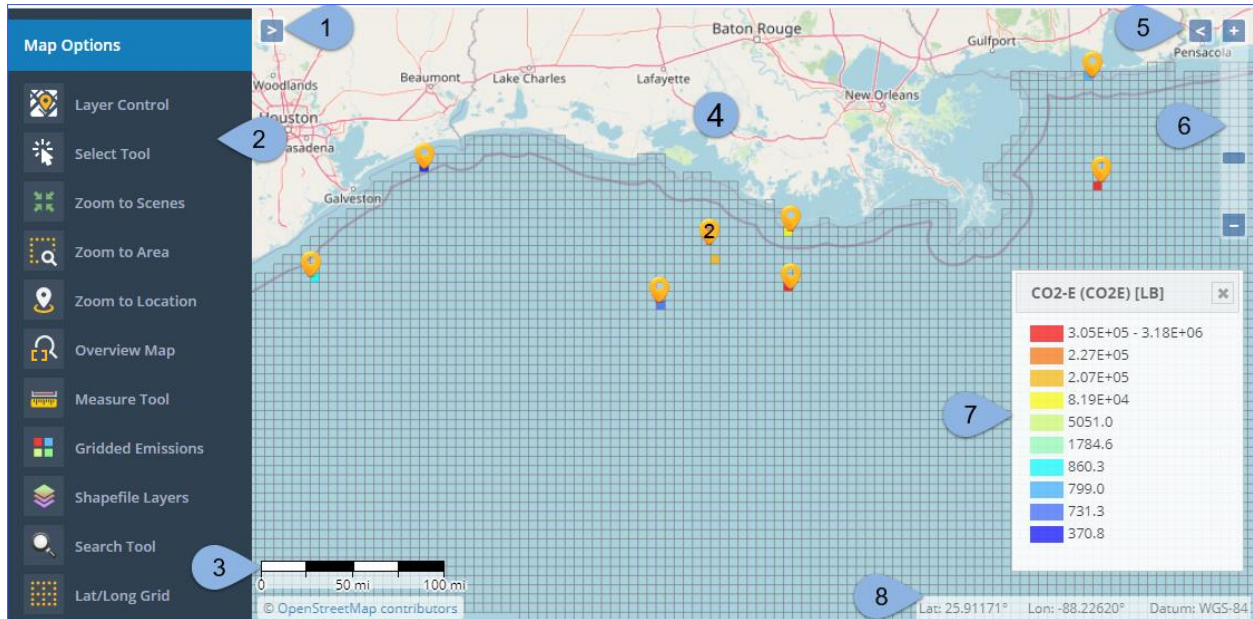
Figure 88: Map features

The map includes the following elements:

1. **Select Base Map:** Expand to specify what background map overlay will be used.

2. **Map Options:** A collection of tools that allows you to navigate through various elements on the map and customize the map view. See below for the full list of available tools.

3. **Scale Bar:** Bar that displays relative scale of the map.

4. **Main Map Window:** Main map display.

5. **Overview Map:** Activates a minimap that shows the location currently displayed in the main window.

6. **Zoom Controls:** Slider that allows you to control the zoom level of the map.

7. **Color Legend:** Legend of the colors used by various elements displayed on the map.

   IMPORTANT: The legend does not include colors of the base map or the location markers.

8. **Location:** Current coordinates of the tip of the mouse pointer.

You can move the map area by holding the cursor over the map and dragging it with the left mouse button. You can also zoom in and out using the mouse wheel.

The **Map** module also provides a number of useful tools that are accessed from the **Viewer Toolbar**. These options are summarized below and their use is illustrated in the sections that follows.

◈	**Layer Control**	Access different layers by selecting or de-selecting layer boxes.
☀	**Select Tool**	Pick a feature by clicking on it.
✕	**Zoom to Scenes**	Zoom to the extents of the layers currently selected (checked) in the **Layer Control**.
▣	**Zoom to Area**	Click and draw a rectangle on the map to set it as zoom extents.
⦿	**Zoom to Location**	Click this tool and then click on the map where you wish to center the zoom area to load the **Zoom to Location** dialog where you can specify the exact location coordinates and the **Zoom Radius**.
⌕	**Overview Map**	Click to activate a display of a map overview with a red rectangle delineating the area currently being displayed on the map.
▭	**Measure Tool**	Measure the distance between two points by clicking on the points; or, measure the area by defining a polygon.
▦	**Gridded Emissions**	Configure display of gridded emission son the map (see section 7.2)
◈	**Shapefile Layers**	Select a shapefile and an associated attribute to display it on the map.
◯	**Search Tool**	Search the map for objects containing a specified search string.
⣿	**Lat/Long Grid**	Toggle display of meridians and parallels on and off.

7.1   Using the Map Module

The steps below will help illustrate the map functionalities summarized above:

> *IMPORTANT:* The images displayed in this walkthrough will look different from the ones you see, because the displayed data is inventory-specific.

1. Click the **Map** module.

2. The map display appears automatically centered on the Gulf of Mexico. You can zoom and pan using the method described in the previous section. You can also use the various **Zoom** tools available in the **Map Options**.
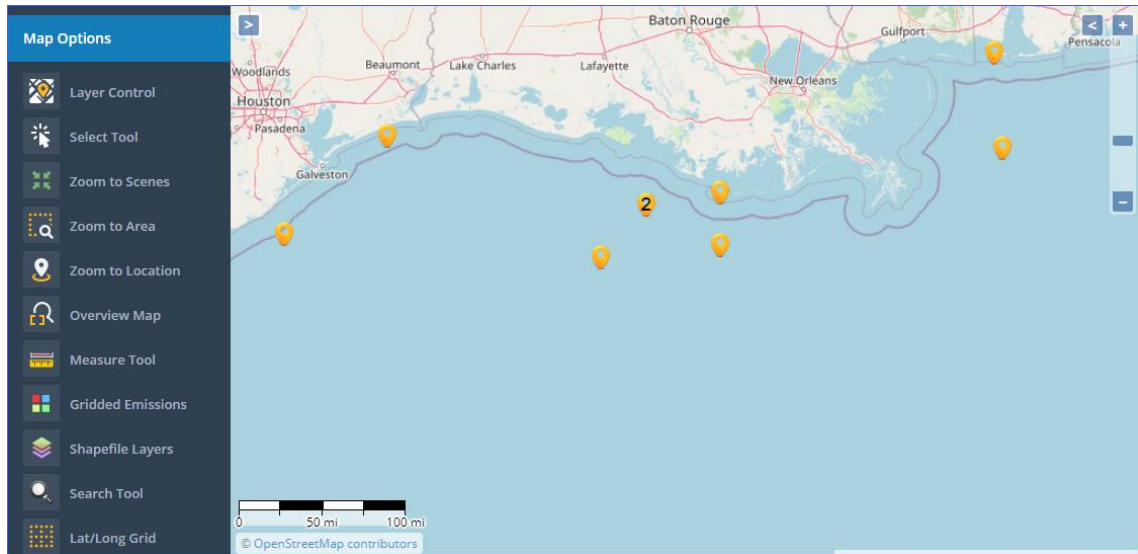
Figure 89: Map general view

3. In the **Viewer Toolbar** panel to the left of the map, click the **Layer Control**. This opens a dialog that shows a list of layers available in the map. Turn off all layers except the *Facility* layer and the *Base Layers*. For the *Base Layers*, you can click the + in the left-hand side to turn layers on and off, similar to what is shown in Figure 92.
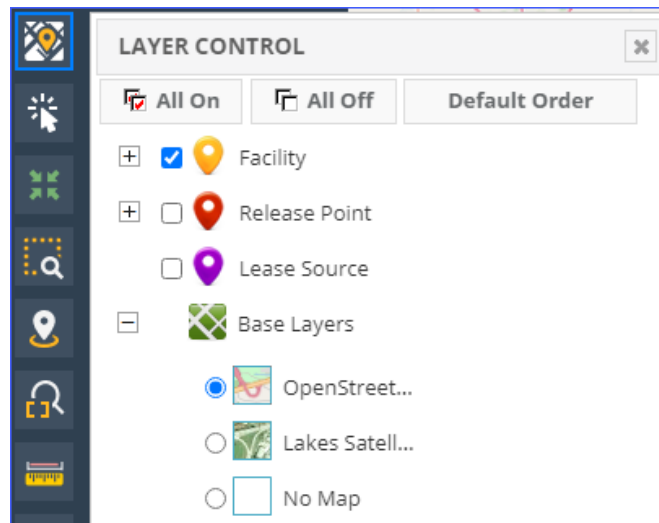
Figure 90: Layer Control

4. You can switch between **Lakes Satellite** and **Open Street Map** views here, but also by clicking on the > button (1 in Figure 88) in the upper left-hand.

5. Take a moment to experiment with some of the other graphical tools in the **Map Options** such as the **Select Tool**, **Zoom to Scenes**, **Zoom to Area**, **Measure Tool.**

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6. Under the **Map Options**, click **Shapefile Layers**.

7. The **Shapefile Layers** dialog is displayed. This dialog lists shapefiles which have been imported into OCS AQS, as well as the corresponding map **Layer Name**.

8. Within the dialog, click on the *OPD Area* shapefile layer and then click the **Apply** button as shown on Figure 91. When finished, close the dialog.
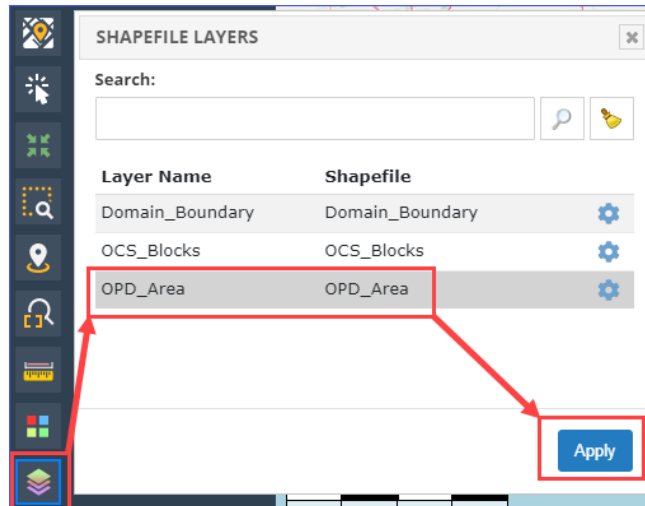
Figure 91: Display shapefile

9. The OPD areas are now visible on the map display. Additionally, the **OPD Area** map layer is now available in the **Layer Control** dialog. Move the cursor over **OPD Area** in the list of layers and several options are available to you to the right of the layer name in the list, including the **Zoom to Scene** option which adjusts the zoom level of the map to fit the **OPD Area** shapefile comfortably into the map display area.
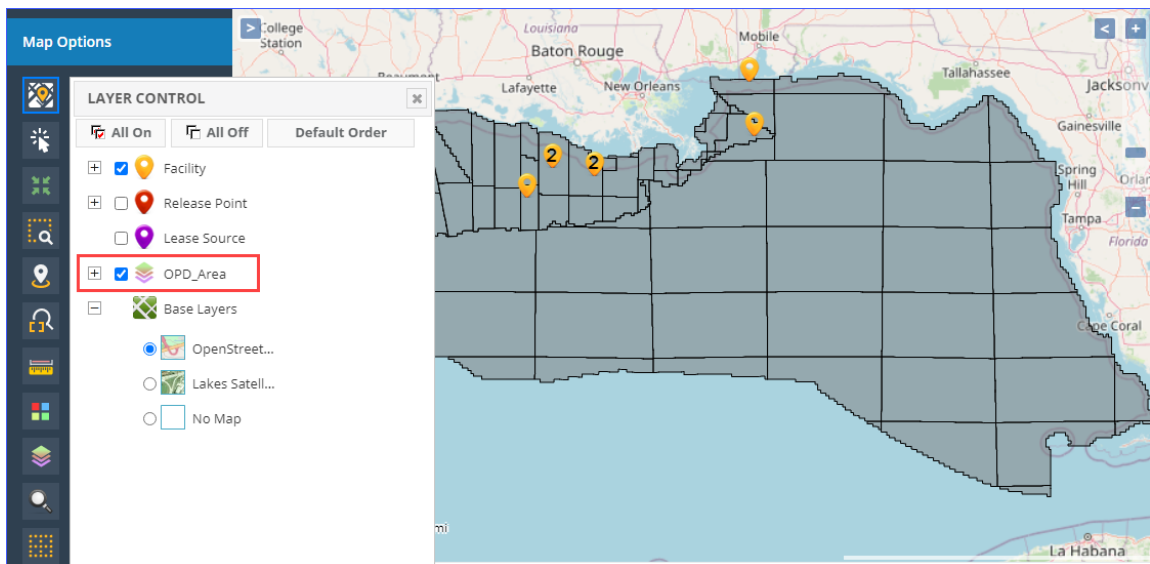
Figure 92: OPD Area shapefile displayed

10. Close the **Layer Control** and **Shapefile Layers** dialogs if they are still open.

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11. Under the **Map Options**, click the **Search Tool**.

12. The **Search Tool** dialog is displayed. Enter the name of a facility you know is in your inventory. The search tool will list all available facilities with that term in the name.

13. Highlight a facility entry in the list and click the ![icon] button to zoom in to it as shown in Figure 93.
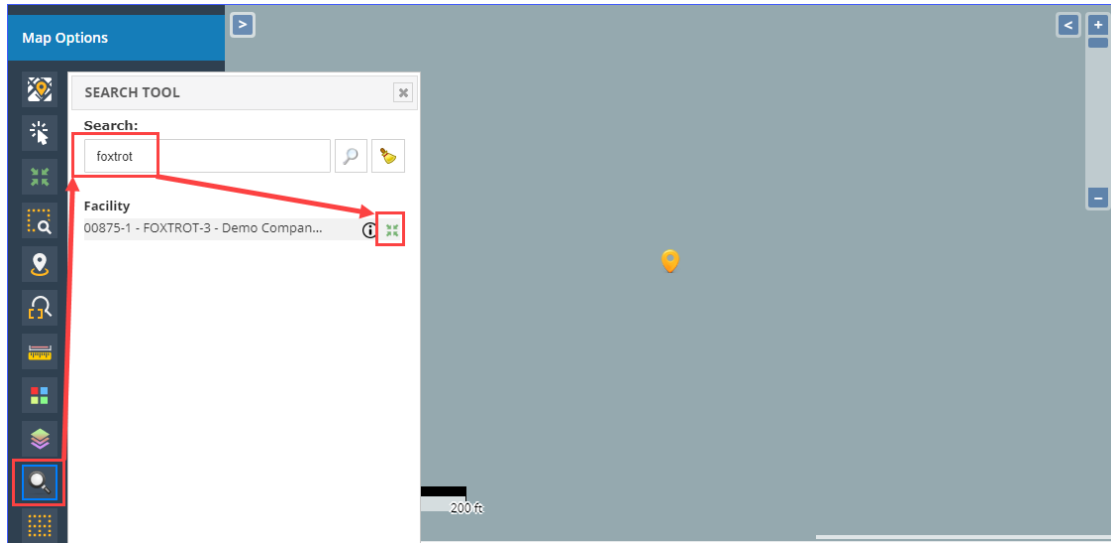
Figure 93: Using the Search Tool in Maps

7.2   Gridded Emissions

The **Map** module allows you to display gridded emissions based on the monthly reported values for all pollutants in the inventory

1. Under the **Map Options**, select **Gridded Emissions.**

2. The **Gridded Emissions** dialog contains many different options and selections to allow you to graphically represent your emissions. These options are reviewed below:

    a. **Emissions**: Allows you to select the type of source that produced the emissions that will be displayed.

    b. **Grid Type**: Gridded emissions can be graphed by **Uniform Cells**, **OPD Area**, or **OCS Blocks**. Select **OCS Blocks**.

    c. **Cell Size** (and **Units**): This allows you to determine the size of each cell if you selected **Uniform Cells**; otherwise, this field is disabled.

    d. **Emission Units**: Unit of measure to use for graphing the emissions. Select **TONS**.

    e. **Pollutant Group**: This option allows you to narrow down the list of pollutants to choose from.

    f. **Period Class**: The period for which emissions are displayed. Select **January**. Note that this applies to active inventory year; since our example is an inventory

in 2021, this means we will show emissions for January 2021. For an entire year, select **January – December**.

g. **Method**: Determines if emissions are displayed on the map based on the facility location or the release point. This will often have little impact on results, but for some cases it can make a difference, especially when zoomed out. The recommended method is by **Point of Release** as it attributes emissions produced by processes associated with a specific release point (source) as being emitted from the location of that source. Aggregating emissions by **Facility** will combine emissions from all sources at that facility at the coordinates assigned to that facility in the database.

h. **# of Levels**: Number of value ranges the emissions will be split into.

3. The bottom of the **Gridded Emissions** dialog shows a list of all available pollutants in the emissions inventory. For this exercise, select **Carbon Monoxide (CO)** in the table. You can only display gridded emissions for one pollutant at a time.

    IMPORTANT: Depending on screen resolution, you might not see the table with pollutants. Scroll down in the **Gridded Emissions** dialog until you reach the table of pollutants.

    IMPORTANT: If you do not see any pollutants in the table, check to see that the emissions have been calculated in the **Activity & Emissions Manager**.

4. Now that you have made your selections, click the **Apply** button above the table of pollutants and close the **Gridded Emissions** dialog by clicking the **[x]** button in the top right corner. While you do not have to close the dialog, it is big and obscures a large portion of the map.

5. The steps described above and the gridded emissions displayed as a result are shown in Figure 94. At first the details can be hard to see; it will help to zoom in on the facility locations.

6. After zooming in, it is easier to see the individual cells. Cells with no emissions have no coloring and simply show the base map (satellite or OpenStreetMaps). Cells with emissions are colored according to the color ramp at the bottom right of the map display. Notice that the cells which are colored correspond to the locations of facilities on the map (yellow markers), as would be expected.
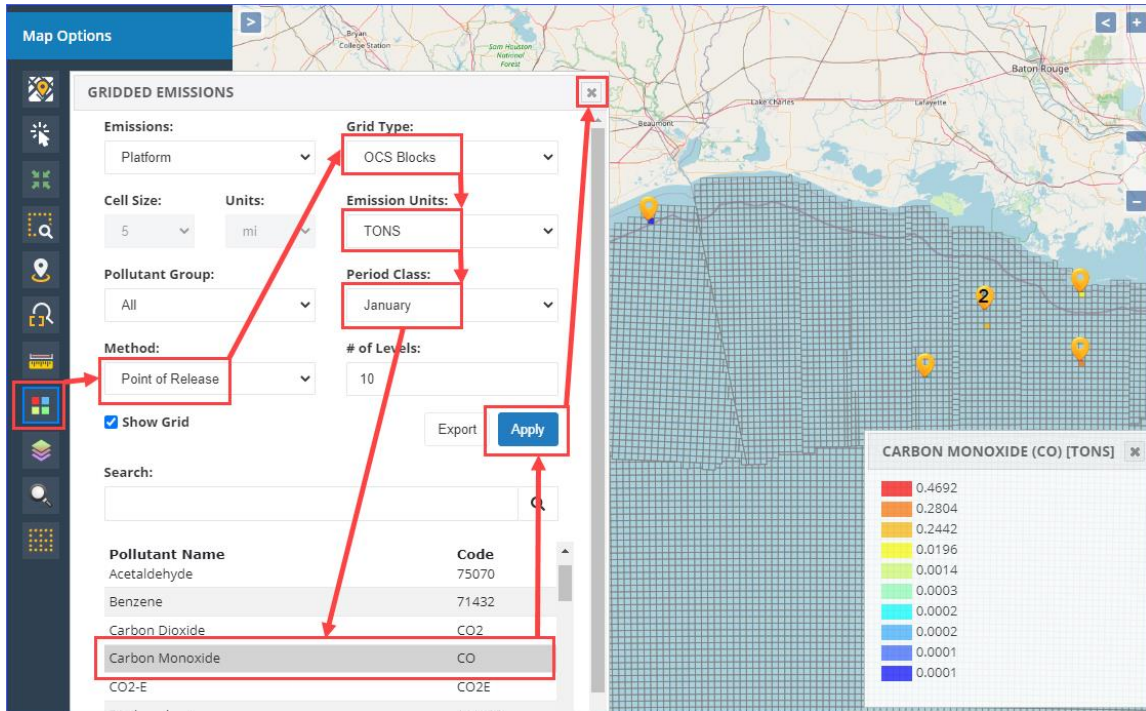
Figure 94: Map with gridded emissions

7. Take a moment to open the **Gridded Emissions** dialog and try out some of the other options available to you.

8. To get the numerical values of the emissions on each grid cell, open the **Gridded Emissions** dialogue box and select **Export** button next to **Apply**. A Microsoft Excel file with the values will be downloaded automatically to your **Download** folder. The spreadsheet columns include the cell center coordinates in Latitude and Longitude and the cell grid emission value in the units selected.

7.3   Displayed Feature Information

To get information on a facility, release point, or any displayed map feature, click on the **Select Tool** in the **Map Options** panel. Once selected, click the feature you wish to examine. A box will appear with a list of items under the pointer as shown in Figure 95. Clicking the ⓘ button will load the **Details** page for the selected item.
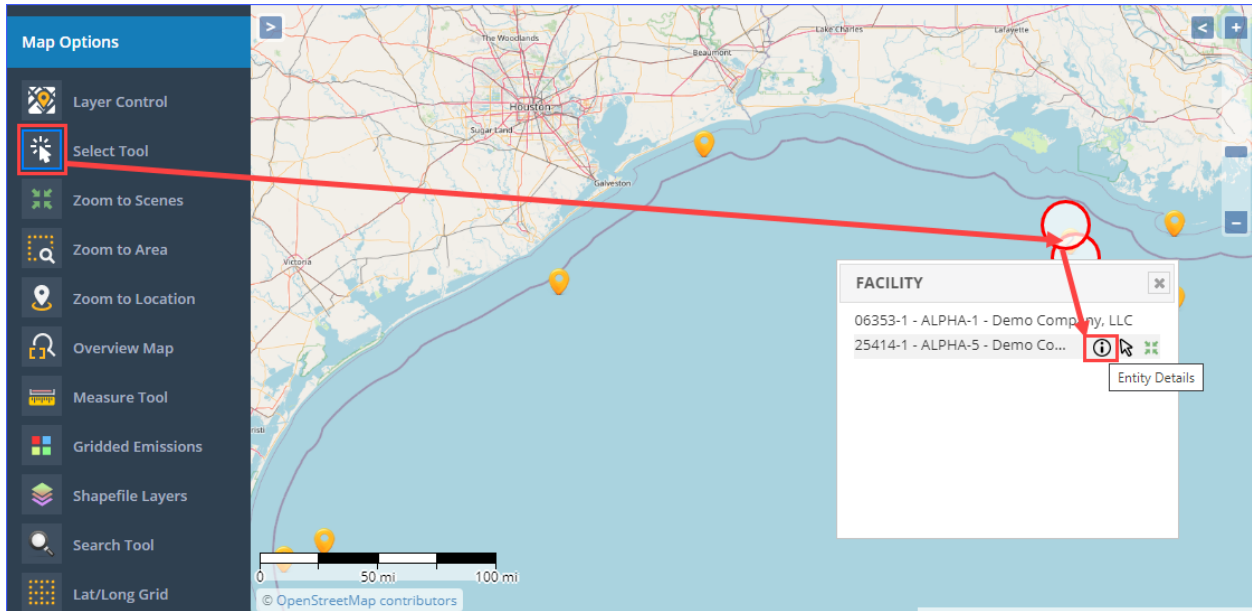
Figure 95: Select tool information

7.4   Additional Map Layers

Additional map layers can be added to the Map module by sending the appropriate SHP and SHX files to the BOEM OCS AQS administrator. Uploaded maps layers will be located under the **Shapefile Layers** option of the map.

8 Reports

OCS AQS comes with a set of report functions that can be customized by the operator using OCS AQS Reports wizards to produce a variety of summary and analysis reports. These reports can then be printed or exported into an external format for ease of distribution.

8.1 Reports Overview

To generate a report, locate the report you would like to create in the Navigation Panel, click on it, and complete the wizard steps by selecting individual search criteria – or select all options. Run the report by clicking **Finish** and wait for the results – this may take a few seconds to a minute base on the amount of data in your inventory.

All reports can be downloaded in a number of formats including:

- XML
- Comma separated values (ASCII text)
- PDF
- MHTML
- MS Excel
- TIFF
- MS Word

A typical report showing the download icon is shown in Figure 96.
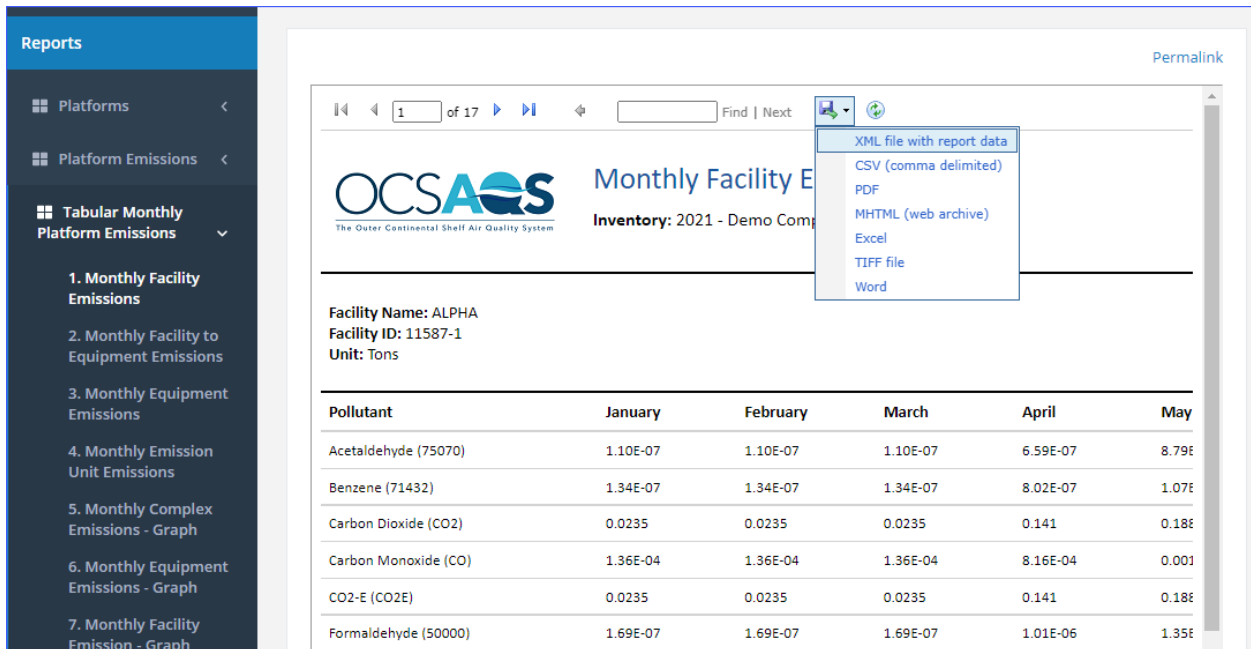
Figure 96: Report with download formats options

8.2   Report Categories

The following sections describe various report categories found under **General** section, **All Reports** navicon. The reports in these categories can be also found under the corresponding sections on the same level as the **General** section. They are grouped by purpose under each heading and associated navicons.

8.2.1   Platforms Reports

Platforms reports section contains reports that provide non-emissions information regarding the sources. These include the facility structure and composition, complexes where they are located, and operating companies they belong to.

8.2.2   Platform Emissions Reports

Platform Emissions reports section contain reports that allow you to present emissions information in various ways. These reports allow you view results as overall totals, totals grouped by complex or facility, monthly totals, annual totals, grouped by equipment type, as well as a report listing all facilities that were set to "zero emissions" for at least part of the year.

8.2.3   Monthly Platform Emissions

Monthly Platform Emissions reports section contains only reports pertaining to emissions generated by the facilities. Grouped by facility, complex, emission unit, or equipment type, this data can be presented in tabular or graph format.

8.2.4   Platform Emission Manager

Platform Emission Manager reports allow you generate reports regarding non-emissions information related to the **Activity & Emissions Manager** for platform sources. This information includes the QA/QC comments entered for any parameters, any facilities or emission units set to "zero emissions" for at least part of the year, value ranges for parameter, comparison of calculator parameters month-to-month, and the flare gas volume emitted grouped by structure.

8.2.5   GHG Emissions Reports

GHG Emissions reports allow you to view amounts of greenhouse gas emissions produced grouped by OPD area, structure, emission unit, and equipment type.

> *TIP:* If the wizard asks to select an OPD and you don't know which one to choose, select all and move to the next step. Sometimes it is easier to select by facility than OPD.

> *IMPORTANT:* The global warming potentials (GWP) used to calculate the CO2e values are listed for each pollutant at the top of the table.

8.2.6   Lease Operation Reports

Lease Operations reports summarize emissions generated during lease operation activities

8.2.7   Calculators Reports

Calculators reports describe the different calculation methods and input parameters used to calculate emissions.

8.2.8   Portal Reports

Portal reports provide submittal information for the operator inventories.

8.2.9   Trend Analysis Reports

Trend Analysis reports allow you to observe emission trends over multiple inventory years in tabular or graphical format.

8.2.10 Other Reports

Other reports refer to miscellaneous reports that did not fall into any specific category.

8.2.11 Using Permalinks

OCS AQS allows the user to save a report query that can be used over or sent to a colleague (who has an OCS AQS account). After the user has run the report, click on the Permalink hyperlink shown in Figure 97.
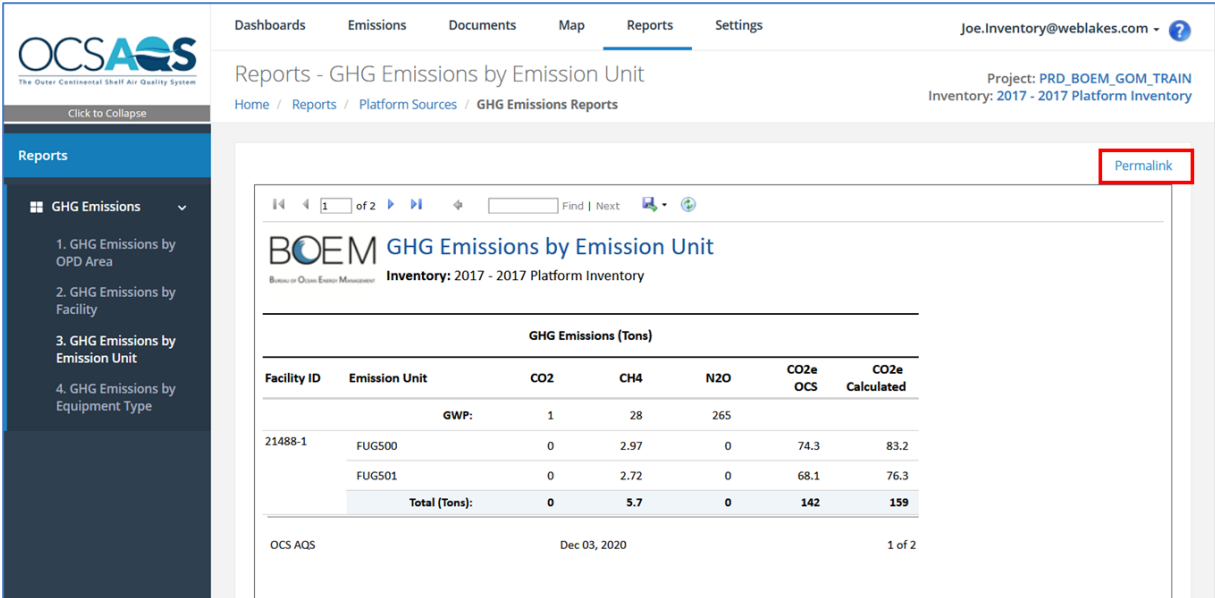
Figure 97: Permalink location

Clicking on the **Permalink** will open a window with the URL of the report as shown in Figure 98. Copy the link and use it any time you want to re-run the report with the same parameters.
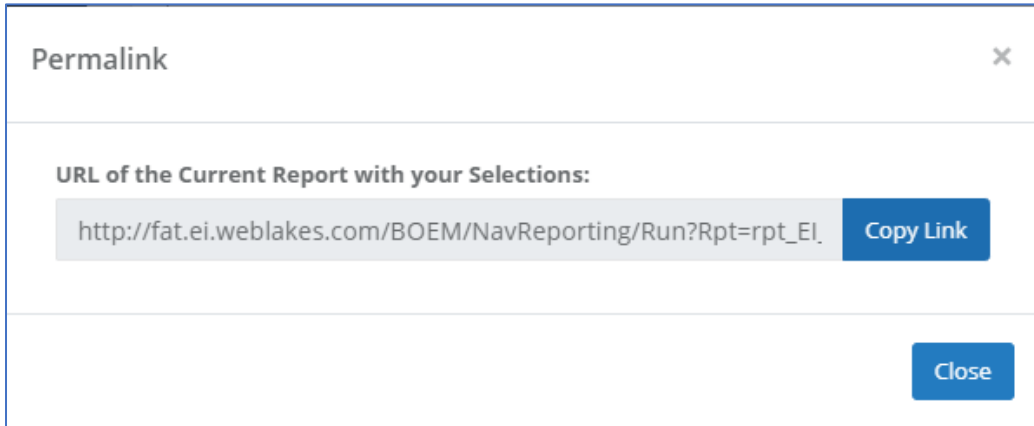
Figure 98: Permalink window

9 Settings

The **Settings** module allows you to update system configuration for yourself as well as review activities under your account. The Navigation Panel provides links for **User Options** and **Auditing** sections.

9.1 User Options

User Options section includes the ability to change the active inventory you are working in and manage system notifications as shown in Figure 99.
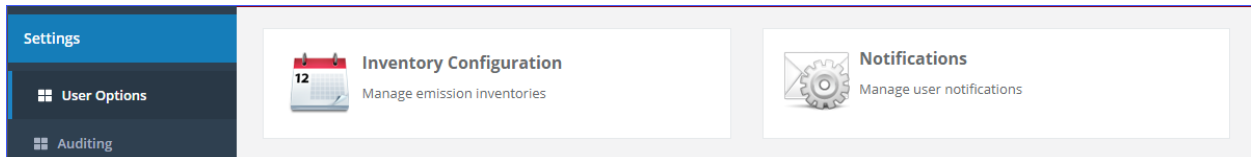
Figure 99: User Options page

9.1.1 Inventory Configuration

The **Inventory Configuration** page lists all inventories you have access to.
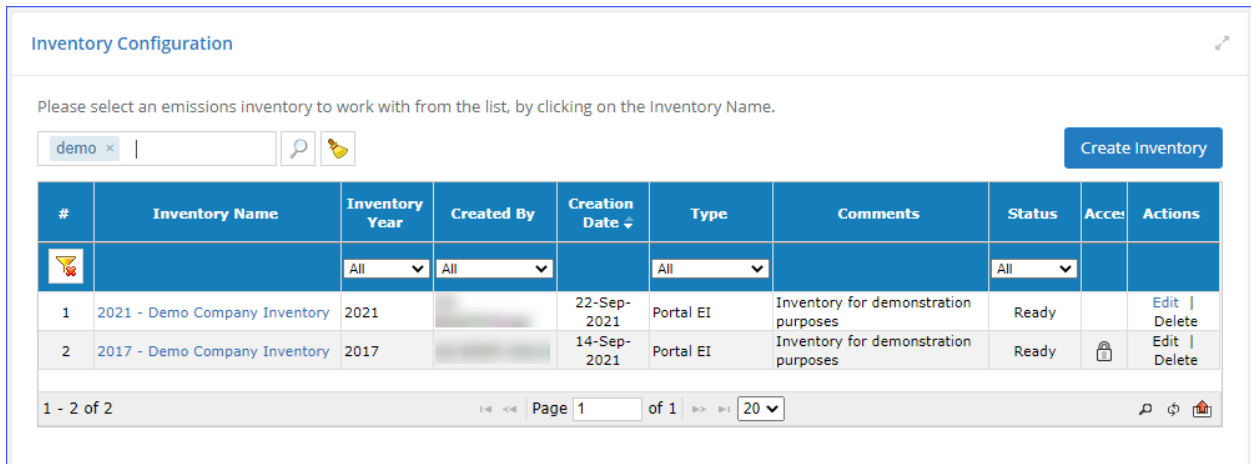
Figure 100: Inventory Configuration

> *IMPORTANT:* The 🔒 icon in the **Access** column means that the inventory is locked for editing. You can load this inventory and view its contents, but you will not be able to edit content, import new data, or run calculations.

From this screen you can:

- Click the link in the **Inventory Name** to load the inventory for viewing or editing, based on the access level.

  IMPORTANT: New users, who are accessing the inventory for the first time, will be directed to the most recently created inventory.

- Click the **Create Inventory** button to create a new inventory.

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9.1.1.1 Create New Inventory

OCS AQS allows you to create a new inventory for practice purposes.

> **IMPORTANT:** The inventory created using this process <u>will not have any link to the BOEM master project</u>. Meaning that any work you do in the inventory cannot be submitted to BOEM.

To create a new inventory:

1. Click **Create Inventory** button.

2. From the list of available inventories select one on which you wish to base the new inventory.

3. Click **Next**.

4. Specify the **Year** for the new inventory. It does not have to be the same year as the source inventory.

5. Enter a short **Description** of the inventory. The combination of the **Year** and **Description** will be used to identify the inventory in the list.

6. Select the inventory **Type**.

    a. **Emissions Inventory:** Stand alone, self-contained emissions inventory

    b. **Portal EI:** Operator-specific emissions inventory that is linked to the master project*

> ***IMPORTANT:** A user created **Portal EI** inventory <u>IS NOT</u> linked to the master project. It <u>CANNOT</u> be synced with the master project. Any changes made in it <u>CANNOT</u> be submitted to BOEM.

7. Enter any **Comments** regarding the purpose of the new inventory.

8. Check/uncheck **Copy Options** based on the information you want to copy to the new inventory.

9. Click **Next**.

10. Review the information you selected/entered and click **Finish** to create the new inventory.

Depending on the size of the source inventory, the **Copy Options** you specified, and the processing power of the server, this process may take a few seconds to a few minutes. While the new inventory is being created, the **Status** for the new inventory in the list will read **Init**. Once the inventory is finalized, the **Status** will change to **Ready**, meaning that the new inventory is ready for use.

9.1.2 Notifications

The **Notifications** page lists results of a variety of cloud processes you initiated.

Figure 101: User Notifications

The green notifications have been acknowledged, while pink notifications are new. New notifications are also shown as a number on the envelope notifications icon to the left of the user name - . To acknowledge notifications and marked them as "read", check the box for each notification and click the **Acknowledge** button.

Here you can also specify how many notifications are shown when you click on the envelope button. To do so, click the **Settings** button, enter the desired number, and click **Save**.

Figure 102: Notification Settings

9.2 Auditing

The **Auditing** section allows you to review the activities and change log that took place during login. The two available navicons are shown in Figure 103.
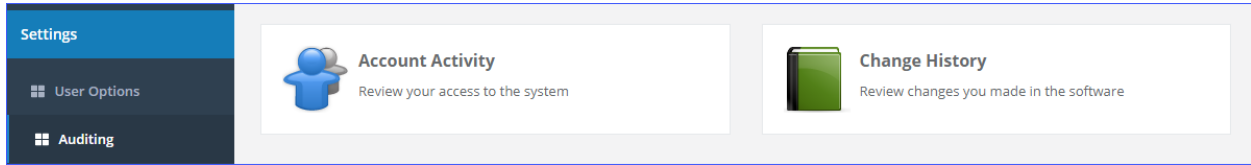
Figure 103. Auditing navicons

9.2.1 Account Activity

Account Activity displays a list of actions taken by you in the system.

Above the table you can find the following controls:

- **Time Period:** Set the time period for which you wish to view the activity. The default is **Today**.

- **Default:** This button resets the time period to the default setting.

- **Update:** This button refreshes the view.

9.2.2 Change History Report

Change History report allows you to review any changes made to the data in any inventory accessible to you.

Figure 104: Change History report

Above the table you will find the following controls:

- **Search:** Search tool available for every list.

- **User:** Displays your user ID.

- **Time Period:** Set the time period for which you wish to view the change history. The default is **Today**.

- **Default:** This button resets the time period to the default setting.

- **Update:** This button refreshes the view.

You can examine the details of any change by selecting it in the table as shown in Figure 105.

Figure 105: Change details

- END OF MANUAL –

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Appendix A – Calculator Descriptions

A.1 AMI-000 (Amine Gas Sweetening Unit)

The hourly emission rates from the amine gas sweetening unit are calculated externally using the AMINECalc calculator Version 1.0 and these emission rates are then imported into OCS AQS using the Amine Emission Rates Import tool located in Activity & Emissions Manager section of the Emissions module. The calculator AMI-000 Version 0 in OCS AQS calculates the monthly emissions from the amine gas sweetening unit using the imported hourly emission rates and the following **Data Request** fields:

Description	Value
EMISSION CALCULATOR REQUIRED PARAMETERS	
Hours of Operation per Month [hr]:	
Emissions Destination:	
OTHER INFORMATION	
Material Processed:	
Total Gas Throughput [MSCF/month]:	

Appendix A Figure 1: AMI-000 Data Request tab

1. Hours of Operation per Month [hr]: The total monthly hours of operation of the amine gas sweetening unit during this survey period.

2. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

3. Material Processed: A drop-down list field to specify the processed material: Natural Gas / Process Gas.

4. Total Gas Throughput [MSCF/month]: The total volume of gas processed in this amine unit during the specific monthly survey period, volume adjusted to standard temperature and pressure.

A.2 BOI-M01R (Boilers, Heaters, and Burners - Diesel)

The calculator BOI-M01R Version 4 in OCS AQS calculates the monthly emissions from a liquid-fueled unit powered by diesel using the following **Data Request** fields:

Description	Value
EMISSION CALCULATOR REQUIRED PARAMETERS	
Total Fuel Usage [lb/month]:	QA →
Fuel Sulfur Content [wt%]:	QA →
Emissions Destination:	QA →
OTHER INFORMATION	
Material Processed:	Diesel QA →
Fuel Heating Value [Btu/lb]:	19300 QA →
Hours of Operation per Month [hr]:	QA →
Average Fuel Used [lb/hr]:	QA →
Max Rated Fuel Usage [lb/hr]:	QA →
Average Heat Input [MMBtu/hr]:	QA →
Max Rated Heat Input Rate [MMBtu/hr]:	QA →

Appendix A Figure 2: BOI-M01R Data Request tab

1. Total Fuel Usage [lb/month]: Total monthly rate of the liquid fuel used during the survey period.

2. Fuel Sulfur Content [wt%]: The weight percentage concentration of the sulfur content in the used liquid fuel. For example, if the fuel is 1.0% sulfur, then user enters 1 and not 0.01.

3. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to the system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4. Material Processed: A drop-down list field to specify the processed material: Diesel / Distillate Oil. Default selection is Diesel.

5. Fuel Heating Value [Btu/lb]: The amount of heat released during the combustion of a specified amount of the liquid fuel. Default value is 19,300 Btu/lb.

6. Hours of Operation per Month [hr]: The total monthly hours of operation of the liquid-fueled unit during the survey period.

7. Average Fuel Used [lb/hr]: The average hourly rate of the used liquid fuel during the survey period. This field is auto-calculated.

8. Max Rated Fuel Usage [lb/hr]: The maximum hourly usage rate of the liquid fuel.

9. Average Heat Input [MMBtu/hr]: The average hourly heat input rate of liquid fuel. This field is auto-calculated.

10. Max Rated Heat Input Rate [MMBtu/hr]: The manufacturer's maximum rated heat input rate of the liquid fuel.

The calculator BOI-M01R Version 4 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a liquid-fueled unit powered by diesel using the following **Control Request** fields:

Description	Value	
PROCESS CONTROL INFORMATION		
Primary Type of Control Equipment:	⌄	QA→
Description of Control Equipment Chain:		QA→
Reduction Efficiency - PM2.5 [%]:		QA→
Reduction Efficiency - PM10 [%]:		QA→
Reduction Efficiency - NOx [%]:		QA→
Reduction Efficiency - N2O [%]:		QA→
Reduction Efficiency - SOx [%]:		QA→
Reduction Efficiency - VOC [%]:		QA→
Reduction Efficiency - CO [%]:		QA→
Control Device?	No ⌄	QA→
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No ⌄	QA→

Appendix A Figure 3: BOI-M01R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other to describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - N2O [%]: This describes the average reduction of emitted N2O using the control technology. If the total reduction of N2O using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

9. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

10. Control Device? – Is a control device or end of pipe treatment included in the process? This is a Yes/No question.

11. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

>   *IMPORTANT*: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.3   BOI-M02R (Boilers, Heaters, and Burners - Waste Oil)

The calculator BOI-M02R Version 3 in OCS AQS calculates the monthly emissions from a liquid-fueled unit powered by waste oil using the following **Data Request** fields:

Description	Value
EMISSION CALCULATOR REQUIRED PARAMETERS	
Total Fuel Usage [lb/month]:	
Fuel Sulfur Content [wt%]:	
Emissions Destination:	
OTHER INFORMATION	
Material Processed:	
Fuel Heating Value [Btu/lb]:	
Hours of Operation per Month [hr]:	
Average Fuel Used [lb/hr]:	
Max Rated Fuel Usage [lb/hr]:	
Average Heat Input [MMBtu/hr]:	
Max Rated Heat Input Rate [MMBtu/hr]:	

Appendix A Figure 4: BOI-M02R Data Request tab

1.   Total Fuel Usage [lb/month]: Total monthly rate of the liquid fuel used during the survey period.

2.   Fuel Sulfur Content [wt%]: The weight percentage concentration of the sulfur content in the used liquid fuel. For example, if the fuel is 1.0% sulfur, then user enters 1 and not 0.01.

3.   Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to the system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4.   Material Processed: A drop-down list field to specify the processed material: Crude Oil.

5. Fuel Heating Value [Btu/lb]: The amount of heat released during the combustion of a specified amount of the liquid fuel.

6. Hours of Operation per Month [hr]: The total monthly hours of operation of the liquid-fueled unit during the survey period.

7. Average Fuel Used [lb/hr]: The average hourly rate of liquid fuel used during the survey period. This field is auto-calculated.

8. Max Rated Fuel Usage [lb/hr]: The maximum hourly usage rate of the liquid fuel.

9. Average Heat Input [MMBtu/hr]: The average hourly heat input rate of liquid fuel. This field is auto-calculated.

10. Max Rated Heat Input Rate [MMBtu/hr]: The manufacturer's maximum rated heat input rate of the liquid fuel.

The calculator BOI-M02R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a liquid-fueled unit powered by waste oil using the following **Control Request** fields:

Description	Value	
PROCESS CONTROL INFORMATION		
Primary Type of Control Equipment:	⌄	QA →
Description of Control Equipment Chain:		QA →
Reduction Efficiency - PM2.5 [%]:		QA →
Reduction Efficiency - PM10 [%]:		QA →
Reduction Efficiency - NOx [%]:		QA →
Reduction Efficiency - N2O [%]:		QA →
Reduction Efficiency - SOx [%]:		QA →
Reduction Efficiency - VOC [%]:		QA →
Reduction Efficiency - CO [%]:		QA →
Control Device?	No ⌄	QA →
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No ⌄	QA →

Appendix A Figure 5: BOI-M02R Control Request tab

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1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other to describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - N2O [%]: This describes the average reduction of emitted N2O using the control technology. If the total reduction of N2O using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

9. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

10. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

11. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

    IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.4 BOI-M03R (Boilers, Heaters, and Burners - Natural Gas, Process Gas, or Waste Gas)

The calculator BOI-M03R Version 3 in OCS AQS calculates the monthly emissions from a gas-fueled unit powered by natural gas, process gas, or waste gas using the following **Data Request** fields:

Description	Value
EMISSION CALCULATOR REQUIRED PARAMETERS	
Total Fuel Usage [Mscf/month]:	
Emissions Destination:	
OTHER INFORMATION	
Material Processed:	
Fuel Heating Value [Btu/scf]:	1050
Hours of Operation per Month [hr]:	
Average Fuel Used [scf/hr]:	
Max Rated Fuel Usage [scf/hr]:	

Appendix A Figure 6: BOI-M03R Data Request tab

1. Total Fuel Usage [Mscf/month]: Total monthly rate of the gas fuel used during the survey period.

2. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to the system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

3. Material Processed: A drop-down list field to specify the processed material: Natural Gas / Process Gas / Exhaust Gas.

4. Fuel Heating Value [Btu/scf]: The amount of heat released during the combustion of a specified amount of the gas fuel. Default value is 1050 Btu/scf.

5. Hours of Operation per Month [hr]: The total monthly hours of operation of the gas-fueled unit during the survey period.

6. Average Fuel Used [scf/hr]: The average hourly rate of gas fuel used during the survey period. This field is auto-calculated.

7. Max Rated Fuel Usage [scf/hr]: The maximum hourly usage rate of the gas fuel.

The calculator BOI-M03R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a gas-fueled unit powered by natural gas, process gas, or waste gas using the following **Control Request** fields:

Description	Value	
PROCESS CONTROL INFORMATION		
Primary Type of Control Equipment:	⌄	QA →
Description of Control Equipment Chain:		QA →
Reduction Efficiency - PM2.5 [%]:		QA →
Reduction Efficiency - PM10 [%]:		QA →
Reduction Efficiency - NOx [%]:		QA →
Reduction Efficiency - N2O [%]:		QA →
Reduction Efficiency - SOx [%]:		QA →
Reduction Efficiency - VOC [%]:		QA →
Reduction Efficiency - CO [%]:		QA →
Control Device?	No ⌄	QA →
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No ⌄	QA →

Appendix A Figure 7: BOI-M03R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other to describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - N2O [%]: This describes the average reduction of emitted N2O using the control technology. If the total reduction of N2O using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

9. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

10. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

11. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

> *IMPORTANT*: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.5 DIE-M01R (Gasoline Engines)

The calculator DIE-M01R Version 3 in OCS AQS calculates the monthly emissions from a gasoline engine using the following **Data Request** fields:

Description	Value
EMISSION CALCULATOR REQUIRED PARAMETERS	
Total Fuel Usage [gallons/month]:	[ ] QA→
Fuel Heating Value [Btu/lb]:	20300 QA→
Emissions Destination:	∨ QA→
OTHER INFORMATION	
Material Processed:	Gasoline ∨ QA→
Hours of Operation per Month [hr]:	QA→
Operating Horsepower [hp]:	QA→
Max Rated Horsepower [hp]:	QA→
Max Rated Fuel Usage [Btu/hp-hr]:	QA→
Average Fuel Used [Btu/hp-hr]:	QA→

Appendix A Figure 8: DIE-M01R Data Request tab

1. Total Fuel Usage [gallons/month]: Total monthly rate of the gasoline fuel used during the survey period.

2. Fuel Heating Value [Btu/lb]: The amount of heat released during the combustion of a specified amount of the gasoline fuel. Default value is 20300 Btu/lb.

3. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to the system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4. Material Processed: A drop-down list field to specify the processed material: Gasoline.

5. Hours of Operation per Month [hr]: The total monthly hours of operation of the unit during the survey period.

6. Operating Horsepower [hp]: The operating horsepower of the gasoline engine.

7. Max Rated Horsepower [hp]: The manufacturer's maximum rated horsepower of the gasoline engine

8. Max Rated Fuel Usage [Btu/hp-hr]: The maximum hourly usage rate of the gasoline fuel.

9. Average Fuel Used [Btu/hp-hr]: The average hourly rate of gasoline fuel used during the survey period. This field is auto-calculated.

The calculator DIE-M01R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a gasoline engine using the following **Control Request** fields:

Description	Value	
PROCESS CONTROL INFORMATION		
Primary Type of Control Equipment:	⌄	QA→
Description of Control Equipment Chain:		QA→
Reduction Efficiency - PM2.5 [%]:		QA→
Reduction Efficiency - PM10 [%]:		QA→
Reduction Efficiency - NOx [%]:		QA→
Reduction Efficiency - SOx [%]:		QA→
Reduction Efficiency - VOC [%]:		QA→
Reduction Efficiency - CO [%]:		QA→
Control Device?	No ⌄	QA→
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No ⌄	QA→

Appendix A Figure 9: DIE-M01R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other to describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

9. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

10. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

   IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.6 DIE-M02R (Diesel Engines, Max HP < 600)

The calculator DIE-M02R Version 4 in OCS AQS calculates the monthly emissions from a diesel engine where Max HP < 600 using the following **Data Request** fields:

Description	Value	
EMISSION CALCULATOR REQUIRED PARAMETERS		
Total Fuel Usage [gallons/month]:		QA →
Fuel Heating Value [Btu/lb]:	19300	QA →
Emissions Destination:	⌄	QA →
OTHER INFORMATION		
Material Processed:	⌄	QA →
Hours of Operation per Month [hr]:		QA →
Operating Horsepower [hp]:		QA →
Max Rated Horsepower [hp]:		QA →
Max Rated Fuel Usage [Btu/hp-hr]:		QA →
Average Fuel Used [Btu/hp-hr]:		QA →

Appendix A Figure 10: DIE-M02R Data Request tab

1. Total Fuel Usage [gallons/month]: Total monthly rate of the diesel fuel used during the survey period.

2. Fuel Heating Value [Btu/lb]: The amount of heat released during the combustion of a specified amount of the diesel fuel. Default value is 19300 Btu/lb.

3. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to the system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4. Material Processed: A drop-down list field to specify the processed material: Diesel / Distillate Oil.

5. Hours of Operation per Month [hr]: The total monthly hours of operation of the unit during the survey period.

6. Operating Horsepower [hp]: The operating horsepower of the diesel engine.

7. Max Rated Horsepower [hp]: The manufacturer's maximum rated horsepower of the diesel engine.

8. Max Rated Fuel Usage [Btu/hp-hr]: The maximum hourly usage rate of the diesel fuel.

9. Average Fuel Used [Btu/hp-hr]: The average hourly rate of diesel fuel used during the survey period. This field is auto-calculated.

The calculator DIE-M02R Version 4 in OCS AQS calculates the monthly emissions with pollution control from a diesel engine where Max HP < 600 using the following **Control Request** fields:

Description	Value
PROCESS CONTROL INFORMATION	
Primary Type of Control Equipment:	⌄ QA→
Description of Control Equipment Chain:	QA→
Reduction Efficiency - PM2.5 [%]:	QA→
Reduction Efficiency - PM10 [%]:	QA→
Reduction Efficiency - NOx [%]:	QA→
Reduction Efficiency - SOx [%]:	QA→
Reduction Efficiency - VOC [%]:	QA→
Reduction Efficiency - CO [%]:	QA→
Control Device?	No ⌄ QA→
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No ⌄ QA→

Appendix A Figure 11: DIE-M02R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other to describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

9. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

10. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment

   IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.7 DIE-M03R (Diesel Engines, Max HP >= 600)

The calculator DIE-M03R Version 4 in OCS AQS calculates the monthly emissions from a diesel engine where Max HP >= 600 using the following **Data Request** fields:

Appendix A Figure 12: DIE-M03R Data Request tab

1. Total Fuel Usage [gallons/month]: Total monthly rate of the diesel fuel used during the survey period.

2. Fuel Heating Value [Btu/lb]: The amount of heat released during the combustion of a specified amount of the diesel fuel. Default value is 19300 Btu/lb.

3. Fuel Sulfur Content [wt%]: The weight percentage concentration of the sulfur content in the used diesel fuel. For example, if the fuel is 1.0% sulfur, then user enters 1 and not 0.01.

4. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to the system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

5. Material Processed: A drop-down list field to specify the processed material: Diesel / Distillate Oil.

6. Hours of Operation per Month [hr]: The total monthly hours of operation of the unit during the survey period.

7. Operating Horsepower [hp]: The operating horsepower of the diesel engine.

8. Max Rated Horsepower [hp]: The manufacturer's maximum rated horsepower of the diesel engine.

9. Max Rated Fuel Usage [Btu/hp-hr]: The maximum hourly usage rate of the diesel fuel.

10. Average Fuel Used [Btu/hp-hr]: The average hourly rate of diesel fuel used during the survey period. This field is auto-calculated.

The calculator DIE-M03R Version 4 in OCS AQS calculates the monthly emissions with pollution control from a diesel engine where Max HP >= 600 using the following **Control Request** fields:

Appendix A Figure 13: DIE-M03R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other to describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used

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3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

9. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

10. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment

   *IMPORTANT***:** Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.8 DRI-M01R (Drilling Equipment - Gasoline Fuel)

The calculator DRI-M01R Version 3 in OCS AQS calculates the monthly emissions from a drilling equipment powered by gasoline fuel using the following **Data Request** fields:

Appendix A Figure 14: DRI-M01R Data Request tab

1. Total Fuel Usage [gallons/month]: Total monthly rate of the gasoline fuel used during the survey period.

2. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to the system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

3. Material processed: A drop-down list field to specify the processed material: Gasoline.

4. Hours of Operation per Month [hr]: The total monthly hours of operation of the unit during the survey period.

The calculator DRI-M01R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a drilling equipment powered by gasoline fuel using the following **Control Request** fields:

Appendix A Figure 15:DRI-M01R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other to describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

9. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

10. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment

    IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.9 DRI-M02R (Drilling Equipment - Diesel Fuel)

The calculator DRI-M02R Version 4 in OCS AQS calculates the monthly emissions from a drilling equipment powered by diesel fuel using the following **Data Request** fields:

Appendix A Figure 16: DRI-M02R Data Request tab

1. Total Fuel Usage [gallons/month]: Total monthly rate of the diesel fuel used during the survey period.

2. Fuel Sulfur Content [wt%]: The weight percentage concentration of the sulfur content in the used diesel fuel. For example, if the fuel is 1.0% sulfur, then user enters 1 and not 0.01.

3. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to the system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4. Material Processed: A drop-down list field to specify the processed material: Diesel / Distillate Oil.

5. Hours of Operation per Month [hr]: The total monthly hours of operation of the unit during the survey period.

The calculator DRI-M02R Version 4 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a drilling equipment powered by diesel fuel using the following **Control Request** fields:

Appendix A Figure 17: DRI-M02R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other to describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

9. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

10. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

> *IMPORTANT*: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.10 DRI-M03R (Drilling Equipment - Natural Gas Fuel)

The calculator DRI-M03R Version 3 in OCS AQS calculates the monthly emissions from a drilling equipment powered by natural gas fuel using the following **Data Request** fields:

Description	Value
EMISSION CALCULATOR REQUIRED PARAMETERS	
Total Fuel Usage [Mscf/month]:	
Emissions Destination:	
OTHER INFORMATION	
Material Processed:	
Hours of Operation per Month [hr]:	

Appendix A Figure 18: DRI-M03R Data Request tab

1. Total Fuel Usage [Mscf/month]: Total monthly rate of the natural gas fuel used during the survey period.

2. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to the system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

3. Material Processed: A drop-down list field to specify the processed material: Natural Gas/ Process Gas.

4. Hours of Operation per Month [hr]: The total monthly hours of operation of the unit during the survey period.

The calculator DRI-M03R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a drilling equipment powered by natural gas fuel using the following **Control Request** fields:

Description	Value	
PROCESS CONTROL INFORMATION		
Primary Type of Control Equipment:	⌄	QA→
Description of Control Equipment Chain:		QA→
Reduction Efficiency - PM2.5 [%]:		QA→
Reduction Efficiency - PM10 [%]:		QA→
Reduction Efficiency - NOx [%]:		QA→
Reduction Efficiency - SOx [%]:		QA→
Reduction Efficiency - VOC [%]:		QA→
Reduction Efficiency - CO [%]:		QA→
Control Device?	No ⌄	QA→
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No ⌄	QA→

Appendix A Figure 19: DRI-M03R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other to describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

9. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

10. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

*IMPORTANT***:** Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.11 FLA-M01 (Combustion Flare)

The calculator FLA-M01 Version 3 in OCS AQS calculates the monthly emissions from a combustion flare using the following **Data Request** fields:

Appendix A Figure 20:FLA-M01 Data Request tab

1. Total Volume of Gas Flared (Not Including Pilot) [Mscf]: The total volume of flare gas during the survey period, <u>without the pilot flared gas.</u>

2. Smoking Condition: A drop-down list field to specify the condition of the flare emitted smoke: No Smoke / Light Smoke / Medium Smoke / Heavy Smoke.

3. Concentration of H2S in the Flare Gas [ppm]: The ppm concentration of hydrogen sulfide present in the flare gas.

4. Flare Gas Heating Value [Btu/scf]: The amount of heat released during the combustion of a specified amount of the flare gas.

5. Combustion Efficiency of the Flare [%]: The percentage efficiency of complete combustion, or the percentage of hydrocarbon conversion to carbon dioxide (CO2).

6. Material Processed: A drop-down list field to specify the processed material: Gas/ Natural Gas / Process Gas / Exhaust gas.

7. Hours of Operation per Month [hr]: The total monthly hours of operation of the unit during the survey period.

8. Average flaring rate [Mscf/hr]. The flaring hourly volumetric rate. This field is auto-calculated.

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A.12 FLA-M02 (Combustion Flares - Pilot)

The calculator FLA-M02 Version 3 in OCS AQS calculates the monthly emissions from a pilot combustion flare using the following **Data Request** fields:

Appendix A Figure 21: FLA-M02 Data Request tab

1. Pilot Feed Rate [Mscf/day]: Daily volumetric flowrate of gas fed to the pilot.

2. Number of Days in Month [Day]: The number of days in the month of the survey period.

3. Material Processed: A drop-down list field to specify the processed material: Gas / Natural Gas / Process Gas / Exhaust gas.

A.13 FUG-M01 (Fugitive Sources - Gas)

The calculator FUG-M01 Version 2 in OCS AQS calculates the monthly emissions from the gas fugitive sources using the following **Data Request** fields:

Description	Value	
EMISSION CALCULATOR REQUIRED PARAMETERS		
Total Number of Components (Specify by Type Below):	0	QA →
Number of Connectors:	0	QA →
Number of Flanges:	0	QA →
Number of Open-Ended Lines:	0	QA →
Number of Pump Seals:	0	QA →
Number of Valves:	0	QA →
Number of Centrifugal Compressors - Dry Seals:	0	QA →
Number of Centrifugal Compressors - Wet Seals:	0	QA →
Reciprocating Compressor - Shaft Packing Seals	0	QA →
Number of Other Compressors - Seals:	0	QA →
Number of Other Relief Valves:	0	QA →
Number of Pressure Relief Valves:	0	QA →
Number of Meters:	0	QA →
Number of Instruments:	0	QA →
Number of Hatches:	0	QA →
Number of Polished Rods:	0	QA →
Number of Dumps:	0	QA →
Number of Drains:	0	QA →
Number of Diaphragms:	0	QA →
Number of Operating Days in Month [days]:		QA →
Are Component Counts Based on Default Values?	Default	QA →
LDAR		
LDAR is in Place?	No	QA →
Inspection Method:		QA →
Number Of Months Between Inspections [months]:		QA →
OTHER INFORMATION		
Material Processed:		QA →

Appendix A Figure 22: FUG-M01 Data Request tab

1. Total Number of Components (Specify by Type Below): The summation of the number of components. This field is auto-calculated based on the number of components provided in the subsequent fields.

2. Number of Connectors: Total number of connectors in the structure.

3. Number of Flanges: Total number of flanges in this structure.

4. Number of Open-Ended Lines: Total number of open-ended lines in the structure.

5. Number of Pump Seals: Total number of pump seals in this structure.

6. Number of Valves: Total number of valves in this structure.

7. Number of Centrifugal Compressors - Dry Seals: Total number of dry seals centrifugal compressors the structure.

8. Number of Centrifugal Compressors - Wet Seals: Total number of wet seals centrifugal compressors the structure.

9. Reciprocating Compressor - Shaft Packing Seals: Total number of shaft packing seals reciprocating compressors.

10. Number of Other Compressors - Seals: Total number of other compressors in the structure.

11. Number of Other Relief Valves: Total number of other relief valves in the structure.

12. Number of Pressure Relief Valves: Total number of pressure relief valves in the structure.

13. Number of Meters: Total number of meters in the structure.

14. Number of Instruments: Total number of instruments in the structure.

15. Number of Hatches: Total number of hatches in the structure.

16. Number of Polished Rods: Total number of polished rods in the structure.

17. Number of Dumps: Total number of dumps in the structure.

18. Number of Drains: Total number of drains in the structure.

19. Number of Diaphragms: Total number of diaphragms in the structure.

20. Number of Operating Days in Month [Days]: The total number of days that the fugitive source operated during the survey period.

21. Are Component Counts Based on Default Values? [Default/Actual]: Identifies whether a facility-specific component count is provided, or default values provided by BOEM are used. Default set to Default. Default components are given as:
    Connectors: 9,194
    Valves: 1,713
    Open-Ends: 285
    Others: 228

22. LDAR is in Place? – A Yes/No drop-down list field to indicate whether the facility routinely assesses and repairs leaking fugitive components or not.

23. Inspection Method: A drop-down list field to specify the employed inspection method: Optical Instrumentation / Visual Inspection / Vapor Analyzer.

24. Number of Months Between Inspections [Months]: The LDAR program inspection frequency.

25. Material Processed: A drop-down list field to specify the processed material: Diesel / Distillate Oil / Gas / Gasoline / Natural Gas / Process Gas / Crude Oil / Condensate / Exhaust gas.

A.14 FUG-M02 (Fugitive Sources – Liquid Natural Gas)

The calculator FUG-M02 Version 2 in OCS AQS calculates the monthly emissions from the liquid natural gas fugitive sources using the following **Data Request** fields:

Description	Value
EMISSION CALCULATOR REQUIRED PARAMETERS	
Total Number of Components (Specify by Type Below):	0
Number of Connectors:	0
Number of Flanges:	0
Number of Open-Ended Lines:	0
Number of Pump Seals:	0
Number of Valves:	0
Number of Centrifugal Compressors - Dry Seals:	0
Number of Centrifugal Compressors - Wet Seals:	0
Reciprocating Compressor - Shaft Packing Seals	0
Number of Other Compressors - Seals:	0
Number of Other Relief Valves:	0
Number of Pressure Relief Valves:	0
Number of Meters:	0
Number of Instruments:	0
Number of Hatches:	0
Number of Polished Rods:	0
Number of Dumps:	0
Number of Drains:	0
Number of Diaphragms:	0
Number of Operating Days in Month [days]:	
Are Component Counts Based on Default Values?	Default
LDAR	
LDAR is in Place?	No
Inspection Method:	
Number Of Months Between Inspections [months]:	
OTHER INFORMATION	
Material Processed:	

Appendix A Figure 23: FUG-M02 Data Request tab

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1. Total Number of Components (Specify by Type Below): The summation of number of components This field is auto-calculated based on the number of components provided in the following fields.

2. Number of Connectors: Total number of connectors in the structure.

3. Number of Flanges: Total number of flanges in this structure.

4. Number of Open-Ended Lines: Total number of open-ended lines in the structure.

5. Number of Pump Seals: Total number of pump seals in this structure.

6. Number of Valves: Total number of valves in this structure.

7. Number of Centrifugal Compressors - Dry Seals: Total number of dry seals centrifugal compressors the structure.

8. Number of Centrifugal Compressors - Wet Seals: Total number of wet seals centrifugal compressors the structure.

9. Reciprocating Compressor - Shaft Packing Seals: Total number of shaft packing seals reciprocating compressors.

10. Number of Other Compressors - Seals: Total number of other compressors in the structure.

11. Number of Other Relief Valves: Total number of other relief valves in the structure.

12. Number of Pressure Relief Valves: Total number of pressure relief valves in the structure.

13. Number of Meters: Total number of meters in the structure.

14. Number of Instruments: Total number of instruments in the structure.

15. Number of Hatches: Total number of hatches in the structure.

16. Number of Polished Rods: Total number of polished rods in the structure.

17. Number of Dumps: Total number of dumps in the structure.

18. Number of Drains: Total number of drains in the structure.

19. Number of Diaphragms: Total number of diaphragms in the structure.

20. Number of Operating Days in Month [Days]: The total number of days that the fugitive source operated during the survey period.

21. Are Component Counts Based on Default Values? [Default/Actual]: Identifies whether a facility-specific component count is provided, or default values provided by BOEM are used. Default set to Default. Default components are given as:
Connectors: 9,194
Valves: 1,713
Open-Ends: 285
Others: 228

22. LDAR is in Place? – A Yes/No drop-down list field to indicate whether the facility routinely assesses and repairs leaking fugitive components or not.

23. Inspection Method: A drop-down list field to specify the employed inspection method: Optical Instrumentation / Visual Inspection / Vapor Analyzer.

24. Number of Months Between Inspections [Months]: The LDAR program inspection frequency.

25. Material Processed: A drop-down list field to specify the processed material: Diesel / Distillate Oil / Gas / Gasoline / Natural Gas / Process Gas / Crude Oil / Condensate / Exhaust gas.

A.15 FUG-M03 (Fugitive Sources – Heavy Oil)

The calculator FUG-M03 Version 2 in OCS AQS calculates the monthly emissions from the heavy oil fugitive sources using the following **Data Request** fields:

Description	Value	
EMISSION CALCULATOR REQUIRED PARAMETERS		
Total Number of Components (Specify by Type Below):	0	QA→
Number of Connectors:	0	QA→
Number of Flanges:	0	QA→
Number of Open-Ended Lines:	0	QA→
Number of Pump Seals:	0	QA→
Number of Valves:	0	QA→
Number of Centrifugal Compressors - Dry Seals:	0	QA→
Number of Centrifugal Compressors - Wet Seals:	0	QA→
Reciprocating Compressor - Shaft Packing Seals	0	QA→
Number of Other Compressors - Seals:	0	QA→
Number of Other Relief Valves:	0	QA→
Number of Pressure Relief Valves:	0	QA→
Number of Meters:	0	QA→
Number of Instruments:	0	QA→
Number of Hatches:	0	QA→
Number of Polished Rods:	0	QA→
Number of Dumps:	0	QA→
Number of Drains:	0	QA→
Number of Diaphragms:	0	QA→
Number of Operating Days in Month [days]:		QA→
Are Component Counts Based on Default Values?	Default	QA→
LDAR		
LDAR is in Place?	No	QA→
Inspection Method:		QA→
Number Of Months Between Inspections [months]:		QA→
OTHER INFORMATION		
Material Processed:		QA→

Appendix A Figure 24: FUG-M03 Data Request tab

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1. Total Number of Components (Specify by Type Below): The summation of number of components This field is auto-calculated based on the number of components provided in the following fields.

2. Number of Connectors: Total number of connectors in the structure.

3. Number of Flanges: Total number of flanges in this structure.

4. Number of Open-Ended Lines: Total number of open-ended lines in the structure.

5. Number of Pump Seals: Total number of pump seals in this structure.

6. Number of Valves: Total number of valves in this structure.

7. Number of Centrifugal Compressors - Dry Seals: Total number of dry seals centrifugal compressors the structure.

8. Number of Centrifugal Compressors - Wet Seals: Total number of wet seals centrifugal compressors the structure.

9. Reciprocating Compressor - Shaft Packing Seals: Total number of shaft packing seals reciprocating compressors.

10. Number of Other Compressors - Seals: Total number of other compressors in the structure.

11. Number of Other Relief Valves: Total number of other relief valves in the structure.

12. Number of Pressure Relief Valves: Total number of pressure relief valves in the structure.

13. Number of Meters: Total number of meters in the structure.

14. Number of Instruments: Total number of instruments in the structure.

15. Number of Hatches: Total number of hatches in the structure.

16. Number of Polished Rods: Total number of polished rods in the structure.

17. Number of Dumps: Total number of dumps in the structure.

18. Number of Drains: Total number of drains in the structure.

19. Number of Diaphragms: Total number of diaphragms in the structure.

20. Number of Operating Days in Month [Days]: The total number of days that the fugitive source operated during the survey period.

21. Are Component Counts Based on Default Values? [Default/Actual]: Identifies whether a facility-specific component count is provided, or default values provided by BOEM are used. Default set to Default. Default components are given as:
Connectors: 9,194
Valves: 1,713
Open-Ends: 285
Others: 228

22. LDAR is in Place? – A Yes/No drop-down list field to indicate whether the facility routinely assesses and repairs leaking fugitive components or not.

23. Inspection Method: A drop-down list field to specify the employed inspection method: Optical Instrumentation / Visual Inspection / Vapor Analyzer.

24. Number of Months Between Inspections [Months]: The LDAR program inspection frequency.

25. Material Processed: A drop-down list field to specify the processed material: Diesel / Distillate Oil / Gas / Gasoline / Natural Gas / Process Gas / Crude Oil / Condensate / Exhaust gas.

A.16 FUG-M04 (Fugitive Sources –Light Oil)

The calculator FUG-M04 Version 2 in OCS AQS calculates the monthly emissions from the light oil fugitive sources using the following **Data Request** fields:

Description	Value	
EMISSION CALCULATOR REQUIRED PARAMETERS		
Total Number of Components (Specify by Type Below):	0	QA→
Number of Connectors:	0	QA→
Number of Flanges:	0	QA→
Number of Open-Ended Lines:	0	QA→
Number of Pump Seals:	0	QA→
Number of Valves:	0	QA→
Number of Centrifugal Compressors - Dry Seals:	0	QA→
Number of Centrifugal Compressors - Wet Seals:	0	QA→
Reciprocating Compressor - Shaft Packing Seals	0	QA→
Number of Other Compressors - Seals:	0	QA→
Number of Other Relief Valves:	0	QA→
Number of Pressure Relief Valves:	0	QA→
Number of Meters:	0	QA→
Number of Instruments:	0	QA→
Number of Hatches:	0	QA→
Number of Polished Rods:	0	QA→
Number of Dumps:	0	QA→
Number of Drains:	0	QA→
Number of Diaphragms:	0	QA→
Number of Operating Days in Month [days]:		QA→
Are Component Counts Based on Default Values?	Default	QA→
LDAR		
LDAR is in Place?	No	QA→
Inspection Method:		QA→
Number Of Months Between Inspections [months]:		QA→
OTHER INFORMATION		
Material Processed:		QA→

Appendix A Figure 25: FUG-M04 Data Request tab

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1. Total Number of Components (Specify by Type Below): The summation of number of components This field is auto-calculated based on the number of components provided in the following fields.

2. Number of Connectors: Total number of connectors in the structure.

3. Number of Flanges: Total number of flanges in this structure.

4. Number of Open-Ended Lines: Total number of open-ended lines in the structure.

5. Number of Pump Seals: Total number of pump seals in this structure.

6. Number of Valves: Total number of valves in this structure.

7. Number of Centrifugal Compressors - Dry Seals: Total number of dry seals centrifugal compressors the structure.

8. Number of Centrifugal Compressors - Wet Seals: Total number of wet seals centrifugal compressors the structure.

9. Reciprocating Compressor - Shaft Packing Seals: Total number of shaft packing seals reciprocating compressors.

10. Number of Other Compressors - Seals: Total number of other compressors in the structure.

11. Number of Other Relief Valves: Total number of other relief valves in the structure.

12. Number of Pressure Relief Valves: Total number of pressure relief valves in the structure.

13. Number of Meters: Total number of meters in the structure.

14. Number of Instruments: Total number of instruments in the structure.

15. Number of Hatches: Total number of hatches in the structure.

16. Number of Polished Rods: Total number of polished rods in the structure.

17. Number of Dumps: Total number of dumps in the structure.

18. Number of Drains: Total number of drains in the structure.

19. Number of Diaphragms: Total number of diaphragms in the structure.

20. Number of Operating Days in Month [Days]: The total number of days that the fugitive source operated during the survey period.

21. Are Component Counts Based on Default Values? [Default/Actual]: Identifies whether a facility-specific component count is provided, or default values provided by BOEM are used. Default set to Default. Default components are given as:
    Connectors: 9,194
    Valves: 1,713
    Open-Ends: 285
    Others: 228

22. LDAR is in Place? – A Yes/No drop-down list field to indicate whether the facility routinely assesses and repairs leaking fugitive components or not.

23. Inspection Method: A drop-down list field to specify the employed inspection method: Optical Instrumentation / Visual Inspection / Vapor Analyzer.

24. Number of Months Between Inspections [Months]: The LDAR program inspection frequency.

25. Material Processed: A drop-down list field to specify the processed material: Diesel / Distillate Oil / Gas / Gasoline / Natural Gas / Process Gas / Crude Oil / Condensate / Exhaust gas.

A.17 FUG-M05 (Fugitive Sources – Water / Oil)

The calculator FUG-M05 Version 2 in OCS AQS calculates the monthly emissions from the water / oil fugitive sources using the following **Data Request** fields:

Description	Value
EMISSION CALCULATOR REQUIRED PARAMETERS	
Total Number of Components (Specify by Type Below):	0
Number of Connectors:	0
Number of Flanges:	0
Number of Open-Ended Lines:	0
Number of Pump Seals:	0
Number of Valves:	0
Number of Centrifugal Compressors - Dry Seals:	0
Number of Centrifugal Compressors - Wet Seals:	0
Reciprocating Compressor - Shaft Packing Seals	0
Number of Other Compressors - Seals:	0
Number of Other Relief Valves:	0
Number of Pressure Relief Valves:	0
Number of Meters:	0
Number of Instruments:	0
Number of Hatches:	0
Number of Polished Rods:	0
Number of Dumps:	0
Number of Drains:	0
Number of Diaphragms:	0
Number of Operating Days in Month [days]:	
Are Component Counts Based on Default Values?	Default
LDAR	
LDAR is in Place?	No
Inspection Method:	
Number Of Months Between Inspections [months]:	
OTHER INFORMATION	
Material Processed:	

Appendix A Figure 26: FUG-M05 Data Request tab

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1. Total Number of Components (Specify by Type Below): The summation of number of components This field is auto-calculated based on the number of components provided in the following fields.

2. Number of Connectors: Total number of connectors in the structure.

3. Number of Flanges: Total number of flanges in this structure.

4. Number of Open-Ended Lines: Total number of open-ended lines in the structure.

5. Number of Pump Seals: Total number of pump seals in this structure.

6. Number of Valves: Total number of valves in this structure.

7. Number of Centrifugal Compressors - Dry Seals: Total number of dry seals centrifugal compressors the structure.

8. Number of Centrifugal Compressors - Wet Seals: Total number of wet seals centrifugal compressors the structure.

9. Reciprocating Compressor - Shaft Packing Seals: Total number of shaft packing seals reciprocating compressors.

10. Number of Other Compressors - Seals: Total number of other compressors in the structure.

11. Number of Other Relief Valves: Total number of other relief valves in the structure.

12. Number of Pressure Relief Valves: Total number of pressure relief valves in the structure.

13. Number of Meters: Total number of meters in the structure.

14. Number of Instruments: Total number of instruments in the structure.

15. Number of Hatches: Total number of hatches in the structure.

16. Number of Polished Rods: Total number of polished rods in the structure.

17. Number of Dumps: Total number of dumps in the structure.

18. Number of Drains: Total number of drains in the structure.

19. Number of Diaphragms: Total number of diaphragms in the structure.

20. Number of Operating Days in Month [Days]: The total number of days that the fugitive source operated during the survey period.

21. Are Component Counts Based on Default Values? [Default/Actual]: Identifies whether a facility-specific component count is provided, or default values provided by BOEM are used. Default set to Default. Default components are given as:
    Connectors: 9,194
    Valves: 1,713
    Open-Ends: 285
     Others: 228

22. LDAR is in Place? – A Yes/No drop-down list field to indicate whether the facility routinely assesses and repairs leaking fugitive components or not.

23. Inspection Method: A drop-down list field to specify the employed inspection method: Optical Instrumentation / Visual Inspection / Vapor Analyzer.

24. Number of Months Between Inspections [Months]: The LDAR program inspection frequency.

25. Material Processed: A drop-down list field to specify the processed material: Diesel / Distillate Oil / Gas / Gasoline / Natural Gas / Process Gas / Crude Oil / Condensate / Exhaust gas.

A.18 FUG-M06 (Fugitive Sources – Water / Oil / Gas)

The calculator FUG-M06 Version 2 in OCS AQS calculates the monthly emissions from the water / oil / gas fugitive sources using the following **Data Request** fields:

Description	Value	
EMISSION CALCULATOR REQUIRED PARAMETERS		
Total Number of Components (Specify by Type Below):	0	QA→
Number of Connectors:	0	QA→
Number of Flanges:	0	QA→
Number of Open-Ended Lines:	0	QA→
Number of Pump Seals:	0	QA→
Number of Valves:	0	QA→
Number of Centrifugal Compressors - Dry Seals:	0	QA→
Number of Centrifugal Compressors - Wet Seals:	0	QA→
Reciprocating Compressor - Shaft Packing Seals	0	QA→
Number of Other Compressors - Seals:	0	QA→
Number of Other Relief Valves:	0	QA→
Number of Pressure Relief Valves:	0	QA→
Number of Meters:	0	QA→
Number of Instruments:	0	QA→
Number of Hatches:	0	QA→
Number of Polished Rods:	0	QA→
Number of Dumps:	0	QA→
Number of Drains:	0	QA→
Number of Diaphragms:	0	QA→
Number of Operating Days in Month [days]:		QA→
Are Component Counts Based on Default Values?	Default	QA→
LDAR		
LDAR is in Place?	No	QA→
Inspection Method:		QA→
Number Of Months Between Inspections [months]:		QA→
OTHER INFORMATION		
Material Processed:		QA→

Appendix A Figure 27: FUG-M06 Data Request tab

1. Total Number of Components (Specify by Type Below): The summation of number of components This field is auto-calculated based on the number of components provided in the following fields.

2. Number of Connectors: Total number of connectors in the structure.

3. Number of Flanges: Total number of flanges in this structure.

4. Number of Open-Ended Lines: Total number of open-ended lines in the structure.

5. Number of Pump Seals: Total number of pump seals in this structure.

6. Number of Valves: Total number of valves in this structure.

7. Number of Centrifugal Compressors - Dry Seals: Total number of dry seals centrifugal compressors the structure.

8. Number of Centrifugal Compressors - Wet Seals: Total number of wet seals centrifugal compressors the structure.

9. Reciprocating Compressor - Shaft Packing Seals: Total number of shaft packing seals reciprocating compressors.

10. Number of Other Compressors - Seals: Total number of other compressors in the structure.

11. Number of Other Relief Valves: Total number of other relief valves in the structure.

12. Number of Pressure Relief Valves: Total number of pressure relief valves in the structure.

13. Number of Meters: Total number of meters in the structure.

14. Number of Instruments: Total number of instruments in the structure.

15. Number of Hatches: Total number of hatches in the structure.

16. Number of Polished Rods: Total number of polished rods in the structure.

17. Number of Dumps: Total number of dumps in the structure.

18. Number of Drains: Total number of drains in the structure.

19. Number of Diaphragms: Total number of diaphragms in the structure.

20. Number of Operating Days in Month [Days]: The total number of days that the fugitive source operated during the survey period.

21. Are Component Counts Based on Default Values? [Default/Actual]: Identifies whether a facility-specific component count is provided, or default values provided by BOEM are used. Default set to Default. Default components are given as:
Connectors: 9,194

    Valves: 1,713

    Open-Ends: 285

    Others: 228

22. LDAR is in Place? – A Yes/No drop-down list field to indicate whether the facility routinely assesses and repairs leaking fugitive components or not.

23. Inspection Method: A drop-down list field to specify the employed inspection method: Optical Instrumentation / Visual Inspection / Vapor Analyzer.

24. Number of Months Between Inspections [Months]: The LDAR program inspection frequency.

25. Material Processed: A drop-down list field to specify the processed material: Diesel / Distillate Oil / Gas / Gasoline / Natural Gas / Process Gas / Crude Oil / Condensate / Exhaust gas.

A.19 GLY-000 (Glycol Dehydrator Unit)

The hourly emission rates from the glycol dehydrator unit are calculated externally using GRI-GLYCalc Version 4.0. These emission rates are then imported into OCS AQS using the Glycol Emission Rates Import tool located in the Activity & Emissions Manager section of the Emissions module. The calculator GLY-000 Version 0 in OCS AQS calculates the monthly emissions from the glycol dehydrator unit using the imported emission rates and the following **Data Request** fields:

Appendix A Figure 28: GLY-000 Data Request tab

1. Hours of Operation per Month [hr]: The total monthly hours of operation of the glycol dehydrator unit during this survey period.

2. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

3. Material Processed: A drop-down list field to specify the processed material: Natural Gas.

4. Total Throughput [Mscf/month]: The total volume of gas processed in this glycol dehydrator unit during the specific monthly survey period, volume adjusted to standard temperature and pressure (60 degrees Fahrenheit, 1 atmosphere).

A.20 LOA-M01R (Loading Operations)

The calculator LOA-M01R Version 3 in OCS AQS calculates the monthly emissions from the loading operations using the following **Data Request** fields:

Description	Value	
EMISSION CALCULATOR REQUIRED PARAMETERS		
Total Barrels Transferred per Month [bbl]:		QA →
Storage Tank Paint Color:	Aluminum or Specular ⌄	QA →
Storage Tank Paint Condition:	Good ⌄	QA →
Reid Vapor Pressure [psia]:		QA →
VOC Tank Vapor Weight Percent [wt%]:		QA →
Average Molecular Weight of Vapors [lb/lb-mol]:		QA →
Daily Average Ambient Temperature [deg F]:		QA →
Liquid Bulk Temperature [deg F]:		QA →
Emissions Destination:	⌄	QA →
OTHER INFORMATION		
Material Processed:	Crude Oil ⌄	QA →
Hours of Operation per Month [hr]:		QA →

Appendix A Figure 29: LOA-M01R Data Request tab

1. Total Barrels Transferred per Month [bbl]: The number of barrels of liquid hydrocarbons transferred / loaded per month.

2. Storage Tank Paint Color: A drop-down list field to specify the exterior paint color of the dispensing storage tank: Aluminum or Specular / Aluminum or Diffuse / Grey or Light / Grey or Medium / Red or Primer / White.

3. Storage Tank Paint Condition: A drop-down list field to specify the exterior paint condition of the dispensing storage tank: Good / Poor / Average.

4. Reid Vapor Pressure [psia]: The Reid vapor pressure of the liquid in the dispensing storage tank.

5. VOC Tank Vapor Weight Percent [wt%]: The weight percentage concentration of the vapor VOC in the dispensing storage tank.

6. Average Molecular Weight of Vapors [lb/lb-mol]: The average molecular weight of the vapor VOC present in the dispensing storage tank.

7. Daily Average Ambient Temperature [deg F]: The daily average ambient temperature.

8. Liquid bulk temperature [deg F]: The bulk temperature of the liquid in the dispensing storage tank.

9. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

10. Material Processed: A drop-down list field to specify the processed material: Crude Oil.

11. Hours of Operation per Month [hr]: The total monthly hours of loading operations during this survey period.

The calculator LOA-M01R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from the loading operations using the following **Control Request** fields:

Appendix A Figure 30: LOA-M01R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other and explain in the comments field.

2. Description of Control Equipment Chain: If more than one type of control technology is used, user can describe the sequence of processing in this field.

3. Reduction Efficiency [%]: This term describes the reduction of all emitted constituents of the emission stream using the control technology. For example, if a Vapor Unit Recovery is employed with a 90% reduction efficiency, the user enters "90" in the "Reduction Efficiency [%] field. After the calculation is executed, all the emitted constituents will be reduced uniformly by 90%.

4. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

5. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

    IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.21 LOS-M01R (Losses from Flashing)

The calculator LOS-M01R Version 4 in OCS AQS calculates the monthly emitted losses from flashing using the following **Data Request** fields:

Appendix A Figure 31: LOS-M01R Data Request tab

1. Throughput Volume per Month [bbl]: The total volume of the material processed in the vessel during the specific monthly survey period.

2. Atmospheric Pressure   [psia]: The atmospheric pressure. Default value is 14.7 pisa.

3. Upstream Operating Pressure [psig]: Operating pressure of the upstream vessel.

4. Upstream Operating Temperature [deg F]: Operating temperature of the upstream vessel.

5. Downstream / Vessel Operating Pressure [psig]: Operating pressure of the downstream / vessel where the flashing takes place.

6. Downstream /Vessel Operating Temperature [deg F]: Operating temperature of the downstream / vessel where the flashing takes place.

7. API Gravity: The API gravity of the oil/condensate in the vessel where the flashing takes place.

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8. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

9. Material Processed: A drop-down list field to specify the processed material: Crude Oil / Condensate.

10. Hours of Operation per Month [hr]: The total monthly hours of flashing operations during this survey period.

11. Type of Vessel: A drop-down list field to specify the type of vessel: Heater Treater / Separator / Storage Tank / Surge Tank / Other.

The calculator LOS-M01R Version 4 in OCS AQS the monthly losses emitted from flashing <u>with pollution control</u> using the following **Control Request** fields:

Description	Value	
PROCESS CONTROL INFORMATION		
Primary Type of Control Equipment:		QA →
Description of Control Equipment Chain:		QA →
Reduction Efficiency [%]:		QA →
Control Device?	Yes	QA →
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No	QA →

Appendix A Figure 32: LOS-M01R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other and explain in the comments field.

2. Description of Control Equipment Chain: If more than one type of control technology is used, user can describe the sequence of processing in this field.

3. Reduction Efficiency [%]: This term describes the reduction of all emitted constituents of the emission stream using the control technology. For example, if a Vapor Unit Recovery is employed with a 90% reduction efficiency, the user enters "90" in the "Reduction Efficiency [%] field. After the calculation is executed, all the emitted constituents will be reduced uniformly by 90%.

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4. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

5. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

> *IMPORTANT*: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.22 MUD-M01 (Mud Degassing)

The calculator MUD-M01 Version 2 in OCS AQS calculates the monthly emissions from the mud degassing operation using the following **Data Request** fields:

Appendix A Figure 33: MUD-M01 Data Request tab

1. Days per Month of Drilling with Mud [Days]: The total number of 24-hour days of drilling with mud during the specific monthly survey period.

2. Type of Mud: A drop-down list field to specify the type of drilling mud: Water-based Mud / Oil-based Mud / Synthetic.

3. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4. Material Processed: The type of fuel burned in the equipment: Gas / Natural Gas.

5. Hours of Operation per Month [hr]: The total monthly hours of mud degassing operations during this survey period. This field is auto-calculated.

A.23 NGE-M01R (Natural Gas Engine - Engine Stroke Cycle = 2-Cycle and Engine Burn = Lean)

The calculator NGE-M01R Version 3 in OCS AQS calculates the monthly emissions from a natural gas engine with 2 engine cycle stroke and lean engine burn using the following **Data Request** fields:

Description	Value	
EMISSION CALCULATOR REQUIRED PARAMETERS		
Total Fuel Usage [Mscf/month]:		QA →
Fuel Heating Value [Btu/scf]:	1050	QA →
Emissions Destination:	∨	QA →
OTHER INFORMATION		
Material Processed:	∨	QA →
Fuel H2S Content [ppmv]:		QA →
Hours of Operation per Month [hr]:		QA →
Average Fuel Used [Mscf/hr]:		QA →
Operating Horsepower [hp]:		QA →
Max Rated Horsepower [hp]:		QA →
Max Rated Fuel Usage [Btu/hp-hr]:		QA →
Manufacturer:	∨	QA →
Model Number:		QA →

Appendix A Figure 34: NGE-M01R Data Request tab

1. Total Fuel Usage [Mscf/month]: Total monthly rate of the gas fuel used during the survey period.

2. Fuel Heating Value [Btu/scf]: The amount of heat released during the combustion of a specified amount of the natural gas fuel. Default value is 1050 Btu/scf.

3. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4. Material Processed: A drop-down list field to specify the processed material: Natural Gas / Process Gas.

5. Fuel H2S Content [ppmv]: The ppmv concentration of hydrogen sulfide present in natural gas fuel.

6. Hours of Operation per Month [hr]: The total monthly hours of operation of the engine during the survey period.

7. Average Fuel Used [Mscf/hr]: The average hourly rate of natural gas fuel used during the survey period. This field is auto-calculated.

8. Operating Horsepower [hp]: The operating horsepower of the natural gas engine.

9. Max Rated Horsepower [hp]: The manufacturer's maximum rated horsepower the natural gas engine.

10. Max Rated Fuel Usage [Btu/hp-hr]: The maximum hourly usage rate of the gas fuel.

11. Manufacturer: A drop-down list field to specify the engines' manufacturer name.

12. Model Number: The model number of the engine.

The calculator NGE-M01R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a natural gas engine with 2 engine cycle stroke and lean engine burn using the following **Control Request** fields:

Appendix A Figure 35: NGE-M01R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other to describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

9. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

10. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

> *IMPORTANT*: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.24 NGE-M02R (Natural Gas Engine - Engine Stroke Cycle = 4-Cycle and Engine Burn = Lean)

The calculator NGE-M02R Version 4 in OCS AQS calculates the monthly emissions from a natural gas engine with 4 engine cycle stroke and lean engine burn using the following **Data Request** fields:

Description	Value
EMISSION CALCULATOR REQUIRED PARAMETERS	
Total Fuel Usage [Mscf/month]:	
Fuel Heating Value [Btu/scf]:	1050
Emissions Destination:	
OTHER INFORMATION	
Material Processed:	
Fuel H2S Content [ppmv]:	
Hours of Operation per Month [hr]:	
Average Fuel Used [Mscf/hr]:	
Operating Horsepower [hp]:	
Max Rated Horsepower [hp]:	
Max Rated Fuel Usage [Btu/hp-hr]:	
Manufacturer:	
Model Number:	

Appendix A Figure 36: NGE-M02R Data Request tab

1. Total Fuel Usage [Mscf/month]: Total monthly rate of the gas fuel used during the survey period.

2. Fuel Heating Value [Btu/scf]: The amount of heat released during the combustion of a specified amount of the natural gas fuel. Default value is 1050 Btu/scf.

3. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4. Material Processed: A drop-down list field to specify the processed material: Natural Gas / Process   Gas.

5. Fuel H2S Content [ppmv]: The ppmv concentration of hydrogen sulfide present in natural gas fuel.

6. Hours of Operation per Month [hr]: The total monthly hours of operation of the engine during the survey period.

7. Average Fuel Used [Mscf/hr]: The average hourly rate of natural gas fuel used during the survey period. This field is auto-calculated.

8. Operating Horsepower [hp]: The operating horsepower of the natural gas engine.

9. Max Rated Horsepower [hp]: The manufacturer's maximum rated horsepower of the natural gas engine.

10. Max Rated Fuel Usage [Btu/hp-hr]: The maximum hourly usage rate of the gas fuel.

11. Manufacturer: A drop-down list field to specify the engines' manufacturer name.

12. Model Number: The model number of the engine.

The calculator NGE-M02R Version 4 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a natural gas engine with 4 engine cycle stroke and lean engine burn using the following **Control Request** fields:

Appendix A Figure 37: NGE-M02R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other to describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

9. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

10. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

   IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.25 NGE-M03R (Natural Gas Engine - Engine Stroke Cycle = 4-Cycle and Engine Burn = Rich)

The calculator NGE-M03R Version 3 in OCS AQS calculates the monthly emissions from a natural gas engine with 4 engine cycle stroke and rich engine burn using the following **Data Request** fields:

Appendix A Figure 38: NGE-M03R Data Request tab

1. Total Fuel Usage [Mscf/month]: Total monthly rate of the gas fuel used during the survey period.

2. Fuel Heating Value [Btu/scf]: The amount of heat released during the combustion of a specified amount of the natural gas fuel. Default value is 1050 Btu/scf.

3. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4. Material Processed: A drop-down list field to specify the processed material: Natural Gas / Process Gas.

5. Fuel H2S Content [ppmv]: The ppmv concentration of hydrogen sulfide present in natural gas fuel.

6. Hours of Operation per Month [hr]: The total monthly hours of operation of the engine during the survey period.

7. Average Fuel Used [Mscf/hr]: The average hourly rate of natural gas fuel used during the survey period. This field is auto-calculated.

8. Operating Horsepower [hp]: The operating horsepower of the engine.

9. Max rated horsepower [hp]: The manufacturer's maximum rated horsepower of the engine.

10. Max Rated Fuel Usage [Btu/hp-hr]: The maximum hourly usage rate of the gas fuel.

11. Manufacturer: A drop-down list field to specify the engines' manufacturer name.

12. Model Number: The model number of the engine.

The calculator NGE-M03R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a natural gas engine with 4 engine cycle stroke and rich engine burn using the following **Control Request** fields:

Appendix A Figure 39: NGE-M03R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other and explain and describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

9. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

10. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

> **IMPORTANT:** Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.26 NGE-M04R (Natural Gas Engine - Engine Burn =clean)

The calculator NGE-M04R Version 3 in OCS AQS calculates the monthly emissions from a natural gas engine with clean engine burn using the following **Data Request** fields:

Description	Value	
EMISSION CALCULATOR REQUIRED PARAMETERS		
Total Fuel Usage [Mscf/month]:		QA →
Fuel Heating Value [Btu/scf]:	1050	QA →
Emissions Destination:	⌄	QA →
OTHER INFORMATION		
Material Processed:	⌄	QA →
Fuel H2S Content [ppmv]:		QA →
Hours of Operation per Month [hr]:		QA →
Average Fuel Used [Mscf/hr]:		QA →
Operating Horsepower [hp]:		QA →
Max Rated Horsepower [hp]:		QA →
Max Rated Fuel Usage [Btu/hp-hr]:		QA →
Manufacturer:	⌄	QA →
Model Number:		QA →

Appendix A Figure 40: NGE-M04R Data Request tab

1. Total Fuel Usage [Mscf/month]: Total monthly rate of the gas fuel used during the survey period.

2. Fuel Heating Value [Btu/scf]: The amount of heat released during the combustion of a specified amount of the natural gas fuel. Default value is 1050 Btu/scf.

3. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4. Material Processed: A drop-down list field to specify the processed material: Natural Gas / Process Gas.

5. Fuel H2S Content [ppmv]: The ppmv concentration of hydrogen sulfide present in natural gas fuel.

6. Hours of Operation per Month [hr]: The total monthly hours of operation of the engine during the survey period.

7. Average Fuel Used [Mscf/hr]: The average hourly rate of natural gas fuel used during the survey period. This field is auto-calculated.

8. Operating Horsepower [hp]: The operating horsepower of the engine.

9. Max Rated Horsepower [hp]: The manufacturer's maximum rated horsepower of the engine.

10. Max Rated Fuel Usage [Btu/hp-hr]: The maximum hourly usage rate of the gas fuel.

11. Manufacturer: A drop-down list field to specify the engines' manufacturer name.

12. Model Number: The model number of the engine.

The calculator NGE-M04R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a natural gas engine with clean engine burn using the following **Control Request** fields:

Appendix A Figure 41: NGE-M04R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other and explain and describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field

6. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

9. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

10. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

   *IMPORTANT***:** Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.27 NGT-M01R (Dual-Fuel Turbines - Nat. Gas - Known Sulfur)

The calculator NGT-M01R Version 3 in OCS AQS calculates the monthly emissions from a dual fuel turbine powered by natural gas with known sulfur content using the following **Data Request** fields:

Description	Value
EMISSION CALCULATOR REQUIRED PARAMETERS	
Total Fuel Usage [Mscf/month]:	[　] QA→
Fuel Sulfur Content [wt%]:	[　] QA→
Fuel Heating Value [Btu/scf]:	1050 QA→
Emissions Destination:	[　⌄] QA→
OTHER INFORMATION	
Material Processed:	Natural Gas ⌄ QA→
Hours of Operation per Month [hr]:	[　] QA→
Average Fuel Used [Mscf/hr]:	[　] QA→
Operating Horsepower [hp]:	[　] QA→
Max Rated Horsepower [hp]:	[　] QA→
Max Rated Fuel Usage [Btu/hp-hr]:	[　] QA→

Appendix A Figure 42: NGT-M01R Data Request tab

1. Total Fuel Usage [Mscf/month]: Total monthly rate of the natural gas fuel used during the survey period.

2. Fuel Sulfur Content [wt%]: The weight percentage of the sulfur content in the used natural gas fuel. For example, if the fuel is 1.0% sulfur, then user enters 1 and not 0.01.

3. Fuel Heating Value [Btu/scf]: The amount of heat released during the combustion of a specified amount of the natural gas fuel. Default value is 1050 Btu/scf.

4. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

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5. Material Processed: A drop-down list field to specify the processed material: Natural Gas / Process Gas.

6. Hours of Operation per Month [hr]: The total monthly hours of operation of the turbine during the survey period.

7. Average Fuel Used [Mscf/hr]: The average hourly rate of natural gas fuel used during the survey period. This field is auto-calculated.

8. Operating Horsepower [hp]: The operating horsepower of the turbine.

9. Max Rated Horsepower [hp]: The manufacturer's maximum rated horsepower of the turbine.

10. Max Rated Fuel Usage [Btu/hp-hr]: The maximum hourly usage rate of the gas fuel.

The calculator NGT-M01R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a dual fuel turbine powered by natural gas with known sulfur content using the following **Control Request** fields:

Description	Value	
PROCESS CONTROL INFORMATION		
Primary Type of Control Equipment:	⌄	QA →
Description of Control Equipment Chain:		QA →
Reduction Efficiency - PM2.5 [%]:		QA →
Reduction Efficiency - PM10 [%]:		QA →
Reduction Efficiency - NOx [%]:		QA →
Reduction Efficiency - N2O [%]:		QA →
Reduction Efficiency - SOx [%]:		QA →
Reduction Efficiency - VOC [%]:		QA →
Reduction Efficiency - CO [%]:		QA →
Control Device?	No ⌄	QA →
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No ⌄	QA →

Appendix A Figure 43: NGT-M01R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other and explain and describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - N2O [%]: This describes the average reduction of emitted N2O using the control technology. If the total reduction of N2O using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

9. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

10. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

11. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

    IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.28 NGT-M02R (Dual-Fuel Turbines - Nat. Gas - Unknown Sulfur)

The calculator NGT-M02R Version 3 in OCS AQS calculates the monthly emissions from a dual fuel turbine powered by natural gas with unknown sulfur content using the following **Data Request** fields:

Description	Value	
EMISSION CALCULATOR REQUIRED PARAMETERS		
Total Fuel Usage [Mscf/month]:		QA→
Fuel Heating Value [Btu/scf]:	1050	QA→
Emissions Destination:	⌄	QA→
OTHER INFORMATION		
Material Processed:	Natural Gas ⌄	QA→
Hours of Operation per Month [hr]:		QA→
Average Fuel Used [Mscf/hr]:		QA→
Operating Horsepower [hp]:		QA→
Max Rated Horsepower [hp]:		QA→
Max Rated Fuel Usage [Btu/hp-hr]:		QA→

Appendix A Figure 44: NGT-M02R Data Request tab

1. Total Fuel Usage [Mscf/month]: Total monthly rate of the gas fuel used during the survey period.

2. Fuel Heating Value [Btu/scf]: The amount of heat released during the combustion of a specified amount of the natural gas fuel. Default value is 1050 Btu/scf.

3. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4. Material Processed: A drop-down list field to specify the processed material: Natural Gas / Process Gas.

5. Hours of Operation per Month [hr]: The total monthly hours of operation of the turbine during the survey period.

6. Average Fuel Used [Mscf/hr]: The average hourly rate of natural gas fuel used during the survey period. This field is auto-calculated.

7. Operating Horsepower [hp]: The operating horsepower of the turbine.

8. Max Rated Horsepower [hp]: The manufacturer's maximum rated horsepower of the turbine.

9. Max Rated Fuel Usage [Btu/hp-hr]: The maximum hourly usage rate of the gas fuel.

The calculator NGT-M02R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a dual fuel turbine powered by natural gas with unknown sulfur content using the following **Control Request** fields:

Description	Value	
PROCESS CONTROL INFORMATION		
Primary Type of Control Equipment:	∨	QA→
Description of Control Equipment Chain:		QA→
Reduction Efficiency - PM2.5 [%]:		QA→
Reduction Efficiency - PM10 [%]:		QA→
Reduction Efficiency - NOx [%]:		QA→
Reduction Efficiency - N2O [%]:		QA→
Reduction Efficiency - SOx [%]:		QA→
Reduction Efficiency - VOC [%]:		QA→
Reduction Efficiency - CO [%]:		QA→
Control Device?	No ∨	QA→
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No ∨	QA→

Appendix A Figure 45: NGT-M02R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other and explain and describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used

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3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field.

6. Reduction Efficiency - N2O [%]: This describes the average reduction of emitted N2O using the control technology. If the total reduction of N2O using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

9. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

10. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

11. Is a Factory Acceptance Test Certificate attached for primary control equipment? – drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

    IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.29 NGT-M03R (Dual-Fuel Turbines - Diesel)

The calculator NGT-M03R Version 3 in OCS AQS calculates the monthly emissions from a dual turbine powered by diesel using the following **Data Request** fields:

Description	Value	
EMISSION CALCULATOR REQUIRED PARAMETERS		
Total Fuel Usage [gallons/month]:		QA →
Fuel Sulfur Content [wt%]:		QA →
Emissions Destination:	⌄	QA →
OTHER INFORMATION		
Material Processed:	Diesel ⌄	QA →
Hours of Operation per Month [hr]:		QA →
Average Fuel Used [gallons/hr]:		QA →
Operating Horsepower [hp]:		QA →
Max Rated Horsepower [hp]:		QA →
Max Rated Fuel Usage [Btu/hp-hr]:		QA →

Appendix A Figure 46: NGT-M03R Data Request tab

1. Total Fuel Usage [gallons/month]: Total monthly rate of the diesel fuel used during the survey period.

2. Fuel Sulfur Content [wt%]: The weight percentage of the sulfur content in the used diesel fuel. For example, if the fuel is 1.0% sulfur, then user enters 1 and not 0.01.

3. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4. Material Processed: A drop-down list field to specify the processed material: Diesel / Distillate Oil

5. Hours of Operation per Month [hr]: The total monthly hours of operation of the turbine during the survey period.

6. Average Fuel Used [gallons/hr]: The average hourly rate of diesel fuel used during the survey period. This field is auto-calculated.

7. Operating Horsepower [hp]: The operating horsepower of the turbine.

8. Max Rated Horsepower [hp]: The manufacturer's maximum rated horsepower of the turbine.

9. Max Rated Fuel Usage [Btu/hp-hr]: The maximum hourly usage rate of the diesel fuel.

The calculator NGT-M03R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a dual turbine powered by diesel using the following **Control Request** fields:

Appendix A Figure 47: NGT-M03R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other and explain and describe the type in the comments field.

2. Description of Control Equipment Chain: This field allows you to describe the control equipment chain if more than one type of technology is used.

3. Reduction Efficiency – PM2.5 [%]: This describes the average reduction of emitted PM2.5 using the control technology. If the total reduction of PM2.5 using a vapor recovery unit is 65%, enter "65" in the field.

4. Reduction Efficiency - PM10 [%]: This describes the average reduction of emitted PM10 using the control technology. If the total reduction of PM10 using a vapor recovery unit is 65%, enter "65" in the field.

5. Reduction Efficiency - NOx [%]: This describes the average reduction of emitted NOx using the control technology. If the total reduction of NOx using a vapor recovery unit is 65%, enter "65" in the field

6. Reduction Efficiency - SOx [%]: This describes the average reduction of emitted SOx using the control technology. If the total reduction of SOx using a vapor recovery unit is 65%, enter "65" in the field.

7. Reduction Efficiency - VOC [%]: This describes the average reduction of emitted VOC using the control technology. If the total reduction of VOC using a vapor recovery unit is 65%, enter "65" in the field.

8. Reduction Efficiency - CO [%]: This describes the average reduction of emitted CO using the control technology. If the total reduction of CO using a vapor recovery unit is 65%, enter "65" in the field.

9. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

10. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

   IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.30 PNE-M01R (Pneumatic Pumps)

The calculator PNE-M01R Version 3 in OCS AQS calculates the monthly emissions from a pneumatic pump using the following **Data Request** fields:

Appendix A Figure 48: PNE-M01R Data Request tab

1. Hours of Operation per Month [hr]: The total monthly hours of operation of the pneumatic pump during the survey period.

2. Fuel Usage Rate [scf/hr]: Average hourly rate of the fuel used during the survey period.

3. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4. Material Processed: A drop-down list field to specify the processed material: Natural Gas / Process Gas.

5. Manufacturer: A drop-down list field to specify the pump's manufacturer name.

6. Model: The model of the pump.

7. Total Fuel Usage Per Device [scf/month]: Total gaseous fuel used per device during this survey period. This field is auto-calculated.

The calculator PNE-M01R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a pneumatic pump using the following **Control Request** fields:

Description	Value	
PROCESS CONTROL INFORMATION		
Primary Type of Control Equipment:		⌄ QA→
Description of Control Equipment Chain:		QA→
Reduction Efficiency [%]:		QA→
Control Device?	Yes	⌄ QA→
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No	⌄ QA→

Appendix A Figure 49 PNE-M01R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other and explain in the comments field.

2. Description of Control Equipment Chain: If more than one type of control technology is used, user can describe the sequence of processing in this field.

3. Reduction Efficiency [%]: This term describes the reduction of all emitted constituents of the emission stream using the control technology. For example, if a Vapor Unit Recovery is employed with a 90% reduction efficiency, the user enters "90" in the "Reduction Efficiency [%] field. After the calculation is executed, all the emitted constituents will be reduced uniformly by 90%.

4. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

5. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

    IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.31 PRE-M01R (Pneumatic Controllers)

The calculator PRE-M01R Version 3 in OCS AQS calculates the monthly emissions from a pneumatic controller using the following **Data Request** fields:

Description	Value		
EMISSION CALCULATOR REQUIRED PARAMETERS			
Number of Units [#]:		🖹	QA→
Hours of Operation per Month [hr]:			QA→
Fuel Usage Rate [scf/hr]:			QA→
Emissions Destination:		⌄	QA→
OTHER INFORMATION			
Material Processed:	Natural Gas	⌄	QA→
Service Type:	Pressure Controller	⌄	QA→
Manufacturer:		⌄	QA→
Model:			QA→
Bleed Rate:		⌄	QA→
Total Fuel Usage Per Device [scf/month]:			QA→

Appendix A Figure 50: PRE-M01R Data Request tab

1. Number of Units: Number of pneumatic controllers in the structure.

2. Hours of Operation per Month [hr]: The total monthly hours of operation of the controller during the survey period.

3. Fuel Usage Rate [scf/hr]: Average hourly rate of the fuel used during the survey period.

4. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

5. Material Processed: A drop-down list field to specify the processed material: Natural Gas / Process Gas.

6. Service Type: A drop-down list field to specify the service type of the controller: Pressure Controller / Level Controller / Flow Controller / Other.

7. Manufacturer: A drop-down list field to specify the controllers' manufacturer name.

8. Model: The model of the controller.

9. Bleed Rate: A drop-down list field to specify the bleed rate type of the controller: High-bleed (>6scfh) / Intermittent / Low-bleed (<6scfh) / Zero-bleed.

10. Total Fuel Usage Per Device [scf/month]: Total gaseous fuel per device used during this survey period. This field is auto-calculated.

The calculator PRE-M01R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from a pneumatic controller using the following **Control Request** fields:

Appendix A Figure 51 PRE-M01R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other and explain in the comments field.

2. Description of Control Equipment Chain: If more than one type of control technology is used, user can describe the sequence of processing in this field.

3. Reduction Efficiency [%]: This term describes the reduction of all emitted constituents of the emission stream using the control technology. For example, if a Vapor Unit Recovery is employed with a 90% reduction efficiency, the user enters "90" in the "Reduction Efficiency [%] field. After the calculation is executed, all the emitted constituents will be reduced uniformly by 90%.

4. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

5. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

> **IMPORTANT:** Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.32 STO-M01R (Storage Tank - Horizontal, Rectangular Tank)

The calculator STO-M01R Version 3 in OCS AQS calculates the monthly emissions from an uninsulated horizontal rectangular storage tank using the following **Data Request** fields:

Appendix A Figure 52: STO-M01R Data Request tab

1. Monthly Net Throughput [bbl]: The total monthly throughput volumetric flow rate fed to the storage tank during the survey period.

2. Number of Days in the Month [days/month]: Number of days in the month of the survey period.

3. Reid Vapor Pressure [psia]: The Reid vapor pressure of the liquid mixture in the storage tank.

4. Average Daily Maximum Ambient Temperature [deg F]: The average daily maximum ambient temperature.

5. Average Daily Minimum Ambient Temperature [deg F]: The average daily minimum ambient temperature.

6. Liquid Bulk Temperature [deg F]: The bulk temperature of the liquid mixture in the storage tank.

7. Vapors Molecular Weight [lb/lb-mol]: The average molecular weight of the vapor phase VOCs mixture in the storage tank.

8. Paint Color: A drop-down list field to specify the exterior paint color of the storage tank: Aluminum or Specular / Aluminum or Diffuse / Grey or Light / Grey or Medium / Red or Primer / White.

9. Paint Condition: A drop-down list field to specify the exterior paint condition of the storage tank: Good / Poor / Average.

10. Tank Shell Length [ft]: The longest horizontal dimension of a horizontal rectangular storage tank.

11. Tank Shell Height [ft]: The vertical height of the rectangular tank.

12. Tank Shell Width [ft]: The horizontal width of a rectangular tank.

13. Tank Average Liquid Height [ft]: The average height of stored liquid during the survey period, measured from the bottom of the storage space to the top of the liquid.

14. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

15. Material Processed: A drop-down list field to specify the processed material: Distillate Oil / Crude Oil / Condensate / Other.

The calculator STO-M01R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from an uninsulated horizontal rectangular storage tank using the following **Control Request** fields:

Description	Value	
PROCESS CONTROL INFORMATION		
Primary Type of Control Equipment:	⌄	QA ➔
Description of Control Equipment Chain:		QA ➔
Reduction Efficiency [%]:		QA ➔
Control Device?	Yes ⌄	QA ➔
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No ⌄	QA ➔

Appendix A Figure 53: STO-M01R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other and explain in the comments field.

2. Description of Control Equipment Chain: If more than one type of control technology is used, user can describe the sequence of processing in this field.

3. Reduction Efficiency [%]: This term describes the reduction of all emitted constituents of the emission stream using the control technology. For example, if a Vapor Unit Recovery is employed with a 90% reduction efficiency, the user enters "90" in the "Reduction Efficiency [%] field. After the calculation is executed, all the emitted constituents will be reduced uniformly by 90%.

4. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

5. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

   IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.33 STO-M02R (Storage Tank - Vertical, Rectangular Tank)

The calculator STO-M02R Version 3 in OCS AQS calculates the monthly emissions from uninsulated vertical rectangular storage tank using the following **Data Request** fields:

Description	Value
EMISSION CALCULATOR REQUIRED PARAMETERS	
Monthly Net Throughput [bbl]:	QA→
Number of Days in Month [days/month]:	QA→
Reid Vapor Pressure [psia]:	QA→
Average Daily Maximum Ambient Temperature [deg F]:	QA→
Average Daily Minimum Ambient Temperature [deg F]:	QA→
Liquid Bulk Temperature [deg F]:	QA→
Vapors Molecular Weight [lb/lb-mole]:	QA→
Paint Color	Aluminum or Specular QA→
Paint Condition	Good QA→
Horizontal Width of a Rectangular Tank (Oriented Vertically) [ft]:	QA→
Tank Shell Height [ft]:	QA→
Second Horizontal Width of a Rectangular Tank (Oriented Vertically) [ft]:	QA→
Tank Average Liquid Height [ft]:	QA→
Emissions Destination:	QA→
OTHER INFORMATION	
Material Processed:	QA→

Appendix A Figure 54: STO-M02R Data Request tab

1. Monthly Net Throughput [bbl]: The total monthly throughput volumetric flow rate in the storage tank during the survey period.

2. Number of Days in the Month [days/month]: Number of days in the month of the survey period.

3. Reid Vapor Pressure [psia]: The Reid vapor pressure of the liquid mixture in the storage tank.

4. Average Daily Maximum Ambient Temperature [deg F]: The average daily maximum ambient temperature.

5. Average Daily Minimum Ambient Temperature [deg F]: The average daily minimum ambient temperature

6. Liquid Bulk Temperature [deg F]: The bulk temperature of the liquid mixture in the storage tank.

7. Vapors Molecular Weight [lb/lb-mol]: The average molecular weight of the vapor phase of the VOCs mixture in the storage tank.

8. Paint Color: A drop-down list field to specify the exterior paint color of the storage tank: Aluminum or Specular / Aluminum or Diffuse / Grey or Light / Grey or Medium / Red or Primer / White.

9. Paint Condition: A drop-down list field to specify the exterior paint condition of the storage tank: Good / Poor / Average.

10. Horizontal Width of a Rectangular Tank (Oriented Vertically) [ft]: The first horizontal width of a rectangular tank.

11. Tank Shell Height [ft]: The vertical height of the rectangular tank.

12. Second Horizontal Width of a Rectangular Tank (Oriented Vertically) [ft]: The second horizontal width of a rectangular tank.

13. Tank Average Liquid Height [ft]: The average height of stored liquid during the survey period, measured from the bottom of the storage space to the top of the liquid.

14. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

15. Material Processed: A drop-down list field to specify the processed material: Distillate Oil (Diesel) / Crude Oil / Condensate / Other.

The calculator STO-M02R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from an uninsulated vertical rectangular storage tank using the following **Control Request** fields:

Description	Value	
PROCESS CONTROL INFORMATION		
Primary Type of Control Equipment:	⌄	QA →
Description of Control Equipment Chain:		QA →
Reduction Efficiency [%]:		QA →
Control Device?	Yes ⌄	QA →
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No ⌄	QA →

Appendix A Figure 55: STO-M02R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other and explain in the comments field.

2. Description of Control Equipment Chain: If more than one type of control technology is used, user can describe the sequence of processing in this field.

3. Reduction Efficiency [%]: This term describes the reduction of all emitted constituents of the emission stream using the control technology. For example, if a Vapor Unit Recovery is employed with a 90% reduction efficiency, the user enters "90" in the "Reduction Efficiency [%] field. After the calculation is executed, all the emitted constituents will be reduced uniformly by 90%.

4. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

5. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

   IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.34 STO-M03R (Storage Tank - Horizontal, Cylindrical Tank)

The calculator STO-M03R Version 3 in OCS AQS calculates the monthly emissions from an uninsulated horizontal cylindrical storage tank using the following **Data Request** fields:

Description	Value	
EMISSION CALCULATOR REQUIRED PARAMETERS		
Monthly Net Throughput [bbl]:		QA →
Number of Days in Month [days/month]:		QA →
Reid Vapor Pressure [psia]:		QA →
Average Daily Maximum Ambient Temperature [deg F]:		QA →
Average Daily Minimum Ambient Temperature [deg F]:		QA →
Liquid Bulk Temperature [deg F]:		QA →
Vapors Molecular Weight [lb/lb-mole]:		QA →
Paint Color	Aluminum or Specular	QA →
Paint Condition	Good	QA →
Tank Shell Length [ft]:		QA →
Tank Shell Diameter [ft]:		QA →
Tank Average Liquid Height [ft]:		QA →
Emissions Destination:		QA →
OTHER INFORMATION		
Material Processed:		QA →

Appendix A Figure 56: STO-M03R Data Request tab

1. Monthly Net Throughput [bbl]: The total monthly throughput volumetric flow rate fed to the storage tank during the survey period.

2. Number of Days in the Month [days/month]: Number of days in the month of the survey period.

3. Reid Vapor Pressure [psia]: The Reid vapor pressure of the liquid mixture in the storage tank.

4. Average Daily Maximum Ambient Temperature [deg F]: The average daily maximum ambient temperature.

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5. Average Daily Minimum Ambient Temperature [deg F]: The average daily minimum ambient temperature

6. Liquid Bulk Temperature [deg F]: The bulk temperature of the liquid mixture in the storage tank.

7. Vapors Molecular Weight [lb/lb-mol]: The average molecular weight of the vapor phase of the VOCs mixture in the storage tank.

8. Paint Color: A drop-down list field to specify the exterior paint color of the storage tank: Aluminum or Specular / Aluminum or Diffuse / Grey or Light / Grey or Medium / Red or Primer / White.

9. Paint Condition: A drop-down list field to specify the exterior paint condition of the storage tank: Good / Poor / Average.

10. Tank Shell Length [ft]: The shell horizontal length of the horizontal cylindrical storage tank.

11. Tank Shell Diameter [ft]: The shell diameter of the cylindrical storage tank.

12. Tank Average Liquid Height [ft]: The average height of stored liquid during the survey period, measured from the bottom of the storage space to the top of the liquid.

13. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

16. Material Processed: A drop-down list field to specify the processed material: Distillate Oil (Diesel) /Crude Oil / Condensate / Other.

The calculator STO-M03R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from an uninsulated horizonal cylindrical storage tank using the following **Control Request** fields:

Description	Value	
PROCESS CONTROL INFORMATION		
Primary Type of Control Equipment:	⌄	QA →
Description of Control Equipment Chain:		QA →
Reduction Efficiency [%]:		QA →
Control Device?	Yes ⌄	QA →
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No ⌄	QA →

Appendix A Figure 57: STO-M03R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other and explain in the comments field.

2. Description of Control Equipment Chain: If more than one type of control technology is used, user can describe the sequence of processing in this field.

3. Reduction Efficiency [%]: This term describes the reduction of all emitted constituents of the emission stream using the control technology. For example, if a Vapor Unit Recovery is employed with a 90% reduction efficiency, the user enters "90" in the "Reduction Efficiency [%] field. After the calculation is executed, all the emitted constituents will be reduced uniformly by 90%.

4. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

5. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

    IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.35 STO-M04R (Storage Tank - Vertical, Cylindrical Tank)

The calculator STO-M04R Version 3 in OCS AQS calculates the monthly emissions from an uninsulated vertical cylindrical storage tank using the following **Data Request** fields:

Description	Value
EMISSION CALCULATOR REQUIRED PARAMETERS	
Monthly Net Throughput [bbl]:	
Number of Days in Month [days/month]:	
Reid Vapor Pressure [psia]:	
Average Daily Maximum Ambient Temperature [deg F]:	
Average Daily Minimum Ambient Temperature [deg F]:	
Liquid Bulk Temperature [deg F]:	
Vapors Molecular Weight [lb/lb-mole]	
Paint Color	Aluminum or Specular
Paint Condition	Good
Tank Shell Height [ft]:	
Tank Shell Diameter [ft]:	
Tank Average Liquid Height [ft]:	
Tank Roof Height [ft]:	
Tank Roof Type	Flat
Emissions Destination:	
OTHER INFORMATION	
Material Processed:	

Appendix A Figure 58: STO-M04R Data Request tab

1. Monthly Net Throughput [bbl]: The total monthly throughput volumetric flow rate fed to the storage tank during the survey period.

2. Number of Days in the Month [days/month]: Number of days in the month of the survey period.

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3. Reid Vapor Pressure [psia]: The Reid vapor pressure of the liquid mixture in the storage tank.

4. Average Daily Maximum Ambient Temperature [deg F]: The average daily maximum ambient temperature.

5. Average Daily Minimum Ambient Temperature [deg F]: The average daily minimum ambient temperature

6. Liquid Bulk Temperature [deg F]: The bulk temperature of the liquid mixture in the storage tank.

7. Vapors Molecular Weight [lb/lb-mol]: The average molecular weight of the vapor phase of the VOCs mixture in the storage tank.

8. Paint Color: A drop-down list field to specify the exterior paint color of the storage tank: Aluminum or Specular / Aluminum or Diffuse / Grey or Light / Grey or Medium / Red or Primer / White.

9. Paint Condition: A drop-down list field to specify the exterior paint condition of the storage tank: Good / Poor / Average.

10. Tank Shell Height [ft]: The shell vertical height of the vertical cylindrical storage tank.

11. Tank Shell Diameter [ft]: The shell diameter of the cylindrical storage tank.

12. Tank Average Liquid Height [ft]: The average height of stored liquid during the survey period, measured from the bottom of the storage space to the top of the liquid.

13. Tank Roof Height [ft]: The height of the tank fixed roof measured from the top of the tank shell to the highest point of the roof.

14. Tank Roof Type: A drop-down list field to specify the tank roof type: Cone or Peaked / Dome / Flat.

15. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

16. Material Processed: A drop-down list field to specify the processed material: Distillate Oil (Diesel) / Crude Oil / Condensate / Other.

The calculator STO-M04R Version 3 in OCS AQS calculates the monthly emissions <u>with pollution control</u> from an uninsulated vertical cylindrical storage tank using the following **Control Request** fields:

Description	Value	
PROCESS CONTROL INFORMATION		
Primary Type of Control Equipment:	⌄	QA →
Description of Control Equipment Chain:		QA →
Reduction Efficiency [%]:		QA →
Control Device?	Yes ⌄	QA →
Is a Factory Acceptance Test Certificate attached for primary control equipment?	No ⌄	QA →

Appendix A Figure 59: STO-M04R Control Request tab

1. Primary Type of Control Equipment: A drop-down list field to specify the primary type of the used control equipment. If the type of is not listed, user can select Other and explain in the comments field.

2. Description of Control Equipment Chain: If more than one type of control technology is used, user can describe the sequence of processing in this field.

3. Reduction Efficiency [%]: This term describes the reduction of all emitted constituents of the emission stream using the control technology. For example, if a Vapor Unit Recovery is employed with a 90% reduction efficiency, the user enters "90" in the "Reduction Efficiency [%] field. After the calculation is executed, all the emitted constituents will be reduced uniformly by 90%.

4. Control Device? – Is end of pipe control technology used with this source? A drop-down [Yes/No] list.

5. Is a Factory Acceptance Test Certificate attached for primary control equipment? – A drop-down [Yes/No] list to specify if functionality certification paperwork is available for the control equipment.

    IMPORTANT: Supporting equipment documentation may be required by BOEM/BSEE to verify specified control efficiency.

A.36 VEN-M01R (Cold Vent)

The calculator VEN-M01R Version 4 in OCS AQS calculates the monthly emissions from a cold vent using the following **Data Request** fields:

Appendix A Figure 60: VEN-M01R Data Request tab

1. Volume vented Gas [Mscf]: The total volume of gas vented during the survey period, including periods of upset venting, volume adjusted to standard temperature and pressure). 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).

2. Concentration of VOC in the Vented Gas [ppmv]: The concentration of volatile organic compounds (VOC) in the vented gas.

3. Emissions Destination: A drop-down list field to specify the emissions destination - whether they are vented locally, flared locally, vented remotely, flared remotely, or routed to system. Vented locally selection will compute the emissions vented from this unit. Whereas, flared locally, vented remotely, flared remotely, and routed to system selections will zero out emissions from this unit.

4. Material Processed: A drop-down list field to specify the processed material: Gas/ Natural Gas / Process Gas / Exhaust gas.

5. Hours of Operation per Month [hr]: The total monthly hours of operation of the cold vent during the survey period.

6. Vent Type: A drop-down list field to specify the type of venting pressure: High Pressure / Low Pressure.

- END OF APPENDIX -