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Combined Air Emissions Reporting System (CAERS) Version 3

User's Guide Version 3.2

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About CAERS and the Paperwork Reduction Act

CAERS supports both emissions data collection from owners/operators of facilities to state, local, and tribal (SLT) agencies as well as collection from SLT agencies to the EPA. Data collection by a SLT from owner/operators is subject to the regulations of the SLT agency. Historically, these data collections have been done by SLTs prior to EPA's creation of the Air Emissions Reporting Rule (AERR; 40 CFR Part 51, Subpart A). The AERR built on the Consolidated Emissions Reporting Requirements (CERR), which was created to consolidate several emissions reporting requirements for SLTs to the EPA.

Given this history, the burden included with the Information Collection Request for the AERR covers the burden for SLTs to report to the EPA. The burden statement below covers that part of the emission data collection process.

Burden Statement

This collection of information is approved by OMB under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq. (OMB Control No. 2060-0580). Responses to this collection of information are mandatory (40 CFR § 51.15) and include voluntary aspects for reporting (40 CFR § 51.15 paragraphs (a)(2)-(4)). A federal agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. The public reporting and recordkeeping burden for this collection of the point source portion of the AERR information is estimated to range from 50 -190 hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates and any suggested methods for minimizing respondent burden to the Regulatory Support Division Director, U.S. Environmental Protection Agency (2821T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.

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1 Introduction

1.1 Introduction to CAERS

The Combined Air Emissions Reporting System (CAERS) is an application that allows industry from subscribed State, Local, or Tribal authorities (or SLTs) to report their air emissions, so that you can:

- Meet specific SLT air emissions reporting requirements given individual SLT regulations.
- Report annual or triennial emissions to meet the requirements of the U.S. EPA's Air Emissions Reporting Rule (AERR), as per the Code of Federal Regulations (or CFR) 40, Part 51.
- And, optionally, get a head start on reporting your facility's toxics air emissions to the U.S. EPA's Toxics Release Inventory (TRI), as per 40 CFR Part 372.

You should check with your SLT to determine if you meet the criteria for annual reporting.

1.2 Highlights of CAERS Features

The following basic features will help users navigate CAERS. By becoming familiar with these features, you will have a smoother and less time-consuming reporting experience. You should also consult the Checklist (Appendix D) at the end of this user guide to assist you in your submission.

1. Previously reported data prepopulated in a current inventory year report, as a starting point.
2. All pages look, feel, and function in a consistent predictable way.
3. All required fields are marked with an "*" symbol, and a "?" symbol next to data fields provides a pop-up box with its definition and examples.
4. Three options for data entry:
    a. **User interface** – for users with few changes to a previous year report, and with different kinds of changes.
    b. **Bulk entry** – for users with a few changes to their annual throughput and emissions, and with few to no changes to their facility inventory.
    c. **Bulk upload** – for users with a large number of changes, and/or with a variety of changes from a previous year report, this includes new and/or large facilities with no previous reporting history who will want to start a brand new report.
        i. **Via excel template** – for users who would like to work with excel
        ii. **Via JSON upload** – for users who would like to send data directly from their custom systems.
5. Ability to include attachments: Your SLT may require you to provide supplemental information to your estimates such as detailed calculations in a spreadsheet or word document.
6. Bulk download: You will be able to download your previous year report in the excel template you will need for bulk upload. This will allow you to make the relevant changes directly to the template.
7. Ability to download summary reports: You can obtain a summary of your submission in an excel file (different from the bulk download described above).
8. Use of toxics air pollutants and hazardous air pollutants (HAPs) reported to CAERS for Toxics Release Inventory (TRI) reporting: When using the calculation features and/or uploading calculations for toxics emissions in CAERS, CAERS will aggregate toxics emissions for the facility, and leave that data ready for TRI-MEweb to pick up so it can be used for that facility's air emissions reporting.

9. A “Report History” page: major activities from reporters and certifiers such as attachments, certification, and submission of the report are recorded.

1.3 Software Requirements for CAERS

To use the CAER system, you will need:

- Internet browser and connectivity: This should be a recent version of any internet browser such as Chrome, Explorer, Edge, or Firefox. Your internet connectivity will determine how fast data can be uploaded, as will the amount of data you are uploading at one time.
- Microsoft Excel: Bulk uploads will be in “XLSX” format, and Excel 2013 or later is required.

2 Initial Pre-Reporting Steps

2.1 Determine Your Role as Preparer or Certifier

Your first step will be to determine if you are a preparer or certifier as follows:

You are a **Preparer** if you are authorized to prepare an emissions report for National Emissions Inventory (NEI) and/or Toxics Release Inventory (TRI) data for a given facility. You may be a consultant, or a staff person for the company owning the facility, for example. Note that:

- There may be more than one Preparer for a facility and that facility is associated with each Preparer’s account.
- There may be a single Preparer for more than one facility, and all those facilities are associated with that Preparer’s account.
- A Preparer cannot sign and submit the report like a Certifier can.

You are an **NEI Certifier** if you are authorized to sign the emissions report on behalf of the facility to meet your legal obligation for reporting to your State, Local, or Tribal authority (SLT). Note that:

- The Certifier can do everything a Preparer does in the System. Therefore, a Certifier who is also the Preparer for a facility only needs to register as a Certifier for that facility and does not require an additional Preparer account.
- There may be only *one* Certifier for a facility. Only one individual can sign the report for that facility. You should consult your SLT to determine who from the facility should be the certifier.
- There may be a single Certifier for more than one facility (multiple facilities associated with the certifier account). However, your SLT may have additional limitations to those the system allows, so you should check with your SLT for specific instructions.

If your facility does not submit toxics air emissions data to TRI-MEweb, you may skip to Section 3.

- If your facility also submits air toxics data to TRI-MEweb, and your facility will use shared toxics data reported to CAERS in the TRI reporting (as per sections 2.2 and 2.3), you should note the following: TRI data is certified in TRI-MEweb, not CAERS. However, when the NEI Certifier certifies their annual report in CAERS, they will also be signaling to the system that reporting is complete and that shared data is ready to be made available to TRI-MEweb. So long as a report is still in progress, CAERS will not make the data available for TRI-MEweb pick up. Furthermore, TRI bound data will be certified in TRI-MEweb, not CAERS. The NEI Certifier may not be the same person as the TRI certifier so NEI and TRI certifiers may want to coordinate amongst

themselves to ensure they are reporting data to CAERS appropriately. Please direct any questions about this to caer@epa.gov.

2.2 Option for Reporting TRI-bound Air Toxics Data

CAERS has an optional feature that allows you to get a jump start on air toxics emissions reporting for your facility. You can enter air toxics/HAP data in CAERS in conjunction with your NEI reporting. When you are finished, CAERS will then add toxics data up to your facility total and leave that data available for TRI-MEweb to pick up and prepopulate your air toxics report.

Regulations do not require your report to be reviewed by your SLT for your toxics data to be made available for TRI reporting. Additionally, your SLT may not require you to report your facility's air toxics/HAP emissions through CAERS. However, we are encouraging facilities to submit HAPS data at the process level in CAERS for the following reasons:

- You'll be able to enter this data and take advantage of the CAERS aggregating air toxics data to the facility total.
- Having your SLT review your criteria pollutant data *before* your data gets to TRI-MEweb gives you the opportunity to correct any related toxics data. For example, assume your SLT finds an error with throughput for a unit/process affecting your facility's CO and NOX emissions, that is also affecting your VOC calculations. As you correct that throughput, all affected emissions are corrected as well.
- If no HAPS are reported for the facility, then EPA estimates these emissions from your criteria emissions data via HAP augmentation calculations. These estimates may not be as accurate as your own data. By submitting your own HAPs emissions at process level in CAERS, you are in charge of your data.
- You should consult your SLT to determine if you are required to submit HAPS data to comply with SLT requirements.

2.3 Timing of Your NEI and TRI Submissions

CAERS will add up all shared toxics/HAP emissions entered and calculated at the unit/process level, and make those totals available to you in TRI-MEweb (see Section 10). The goal is for reporters to save time in doing calculations separately for each program when common or shared input data (e.g. throughput, emissions) entered for one program can be used for reporting to another program, in this case TRI reporting. Therefore, a reporter should create the CAERS emissions report leaving time for the submission to take place before the SLT submission deadline, as well as the TRI deadline of July 1st. TRI data submissions do not require review by your SLT authority and are picked up by TRI-MEweb by the submission deadline. A submission that, upon SLT review, requires edits after that date, will be updated accordingly for submission to NEI. However, any toxics data affected by such edits will be updated in TRI-MEweb at a later date. Furthermore, you will also want to account for your SLT's submission deadline. For example, GADNR EI deadline is June 30th of each year.

Finally, it is important to leave time in case issues come up that require intervention by the help desk, SLT, or EPA staff to resolve. Were we to find any glitches in the software, those will take time to resolve as well. Therefore, we recommend that you:

- Register as Preparer or Certifier as soon as you know your role in the process.
    - If you are already registered as Preparer/Certifier for a facility from last year's submission, you do not need to re-register, but you should follow any additional steps your SLT may require.

    - If staff changes:
        - For new GADNR preparers and certifiers: go to GECO to register first, then proceed to CDX to register only after you have gone through the steps in GECO.
        - For new non-GDNR SLT preparers and certifiers: please notify your SLT immediately with the name, email address, mailing address and phone number of the new staff person. Then, new staff should register to CDX immediately to start and/or continue the report. You should consult with your SLT, as they may have additional SLT specific verification steps to complete the process as well.
        - For preparers and certifiers that will no longer be working on a facility's reports, please let your SLT know as soon as possible so your link to the facility can be removed promptly. You should consult with your SLT, as they may have additional SLT specific verification steps to complete the process as well.
- Coordinate your NEI and TRI reporters so that you start your report no later than one month before the first program deadline you are facing.
- Complete your report no later than two weeks before your submission deadline, to allow for unforeseen circumstances that might delay your emissions report.

For example, given that GADNR's submission deadline is June 30th, it is best for the facility to submit its emissions inventory through CAERS at least two weeks before that deadline to allow GADNR Reviewer's advanced QA reviewing process.

Once your SLT has reviewed your report, it will then send that report to EPA in two steps (first facility information, second throughput and emissions data). While every effort has been made to provide preparers with quality assurance checks that will help you submit the highest quality data, both your SLT staff and EPA's Emissions Inventory System (EIS) may present additional checks (either new, or checks that are not possible to include in CAERS given their nature). These checks may require you to make corrections to your report after you have certified it. In that case your SLT will return your report for revisions. These revisions usually take place in the Fall. To avoid some of these issues, we encourage you to review the "Additional Considerations" sections after each section and chapter.

3 Registration

3.1 Registration in CDX

In order to enter CAERS, you will need to be registered in EPA's Central Data Exchange (CDX). If you already have a CDX account but have not registered to use CAERS, go to section 3.2. If you are new to CDX, click on the "Register with CDX" button (Figure 3-1). You will be directed to the Terms and Conditions screen for CDX registration (Figure 3-2). After reading these, check the box confirming that you are the registrant and click "Proceed" at the bottom left of your screen.

Figure 3-1. CDX Login Screen

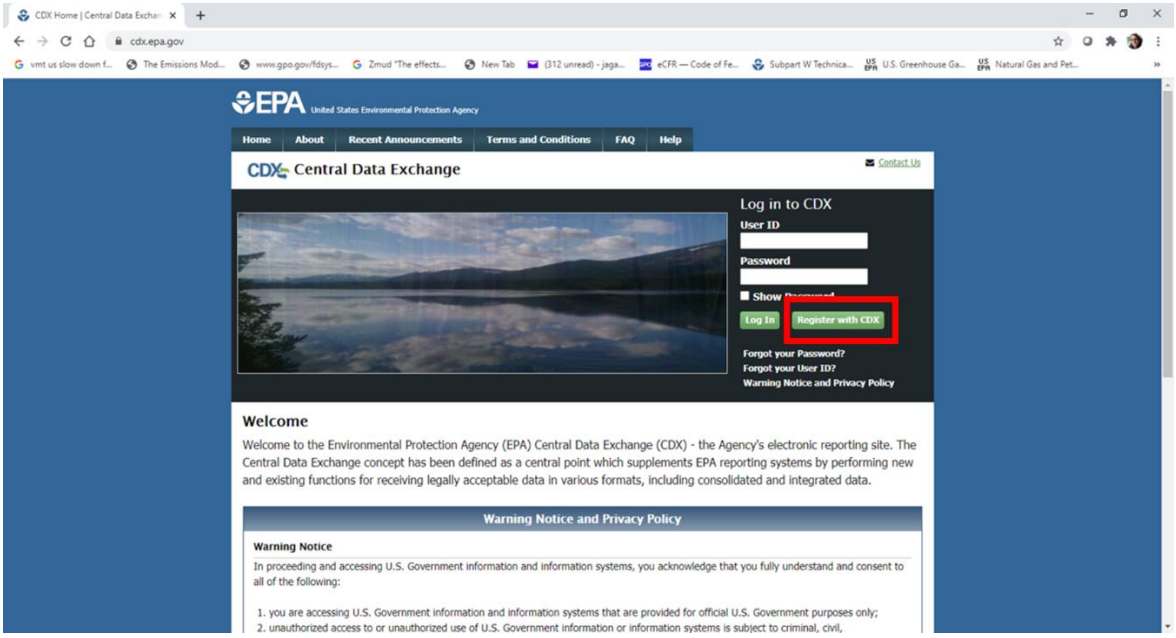
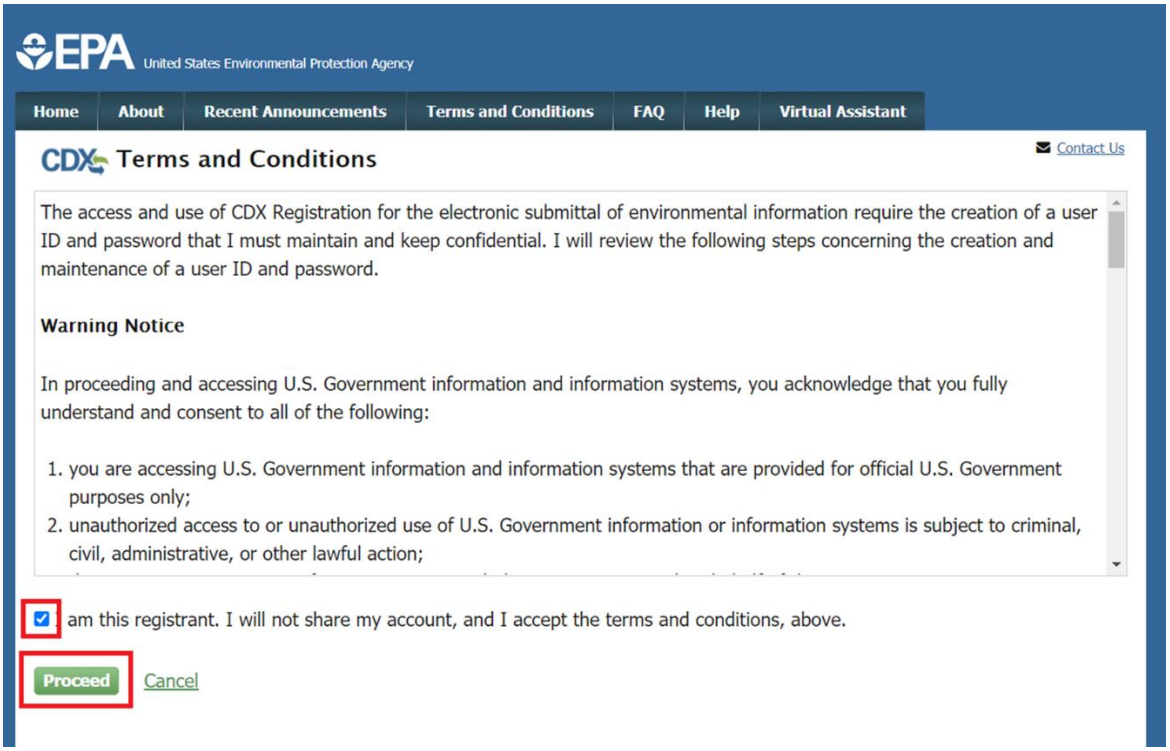


Figure 3-2. CDX Terms and Conditions



3.2 Add CAERS to your CDX Account

If you are both an authorized Certifier and Preparer, you do not need to go through this process twice. Instead, just register as Certifier in CAERS once you are in. Once you have accepted terms and

conditions, you will be taken to the Program Services page. You can search "CAER: Combined Air Emissions Reporting" from the list, or you can type it in the search list as shown in Figure 3-3.

Figure 3-3. CDX Program Service Page

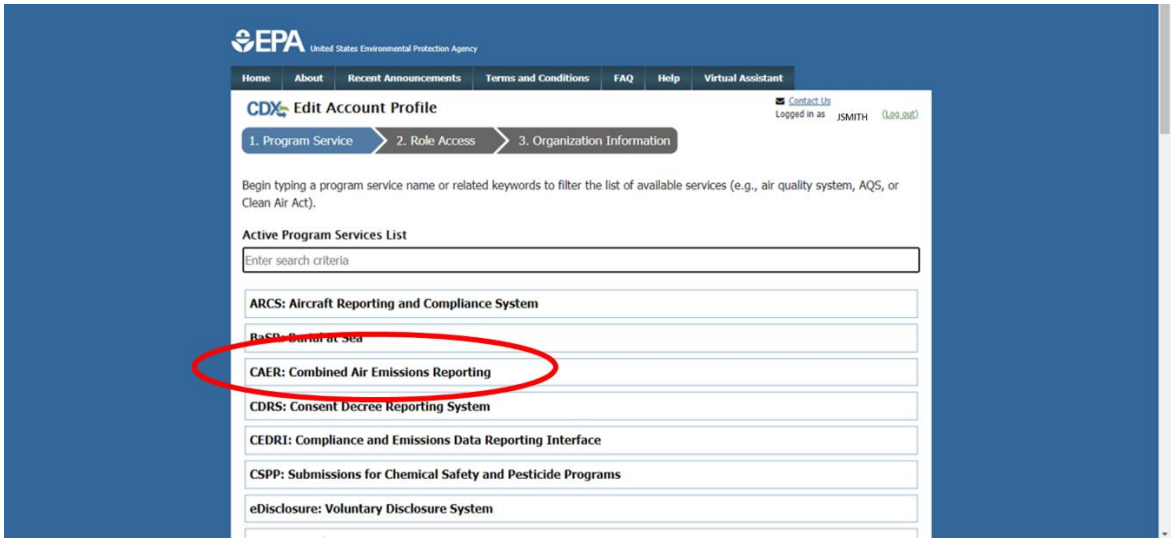
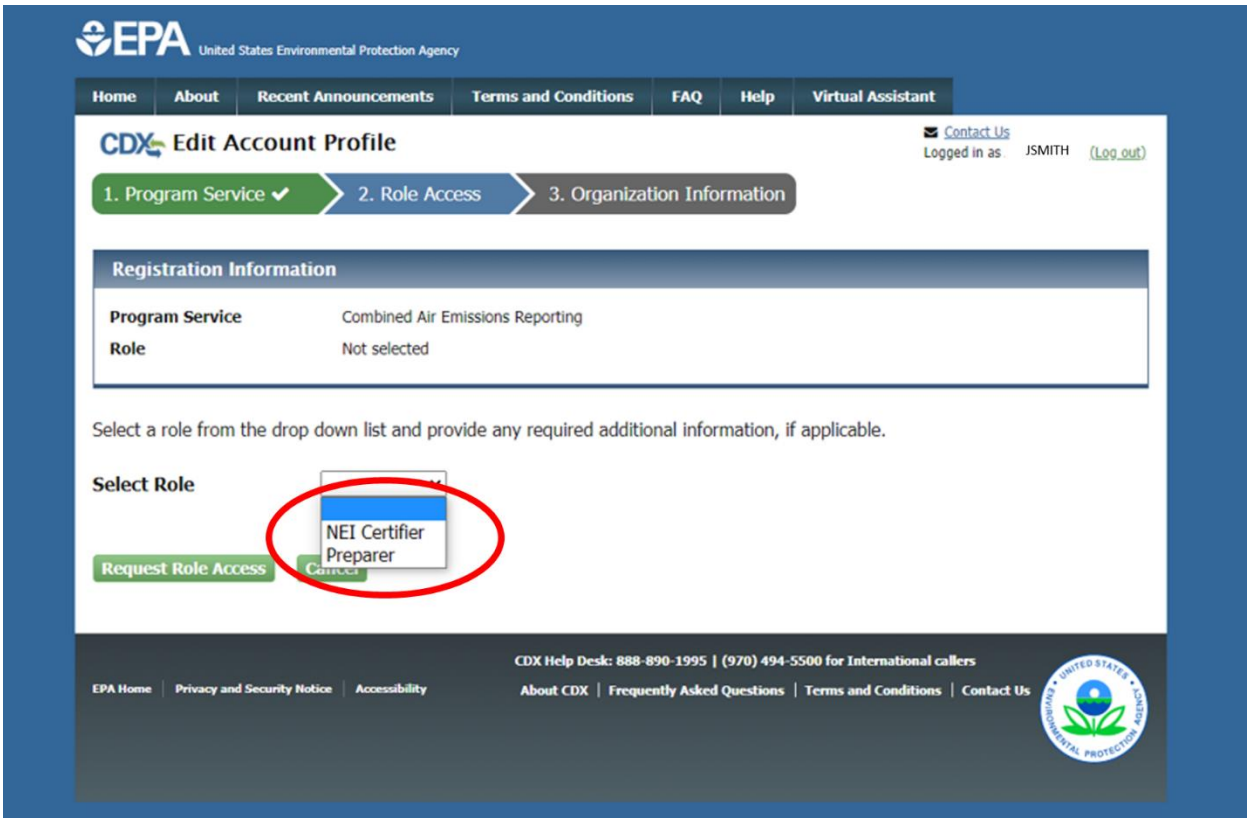


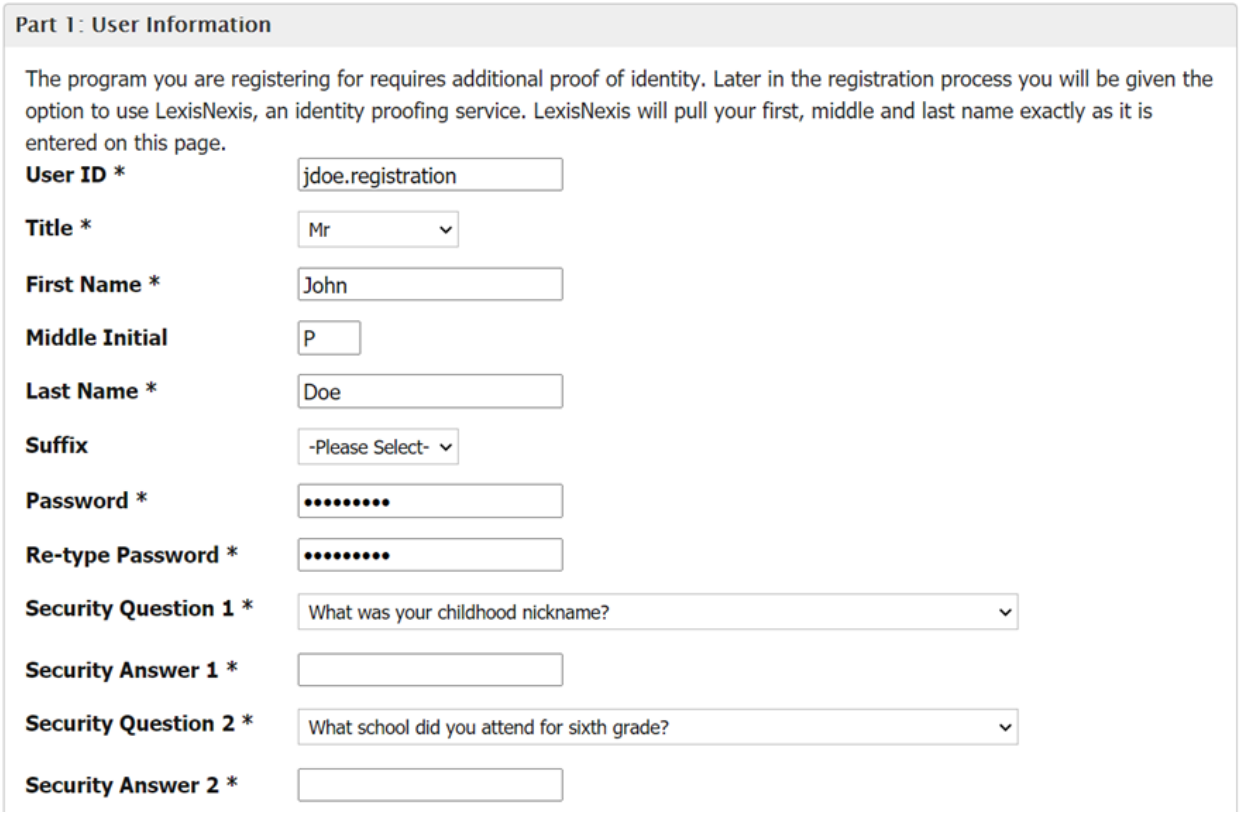
Figure 3-4. Role Selection Screen



You will be taken to the role access screen where you can choose your role as Preparer or NEI Certifier, as shown in Figure 3-4. Remember that if you are both Preparer and NEI Certifier, you only need to register as Certifier. You will only need one NEI Certifier account if you are handling both roles.

After selecting your role click on "Request Role Access". This will take you through a few screens where you will enter information about yourself, and your organization. On the User and Organization screen (Figure 3-5) complete the User Information section, including your preferred User ID, password, and CDX security questions and answers. Make sure to follow all instructions that are provided, including the identity authentication questions asked. Make sure you remember the answers to those questions. The authentication questions are an additional step that is needed to ensure that only you, the authorized staff, can work on and submit the report (see Section 8 for more information).

Figure 3-5. User Information Data Entry



Next, scroll down to the bottom of the screen and enter Organization Information in the relevant box. If multiple individuals work for a company, then they should all register for the same company in CDX. After you search for an organization click on an Organization ID link to select the respective organization (Figure 3-6).

Figure 3-6. Selection of Organization

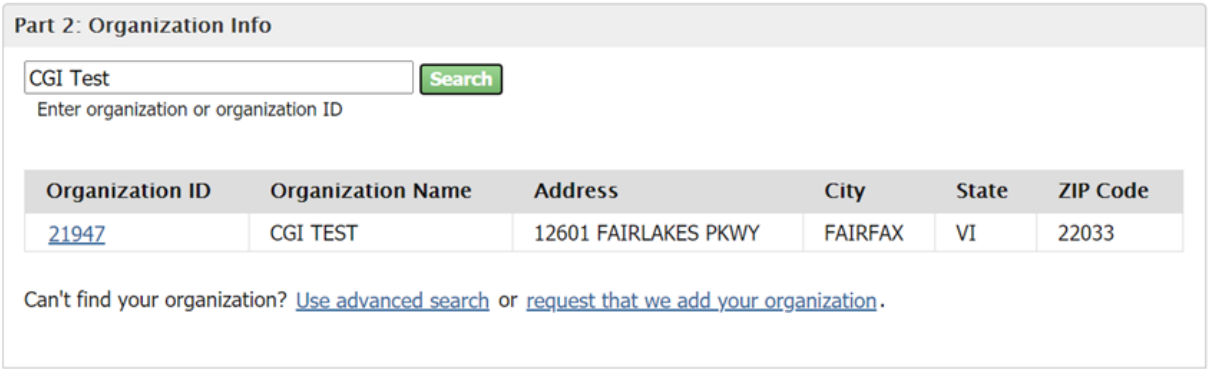
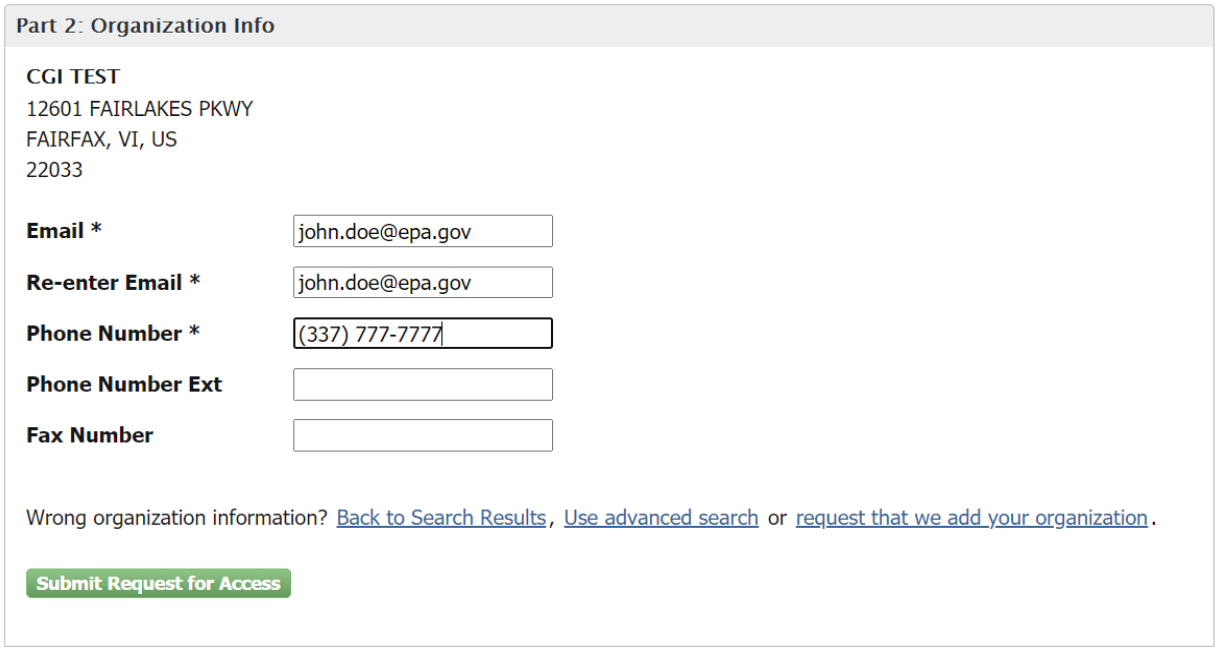


Figure 3-7. Organization Information Data Entry



Once you've selected your organization, you will be required to enter an email address and phone number where you can be contacted. Click "Submit Request for Access" (Figure 3-7). This will generate an email that will be delivered to the email address you provided and forward you to the confirmation screen. This email will contain a code you will need to enter to complete your registration. Make sure to check all your email folders to ensure it was not lost in a spam folder.

Locate the email that was automatically sent to your address and enter the provided code. Once you have located the email and code, enter the code in the "Code" box. Then, click "Create Account" (Figure 3-8).

You will then be redirected to the 'Identity Verification' screen where you will provide your personal information to gain access to CDX. You MUST provide accurate personal information during CDX registration in order to pass LexisNexis Electronic Identity Verification (Figure 3-9).

Figure 3-8. Confirmation Code Entry

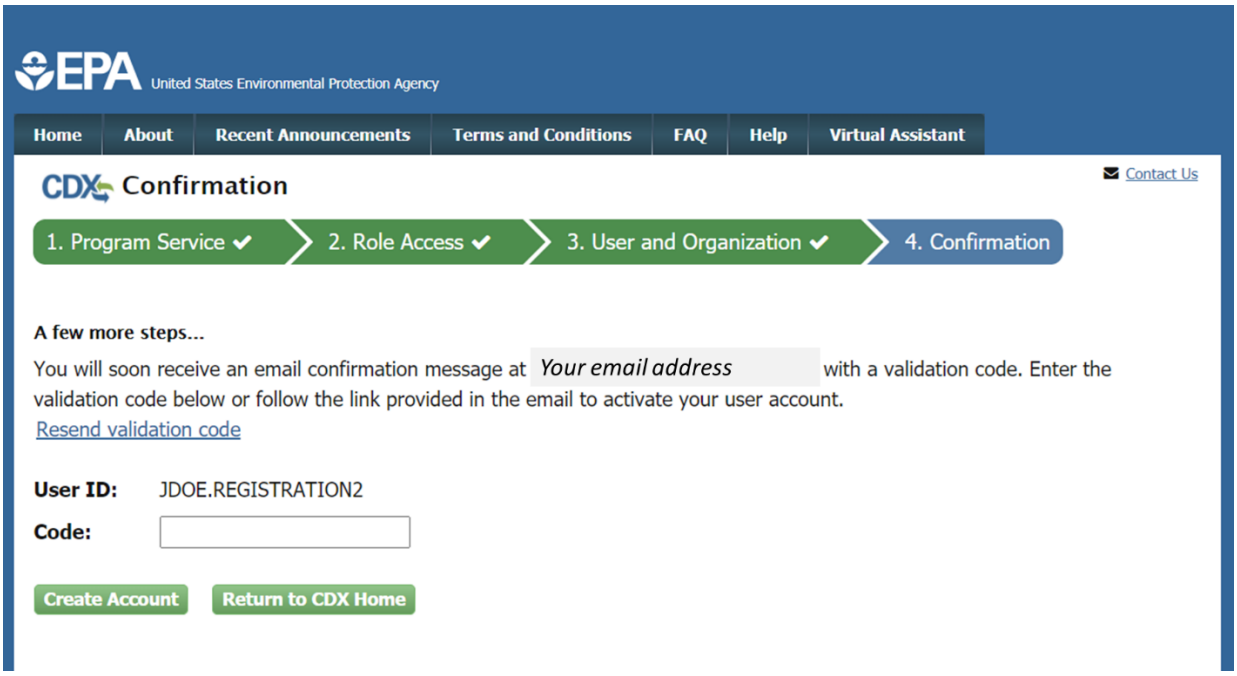
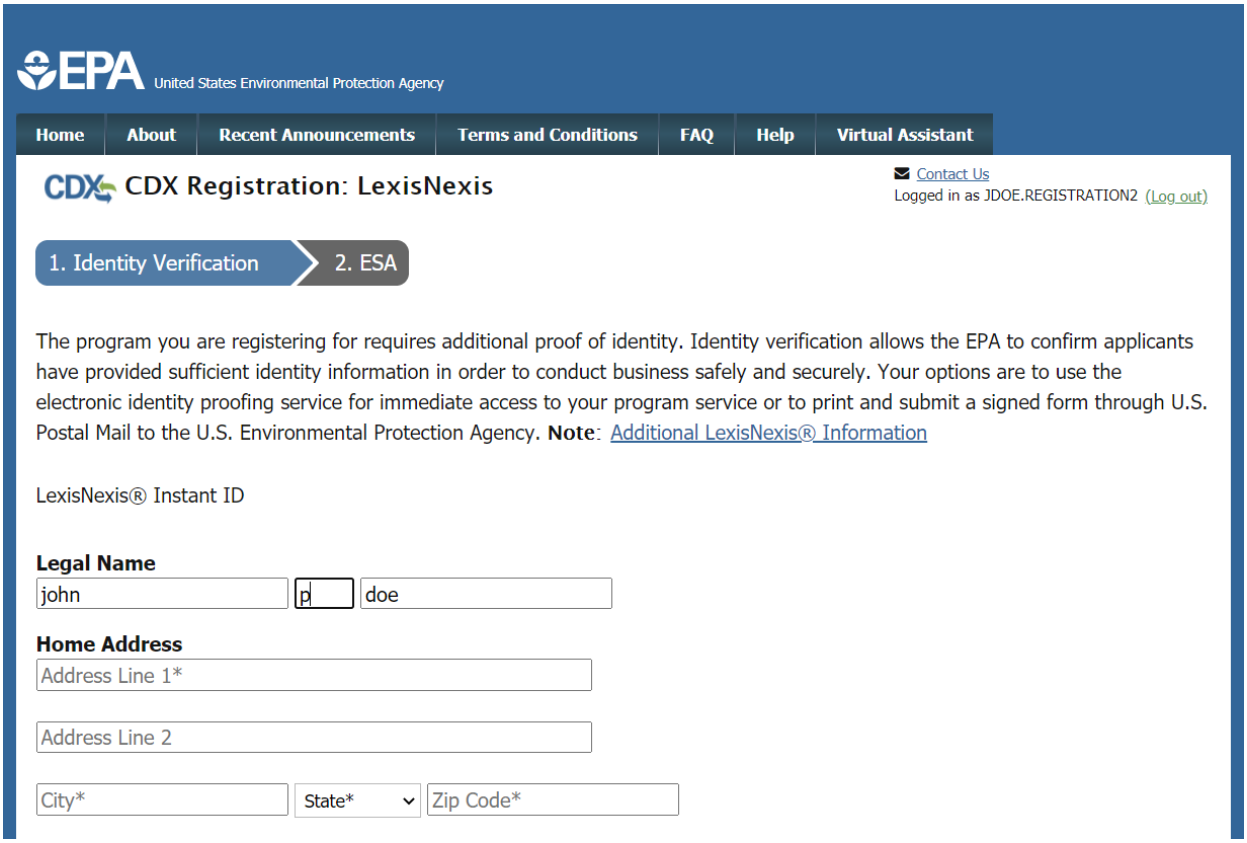


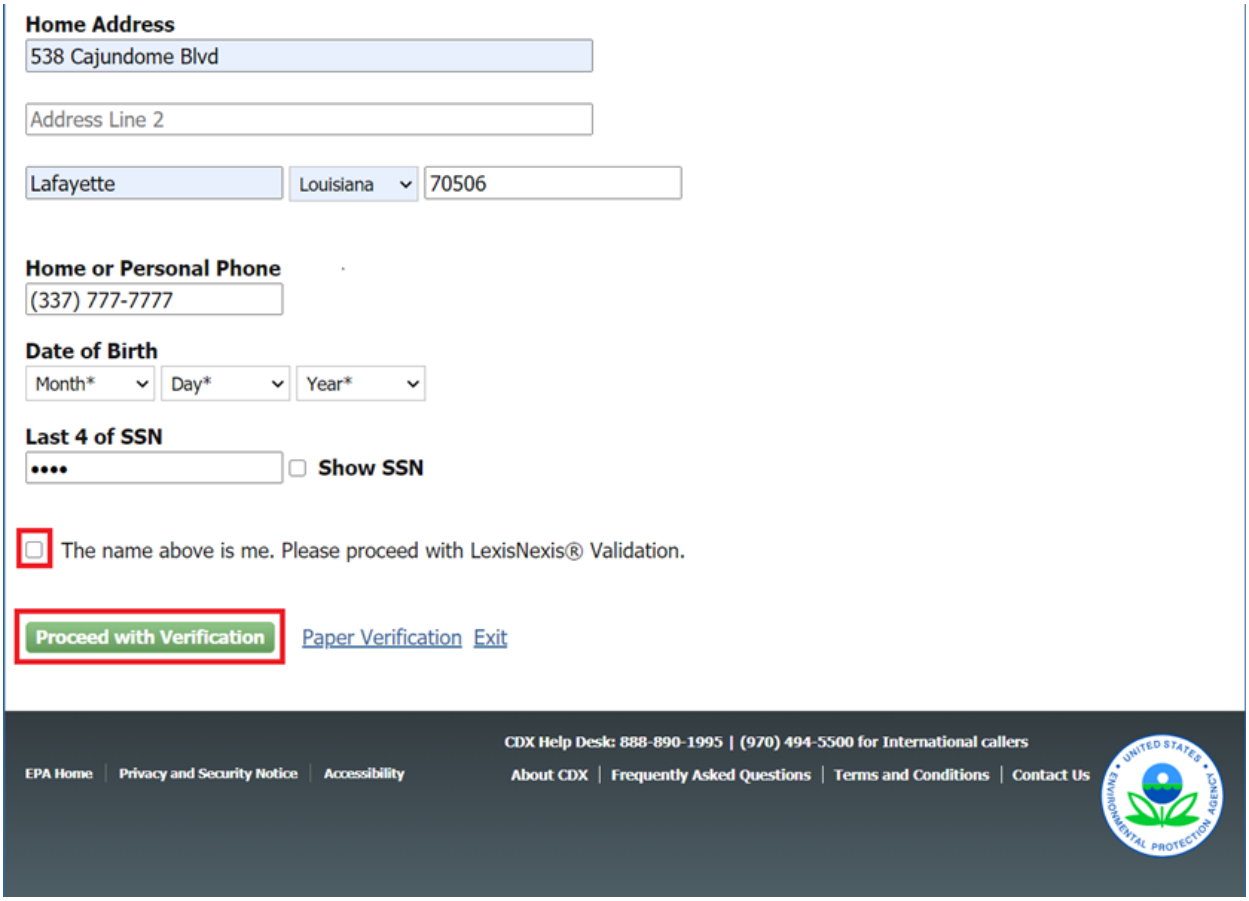
Figure 3-9. CDX Lexis Nexis Identity Verification



If you do not pass LexisNexis verification you will be prompted to view, print, and sign a paper ESA. If this happens simply view and sign the paper ESA by clicking the 'Paper Verification' link and then closing the resulting window. This will bring you to the "MyCDX" screen. Reach out to the CDX help desk for further instructions.

When you are done filling out your personal information, scroll to the bottom of the Identity Verification screen. Then, check the box as shown below and click the 'Proceed to Verification' button (Figure 3-10).

Figure 3-10. CDX Lexis Nexis Identity Verification



Once you have passed identity verification, you will be directed to choose and answer 5 challenge questions. These will be used when signing and submitting reports in CAER. After entering your answers, click the 'Save Answers' button (Figure 3-11).

You will then be prompted to electronically sign an ESA. Click the 'Sign Electronically' button as seen below. Click 'Accept' in the pop-up window that appears after clicking the button (Figure 3-12). Remember that you may be able to use the same Electronic Signature Agreement (ESA) in CDX that you use for other programs and/or systems in CDX. You may need additional ESAs for additional organizations you are associated with. You should reach out to the help desk if you have questions about this.

Figure 3-11. Verification Questions

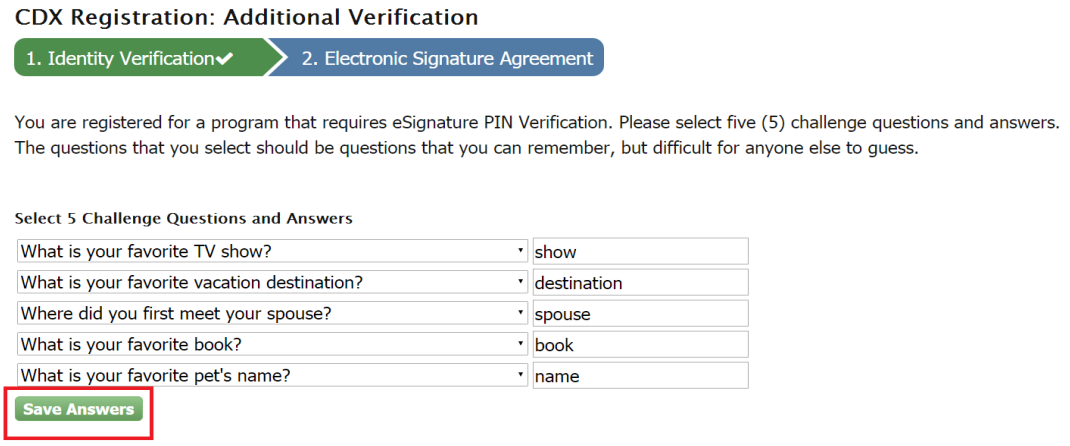


Figure 3-12. CDX Electronic Signature Agreement

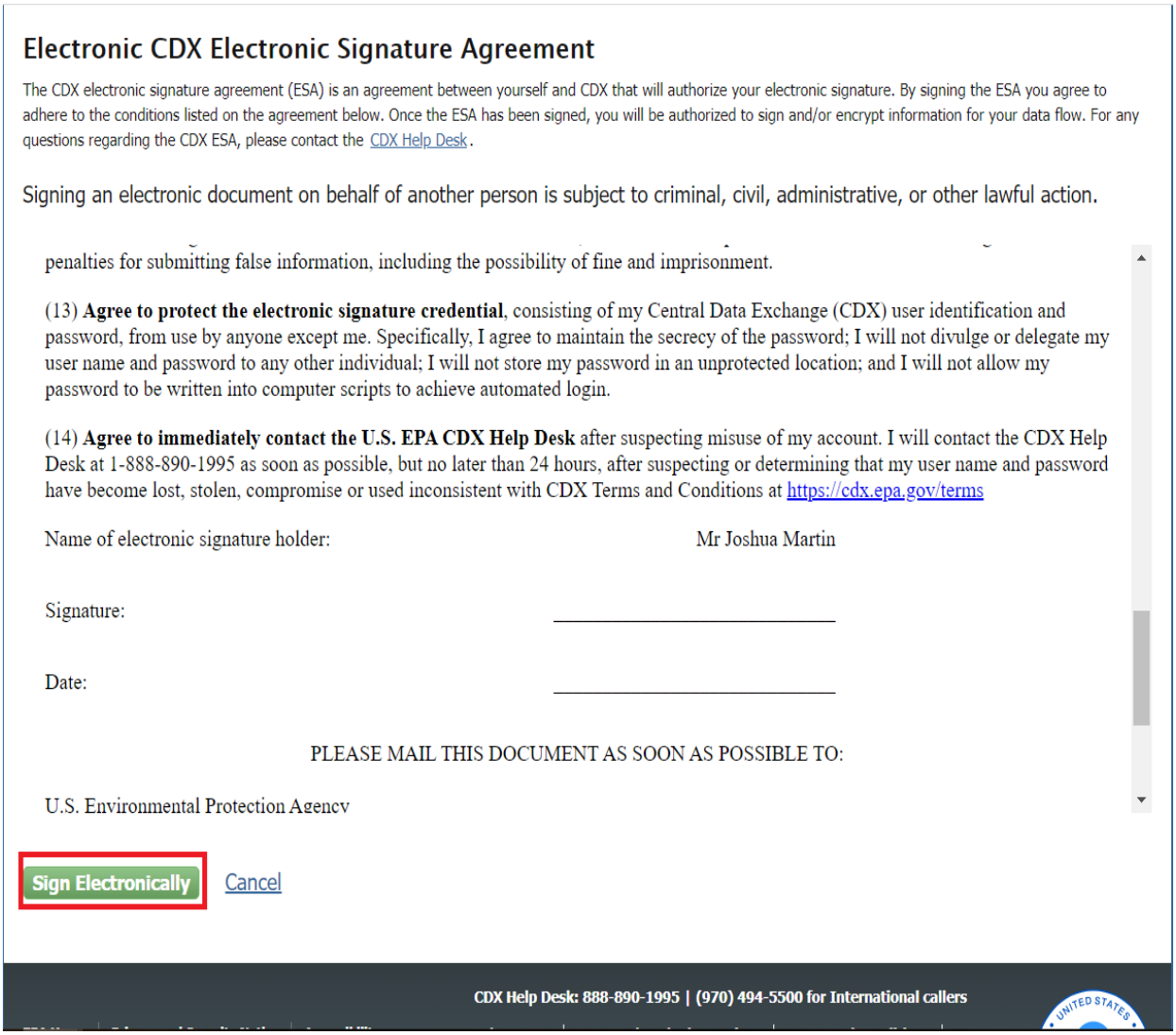
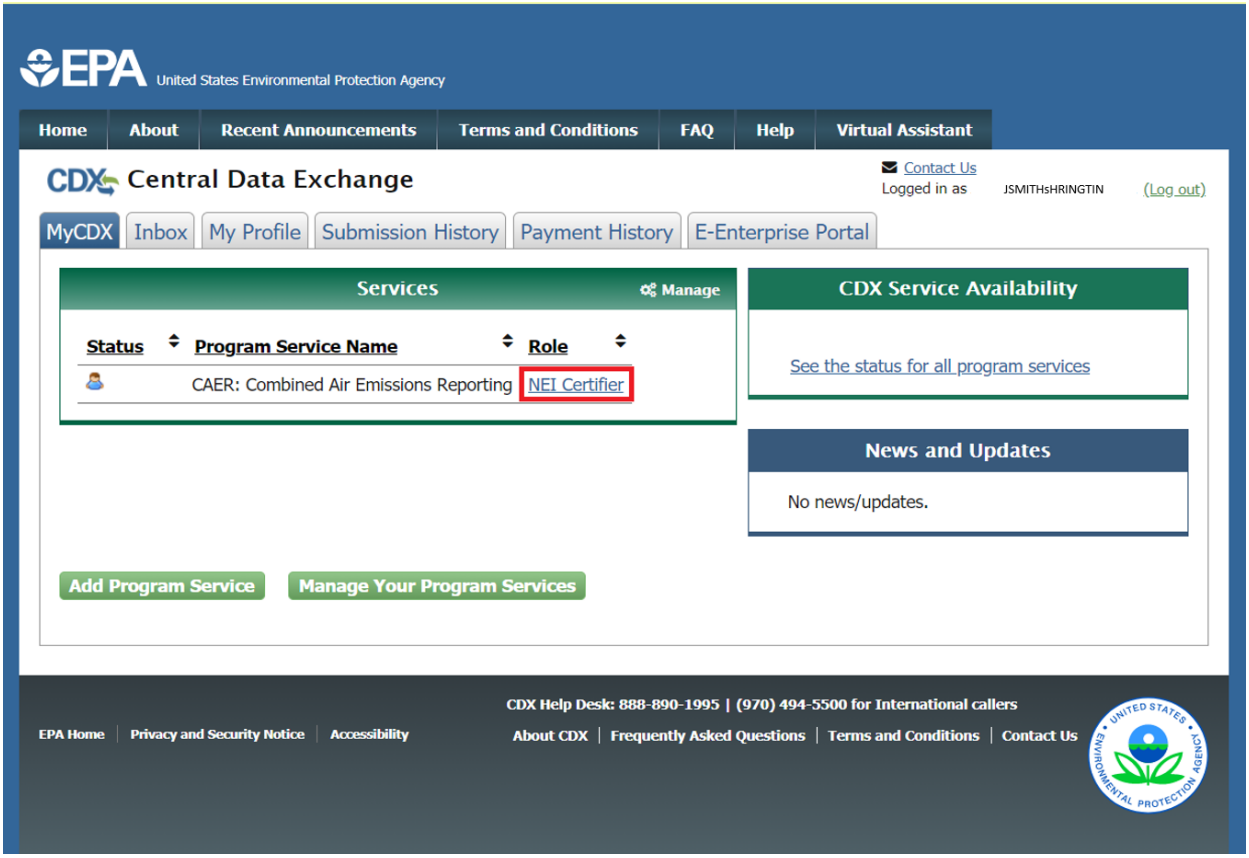


Figure 3-13. eSignature Screen

Figure 3-14. MyCDX Page



Enter all required information in the 'eSignature Widget' pop-up (Figure 3-13). After the 3 steps, click the 'Sign' button to complete the process.

Once you have clicked to sign the ESA, you should receive an email that the process is complete. You will also be redirected to the "MyCDX" screen (Figure 3-14) inside your CDX account. When this happens, your account should be activated automatically. If you are a certifier, then the 'NEI Certifier' link in the

'Role' column on the "MyCDX" screen will be active and clickable. If you are a preparer, then "Preparer" will appear under your Role.

Whenever you want to access CAERS, you'll go to CDX and login to enter your credentials. For security reasons, CDX forces users to change their password every 90 days, so make sure you have your most recent password available to you. Once you've entered your login and password, you will be taken to your "My CDX" page.

3.3 Gain Access to CAERS and your Facility

Once you click on your role, you will be re-directed to enter CAERS, and you will see "My Facilities" (Figure 3-15). Click on the "Request Access to a New Facility" button to request that your SLT verify that you are associated with the correct facility.

The next screen will allow you to search for your facility by entering your SLT agency and Agency Facility ID. If you do not know your facility ID, you may enter more search criteria (such as part of the facility name) to find your facility. Once you've entered it, click "Search" to find your facility (Figure 3-16).

A list of facilities matching your search criteria will appear. Be sure to only select the facility you are reporting and/or certifying for. Once you have selected it, click "Request Access" (Figure 3-17). You will be asked to confirm you have selected the correct facility. Click "Confirm" or click "Cancel" to go back to the previous screen. You will receive an email from your SLT confirming or rejecting your request for access to the facility you selected. When your request has been accepted, upon reentry to CAERS, you should see your facility, listed in your "My Facilities" page (Figure 3-18).

Figure 3-15. "My Facilities" Page in CAERS

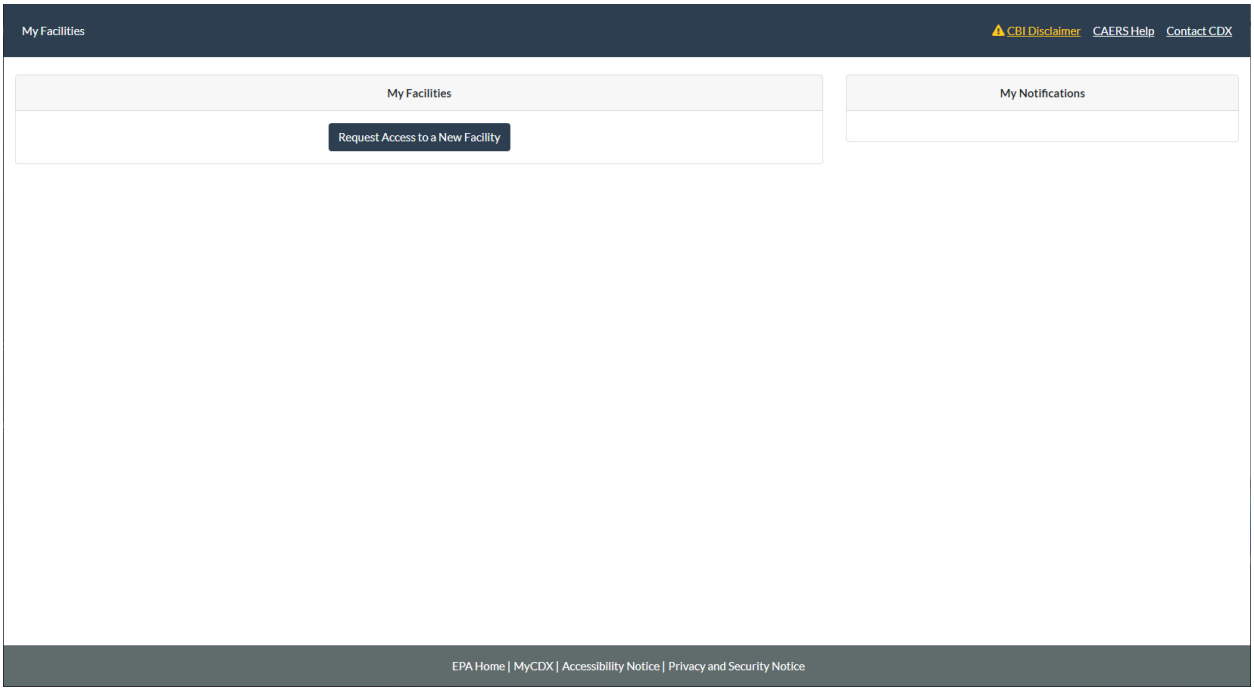


Figure 3-16. Facility Search in CAERS

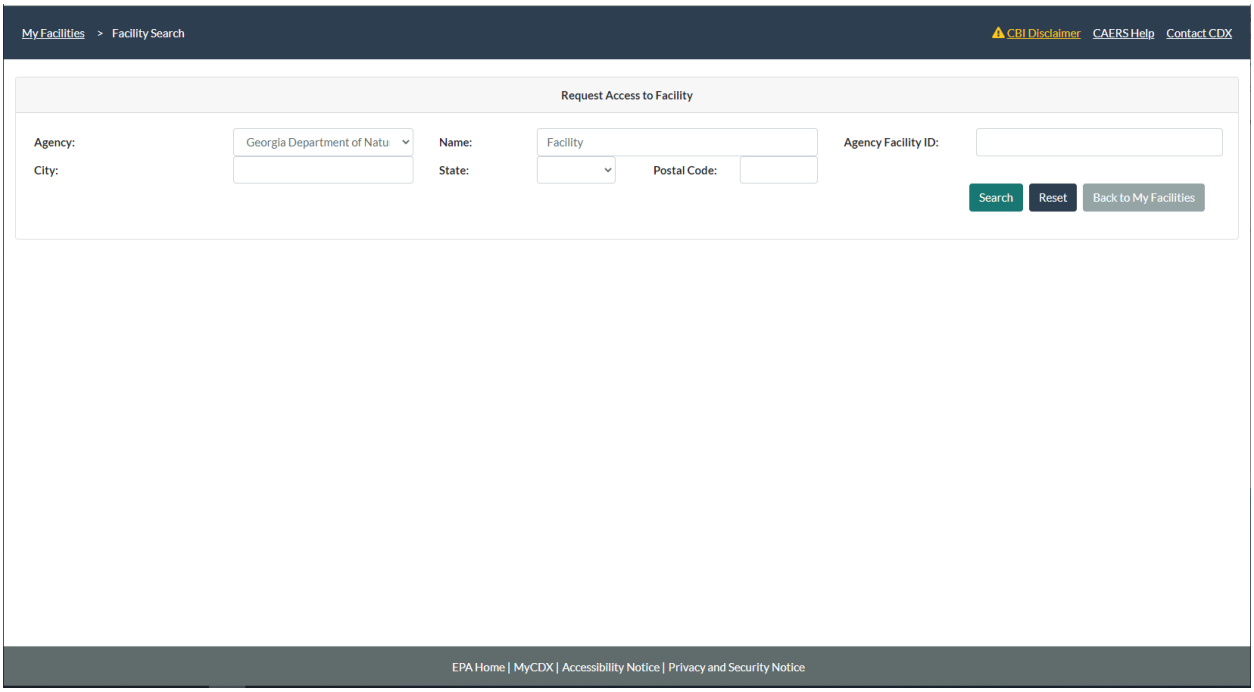


Figure 3-17. Request Access to Selected Facility

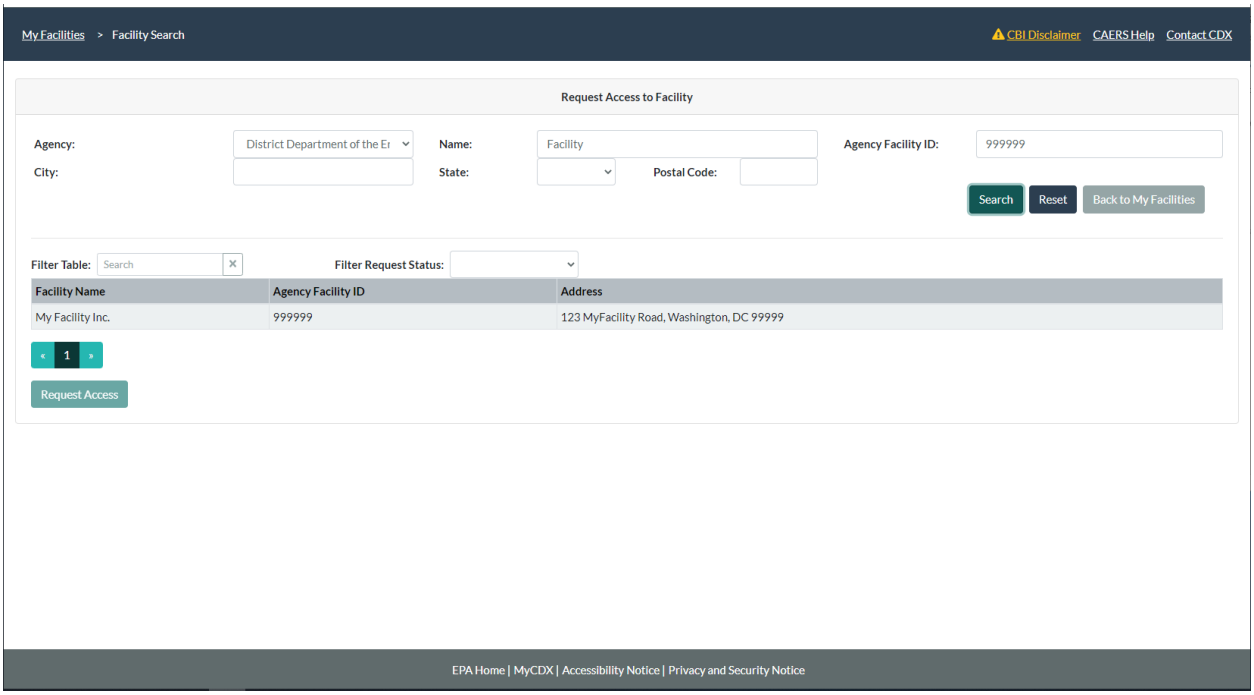
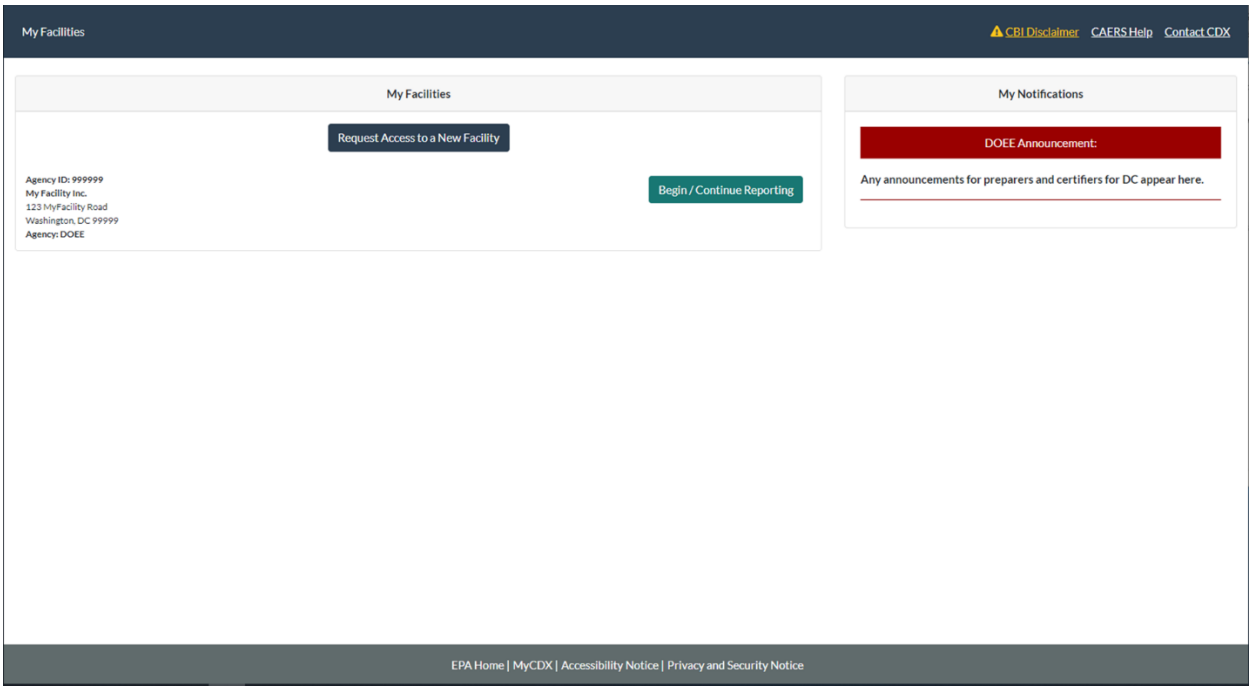


Figure 3-18. "My Facilities" Page Listing Facilities

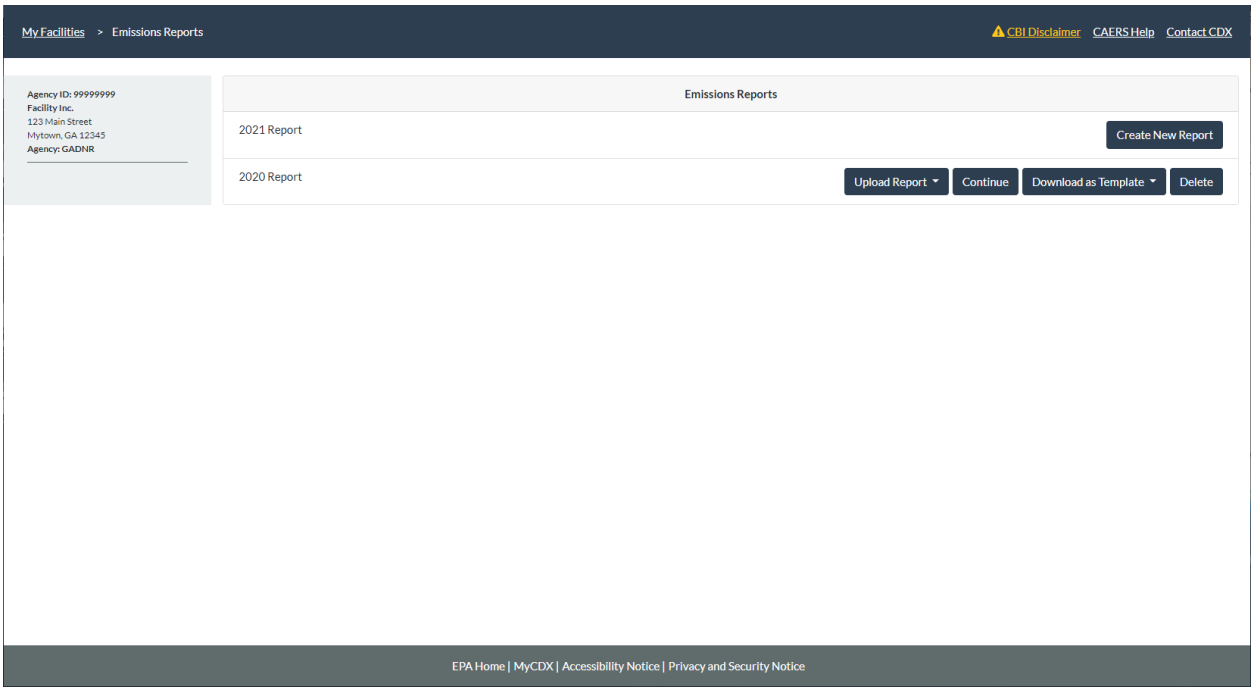


3.4 Opt in-Process for Facilities Reporting to GADNR

This section applies only to all Georgia Department of Natural Resources (GADNR) facility preparers and certifiers. If you do not report to GADNR, you may proceed to Section 4.

After logging in and having received access to your facility from GADNR, you will be redirected to the Emissions Reports page. Now, you will begin your opt-in/opt-out process. Click on "Create New Report", you will be generating a report no matter whether you opt in or opt out, but the process for each will be different. See Figure 3-19.

Figure 3-19. Starting the GADNR Opt-in/Opt-out Process



Via a pop-up window (Figure 3-20), the system will ask about the status of your facility. Only select "Permanently" or "Temporarily" Shutdown if the facility *had no activity* in the inventory year you are reporting. For annual reports, "shutdown", either temporarily or permanently means that the facility *did not* operate from January 1st to Dec. 31st of the inventory year. If the facility operated at all, even one day, in that inventory year, then the facility is considered to have been operating for that inventory year. If you have further questions, please reach out to your SLT *before* you make a selection to avoid having to go through the process again. Otherwise, your facility was "Operating".

3.4.1 If the Facility was Operating

Your selection will take you to another pop-up window asking if the facility met the Potential to Emit (PTE) thresholds listed for the inventory year you are reporting (Figure 3-21).

Figure 3-20. Selecting Operating Status for GADNR Facilities

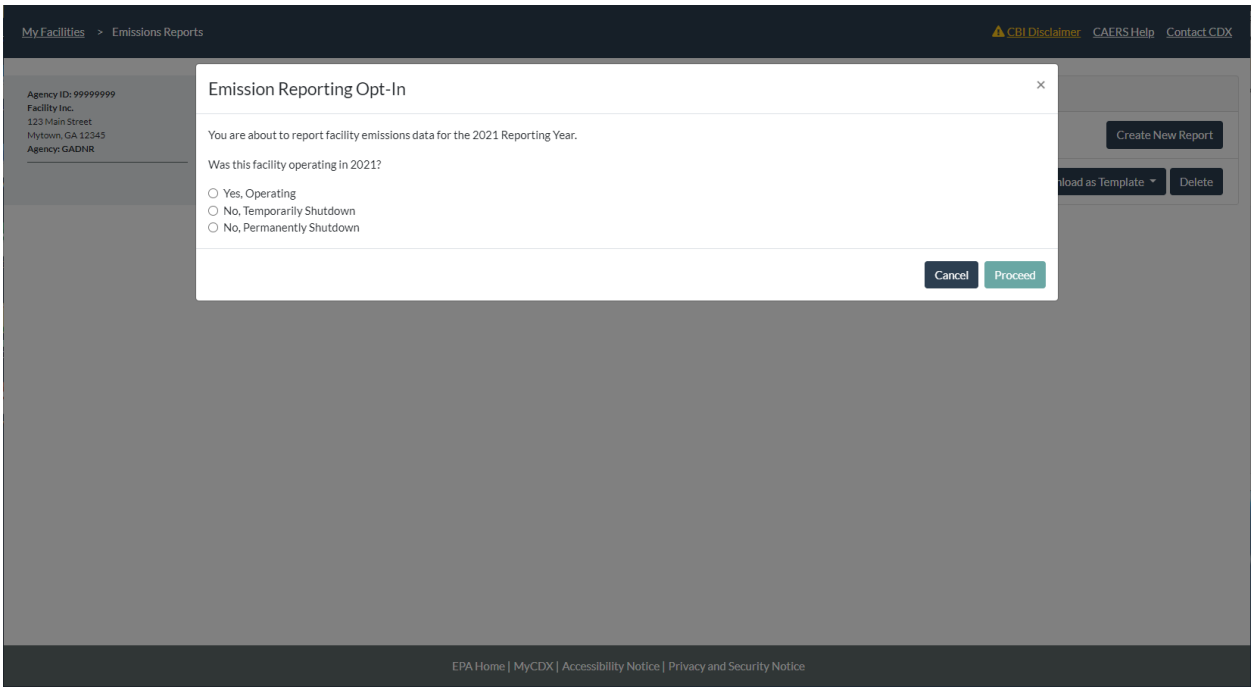
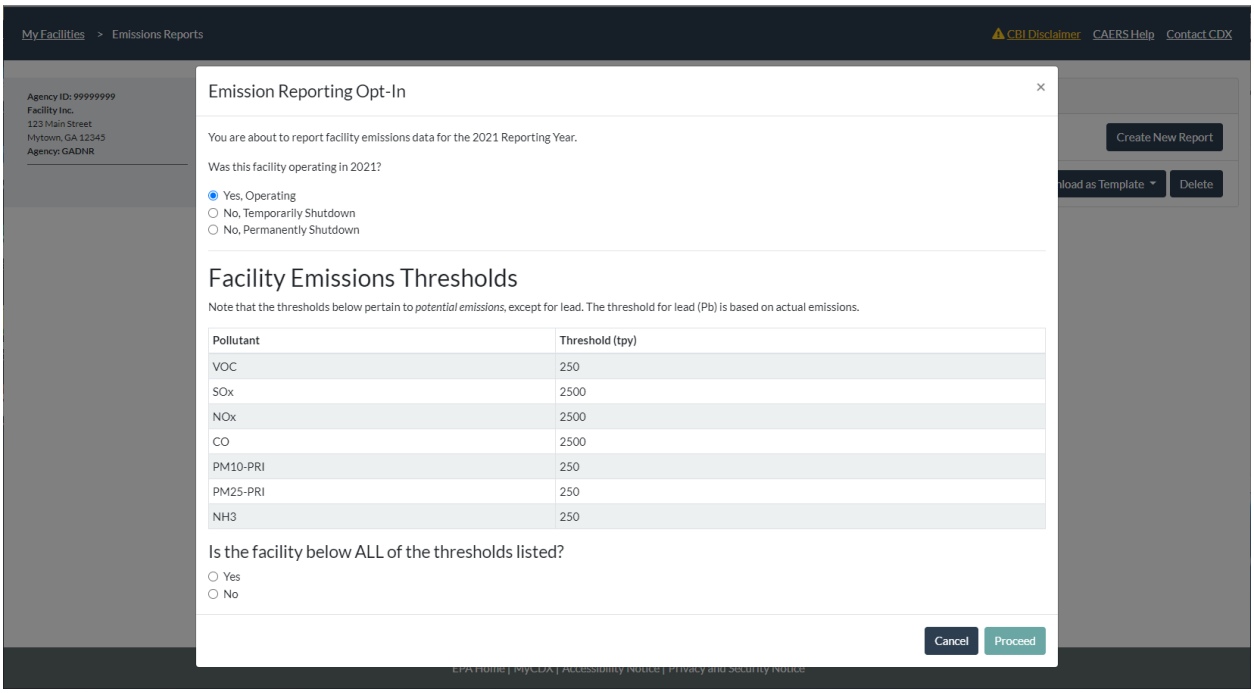


Figure 3-21. Potential to Emit Threshold Questionnaire for GADNR Facilities



3.4.1.1 Facilities Bellow All Pollutant Thresholds

If you answered "Yes" to the question "Is the facility below ALL of the thresholds listed?" (Figure 3-21), then your facility will be opting out of emissions inventory reporting for the inventory year. The next screen you see, will show you the Summary Screen in CAERS where the summary will appear empty. Your previous year data will not be used to prepopulate the current inventory year, as your

facility will not be submitting an annual report, but instead, will be saved for the next time your facility reports. Your report for this inventory year is effectively reporting that the facility opted out from the requirement to submit an emissions inventory report for this inventory year (Figure 3-22).

Please review your facility information carefully. Even if you are going to opt out, you will need to have updated facility information so that it is current, including a point of contact, for any subsequent submissions. If any information is incorrect or missing, please edit it. Click on "Run Quality Checks" to see if you have any errors or omissions in facility data that need to be corrected. If there are corrections that you cannot make, as your SLT may not authorize you to do so, please reach out to them as soon as possible *before* you certify and submit. Otherwise, you may have to go through this process again until the correction is provided.

If you are opting out, you will be required to attach your Potential to Emit Threshold Analysis (TA) excel file. You can click on "Attach Report Document" to do so (Figure 3-23). Please note that GADNR requires a specific template to be used for the opt-out TA. The TA template for GADNR reporters can be found in the GECO website in the Emission Inventory Application section. Reach out to GADNR staff if you need further guidance on this. Make sure that the facility data in your TA template matches that listed in CAERS exactly to avoid having rework later. Failure to attach the TA will result in an error that will not allow the certifier to proceed with certification (Figure 3-24). Once the TA is attached the certifier will click "Certify and Submit to SLT". GADNR will only reject this submission and return to the facility if it encountered errors in the analysis. If so, the process must be re-started by going back to the "Emissions Reports" page and clicking "Delete". Once that is done, the system will re-set and you will start the Opt in/Opt out process again.

Figure 3-22. Report Summary Page for a Facility that Opted Out

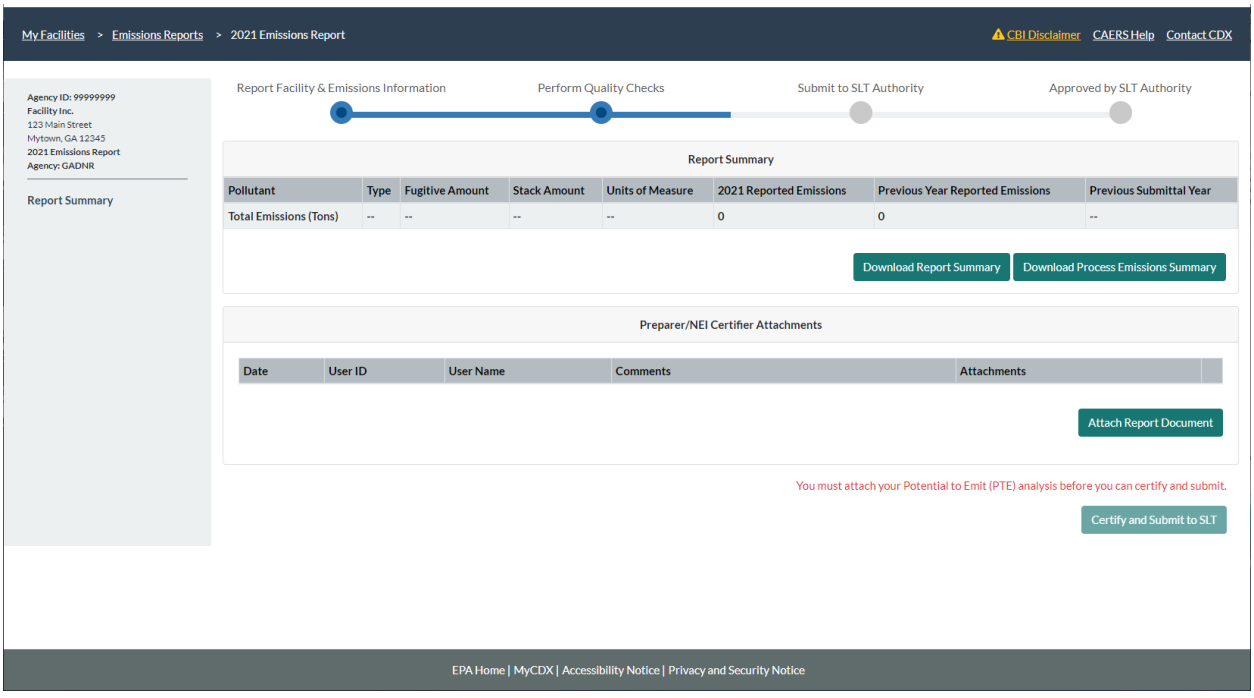


Figure 3-23. Attaching the Thresholds Analysis for GADNR Facilities that Opted Out

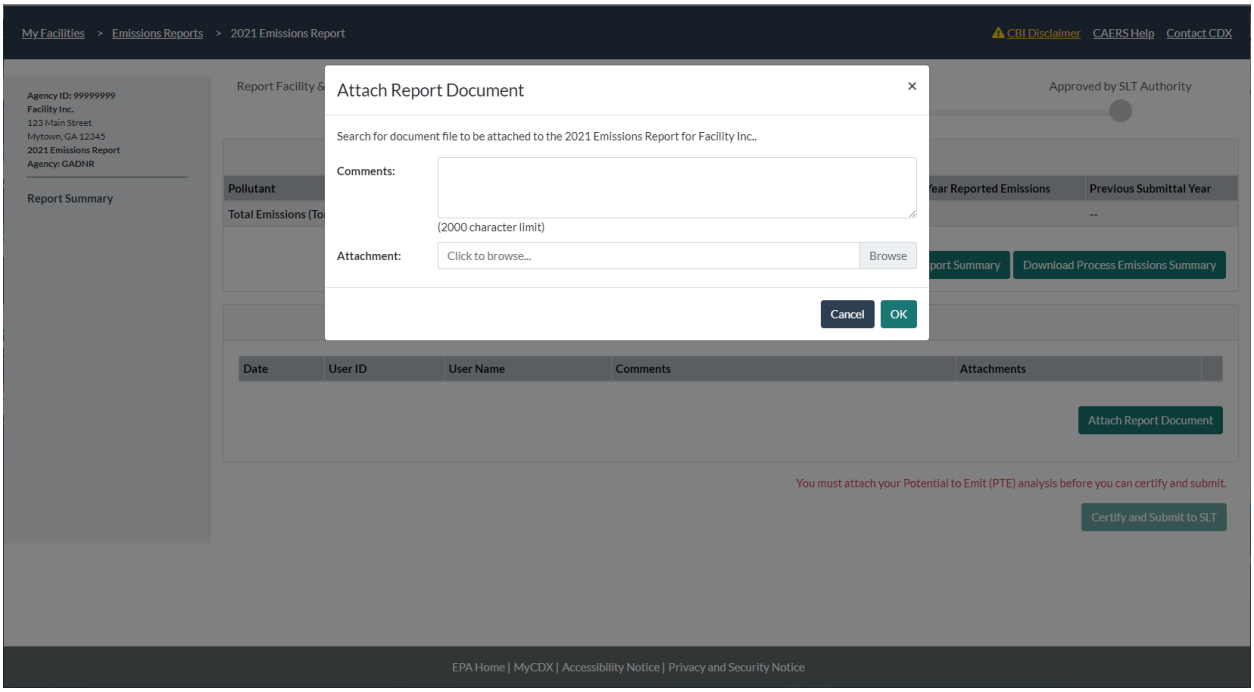
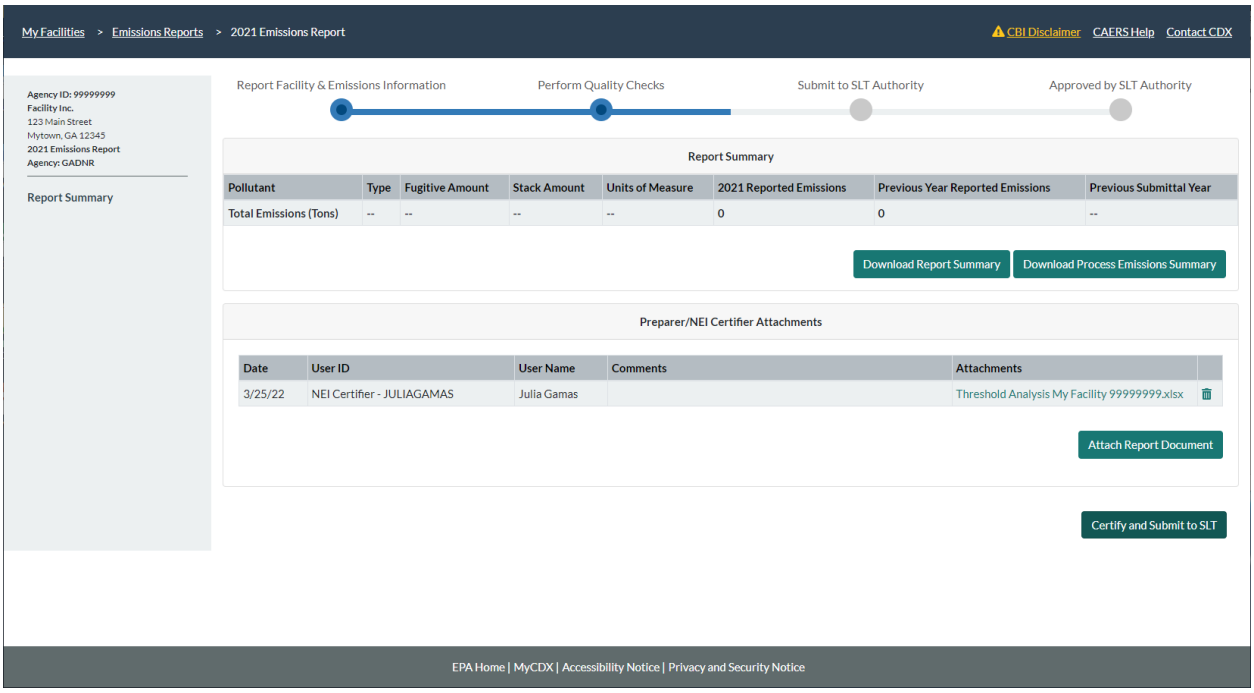


Figure 3-24. Certify and Submit for GADNR Facilities that Opted Out



3.4.1.2 Facilities Above at Least One Pollutant Threshold

If you answer "No" to the question "Is the facility below ALL of the thresholds listed?" (Figure 3-21), then your facility will be opting in. The next screen you will see will be the "Report Summary" screen. If you have submitted a previous year report, your data from that report will have prepopulated this screen and you can begin your report per section 4.1.3 of this User Guide. **Note that if the facility**

PTE emissions exceeds some of the pollutants, the actual emissions of *all* pollutants emitted at the facility must be reported.

3.4.2 If the Facility was Temporarily or Permanently Shut Down

After selecting either "Temporarily Shutdown" or "Permanently Shutdown" you will be re-directed to the facility summary page, but the previous year report will not pre-populate your current year report. The Report Summary screen for facilities that have shut down will be the same as for the opted out facility (see Figure 3-22). Your report for this inventory year, is effectively reporting the status change for your facility, and the status year will automatically be marked as the previous year (inventory year). See section 4.2.1 for more details on facility operating status. You will not be required to submit a threshold (TA) analysis if your facility was shut down.

4 Reporting Emissions and Facility Information via the User Interface

4.1 Navigating the User Interface

4.1.1 General Description of User Interface Features

This section will help you understand the basics about navigating the CAERS User Interface (UI), that will be helpful whether you choose to do your reporting via UI, bulk entry, or bulk upload. The UI has many pages and data entry points, however, there are some common themes throughout the UI. This list will help you understand the general layout of the UI and its characteristics. Specific features are explained in more detail, including screenshots, in subsequent sections and are not duplicated here to avoid repetition.

General features (refer to Section 4.1.3, Figure 4-3):

- Breadcrumbs at the top of the screens displaying the path that got you to the current screen from previous screens.
- Submission steps bar at the top of the screen that indicates what step you are on in the submission process.
- A menu with links to different facility and emissions data pages on the left-hand side of the screen, that will help you find the relevant screens for viewing and data entry. Where multiple units exist, the menu can be expanded and collapsed.
- Link to "MyCDX" at the bottom of the screen.
- Link to "Help" at the top right of your screen that takes you to a page containing the help desk contact information and additional resources.

User interface data entry features:

- Organization of data in each screen in boxes. For example, facility information is organized in the following boxes: Facility Information, Facility North American Industrial Classification System (NAICS) Codes, Contact Information (Section 4.2.1, Figure 4-5. Facility Information Page).
- Greyed out data entry boxes indicating where data is not expected to be changed by the user (Section 4.2.1, Figure 4-6, for example).
- Asterisk "*" symbols indicate required data fields. Error messages for missing data fields and for data fields that are conditionally required. (E.g. entering one data field may require entry of a companion data field)

- Question mark icons next to data fields to explain what they are and how to use them. In addition, the glossary in the help section contains all these definitions and can be downloaded for your reference.
- Drop down menus for data entry boxes to assist the user in entering the relevant data without errors (Section 4.2.1, Figure 4-6 for example).
- Pop-up windows directing the user to make a choice or enter specific information related to the page the user is in (Section 4.2.1, Figure 4-7, for example).
- Data entry quality checks (warnings in purple, critical errors in red) to help the user to address issues and corrections before submission (Section 4.2.2, Figure 4-11, for example)
- "Trash can" icons to delete specific sub-facility components. These are not to be used when that component existed in a previous submission. If data was entered in error during the current submission, the trash can should be used. If the data existed in a previous submission, then the component operating status should be changed to temporarily or permanently shut down (as the case may be), and the year of that change should be recorded as well (Section 4.2.1, Figure 4-6 for example).
- Links for sub-facility components on lists to indicate when the user can edit them from there (Section 4.2.2, Figure 4-10, for example).
- Process of adding sub-facility components. These must be added first before they can be associated with other components. When a component is added as new, the associations won't show up on the screen for that component until the component information has been filled out and saved (for example, compare screens for Figure 4-11 and Figure 4-13 in Section 4.2.2). Then, the component page can be re-opened and boxes for the associations will appear.

4.1.2 Emissions Reports Page

From "My Facilities", click on Begin/Continue Reporting. This will take you to the "Emissions Reports" page, where you can see all the reports for that facility (See Figure 4-1 for a new report, and Figure 4-2 for a report in progress). The CAER system will contain your report from the last year you submitted one, which will serve as a starting point for you to begin a new report for the current inventory year you are reporting. Note: For facilities reporting to GADNR, make sure to see section 3.4 for Georgia's op-in/opt-out process before you proceed with this section.

From this screen you have options to work on your report as follows:

- If you will be reporting via the UI or Bulk Entry:
    - To start your current report click on "Create New Report" (Figure 4-1) to start reporting. This will prepopulate your current year report with your previous year data. You will be re-directed to the facility "Report Summary" page. If your facility has control equipment, you should also familiarize yourself with Appendix A before beginning a report.
    - To continue your current report if you have already started it in a previous session, click "Continue" to be redirected to the UI (Figure 4-2).
- If you will be reporting using Bulk Upload:
    - You can download your previous year data in the pre-formatted template. This can be used as a starting point to edit and enter your current year report. If you are using bulk upload to enter your report, refer to Section 5 and, if your facility has control equipment, refer to Appendix A before beginning a report.
    - Once you've filled out your template with your current report, you can upload it from this screen as well by clicking on "Upload Report".

- If you would like to view a previous year report, you can click on “View” to enter the UI and see the report without modifying it.
- If you find that your current year report is in error and would like to start over, you can click on the “Delete” button. Note that if you delete a previous year report, you will not be able to get that data back easily and recovery may take several weeks. If you have any doubts, download a copy of your current report in the bulk upload template *before* you click “Delete” to ensure you can save this information.

Note that, at this time, you will not be able to re-submit a previous year report for a previous reporting year.

Figure 4-1. Begin Emissions Report

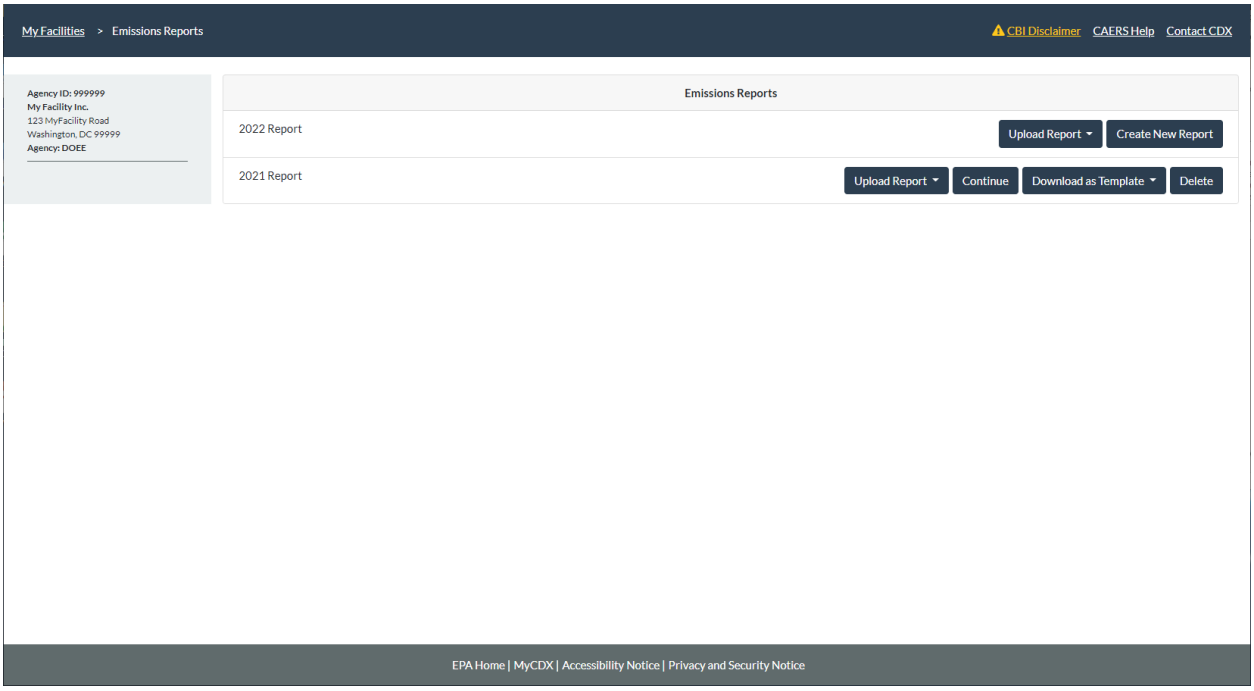
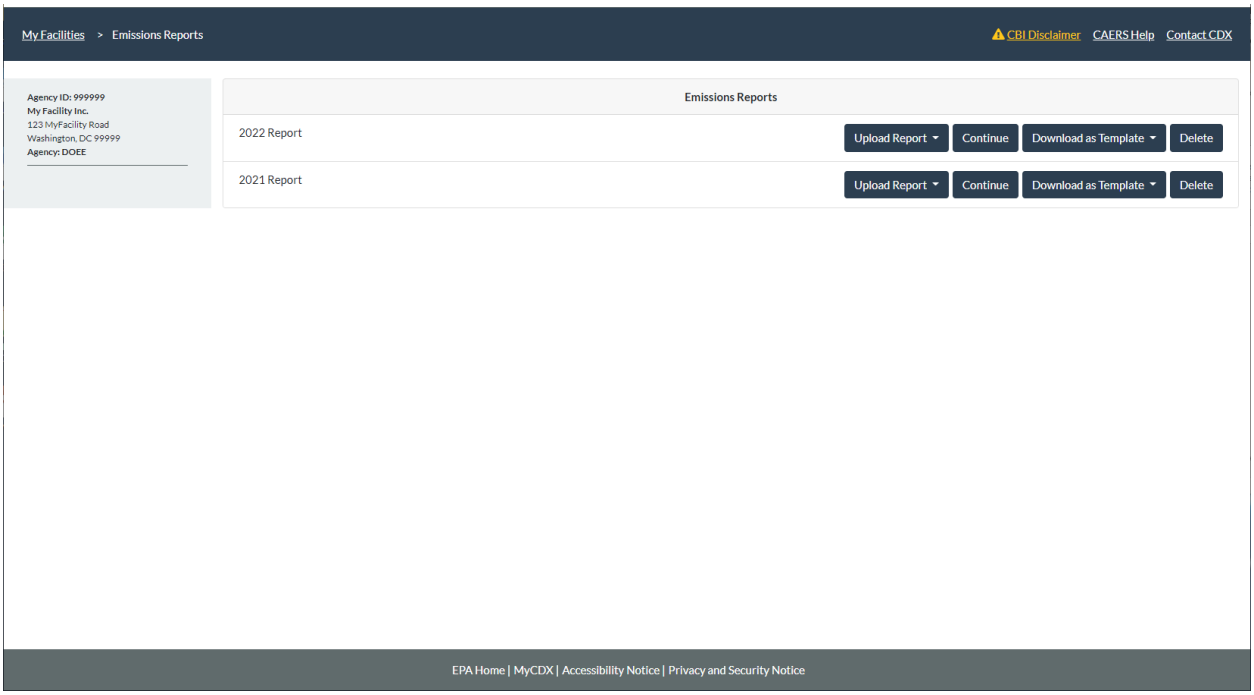


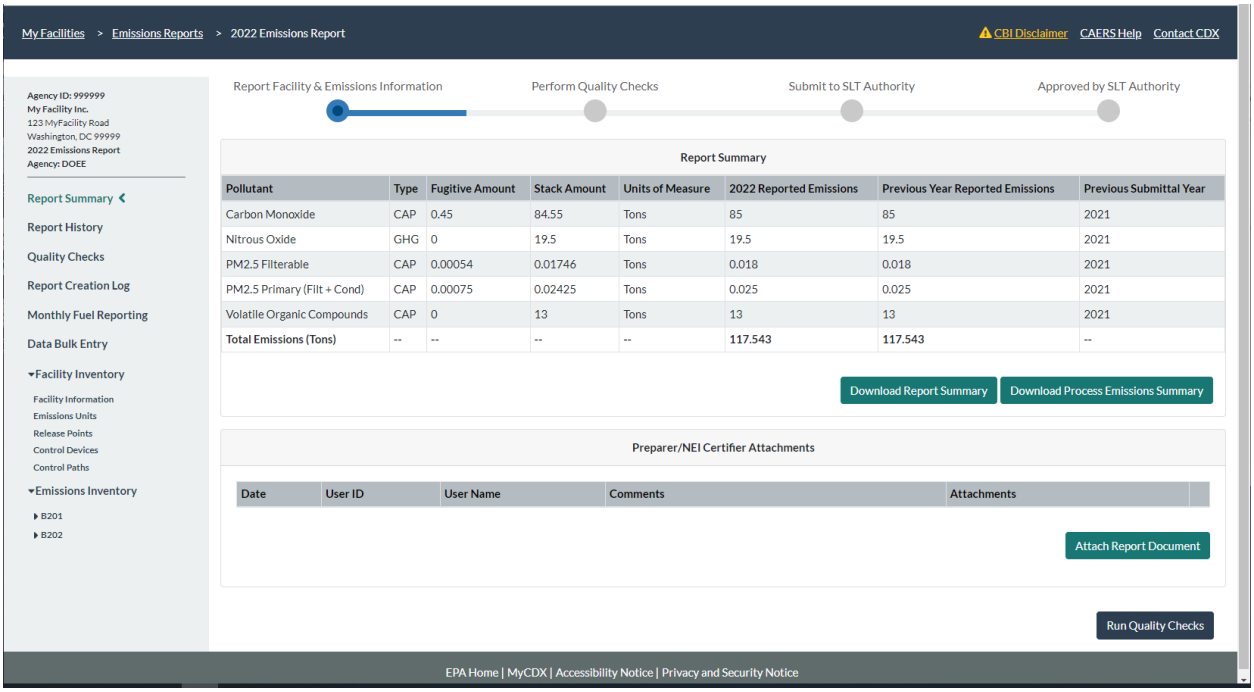
Figure 4-2. Emissions Report Page



4.1.3 Report Summary Page

Once you have selected a facility and report from the "My Facilities" page, you will be taken to a "Report Summary" page (Figure 4-3). Your new report will be preloaded based on your previous year submission, and include a list of pollutants for that facility, the reported emissions in the current report, and the tons for each pollutant that were reported in your facility's previous submission.

Figure 4-3. Facility Report Summary Page



You will see breadcrumbs in the dark blue bar at the top of the screen. These display the path that got you to the current screen from the "My Facilities" page. By clicking on any of the links, you will be returned to a previous page. For example, from "2020 Emissions Report" you can click on "Emissions Reports" to be taken back to that page.

Below the breadcrumbs, at the top center of the screen, you'll see a bar showing the four main steps of submission that will help guide you through the submission process:

- Report Facility & Emissions Information,
- Perform Quality Checks,
- Submit to SLT (your State, Local, or Tribal) Authority, and
- Approved by SLT Authority.

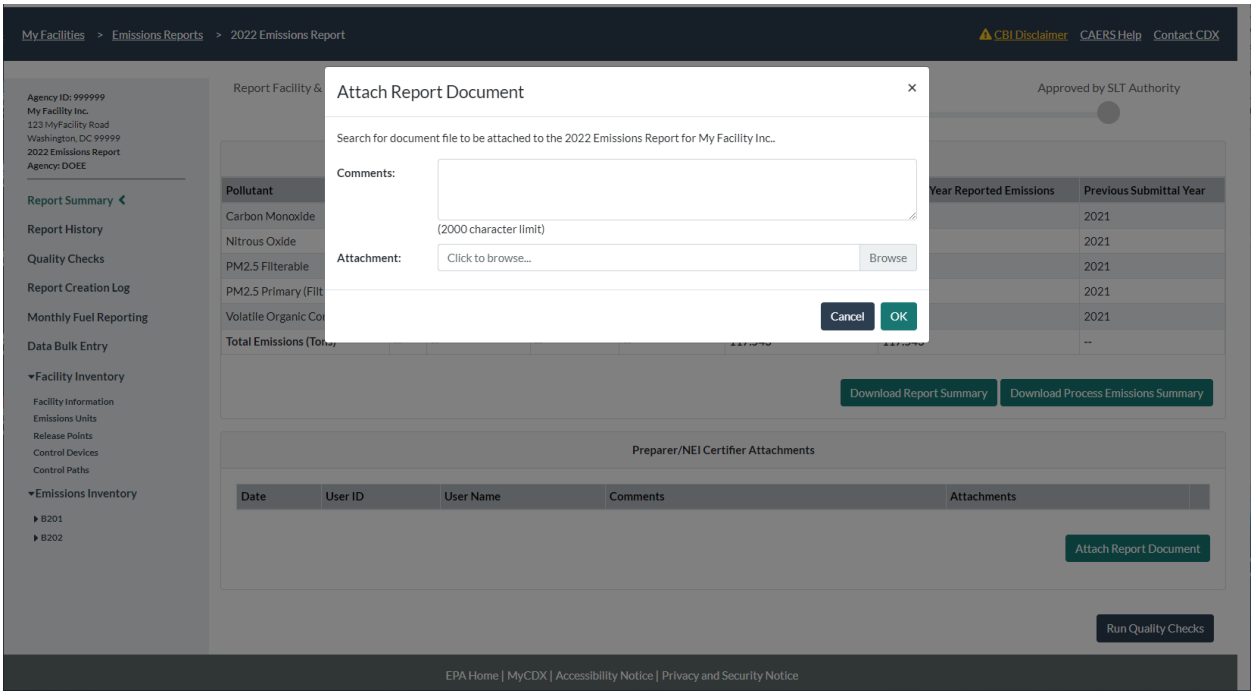
On the left-hand side you will see an expandable menu with links that will take you to different pages:

- Report History (shows a list of actions associated with the report over time and who performed them, for example, when it was created, submitted, whether the SLT has approved it).
- Quality Assurance (QA) Checks (takes you to the list of QA checks that your report, as it stands, is currently generating) see Section 7.
- Data Bulk Entry (takes you to the bulk entry tabs).
- Facility Inventory data (with summary pages at different levels of detail: facility information, emissions units, release points, control devices, control paths) see Section 4.2.1.
- Emissions Inventory (a collapsible list of units that you can expand to view the processes associated with each unit) see Section 4.3.

4.1.4 Including an Attachment in Your Report

You can add a file to your report to explain your calculations where CAERS has not done the calculations for you (e.g. when your estimation method is mass balance, engineering judgement, or the emission factor you are using is not listed in the CAERS menu). To attach a file to your report, go to the "Report Summary" page from the left-hand side menu. Below the "Report Summary" section you will see a section titled "Preparer/NEI Certifier Attachments". Click on the "Attach Report Document" on the bottom right of that section (see Figure 4-4). A window will pop up where you will be able to enter comments if needed, and then select the file to attach by using the "Browse" button to find and retrieve your attachment. Click "OK" when you have selected the right file to attach. Your SLT may require that the attachment should show the formulas and their application in an excel file. For your SLT, a verbal description may not be sufficient, as your SLT should be able to verify your estimates. Please be advised that if you do not submit your attachment in the format your SLT requires, this may result in your report being rejected and sent back to you automatically.

Figure 4-4. Including an Attachment



Once you have attached the file you will see it listed in the attachments section. It will also appear listed in the "Report History" page that you can get to from the left-hand side menu of your screen.

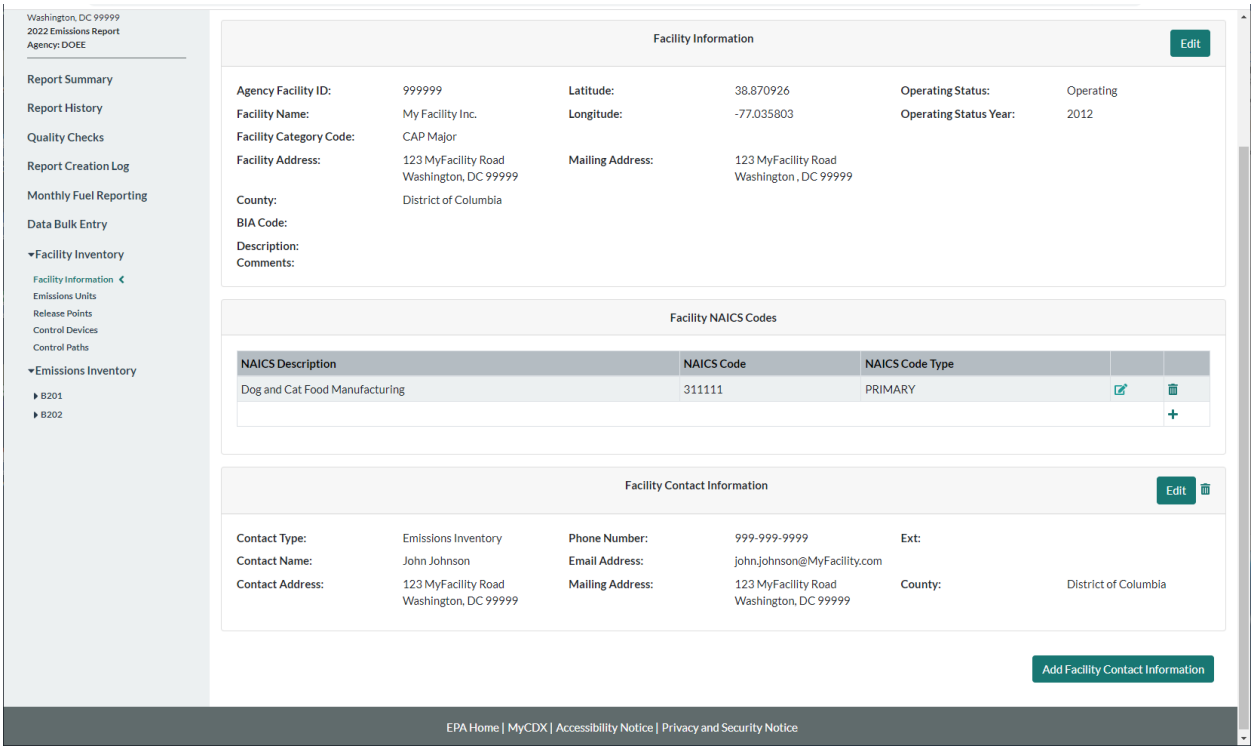
If you need to remove an attachment, from within the "Report Summary" page, click on the garbage icon to the right of the document attachment name. You will be asked to confirm the deletion. Once deleted, the attachment will no longer appear in the list of attachments. However, a record of the attachment upload and its removal will appear in the "Report History" page to help you keep track of your work and ensure you have the most updated attachment you wish to submit with your report.

4.2 Facility Inventory

4.2.1 Facility Information

From the left-hand side menu, click on “Facility Inventory” to expand that menu. Click on “Facility Information” to get to the facility information screen (Figure 4-5).

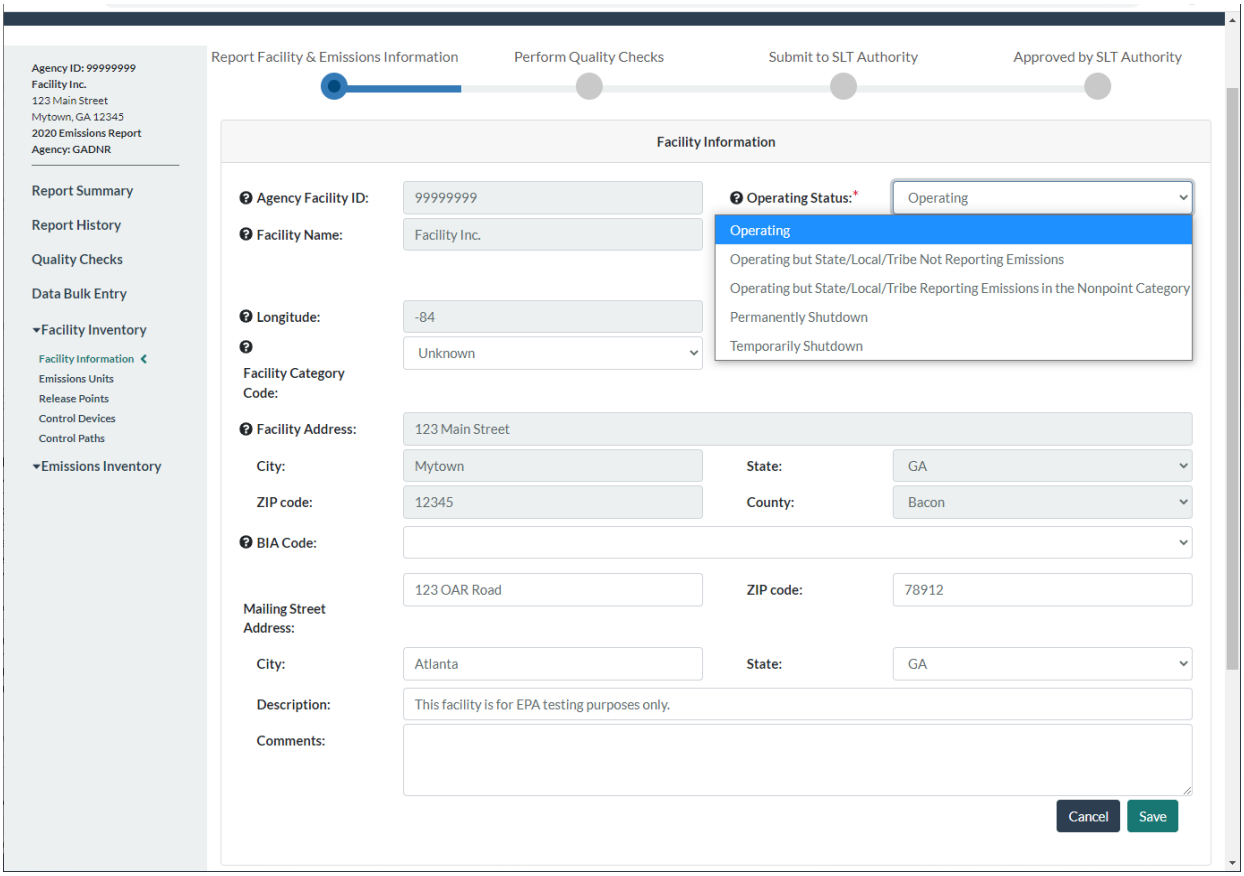
Figure 4-5. Facility Information Page



You will be able to edit facility information by clicking on the “Edit” button at the far right, which will take you to the facility information edit page (Figure 4-6). Note that fields that have been locked will not be editable. They will appear in gray. You should contact your SLT authority (for example, GA DNR) if you think there is an error in locked fields. A gray arrow within a data field box indicates a drop-down menu is available to choose your entry.

- Facility Operating Status: If the facility operated partially in the reporting year and was permanently shut down in the reporting year, you will need to leave the “Operating” status unchanged for the year you are reporting, and change it the following reporting year. For example, if the facility operated in part in 2019 and shut down for the rest of 2019, you would change its status to permanently shut down in your 2020 inventory year report, but would have it as operating in 2019.Once you change the operating status to “Permanently Shut-down”, all units, processes, controls and release points will also be automatically set to “Permanently Shutdown”, and you will no longer be able to enter data for the facility. The operating status year can be set to a year in the past, but not if emissions were reported in that year in a previous year report. An operating facility that reported 0 emissions in a previous year, will still be considered “Operating”, so you should ensure consistency in your reports over time.

Figure 4-6. Editing Facility Information



- **Adding NAICS Codes:** Under the "Facility Information" box, you will be able to add a NAICS code if your SLT allows it. More than one NAICS are allowed as secondary and tertiary NAICS codes, but a single NAICS should be designated as the primary NAICS code. When you click the "+" button at the bottom right of that box, a pop-up window will appear to help you search for your NAICS (Figure 4-7). Type the digits of your NAICS and a menu for the NAICS that contain those numbers will appear to help you select the correct code (**Error! Reference source not found.**). O nce you've selected your NAICS, click the "Submit" button. If you have questions about NAICS you can reference the U.S. Census Bureau. NAICS change every 5 years. At the time this document was written, the codes being referenced were from 2017.

Figure 4-7. Edit Facility NAICS codes

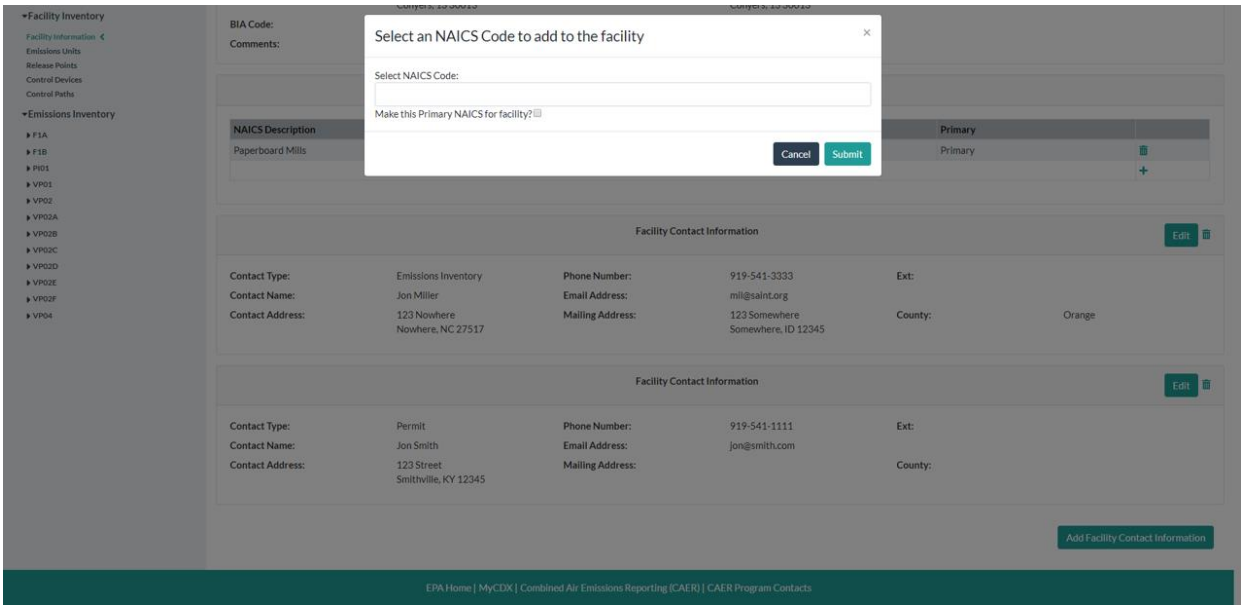
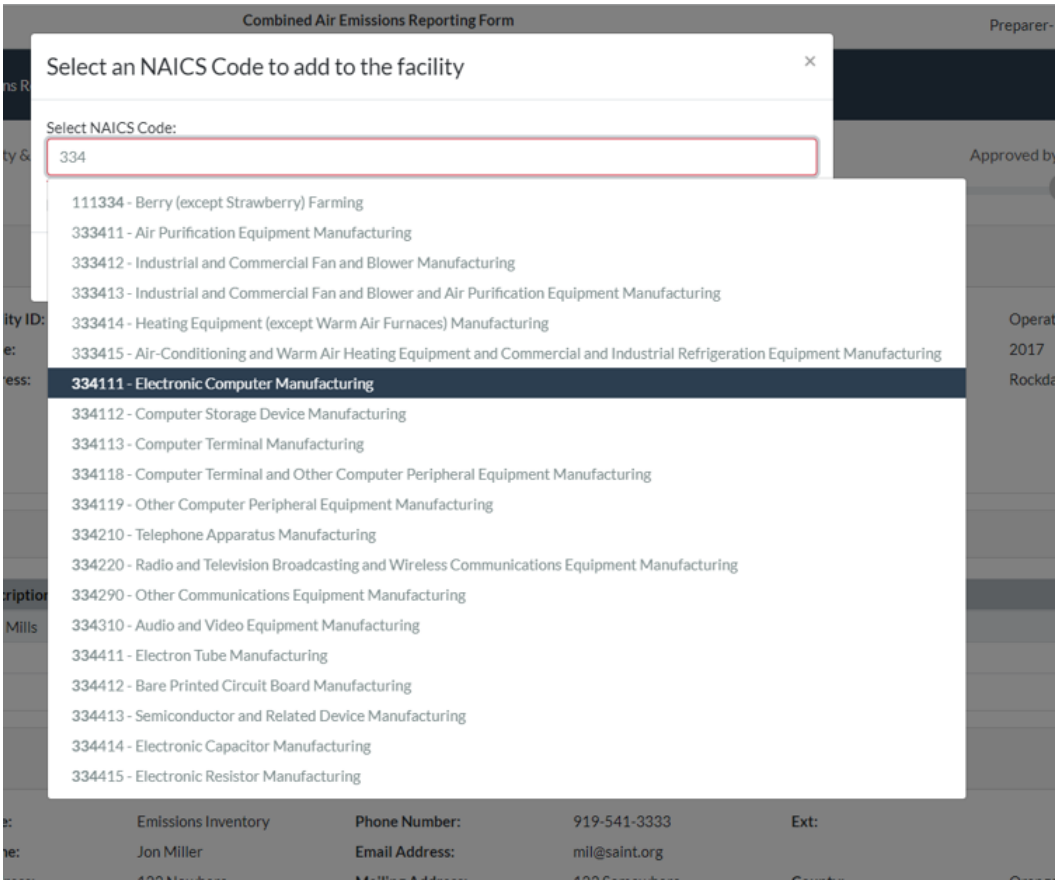


Figure 4-8. Find and Select NAICS Code

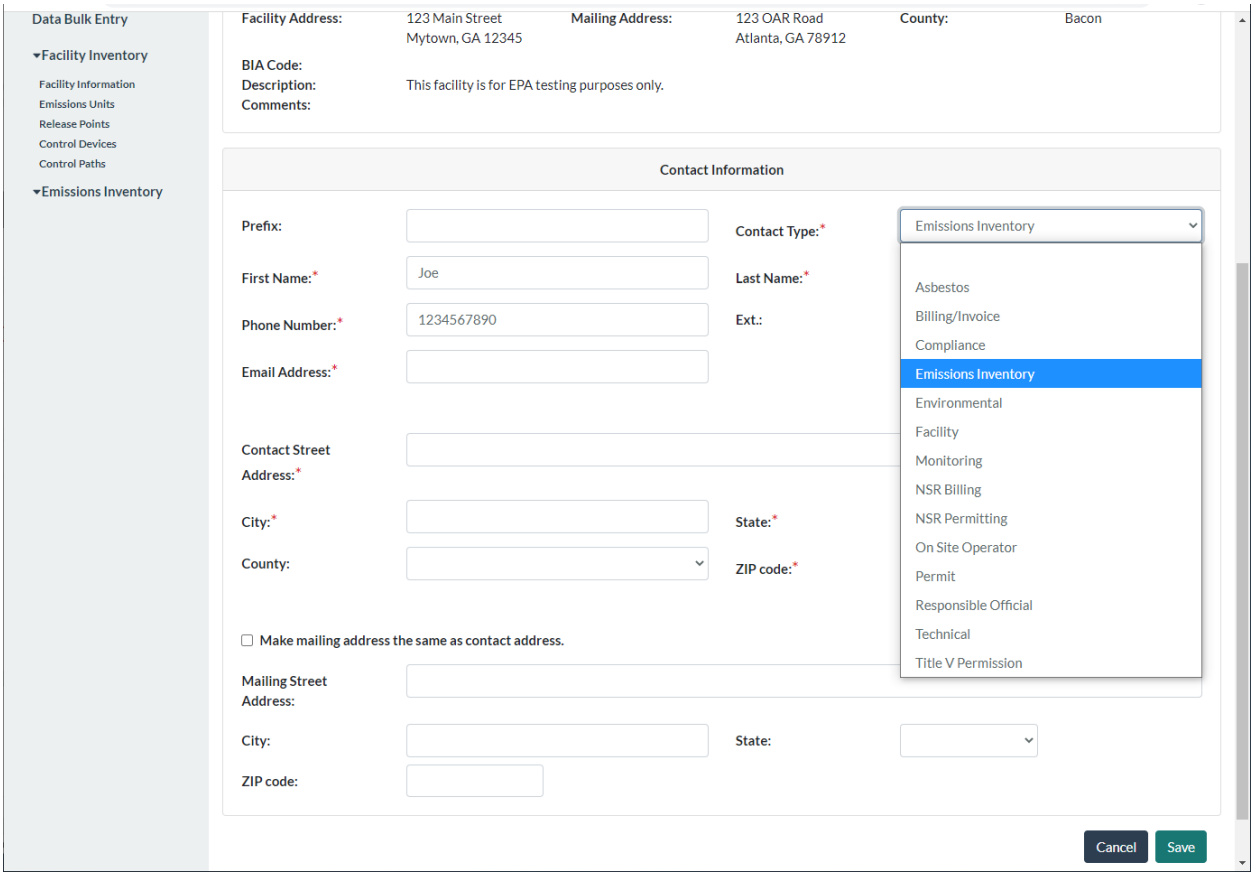


- **Facility Contact Information:** Below the NAICS code box, you should find the "Facility Contact Information" box(es). Note that if you have not submitted information to CAERS before, no

boxes will be displayed yet. You can enter as many contacts for the facility as you need. For example, you may enter a point of contact as the facility expert on emissions inventory criteria pollutant questions, and another for the Toxics Release Inventory expert. Click on the "Add Facility Contact Information" at the bottom right of the screen to open a window to enter new facility contact information (Figure 4-9). Enter all relevant information such as name, number, and make sure to select a "Contact Type".

You will be required to enter at least one contact for National Emissions Inventory (NEI) reporting. This should be the person that your SLT authority can reach out to if they have questions about the submission. If a contact person for the NEI is missing, a QA error will appear at the top of the "Facility Information" page. For the NEI contact select contact type: "Emissions Inventory". Click "Save" after adding the information. The application will automatically take you back to the "Facility Information" page and you should be able to see your contact information displayed at the bottom of the page. You can also edit an existing contact by clicking on the "Edit" button for that contact. This will take you to that contact's edit page where you will be able to make changes.

Figure 4-9. Enter Facility Contact Information



4.2.2 Emission Units Page

From the left-hand side menu, click on "Emissions Units" to go to a list of units in your facility (Figure 4-10).

- **To add a unit**, click on the plus sign at the bottom of the list. This will take you to a blank unit page (Figure 4-11). Add all the data fields. Messages will appear where required information is missing. When you have entered all unit information, click "Save" and this will take you back to the Units page. After you have finished with your entries or edits, click "Save" to go back to the "Emissions Units" page. Your new unit will now be listed on that page as an existing unit. If you are entering new unit data and find you have begun entering it in error, click "Cancel" to take you back to the "Emissions Units" page without saving any edits. You should consult with your SLT on what should be used to determine a "Unit ID," such as what is listed in a permit, etc. before assigning an ID to a new unit.

Figure 4-10. Emissions Units Page

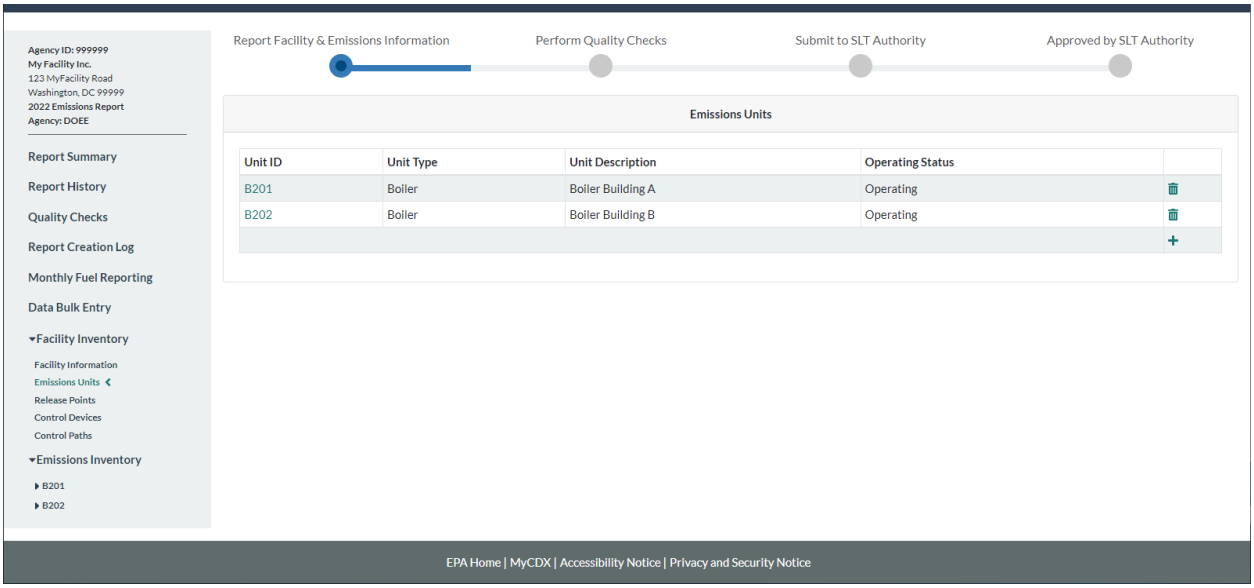
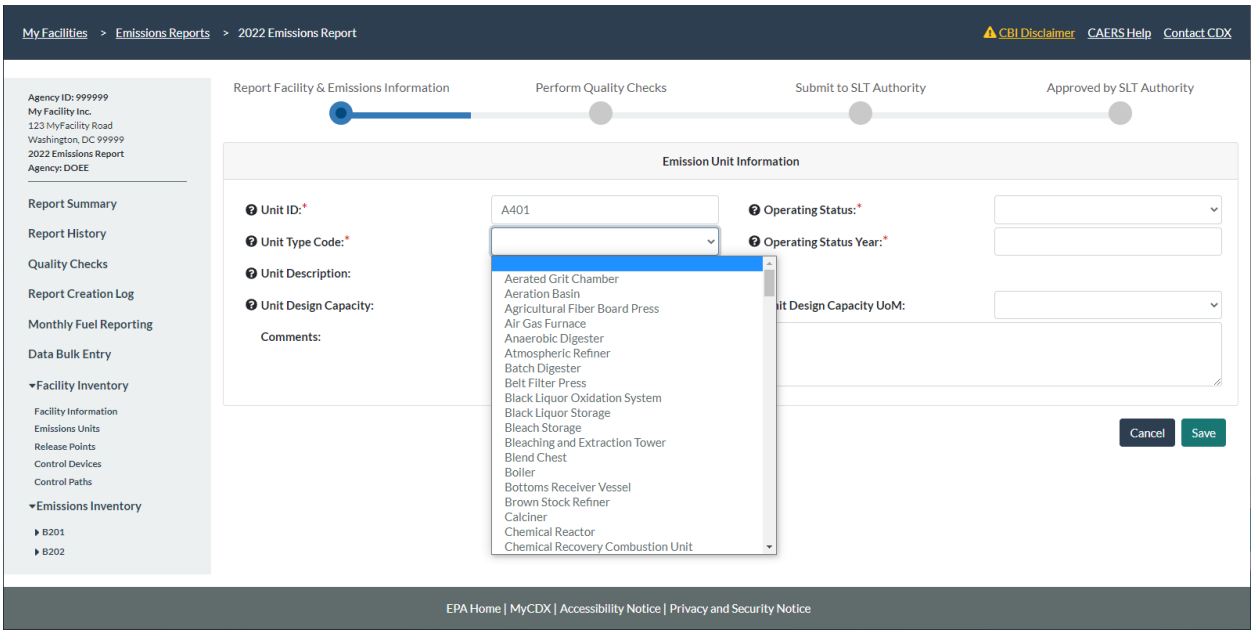


Figure 4-11. Adding a New Unit



- **To edit an existing unit**, from the "Emissions Units" page click on the corresponding unit ID from the list of units to be taken to that unit's page (Figure 4-12). On the unit page, you'll see the "Emission Unit Information" box. Click on the "Edit" button at the top right of the screen to make changes to the emissions unit information. This will take you to that unit's edit screen (Figure 4-13). When you are finished with your edits click "Save" to take you back to the "Emissions Units" page. If you entered data by mistake, click "Cancel", the changes will not be saved, and you will be returned to the "Emissions Units" page.

Figure 4-12. Example of a Page for a Specific Unit

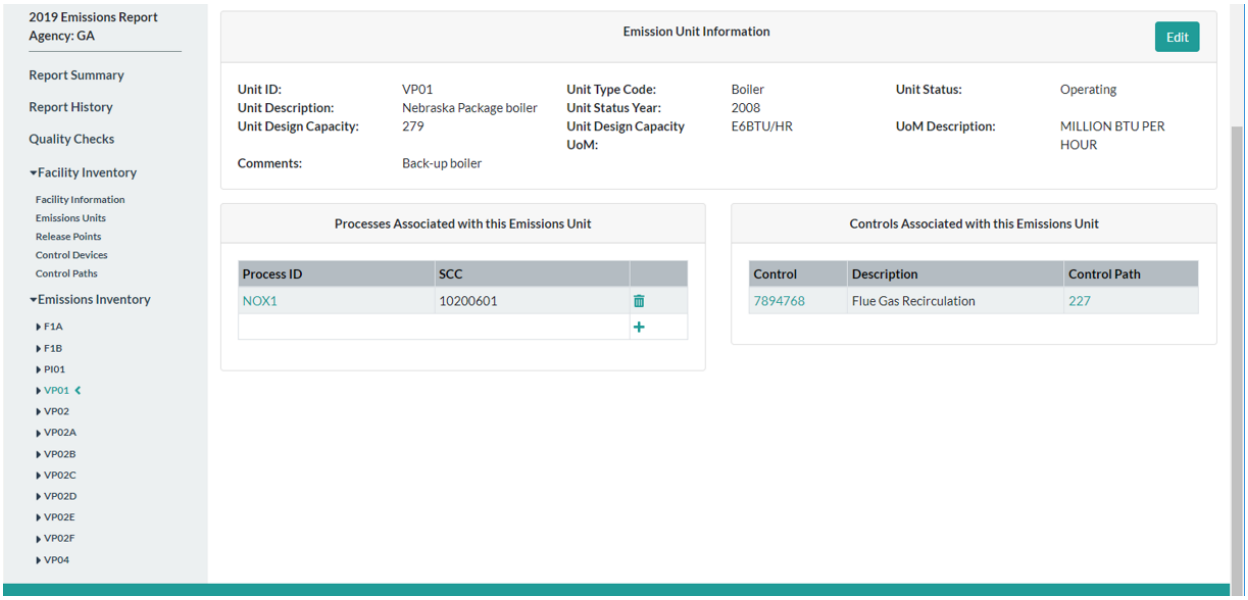
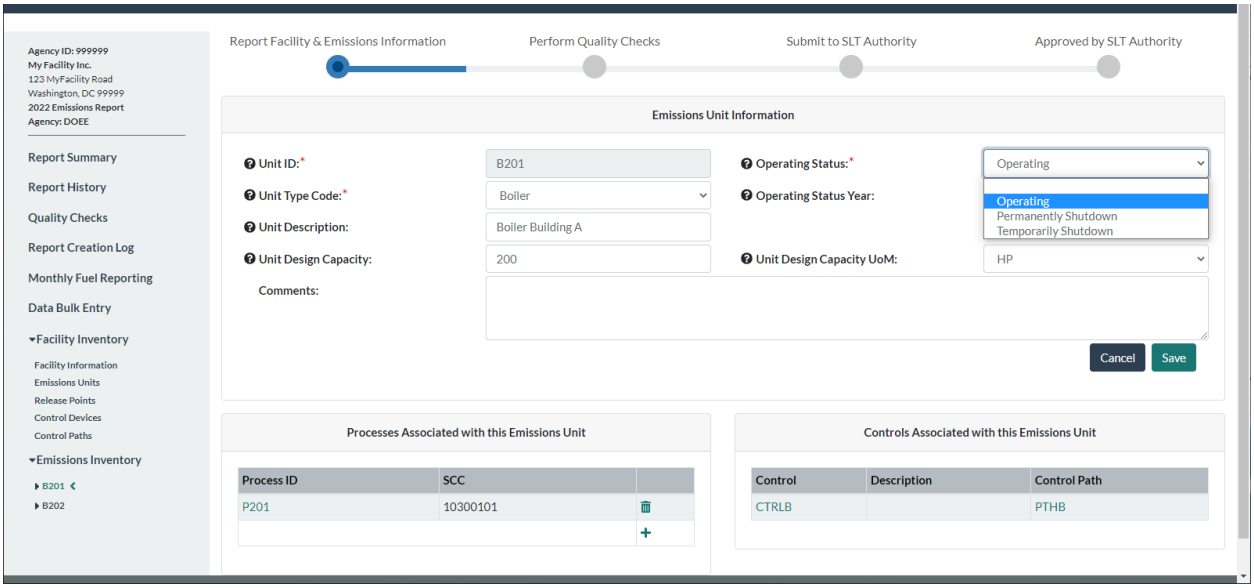


Figure 4-13. Editing a Unit



- **To delete a unit**, you should only delete a unit using the garbage can icon if you added it to this year's report and that addition was an error. If the unit existed in a previous year's report, and

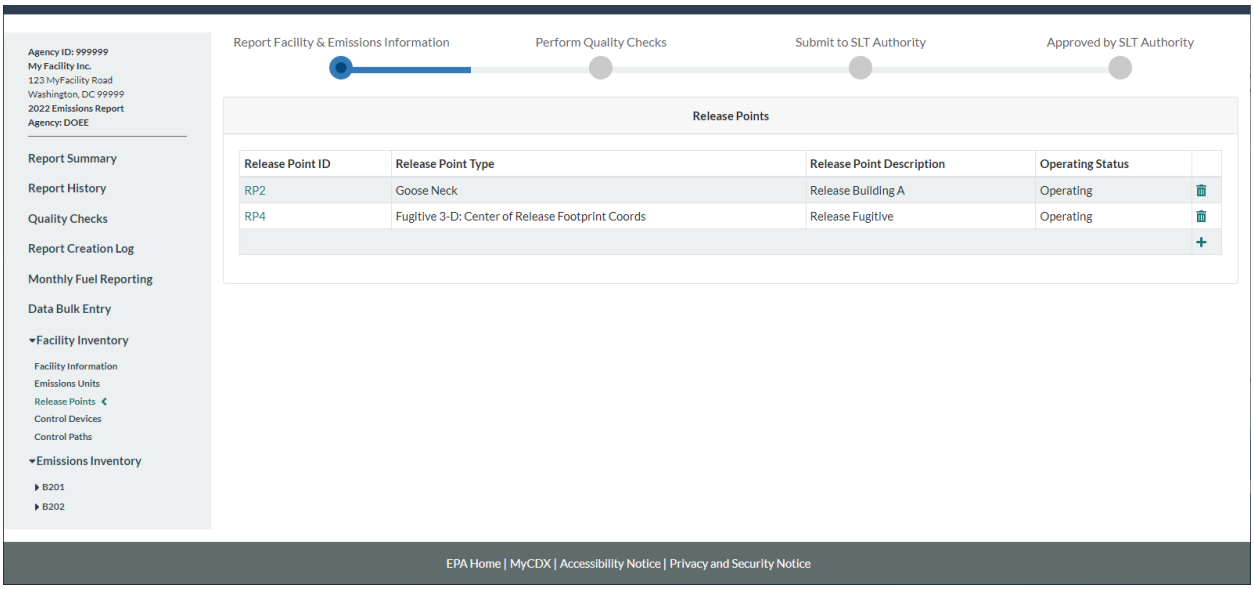
is no longer in use for the entirety of this reporting year, you should click on its ID and change its status from "Operating" to "Permanently Shutdown" and mark the status year as the year when it was shut down. If the unit operated part of the reporting year and then was permanently shut down, then the unit is considered as operating during that reporting year, and should be marked as permanently shutdown the next year.

- **Important additional considerations about units:**
    - **New but inactive units:** Please do not create a new unit and then mark it as temporarily or permanently shut down. If you have a new unit that will report emissions in a future year, add it in that future year report.
    - **Relabeling pitfall:** Please do not relabel current units in the bulk upload template with new ID's. The system will not recognize these units as existing, effectively adding units to your facility instead of simply replacing the ID's. If you do, your facility inventory of record with EPA will reflect additional units and potential emissions that do not really exist in your facility. Your efforts in this regard will help us keep your facility inventory up to date.
    - **Choosing IDs:** If your SLT allows it, the reporter can choose the ID for the unit. There is a requirement that no two units be labeled with the exact same ID. You should choose ID's that you will not find confusing to use in future.
- **Editing processes:** At the bottom of each unit's page, you will also see processes and controls associated with that unit. You can add, edit, or delete processes associated with this unit from this page by clicking on the process ID. See section 4.3.2 to learn how to add, edit, or delete processes.
- **Editing controls:** You can also edit controls from this page. Note that if no controls appear on the unit's page, but there are existing controls that should be associated with this unit, you must add those controls to the system first. They will appear on this unit page once you have done so. See section 4.2.4 to learn how to add, edit or delete controls.

4.2.3 Release Points Page

From the left-hand side menu, click on "Release Points" under the "Facility Inventory" heading. You will see a list of release points associated with the facility (Figure 4-14).

Figure 4-14. Release Points Page

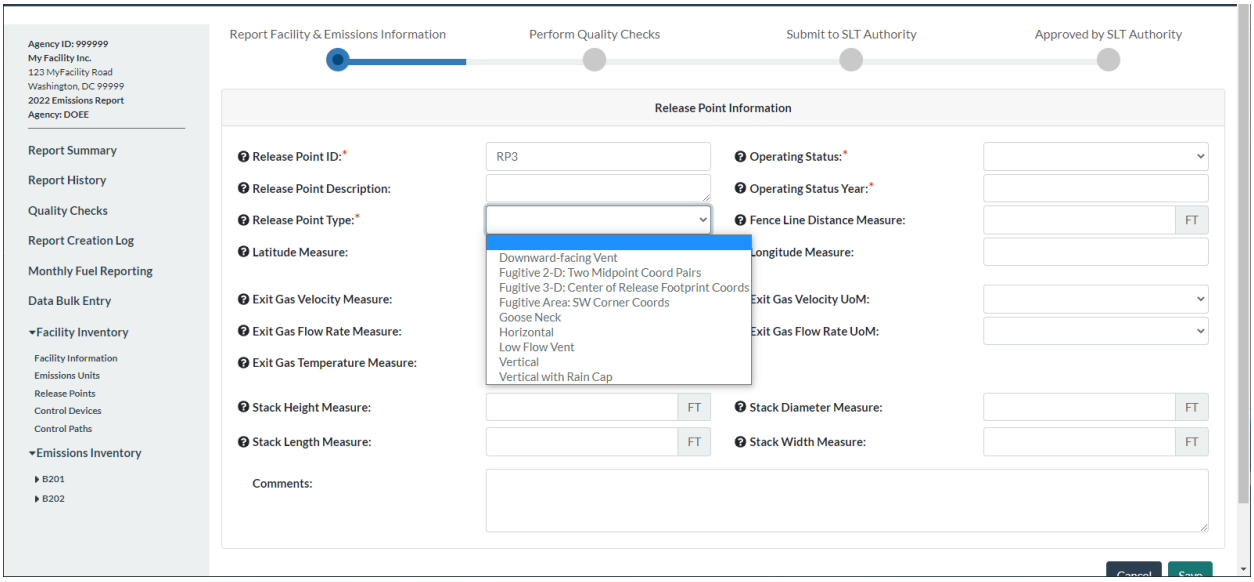


- **To add a new release point**, click on the "+" sign at the bottom right of the list. This will take you to a blank release point page. Enter all relevant information. Messages will appear for required fields. Dropdown menus are available for some data fields by clicking on the arrow in the data field box (Figure 4-15). Click "Save" to take you back to the "Release Points" page. Your new release point will now appear in the list of existing release points. If you entered new release point data by mistake, click "Cancel" so the changes will not be saved. You will be taken back to the "Release Points" page. Consult with your SLT on what should be used to determine a "Release Point ID," such as what is listed in a permit, etc.
- **To edit an existing release point**, click on the release point ID from the list of release points. This will take you to that release point's information page (Figure 4-16). Click on "Edit" at the top right of the screen for that release point. You will also be taken to the release point page (similar to that of a new release point), where you will enter all relevant information about that release point (Figure 4-17). A gray arrow icon next to a data field indicates a drop-down menu that will allow you to make a choice. Consult with your SLT before attempting to edit the ID of an existing release point in case the SLT has requirements on how those ID's should be set, and whether they should be modified.
- **To delete a release point**, note that the garbage can icon on the "Release Points" page should only be used if you added a release point by mistake during this submission. If you are retiring a release point that existed in a previous report, then you must go into that release point's screen by clicking on the release point ID from the list and change the operating status to "Permanently Shutdown".
- **Important additional considerations about release points:**
    - **New inactive release points:** Please do not create a new release point and then mark it as temporarily or permanently shut down. If you have a new release point that will report emissions in a future year, add it in that future year report.
    - **Relabeling pitfall:** Please do not relabel current release points in the bulk upload template with new ID's. The system will not recognize these release points as existing, effectively adding release points to your facility instead of simply replacing the ID's. If you do, your facility inventory of record with EPA will reflect additional release points

and potential emissions that do not really exist in your facility. Your efforts in this regard will help us keep your facility inventory up to date.

- **Choosing IDs:** If your SLT allows it, the reporter can choose the ID for the release point. There is a requirement that no two release points be labeled with the exact same ID. You should choose ID's that you will not find confusing to use in future. Consult your SLT on any rules the SLT may have regarding IDs. For example, the SLT may want your release point to be labelled by a specific naming convention.

Figure 4-15. Adding a New Release Point



On an existing release point's page, you can view processes and controls associated with that particular release point. See Section 4.3.2 on how to edit processes and Section 4.2.4 on how to edit controls. Once you have done so, they will appear in the release points page.

Figure 4-16. Example of a Page for a Release Point

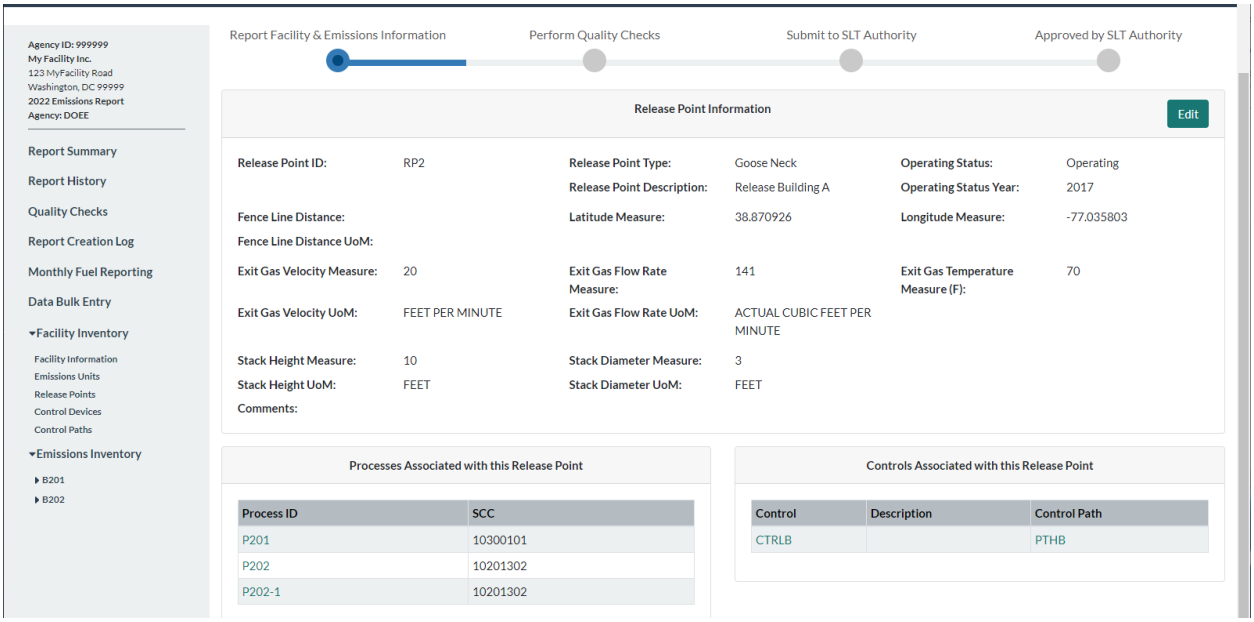
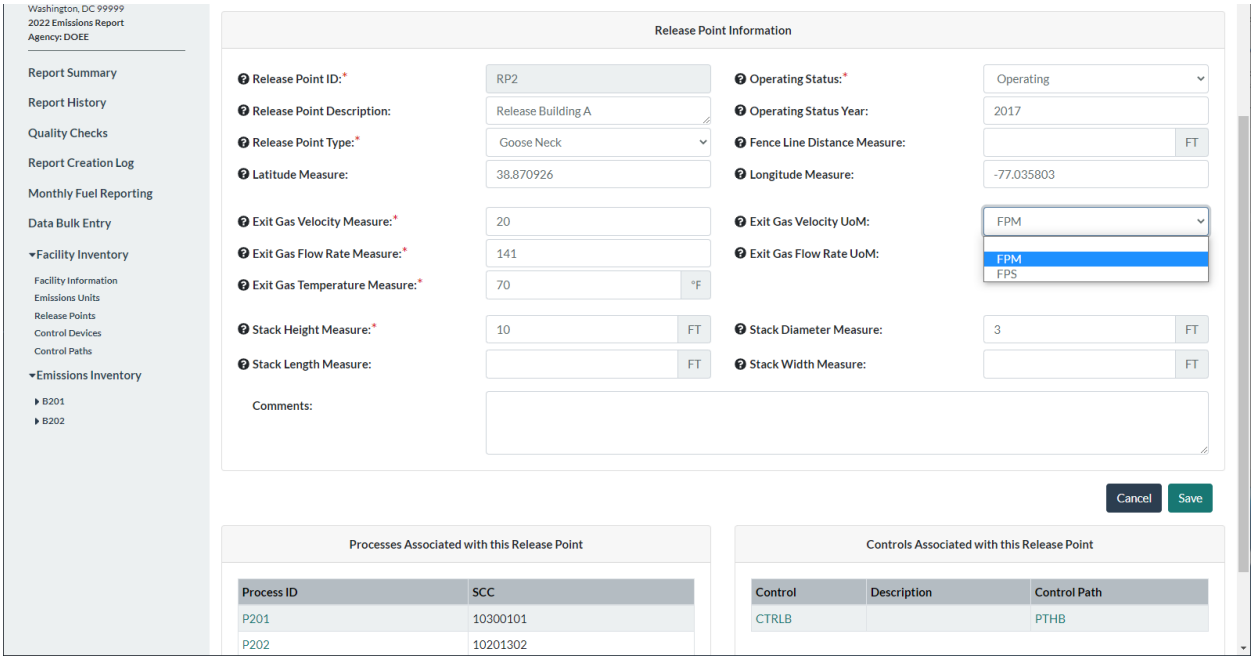


Figure 4-17. Editing a Release Point



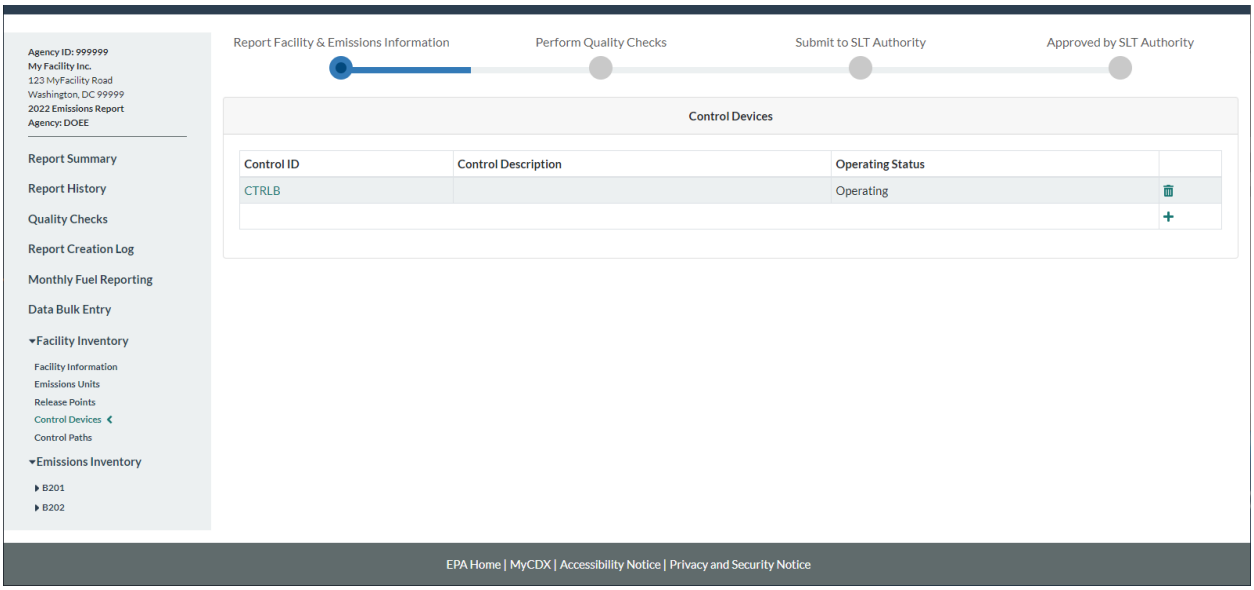
4.2.4 Control Devices Page

Appendix A in this document explains the concepts surrounding controls. You should familiarize yourself with that section before proceeding to set up your facility's controls. Depending on your control set up, you will have the choice to work in the control device effectiveness and control device pollutant removal efficiencies of your control equipment either at the individual control level, or at the path level. While you are highly encouraged to provide the data at the individual equipment level, a very complex control set up with combinations of controls in sequence and in parallel may make it more

tenable for you to report control efficiencies at the path level. Your SLT may require you to provide more detailed information, so you should check with your SLT authority before creating the controls and control paths portion of your emissions report.

From the left-hand side menu, click on "Control Devices" under the "Facility Inventory" heading. If this is the first NEI reported in CAERS, because we are changing how controls should be reported, previously reported control data will not be prepopulated in your current year report. However, once you have entered control equipment data, you will see a list of control devices associated with the facility (Figure 4-18).

Figure 4-18. Control Devices Page



- **To add a new control device**, click on the "+" sign at the bottom right of the list of controls. This will take you to a blank control page (Figure 4-19). As with other sub-facility components, drop-down menus are available for fields that require a selection. For example, to select the operating status click on the gray arrow icon. Note that the control ID for each individual control must be unique within the facility. On the control's page, you will add the percent effectiveness. To ensure adding all relevant information, QA check messages will appear for data fields that are required, for value ranges (for example, percent effectiveness must be less than 100%), and for other errors. Click on "Save" to add the new control to the list of existing controls. Now that the control has been added to the list of controls, you can edit it and associate it to paths and pollutants.
- **To edit an existing control device**, click on the control device ID from the list of controls. This will take you to that control device's information page (Figure 4-20). Click on "Edit" which will open the edit screen for the control (Figure 4-21).

Figure 4-19. Adding a New Control

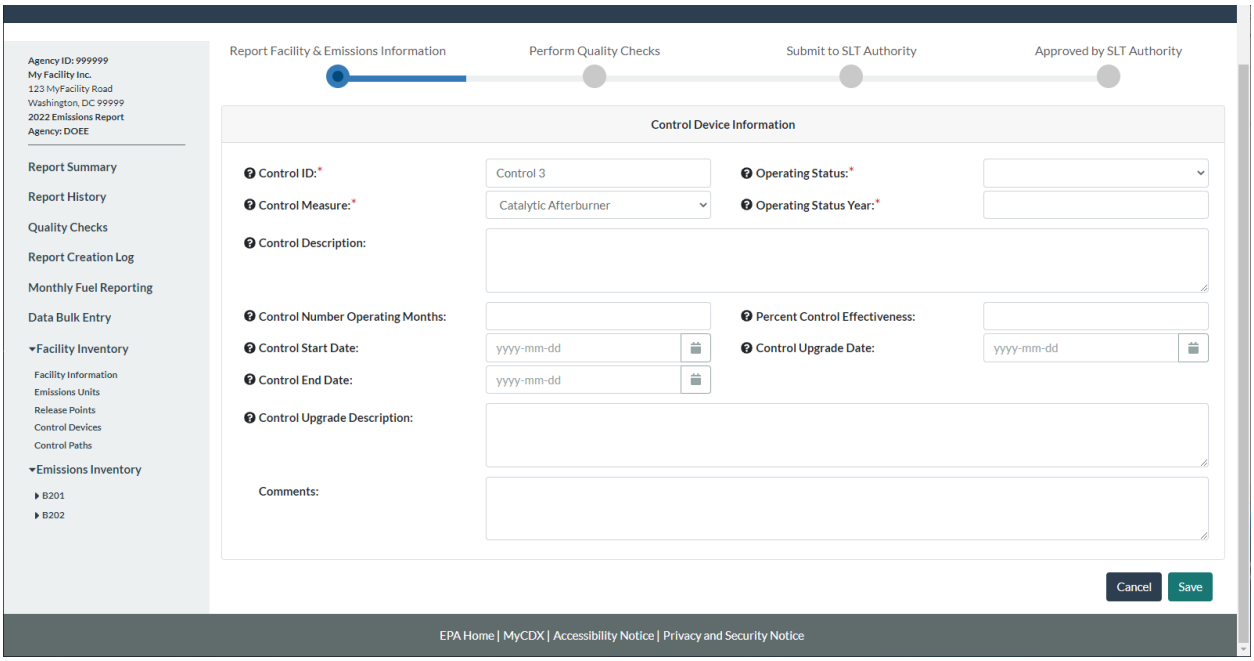


Figure 4-20. Example of a Page for a Control Device

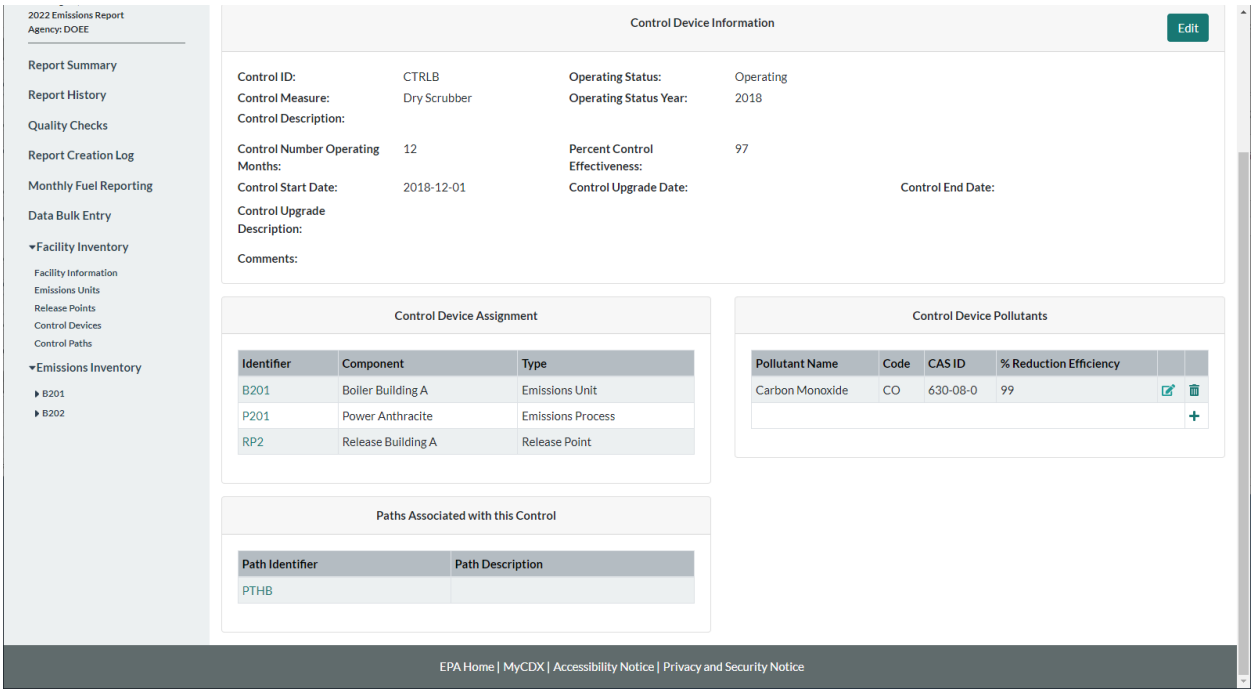
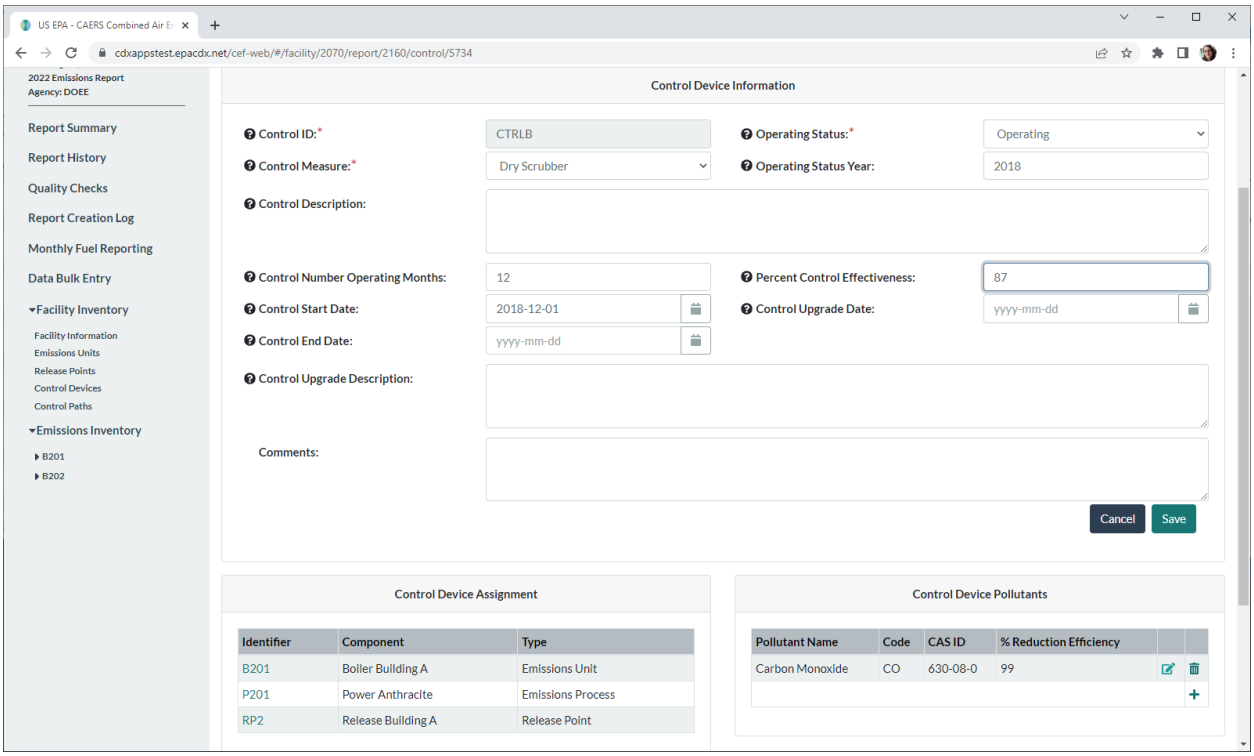
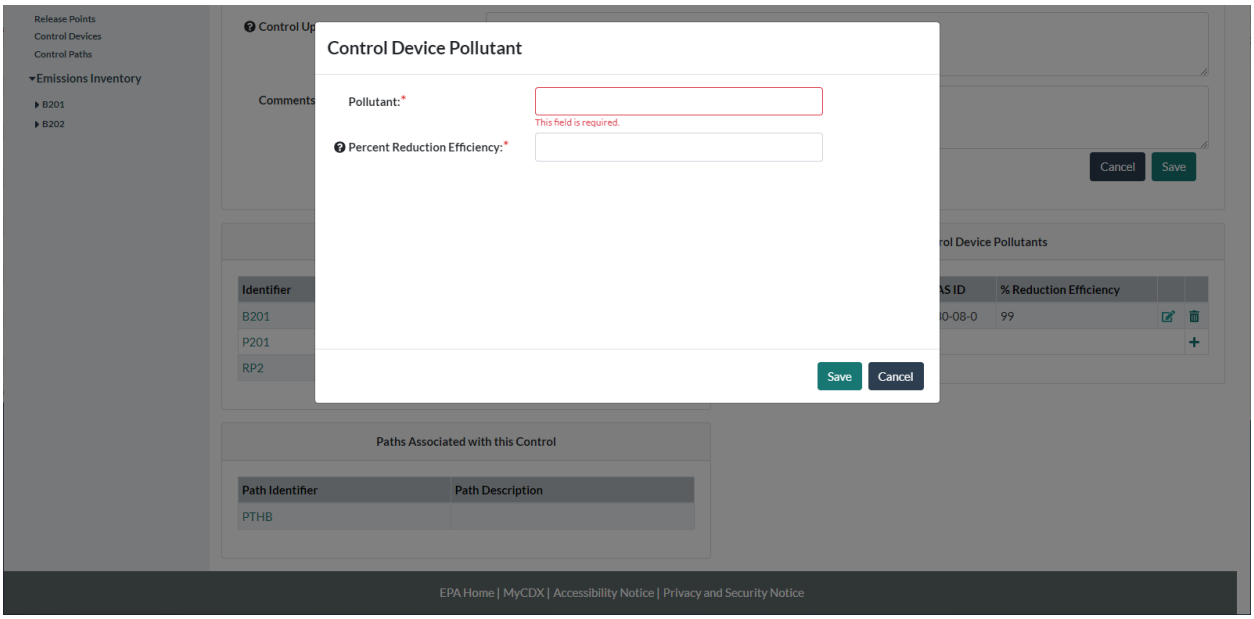


Figure 4-21. Editing a Control Device



- **To associate a pollutant with this control device**, click on the "+" sign at the bottom right of the "Control Device Pollutants" box. You will be taken to a pop-up window that will allow you to select a pollutant. Start typing the name of the pollutant or its abbreviation (for example, PM) and a list of possible pollutants will appear for you to make your selection (Figure 4-22). When you have chosen the pollutant and entered the control percent reduction efficiency, click "Save" and you will be returned to the control device's information page. Now, the pollutant you entered will appear in the list of pollutants.

Figure 4-22. Associating a Pollutant and Control Efficiency to a Control



- **Control device assignment:** The Control Device Assignment box will show the components that are related to the control. For example, it will show the release point, emission unit, and emission process that are used by the control. You cannot do edits on this list in this screen. Instead, you have the ability associate the control with these components through the Control Paths page (see Section 4.2.5).
- **Paths associated with this control:** The path(s) that contain this control are also listed on the control device's page. These are also not editable from this screen. You must go to the Control Paths link on the left-hand side menu on your screen to edit paths (see Section 4.2.5).
- **To delete a control device,** if you find you have started to enter a new control in error, you can click "Cancel" to avoid saving the changes, and you will be returned to the "Control Devices" page. Please do not delete a control device if it was reported in a previous year. Instead, mark it as temporarily or permanently shut down to avoid having it remain idle in your facility inventory.
- **Important additional considerations about control devices:**
  - **Finding individual control equipment information:** Resources to find out information about your control release point apportionment (previously control capture efficiency) and control efficiency can include vendor specifications, and trade associations that may be able to provide you with averages for the industry. However, you should consult with staff at your SLT with your questions about controls and your planned approach to make sure they approve of it before you have submitted the data.
  - **Use of the control efficiency percentage:** Note that the overall percent controlled, as described in Section 4.3.2.2, will be the value factored into the emissions calculations when the calculation method calls for its application. For example, the overall control % will not be applied to your calculations if you are reporting stack test data.
  - **New but inactive control devices:** As with other sub-facility components, please do not create a new control device in your report, and then mark it as temporarily or permanently shut down. If you have a new control device that will report emissions in a future year, add it in that future year report.

- **Relabeling pitfall:** Please do not relabel current control devices in the bulk upload template with new ID's. The system will not recognize these controls as existing, effectively adding control to your facility instead of simply replacing the ID's. If you do, your facility inventory of record with EPA will reflect additional controls and potential emissions that do not really exist in your facility. Your efforts in this regard will help us keep your facility inventory up to date.
- **Choosing IDs:** If your SLT allows it, the reporter can choose the ID for the control equipment. There is a requirement that no two control devices be labeled with the exact same ID. You should choose ID's that you will not find confusing to use in future. Consult your SLT on any rules the SLT may have regarding IDs. For example, the SLT may want your control device to be labelled by a specific naming convention.

4.2.5 Control Paths Page

Control devices will be reported differently than in years prior to the 2019 inventory year, and this includes associating controls with specific paths. Appendix A in this document explains the concepts surrounding controls and control paths. You should familiarize yourself with that section before proceeding to set up your facility's control paths.

By clicking on the left-hand side menu, click on "Control Paths" under the "Facility Inventory" heading. You will be taken to the control paths page (Figure 4-23), where you will be able to see a list of control paths associated with that facility. If the first time you are reporting paths, you will not see any paths displayed, and you will be creating paths and populating that list from this screen.

- **To add a new control path**, click on the "+" sign. This will take you to a blank path page (Figure 4-24). You will be asked to enter a Path ID, which should be unique within the facility, and a brief description to help identify which path it is. Click "Save" and this will take you back to the Control Paths page. Now your new path will appear in the list of existing paths and you will be able to edit it.
- **To edit a control path**, click on its ID from the "Control Paths" page and you will be taken to that path's information page (Figure 4-25). Click on "Edit" to edit the path information (Figure 4-26). When you are finished with your edits click "Save". This will take you back to the information page for that path. If the changes are an error, you can click "Cancel".
    - **Adding control devices to a path:** Click on the path you want to add controls to from the "Control Paths" page. This will take you to that path's information page (Figure 4-25). On the bottom right of the "Control Path Assignment" box, click on the "+". This will take you to a pop-up window that will allow you to place either a control or a child path into the path you are editing (Figure 4-27). Enter the sequence number for its position in the path with respect to other controls. For example, if it is the second control device in the path you will enter 2.

      Next, enter either a control device or a control path (you must select one or the other, but not attempt to enter both a control and a path here). Drop-down menus will allow you to select either an existing control device or an existing path. Note that you must enter the controls first, so they will appear in the corresponding menu. You must build smaller (children) paths first, before building larger (parent) paths that contain children paths.

Figure 4-23. Control Paths Page

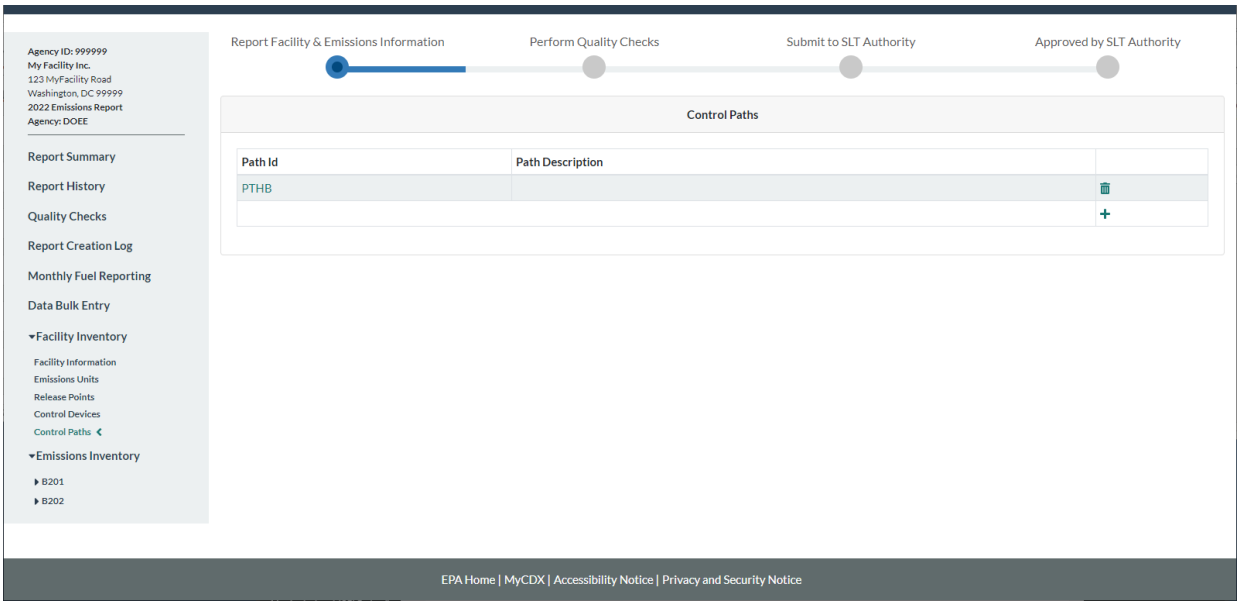


Figure 4-24. Adding a New Path

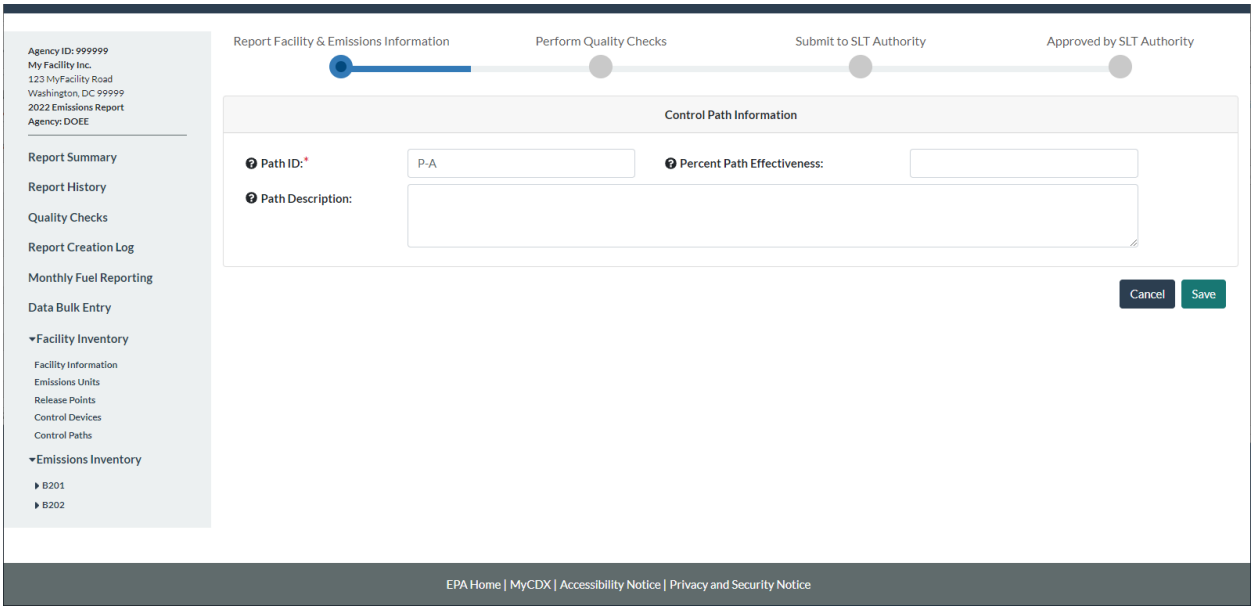


Figure 4-25. Example of a Page for a Control Path

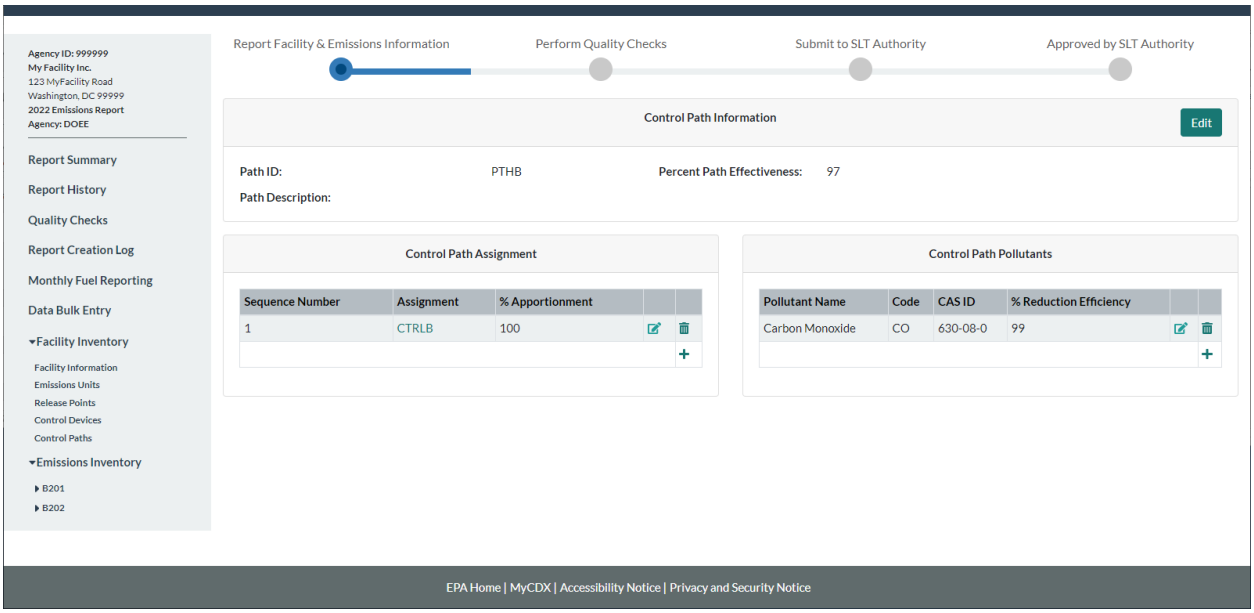


Figure 4-26. Editing a Path

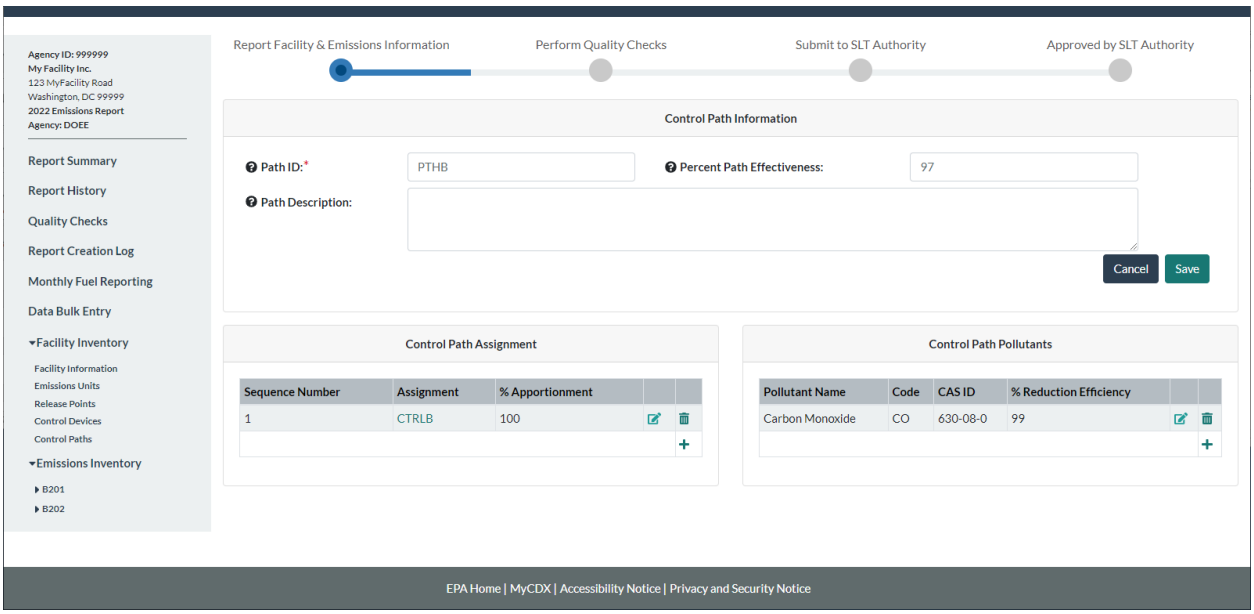
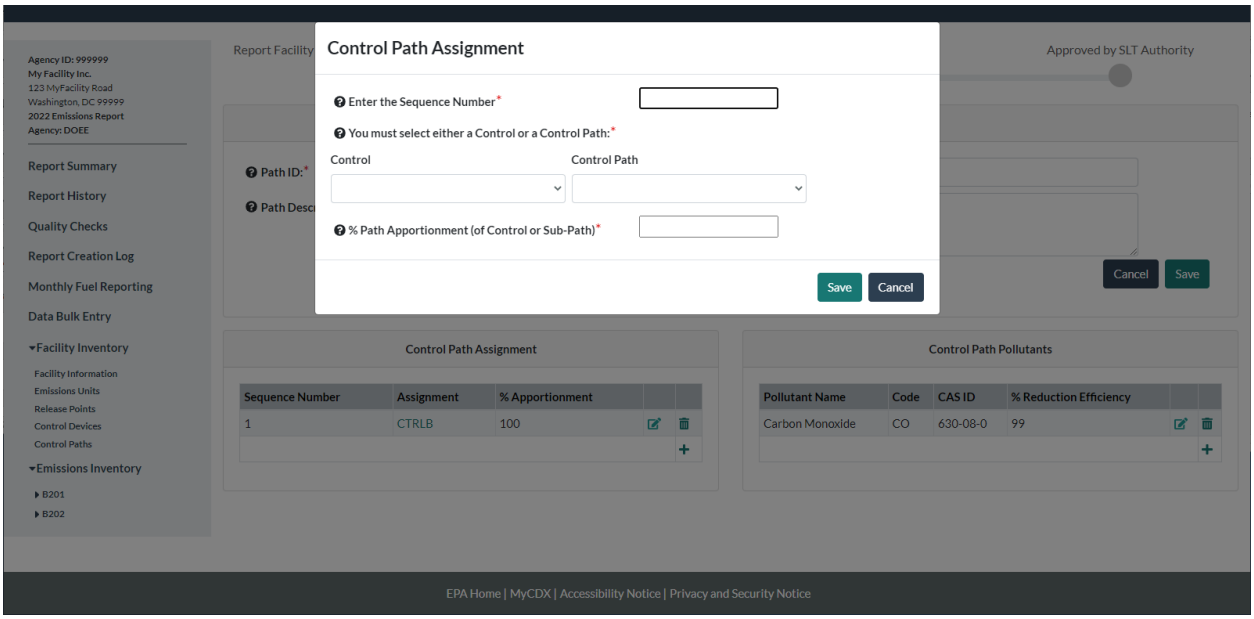


Figure 4-27. Adding a Path Assignment



Enter the control apportionment percentage. For example, if the control device or path you have selected will be first in the sequence and will be receiving 100% of the emissions from the emissions process, you would enter 100. If a control receives all emissions from the previous control device or path in the sequence, enter 100. If the control will be receiving 50% of the emissions from the previous control or path in the sequence, enter 50. Click "Save" to go back to that path's screen. Your assignment should appear in the list of assignments.

Here is an example of how data would be entered for a facility with complex controls (see the example facility in Appendix A, 11.2A. 4). For the example facility, controls are configured as shown in Figure 4-28. Additionally, Control Device 1 sends 60% of its emissions to Path 1 and 40% of its emissions to Control Device 3. Controls 2 and 4 are configured in sequence, and would be added to Path 1 from Path 1's screen as shown in Table 4-1. In Path 2, Path 1 and Control 3 run in parallel and thus, have the same sequence number. Path 2 would include the following as shown in Table 4-2 where Path 1 and Control 3 have been highlighted.

Figure 4-28. Example of a Facility with Complex Controls

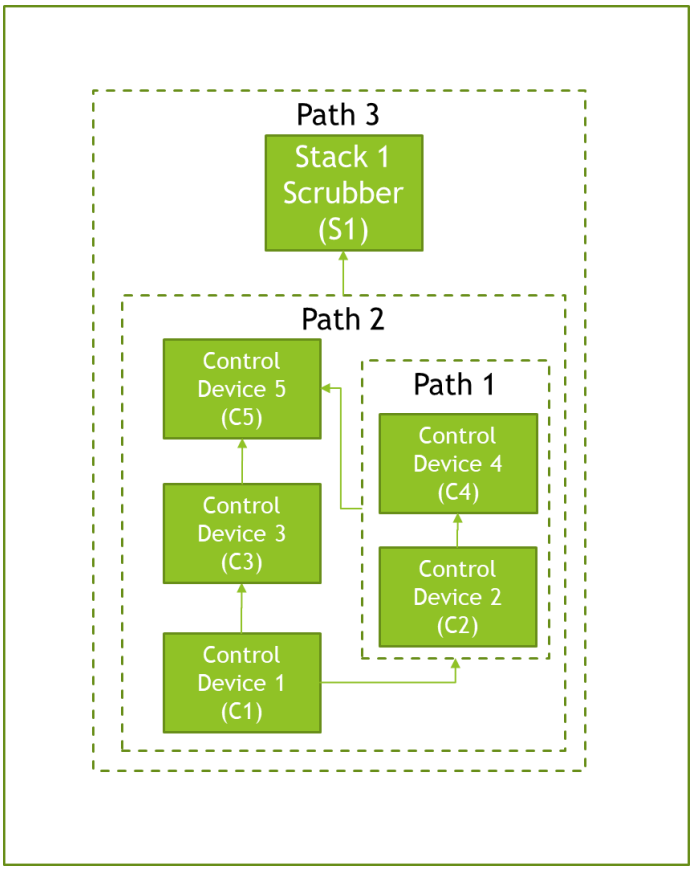


Table 4-1. Example of Data Entry for Controls in Sequence for Path 1

Control or Control Path	Sequence Number	% Apportionment
Control 2	1	100
Control 4	2	100

Table 4-2. Example of Data Entry for an Assignment including a Control and a Path Running in Parallel for Path 2

Control or Control Path	Sequence Number	% Apportionment
Control 1	1	100
Path 1	2	60
Control 3	2	40
Control 5	3	100

- **To associate the control path to one or more processes and release points**, select the relevant unit from the "Emissions Inventory" menu on the left-hand side or from the list in the "Emissions Unit" page under "Facility Inventory". Then, choose the relevant process for that unit that you want to associate and follow the instructions in Section 4.3.2 on how to associate a release points with processes.
- **Important additional considerations about control paths:**

- **Relationship between control devices, children, parent, and main path:** It is important to remember that a path can include one or more controls as well as another path. While there may be many "children" paths within "parent" paths, there should be one main path between each process, and the controls between it and its release point(s). As you create paths, keep in mind that while one path may contain other paths, ultimately, you will want to ensure that you've created a path that includes all controls leading from any process to a release point. Each relationship between an emissions process and a release point (i.e. the release point apportionment) can only be associated with one control path. All processes from a unit to a release point can share the same path.
- **Relabeling pitfall:** Please do not relabel current control devices or control paths in the bulk upload template with new ID's. The system will not recognize these controls as existing, effectively adding control to your facility instead of simply replacing the ID's. If you do, your facility inventory of record with EPA will reflect additional controls and potential emissions that do not really exist in your facility. Your efforts in this regard will help us keep your facility inventory up to date.
- **Avoid idle paths:** Empty paths add unnecessary data to your report. You are encouraged to create only paths that will actually be used, i.e. that contain controls in them.
- **Choosing IDs:** If your SLT allows it, the reporter can choose the ID for the control path. There is a requirement that no two control paths be labeled with the exact same ID. You should choose ID's that you will not find confusing to use in future. Consult your SLT on any naming conventions they may require you to use to label control paths.

4.3 Emissions inventory

The left-hand side menu of the application shows a list of units for the facility under "Emissions Inventory". You can click on the arrow to the left of the Unit ID to show a list of processes associated with that unit. Click on any one of those units or processes to show the unit's information.

4.3.1 Units

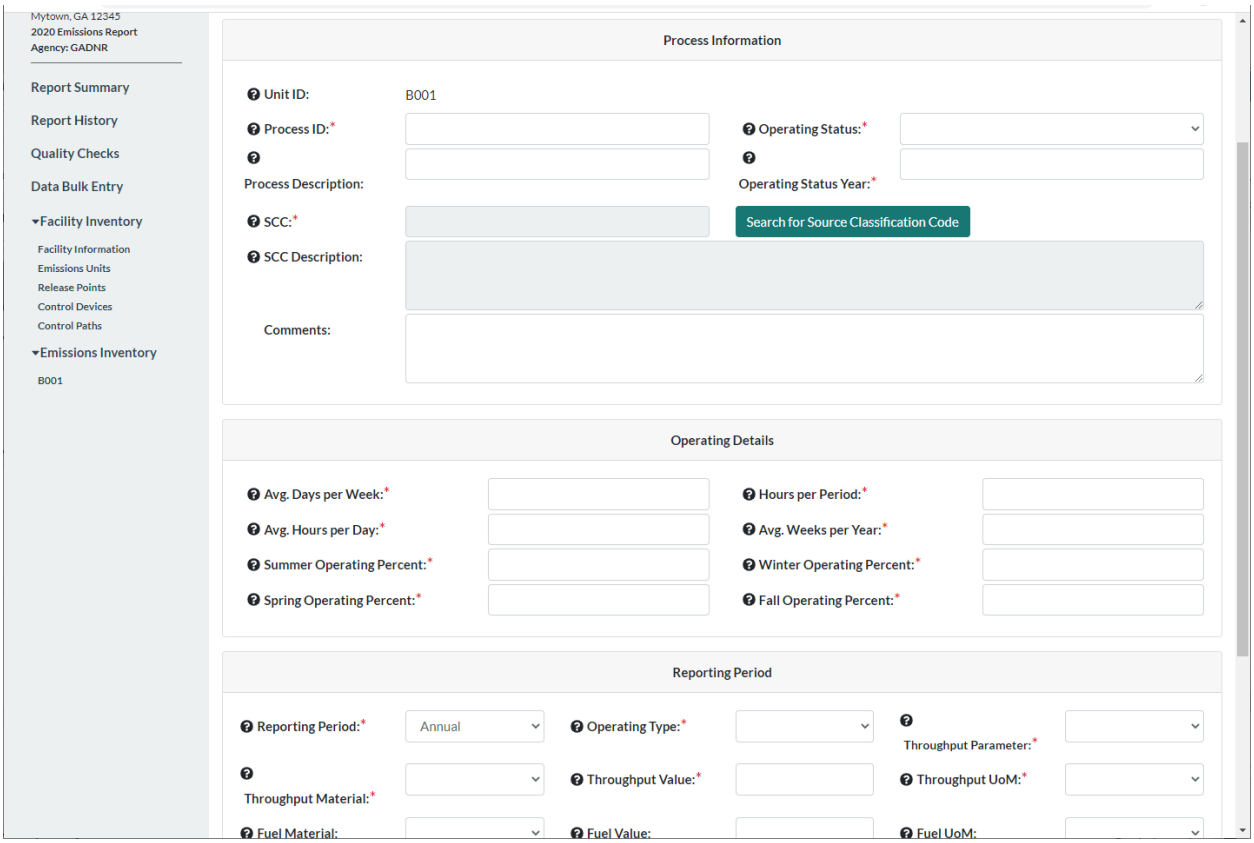
Click on the unit you are interested in. This will take you to that unit's information page. Click on the "Edit" button at the top right of the screen to make changes to the emissions unit information. For more information on adding or editing a unit, see Section 4.2.2.

4.3.2 Processes

From the left-hand side menu, click on the relevant unit. Once you are in that unit's information page, you will be able to add or edit a process.

- **To add a process**, click on the "+" at the bottom of the list of processes in the "Processes Associated with this Emissions Unit" box. This will take you to a process page (Figure 4-29) where you can enter all relevant information for that process. Drop-down menus will assist you in selecting some data fields. Error messages will appear for items that have been entered incorrectly or for missing fields that are required.

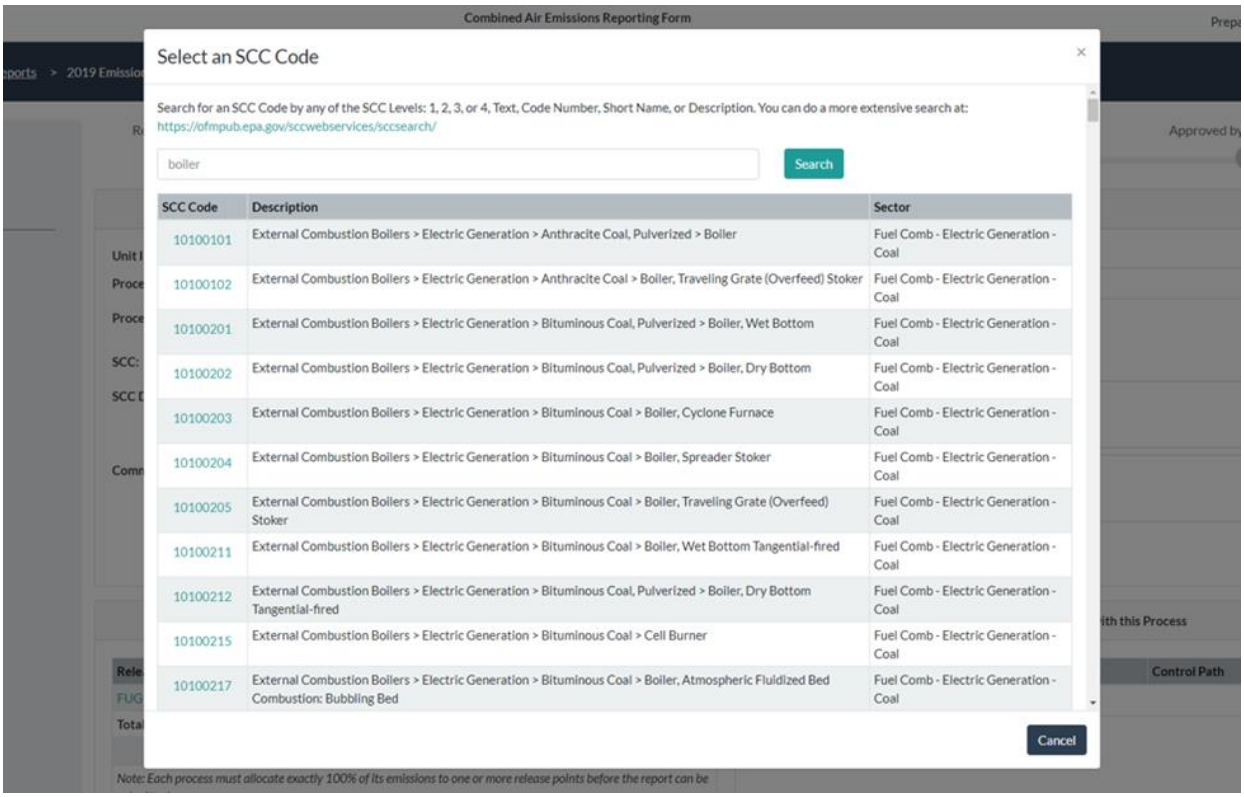
Figure 4-29. Adding a New Process



Note that your process Source Classification Code (SCC) can be found via search. Click on the "Search for SCC Code" button and enter a search term (for example, boiler). The search will be performed and return a list of options for you to choose from. Click on the SCC you want to use. Note that the SCC Level descriptions for that code will pre-populate in the SCC Description box. You may also enter an SCC if you already know it (for example, 10100201). See Figure 4-30.

The form will crosscheck that the code you are entering is a valid point source code and is a code that has not been retired before the inventory year you are reporting. A warning will be displayed if the selected SCC is being retired the year of your report, or in the future, but you will still be able to use that code. However, if the SCC you select was retired before the year of your report, you will see a critical error. If you want to see a full list of codes or perform different searches, go to https://epa.gov/scc.

Figure 4-30. SCC Search



Once you add a process, it will appear in the list of processes associated with that unit on the unit's information page.

- **To edit a process,** from the unit's information page, you can also edit a process. Click on the process you want to edit. This will take you to a page with all the information about that process (Figure 4-31). Click on the "Edit" button at the top right of the screen to make changes to the process information (Figure 4-32). You can edit operating details and reporting period information by clicking "Edit" in each of those boxes. Note that this version of CAERS is for annual reporting only. Future versions of the system will offer more reporting periods. Click "Save" when your edits are finished. Click "Cancel" if you find your edits are an error and wish to discard them.
    - **Editing throughput:** When throughput for a process is changed, the CAER system will automatically calculate the emissions for all pollutants associated with the process, where this is possible given the calculation method selected for each pollutant. A message in a green box will appear at the top right of the screen indicating that calculations were successful. If a calculation is not possible, an orange or red box will appear with an error message indicating the problem encountered with the calculation.
    - **Entering fuel data:** Certain fuel-based processes must be reported by using the fuel material listed in the description. You will be asked to enter the fuel (e.g. diesel, natural gas, anthracite) as per the fuel listed for the process SCC, the amount of fuel used (value), and that fuel's heat content, together with units of measure. Because it is highly likely that the fuel material you report will be the same as the throughput material you would have reported, you can enter the fuel and then copy it as the throughput material for that process. To do so, click on "Copy Fuel Data to Throughput Data Fields". Check that the fuel

type and units of measure match the fuel listed in the SCC. For example, SCC 10200101 has the following description: External Combustion, Industrial: Boilers, Anthracite Coal, Pulverized Coal. The fuel reported would be "Anthracite", and it is likely that you would have listed the throughput material for this SCC as "Anthracite" so you can simply click to copy it in. You might, in addition, choose to use an alternative throughput for one of the pollutants for this process in order to use an emission factor to match that alternative throughput, as described in the next bullet. Refer to Appendix C, Section C.1 for default heat content values. CAERS will prepopulate the default heat content value if the units of measure the user enters match up exactly to those as listed in the default heat content list.

- **Entering alternative throughput:** When using emission factors with different materials and/or units of measure for different pollutants for the same process (SCC), CAERS allows you to enter an alternative throughput. CAERS will create a copy of your original process when you click on the "Add Alternative Throughput for this Process" button at the top of the screen for that process. A pop-up window will appear, asking if you are sure this is what you want to do. If you accept, you will be taken to a new screen where all your process data has been prepopulated for you except for the process ID, throughput data fields, and emissions. From there, you can enter a new ID, your alternative throughput data, and list the pollutants for which you'll be using this throughput to calculate emissions.

Figure 4-31. Example of a Page for a Process

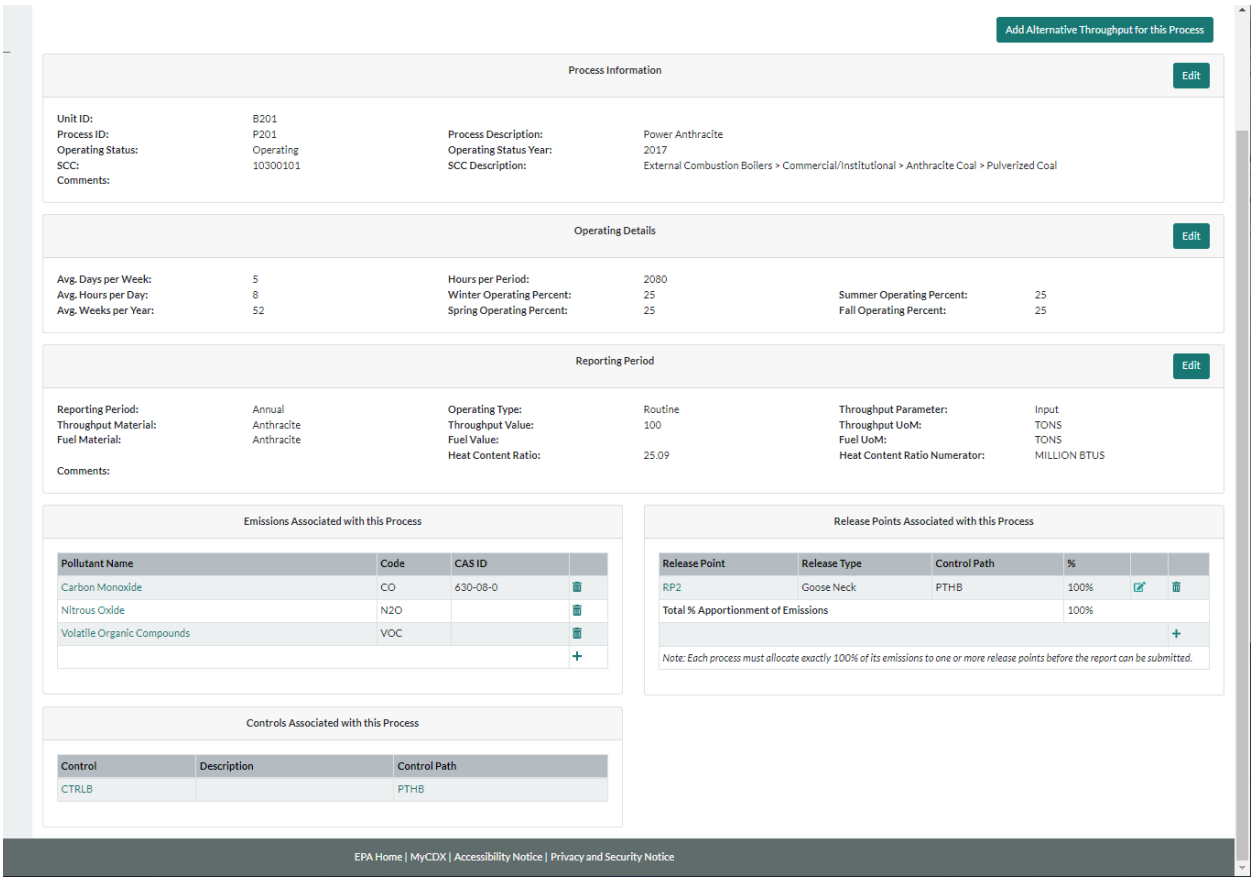
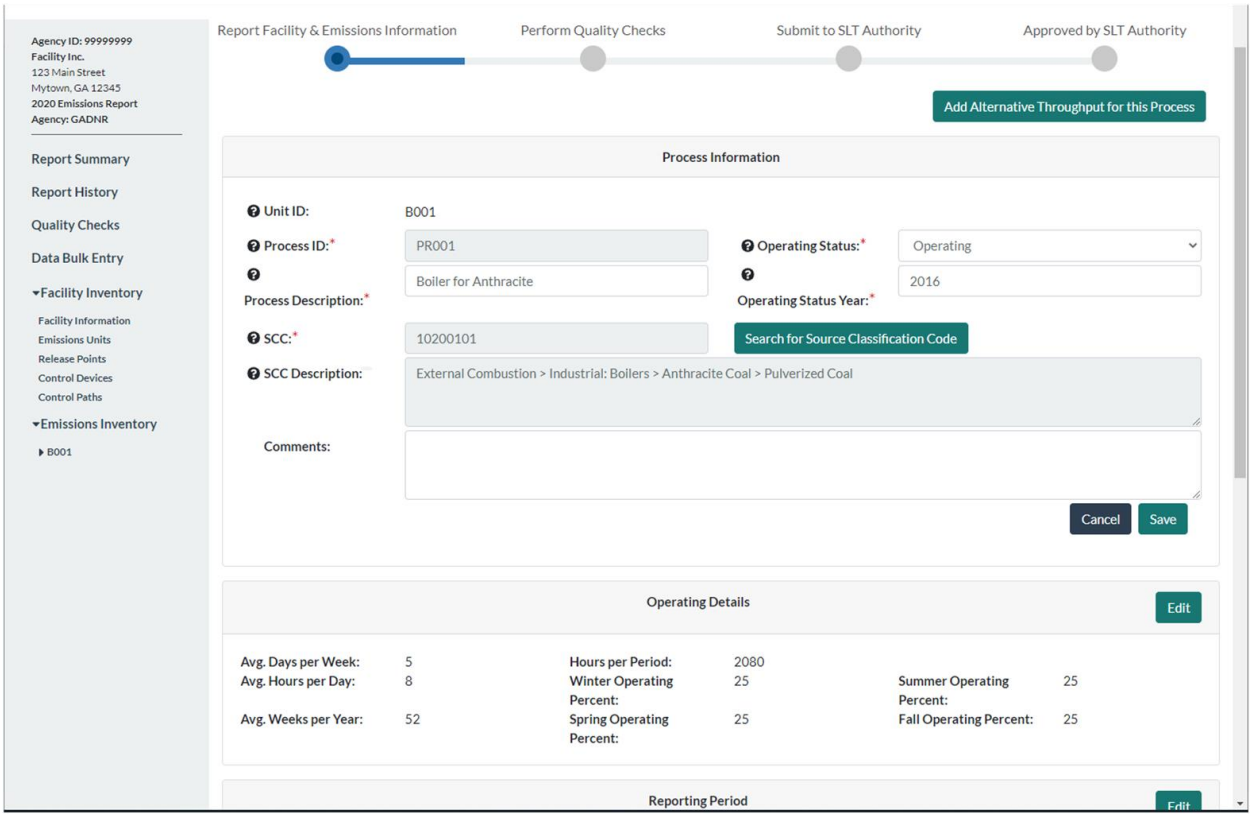


Figure 4-32. Editing a Process



- **To delete a process**, from a unit's page, you should only delete a process using the garbage can icon if you added it to this year's report and that addition was an error. If the process existed in a previous year's report, and is no longer in use, you can click on its ID and change its status from "Operating" to "Permanently Shutdown". Once you have done so, the data on the operating details and reporting period for that process will be hidden from view. However, the "Release Point Apportionment" and "Controls Associated with this Process" will remain.
- **Other items in the process page:** In this page you will also see pollutants, release points, and controls associated with the process.
    - **To add a release point to a process**, see Section 4.3.2.1. Associated control paths and controls will appear once the process has been associated to the release point as described in Section 4.3.2.1.
    - **To add pollutants to a process**, see Section 4.3.2.2.
    - **To add controls,** see Section 4.2.4.
- **Important additional considerations about processes:**
    - **New but inactive processes:** As with other sub-facility components, please do not create a new process in your report, and then mark it as temporarily or permanently shut down. If you have a new process that will report emissions in a future year, add it in that future year report.
    - **Relabeling pitfall:** Please do not relabel current processes in the bulk upload template with new ID's. The system will not recognize these processes as existing, effectively adding processes to your facility instead of simply replacing the ID's. If you do, your facility inventory of record with EPA will reflect additional processes and potential emissions that

do not really exist in your facility. Your efforts in this regard will help us keep your facility inventory up to date.

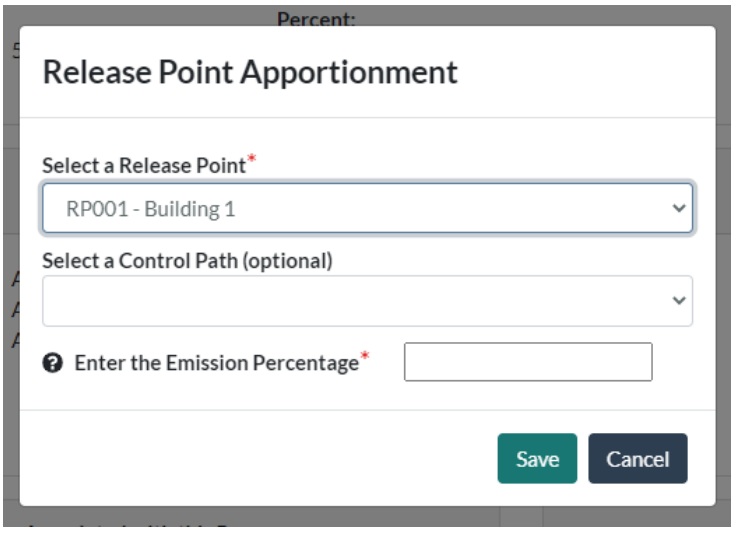
- **Choosing IDs:** If your SLT allows it, the reporter can choose the ID for the process. There is a requirement that no two processes for the same unit be labeled with the exact same ID. You should choose ID's that you will not find confusing to use in future. Consult your SLT on any naming conventions they may require you to use to label processes.
- **Caution with processes for alternative throughput:** When using the alternative throughput option, the system will recognize that the new throughput is in a copy of an existing process. Be careful not to alter the process copy, or the system may interpret it as a different process and flag it for any relevant errors. Additionally, if the copy process is altered, and it is for an SCC where fuel is required, the system will require you to enter fuel use for that process again, and fuel use will be double counted. Similarly, a process copy should only list the pollutants that are using the alternative throughput, otherwise, emission from pollutants may be compounded.

4.3.2.1 Associating a Process to a Release Point

Go to the process information page (Figure 4-31). You can get there by clicking on the corresponding unit from the left-hand side menu, and then clicking on the relevant process ID. First, in the "Release Points Associated with this Process" box, click on the "+" sign to add a release point associated with the current process. A pop-up window will appear requesting information about the release point, and the percentage of the process' emissions being directed to that release point (Figure 4-33). If there are no controls between the process and a release point, you do not have to enter a control path. You will simply apportion the corresponding emissions to the release point.

If there are controls to associate the control path to one or more processes and release points, you should associate them here. Note that the control and path assignments should have been defined before attempting this step (Sections 4.2.4 and 4.2.5). This will allow you to select from existing release points, and control paths. All emissions from the process must be apportioned to a release point so that 100% of total emissions have been assigned to one or more release points.

Figure 4-33. Release Point Apportionment



After entering the relevant information, click “Save”. Now you will be able to see, in the “Controls Associated with this Process” box at the bottom left of the screen, the path you have associated with the release point and process.

You will not be able to edit the controls associated with the process from this page. If you need to edit the controls and/or paths, you must ensure you have entered the relevant control devices and their paths as in the steps described above, and that you have associated them to the relevant process.

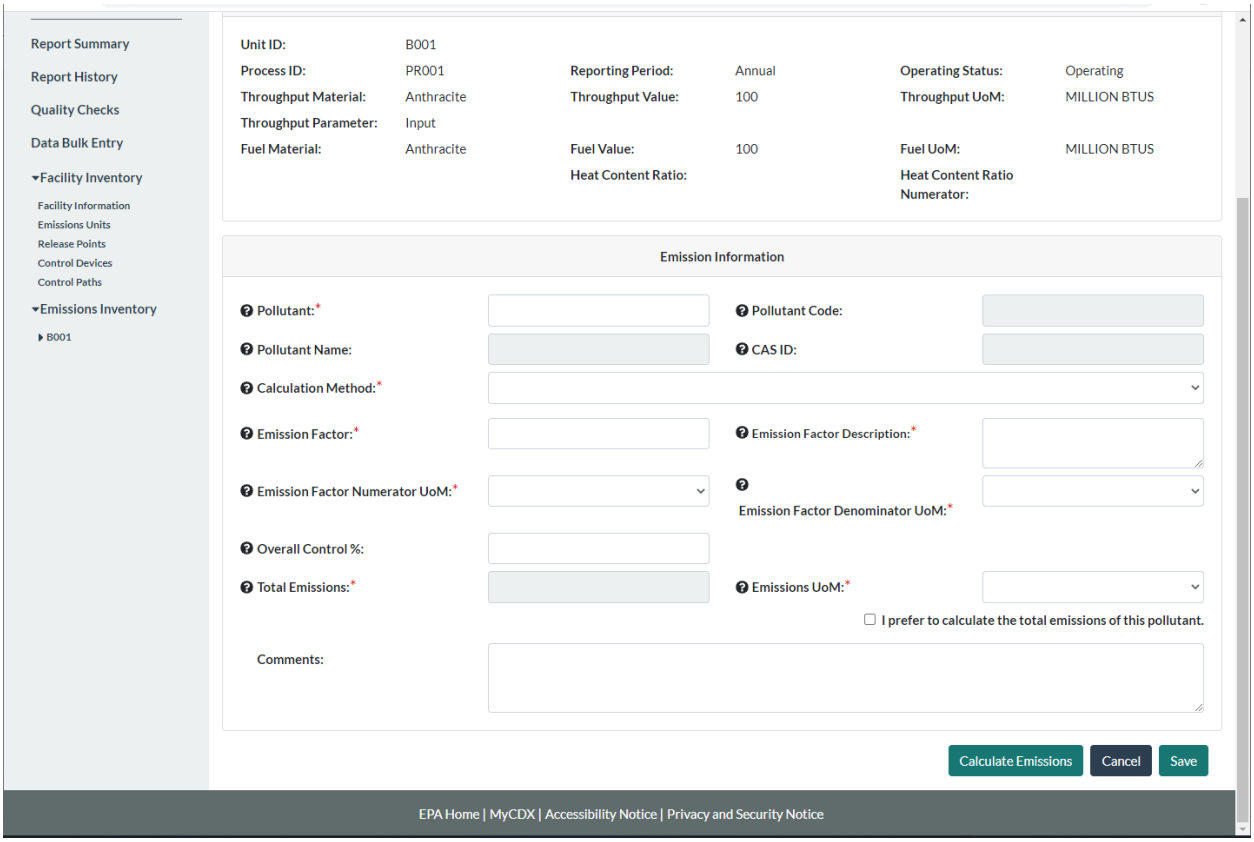
4.3.2.2 Entering and Calculating Emissions

In the page for that process, go to the “Emissions Associated with this Process” box in the lower left side of the screen (Figure 4-32). Click the “+” sign to add emissions. This will take you to a new pollutant page (Figure 4-34). In the “Pollutant” data field start typing in the name, code, or CAS number. The form will assist in finding the name of the pollutant. Once you have found the pollutant you are looking for, select it. The form will then prepopulate the other pollutant data fields: Pollutant Code, Pollutant Name, and CAS ID if it exists. For example, typing in sulfur will render Sulfur Hexafluoride – SF6, and Sulfur Dioxide – SO2-9-5-7446. Note that some pollutants, such as Volatile Organic Compounds (VOC) do not have a CAS number because they are groups of pollutants, as opposed to single pollutants. You will still be able to select such pollutants even if the CAS number field appears blank.

EPA augments triannual reports to reflect Hazardous Air Pollutants (HAPs). Alternatively, if you wish to reflect your own HAP calculations instead of EPA’s, you will be able to do so by entering your own HAP data when entering pollutant emissions (see Section 4.3.2.2). You are encouraged to provide HAP information even if your SLT does not require it, so that you avoid EPA having to estimate that information, which may not be as accurate as your own information.

Note that for any estimation method that does not involve an emission factor and thus, does not occupy the CAERS calculator, you will be required to enter a comment and provide an attachment. Only one attachment is required for your entire report, but it should contain an explanation of each of the situations where a factor was not used. Check with your SLT staff to ensure you provide them with the information they require before creating the attachment and submitting it with your report, and in the correct format they require. Your SLT may require, specifically, that your attachment be an excel file showing all the data used in your calculations so that the SLT staff person can replicate your estimates. If you do not provide all the relevant information, your SLT may return your report to you.

Figure 4-34. Adding a New Pollutant



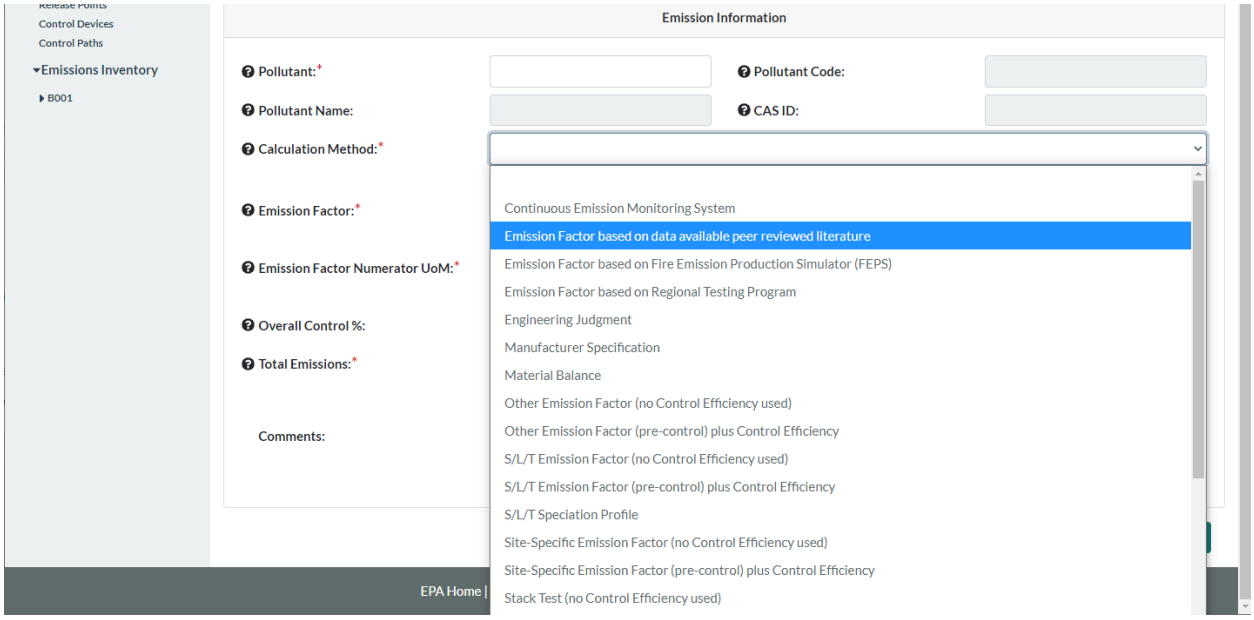
Next, select calculation method from the drop-down menu (Figure 4-35). The form will require the user to enter specific data fields according to the calculation method selected.

- **Using emission factors:** There are multiple options in CAERS for using emission factors.
  - If you have selected a U.S. EPA Emission Factor, the form will allow you to search for an emission factor by clicking on the corresponding box under the calculation method. EPA emission factors in CAERS can also be searched in US EPA's WebFIRE. However, the list of EPA emission factors in CAERS may not contain factors listed in WebFIRE if those factors are of a quality "U". CAERS Version 3 will show if an emission factor has been revoked, and is thus, no longer appropriate to use. For an EPA Emission Factor to be used in CAERS, the SCC, pollutant and units of measure listed for the emission factor must match with the throughput units of measure and pollutant you are reporting exactly, or the units of measure must be easily convertible so that CAERS can do the conversion for you. For example, you may use an emission factor in tons/pound, for throughput measured in pounds, or any weight unit of measure that can be converted into from pounds. You may not be able to use a factor in tons/gallon when your throughput is in hours. Finally, you may not be able to use an emission factor if the SCC listed for that factor has been retired. If you and your SLT, in consultation with EPA, determine that an EPA factor from a retired SCC is still valid and can be used for a process, you should select "Other Emission Factor" as your calculation method and enter it there. We encourage you to discuss this with your SLT staff *before* you enter the data to your report to avoid having the report sent back to you for corrections. Some emission factors have been corrected by EPA, and you may get an error

message requiring you to review your existing factor or select a new one. If you feel there are errors in an emission factor listed in CAERS, please reach out to your SLT. For EPA factors, the system will flag a factor from your previous year report, or upon bulk upload, if it doesn't recognize the factor you have used as an EPA factor. If that is the case, you should search and select the correct factor or select another calculation method.

- S/L/T Emission Factor can be used as well by entering an SLT specific and SLT approved emission factor for your process. CAERS will prepopulate SLT factors from other states if your SLT allows you to use them, you can select your factor from there or enter it yourself. You should discuss the factor you intend to use if selecting this option with your SLT to ensure it is appropriate for use with your process.

Figure 4-35. Selecting a Calculation Method

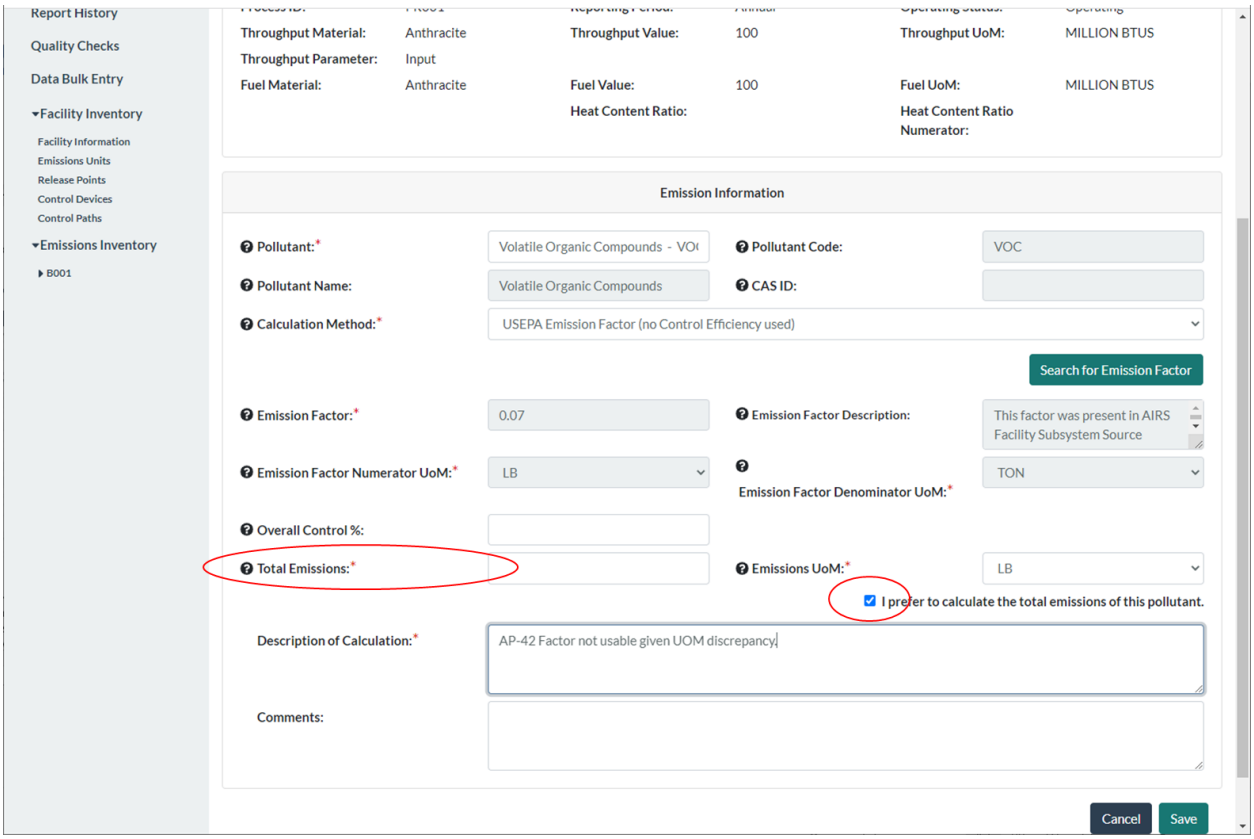


- **Formulas:** Note that some factor searches will return formulas. The form will require the user to then supply additional parameters for that formula. For example, sulfur content %. If the emission factor units of measure (UoM) is different from the throughput UoM's, the form will return an error. However, the form will perform a simple conversion for units of the same kind (for example, weight UoM conversions from lbs to tons). See Appendix B for more information on conversions in CAERS. After entering all required fields, click on "Calculate Emissions" and the form will calculate the emissions for you. A green confirmation message at the top right of your screen will appear to indicate the calculations have been performed. Click "Save" to be taken back to the emission unit information page.
- **EPA Factors requiring additional explanation:** If you have selected an EPA emission factor because one exists but its use is not straightforward you can check the box "I prefer to calculate the total emissions of this pollutant" located under the Emissions UoM box, and the calculator will disengage. If you disengage the calculator, you must enter a description of your calculation process in "Description of Calculation" box and add the explanation in the attachment to justify the use of an alternative emission factor or total emissions you calculated (Figure 4-36). EPA factors that may fall under

this category include, for example: factors for retired SCCs being used for a new map to SCC, factors within range where the factor is listed as being a mid-range value, or as being expected to be lower than the value listed, factors not available through the CAERS search feature but that exist in AP42 (consult WebFIRE and make sure that those factors have not been either revoked, or marked as lower quality).

- **Controls:** If controls are present (associated with this process via a path), enter the overall control efficiency for the path in the "Overall Control %" box so that CAERS can calculate the post-controls emissions for you. For a single control this is equal to the multiplication of: (percent capture) x (percent effectiveness) x (percent efficiency). For more than one control (including control paths) it is the total percent of the pollutant that is removed by the controls (or control paths). You should reach out to your SLT if you have questions about how to calculate this value for your specific control device configuration. For a numerical example on controls and how the different percentages are used to calculate emissions, see Appendix A, Section A.6.

Figure 4-36. Using EPA Emission Factor Alternative



5 Reporting Emissions and Facility Information Using Bulk Upload

5.1 The Bulk Upload Excel Template

If you will have relatively few changes between your previous year report and your current year report, we encourage you to use the user interface instead of bulk upload (BU) because this may be more time saving for you in the longer term. If you have a variety of changes, and/or your facility is very large, BU may be the best choice for you. You should familiarize yourself with this section of the instructions before beginning any data entry. There is a special template for bulk upload in Excel format.

You should use extreme care when entering data into the spreadsheet making sure you have not created an error in the template inadvertently. This section will help you avoid errors that will be time consuming to you. You should also consult the checklist in Appendix D at the back of this user guide before submitting your data.

Before you download your excel template, if you have submitted a previous year report, we strongly encourage you to run the Quality Checks via the user interface. Doing so will alert you to any new QA checks that have come online since your previous report, and you will be able to address these errors while creating your new report. Failing to do so may result in rework of your template and more than one upload attempt.

Also, if this is your first time using CAERS for reporting, we encourage you to enter a few items in the UI first, then download the template. You should see the items you edited in the UI appear in the version of the template you downloaded. This may help you understand how data fields are related from one data tab to the next. Even if you plan to do all your work in the BU template, having the UI open to specific screens you can reference and where you can test data entry, may be extremely helpful in understanding what and how to enter data in each tab and cell.

Note that while testing is useful, you should be aware that whatever you enter in the BU will override data in the UI, so you should take care not to enter some items in the UI and some in the BU, unless the changes in the UI have been done before you downloaded your template.

Also, tips and tools for data entry under the "important additional considerations", that have been explained throughout the User Interface portion of this guide (Section 4) will be helpful for bulk upload. We strongly encourage you to review those sections before attempting to use the template, as this may save you time and a potential rejection of your report later on.

Facilities that have reported in previous years can download an excel template, which contains their previous year report pre-populated with your previous year annual emissions (National Emissions Inventory) report. We strongly recommend that you make a copy of that pre-loaded template and work with the copy, in case you need to revert to the original. You can obtain this pre-loaded template by clicking on "Download as Template" from the Emissions Reports page (Figure 4-1). While you can always download another copy from the UI, having an extra copy may help you reference the previous year report as well.

When you open your file, if a yellow bar appears at the top asking if you want to enable content or allow edits, click on the button provided to enable content or edits. Once you have your Excel file template open, you should enter your edits into this file, to reflect the current year submission data.

The template contains several tabs (Figure 5-1). The first tab in the excel file is an "Information" tab. This worksheet shows the version of your template, the date the version of the template was updated, some general instructions, as well as a list of recent changes from a previous version. You should make sure that you download your previous year data in the most recent version of the workbook available in CAERS. Using a workbook from a previous year report, for example, will cause errors in upload, further QA checks, and a potential rejection due to an incomplete submission further down the process. Versioning of workbooks is kept at a minimum during reporting, but updates do happen. When they do, it is recommended you upload your report with changes you have already made, and then download your report again, in the new template, to continue reporting. This helps ensure that you have an updated version of the template, which may prevent errors in future.

In general, the template contains two sets of tabs:

Reference tabs are highlighted in gray**.** These are an Information tab, Worksheet Map and lists of codes for entry of different data fields. Please do not attempt to edit these lists as they are part of the data validation for the data entry tabs. The list of tabs is as follows:

- Information Tab
- Worksheet Map (containing JSON Keys)
- Aircraft Engine Type Code (for airport SCCs only)
- Calculation Material Code
- Calculation Method Code
- Calculation Parameter Type Code
- Contact Type Code
- Control Measure Code
- Emission Factor Code
- Emission Formula Variable Code
- Emissions Operating Type Code
- Facility Category Code
- Facility Source Type Code
- FIPS County Code
- FIPS State Code
- HAP Facility Category Code
- NAICS Code
- Operating Status Code
- Pollutant
- Program System Code
- Release Point Type Code
- Reporting Period Type Code
- Source Classification Code
- Tribal Code
- Unit of Measure Code
- Unit Type Code

Data entry tabs are highlighted in blue. Each tab contains specific types of data to be submitted. Drop-down menus help you avoid errors when entering codes, by displaying the allowed choices. The data entry tabs are:

- Facility
- Facility Contacts
- NAICS
- Release Points
- Emission Units
- Emission Processes
- Controls
- Control Paths
- Control Assignments
- Control Pollutants

- Apportionment
- Reporting Period
- Operating Details
- Emissions
- Emission Formula Variables

The blue data entry worksheets have the same entities that are presented in the web application, for example: facility level data, release points, and emissions units. There are several fields that are required in the spreadsheet so that it can be used in CAERS successfully. These fields are denoted by an asterisk in the column header (row 10). Be sure to enter values or select an option from the dropdown menu in each of the required fields.

There are also relationships among some of the blue data entry worksheets. For example, the "Emission Processes" worksheet will ask for the corresponding Unit ID for each process row. The options in the "Unit ID" dropdown menu on the "Emission Processes" worksheet are based on the units that are available on the "Emission Units" worksheet. As new units are added on the "Emission Units" worksheet, they will be automatically added to the "Unit ID" dropdown menu on the "Emission Processes" worksheet. Therefore, you need to enter your emission units *before* they are available in the "Emission Processes" worksheet. Other instances where fields are dependent on other worksheets include:

- "Control Assignments" worksheet:
    - Path ID relies on entries from the "Control Paths" worksheet,
    - Control ID relies on entries from the "Controls" worksheet,
    - Control Path (Child) relies on entries from the "Control Paths" worksheet
- "Control Pollutants" worksheet: Control ID relies on entries from the "Controls" worksheet
- "Apportionment" worksheet:
    - Release Point ID relies on entries from the "Release Points" worksheet,
    - Process ID relies on entries from the "Emission Processes" worksheet,
    - Control Path ID relies on entries from the "Control Paths" worksheet
- "Reporting Period" worksheet: Process ID relies on entries from the "Emission Processes" worksheet
- "Operating Details" worksheet: Reporting Period relies on entries from the "Reporting Periods" worksheet
- "Emissions" worksheet: Reporting Period relies on entries from the "Reporting Periods" worksheet
- "Emission Formula Variables" worksheet: Reporting Period Name relies on entries from the "Emissions" worksheet

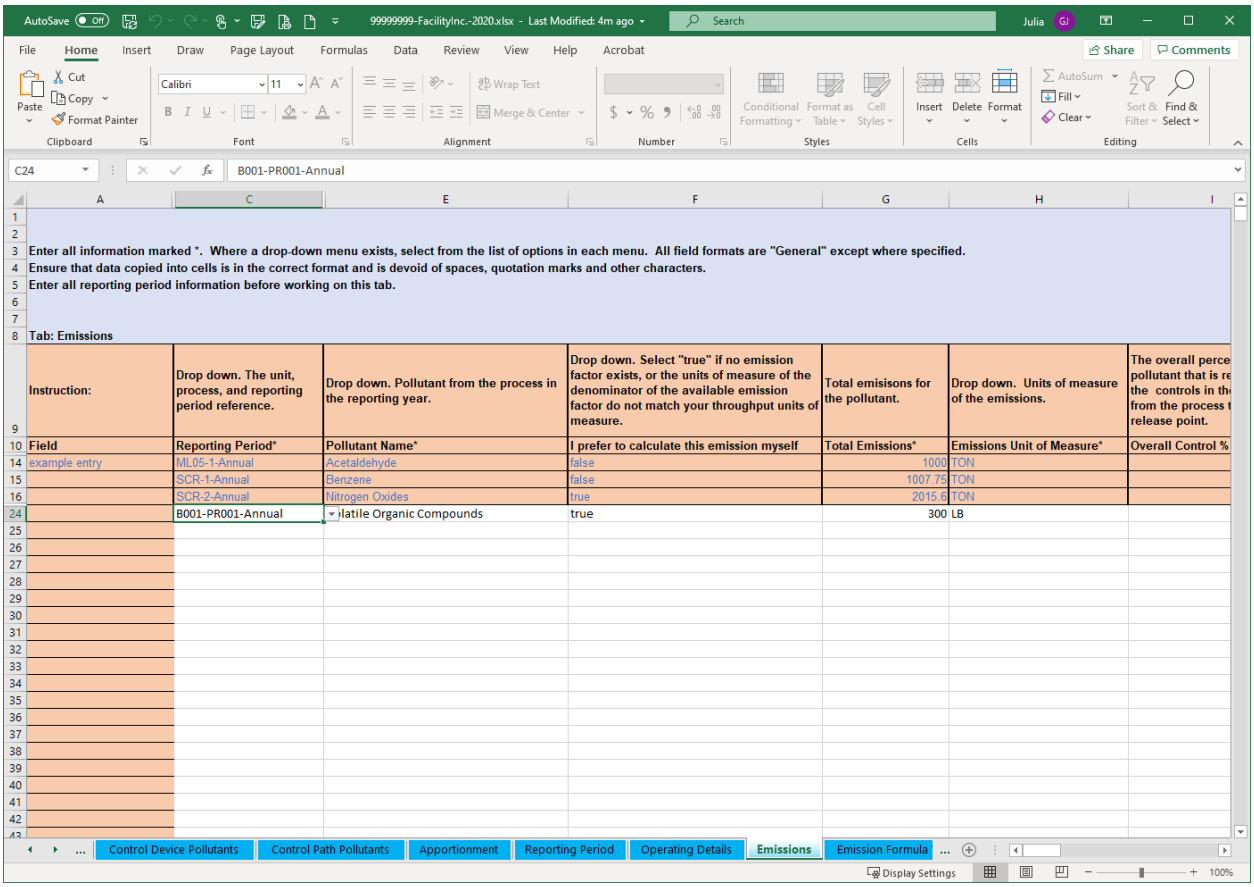
There is special formatting in the bulk upload template, such as hidden fields and formulas. Ensure that you are keeping with the correct format for each data field and are using the codes as indicated by the drop-down menus. Many fields that are required by CAERS are hidden from view in the spreadsheet to help avoid uploading mismatched data, for example associating an emissions process to the wrong emissions unit. Use caution when performing certain actions within the bulk upload spreadsheet. Here are examples of potential risks:

- **Overriding formulas:** Within Excel, if you copy several horizontally adjacent cells of data and paste them into the CAERS Bulk Upload spreadsheet then you risk overwriting a necessary

formula in a hidden field. However, you can safely copy and paste data vertically within a column.

- **Overriding drop-down menu values:** Pasting data into a field which has a drop-down menu will allow you to enter any data; however, if the value does not precisely match one of the values in the drop-down menu then the upload will return an error.
- **Deleting drop-down menu:** Deleting a cell that has a drop-down menu can potentially delete the drop-down menu completely. While deleting the entire cell will cause a problem, deleting the content of the cell is not a problem. For example, if cell E24 has a value of "CAP" then you can delete "CAP" but should not delete cell E24.
- **Overlooking changes to other worksheets:** when an error is fixed in a parent cell, connected cells do not refresh automatically. Be sure to update the connected cells even if the change doesn't alter the connected cells. For example, when you enter a Unit ID on the "Emission Units" tab, that value will be available as an option in the Unit ID dropdown menu on the "Emission Processes" tab. If you navigate back to the "Emission Units" tab and change a Unit ID then you will need to manually update all of the rows on the "Emission Processes" tab that have the unit chosen. There may be a cascading effect with this example if the process has already been chosen from the Process ID dropdown menu on the "Apportionment" tab. In this scenario, you would need to update the Unit ID on the "Emission Units" tab, reselect the unit from the Unit ID dropdown on the "Emission Processes" tab, and reselect the Process ID on the "Apportionment" tab.
- **Skipping or clearing rows:** If a row is skipped or cleared in a worksheet, the identifiers below the cleared or skipped rows may not cascade to subsequent worksheets. For example, if a row of data is cleared in the "Emission Units" worksheet, then the units below the cleared rows do not always appear in the drop down for available units in the "Emissions Process" worksheet.

Figure 5-1. Example of Bulk Upload Template Worksheet



Enter all information marked *. Where a drop-down menu exists, select from the list of options in each menu. All field formats are "General" except where specified.
Ensure that data copied into cells is in the correct format and is devoid of spaces, quotation marks and other characters.
Enter all reporting period information before working on this tab.

Tab: Emissions

Instruction:	Drop down. The unit, process, and reporting period reference.	Drop down. Pollutant from the process in the reporting year.	Drop down. Select "true" if no emission factor exists, or the units of measure of the denominator of the available emission factor do not match your throughput units of measure.	Total emisisons for the pollutant.	Drop down. Units of measure of the emissions.	The overall perce pollutant that is re the controls in th from the process t release point.
Field	Reporting Period*	Pollutant Name*	I prefer to calculate this emission myself	Total Emissions*	Emissions Unit of Measure*	Overall Control %
example entry	ML05-1-Annual	Acetaldehyde	false	1000	TON	
	SCR-1-Annual	Benzene	false	1007.75	TON	
	SCR-2-Annual	Nitrogen Oxides	true	2015.6	TON	
	B001-PR001-Annual	latile Organic Compounds	true	300	LB	

5.2 Bulk Upload Steps

Once your data is ready in the bulk upload template, from the ”Emissions Reports” screen (Figure 4-2) click on “Upload Report”. Click on the “Browse” button to find the location of your bulk upload workbook on your computer. Once you have found the workbook, select it and the file name will now appear on your screen. Click the “Upload” button. A pop-up window will appear to show that the workbook is being uploaded. The speed at which this happens will depend on your internet connectivity speed. The upload may take several minutes depending on the size of the file.

It is good practice to give yourself extra time to address any errors that may emerge when using bulk upload and/or the actual report content. CAERS will run validations checks on your Excel file before allowing you to submit it, such as verifying that the required fields are present and that text fields do not exceed maximum lengths. These validation checks will be different than the QA checks that will be run on the data contents in addition, once it has been uploaded. Validation checks are run for the data file structure and format, whereas QA checks are run on the data contained in the file.

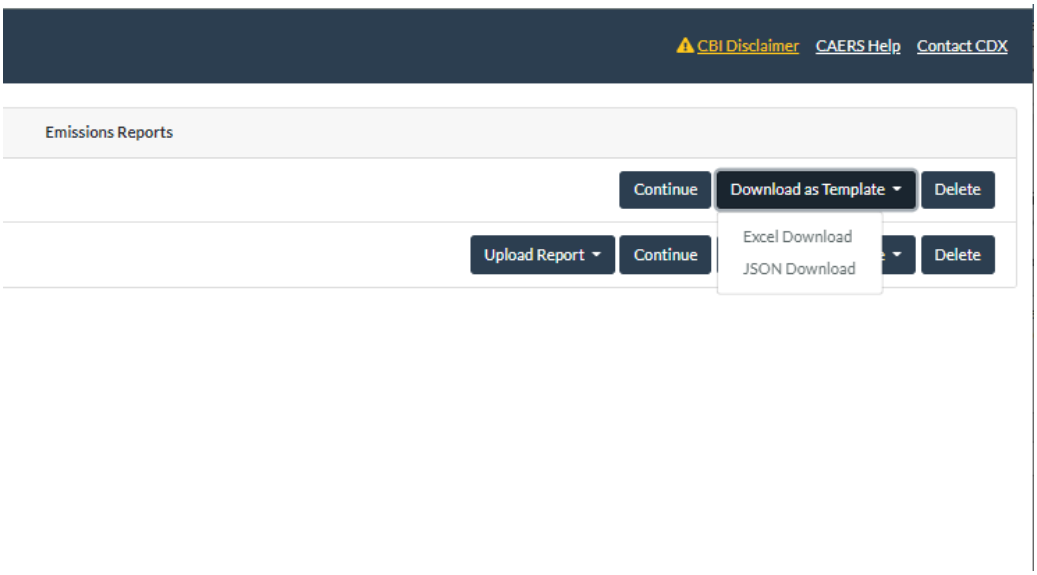
If the uploaded spreadsheet has errors that keep it from uploading to CAERS successfully then you will see a list of “Data Errors” on the screen. Each error will indicate the worksheet and row in error, as well as a brief message describing the error. After all the errors have been resolved, you can attempt to upload the file again. If there are not any errors in the uploaded spreadsheet then you will be brought directly to the “Report Summary” for the uploaded report. At this stage you can navigate the CAER System as described in Section 4.

Note that there are two kinds of errors you may get with BU. The first, as described above, are upload errors. These errors are separate from reporting errors. Once your report is uploaded, you should now click on the "Quality Checks" (per Section 7) to ensure that you do not have data errors that need to be addressed. Depending on how many errors you may have, it may be easier for you to just address them in the UI instead of attempting another upload. This is a matter of personal preference.

5.3 JSON

If you would like to upload your file in JavaScript Object Notation (JSON), you should select that option from the drop-down menu on the "Download as Template" button. To upload the report, you will similarly use the "Upload Report" button. For reference data, you can use the gray tabs in the BU template, as explained in the previous section (section 5.15.1 above). If you are interested in this option, send an email to caer@epa.gov and we will send you a schema to follow, as one is not currently available in CAERS. A schema will eventually be available by clicking on the "Help" link from the top left-hand side of your screen, and scrolling down to "Additional Resources", then clicking on the "JSON Upload Schema" link.

Figure 5-2. JSON Upload Option in CAERS



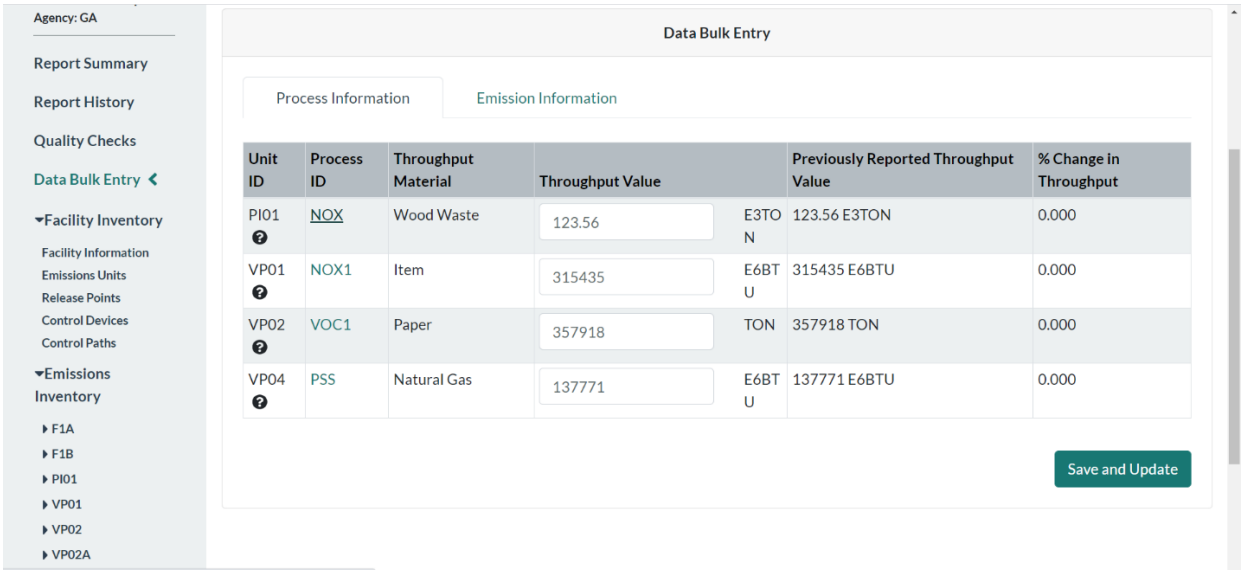
6 Reporting Emissions Using Bulk Entry

If there are few to no changes in the facility inventory data, the reporter may benefit from bulk entry. Note that to use bulk entry, facility data will have to be present in the system beforehand. If you need to add a unit, process, release point, or controls information, refer to the sections in this guide for reporting through the user interface. If you have many changes, you may prefer to use the bulk upload capability. Also note, that if emission factors changed, you should re-select the emission factors from the emissions calculation page to allow CAERS to update it. Then you can proceed to your bulk entry.

To start entering data via bulk entry, click on "Bulk Entry" from the left-hand side menu. There are two tabs to work on for bulk entry. The first one is for "Process Information". Here, you should enter the throughput value information that has changed since your previous year report. Click on the "Save and Update" button at the bottom right of the tab to save your changes. See Figure 6-1.

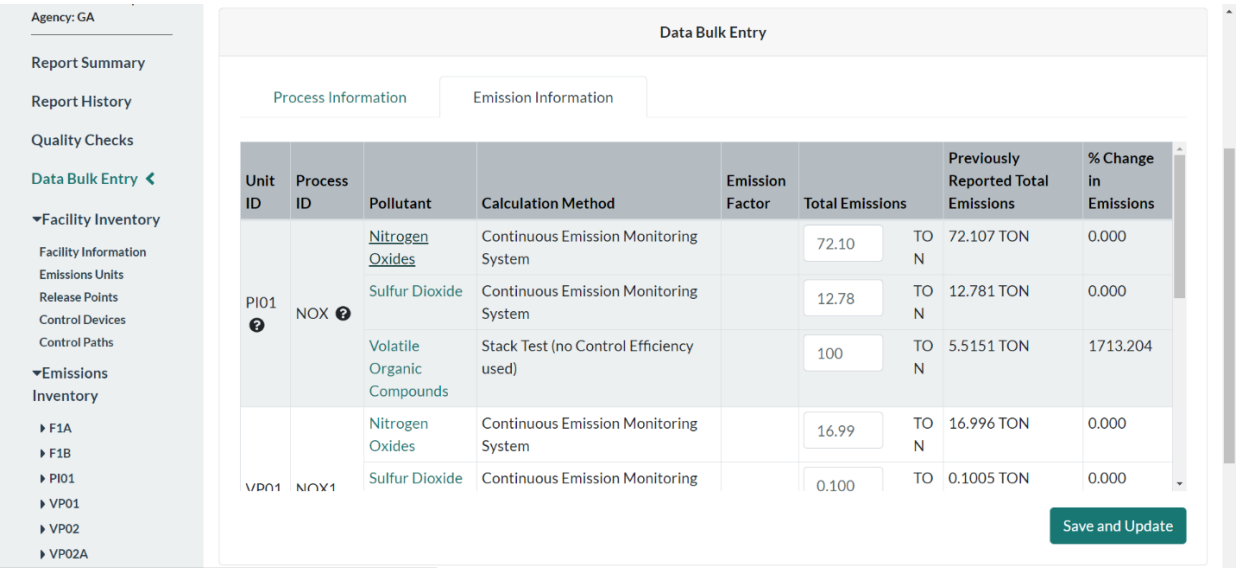
Note that this is the only information that can be edited from this screen. If there are changes to throughput material, or units of measure of throughput, those changes must be made in the page for the relevant process. You can access that process page by clicking on the process ID. This will re-direct you to the process page. Once you have made the edits there, you can return to the bulk entry screen and continue with your report.

Figure 6-1. Bulk Entry Process Information Tab



The second page for Bulk Entry is the "Emissions Information" tab, which you can click on from the "Process Information" tab after entering your throughput data. Enter the total emissions if they have changed since your previously reported emissions. Click on the "Save and Update" button at the bottom right of the tab to save your changes. Again, in this tab, note that any changes to the calculation method, or units of measure must be entered in the relevant pollutant page. To go to that page, click on the pollutant and this will re-direct you to the relevant page. See Figure 6-2.

Figure 6-2. Bulk Entry Emissions Information Tab



7 Performing Quality Checks

When you have finished entering or uploading your data, the next step is to run the quality checks. Before doing so, please consult the checklist in Appendix D of this user guide. When you are ready to perform the quality checks, click on "Report Summary" on the left-hand side menu of your screen to go to the Report Summary page. Click on the "Run Quality Checks" button below the "Report Summary" table. This will take you to a "Quality Review" page where you will see two types of errors listed (Figure 7-1):

- **Critical errors** will appear in red. These errors must be addressed for the report to go through.
- **Warnings** will appear in purple. These errors will not prevent you from submitting the report, but they will alert you to potential issues you may want to address before submitting.

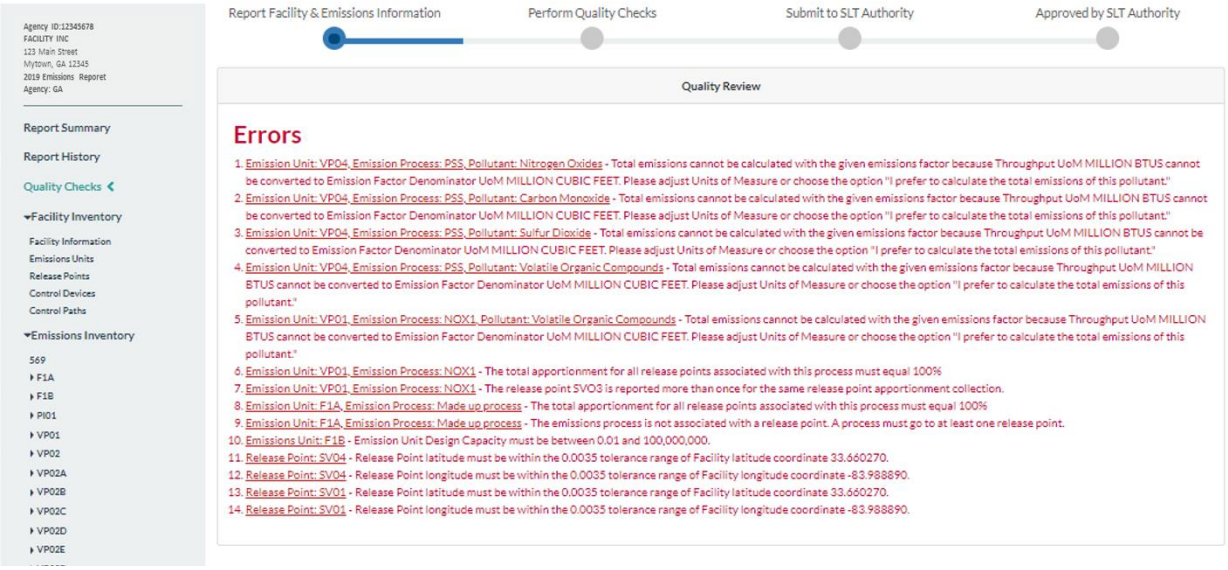
Broadly speaking, error messages fit in one of the following categories:

- **Calculation errors -** Data calculated outside the form that doesn't match up with what the CAERS is calculating, for example:
  - Your reported emissions for a process and pollutant are not within 1% (warning) or 5% (critical) of the emissions CAERS is calculating.
- **Inconsistent data entries -** Data entered is not possible given some physical or temporal constraint, for example:
  - 100% of annual emissions for 52 weeks of operation have been entered as occurring during the Winter season;
  - The latitude for a release point has been reported but is too far from the facility (outside of its facility latitude threshold);
  - An emission factor was provided, but its denominator is in different units of measure than throughput, so a simple conversion is not possible; and
  - The reported emissions previous year reported emissions are identical to the previous inventory year reported emissions.

- **Expected information is missing -** Data are expected to be entered, but the data field is empty. This includes data fields that are conditional on the entry of others. Examples include:
    - In the EPA emission factor, the" I prefer to calculate the total emissions of this pollutant" has been checked but the "Description of Calculation" box has not been populated;
    - Controls exist that have not been assigned to a path; and
    - If a release point stack diameter is reported, then exit gas flow rate and exit gas velocity should also be reported.
- **Incorrect format -** Data must be entered in a specific format, for example:
    - Postal code must be in five-digit or nine-digit format; and
    - Value for a year must be four digits.
- **Data is not allowed –** Data entered is not allowed, for example:
    - Duplicate ID was entered for the same component (unit, release point, process, or control), but ID's for sub-facility components must be unique within the facility;
    - Units of measure that are not supported are being used; and
    - SCC entered has been retired in a year prior to the inventory year being reported.

In the case of data that are not allowed, some legacy data may have been carried into the CAER System. While the old data will be displayed, the system may require you to update it. For example, in a previous submission you used a unit of measure code "Million BTUS", but the system now requires you to enter the new code "E6BTU". Be sure to update the information by selecting a valid code from the drop-down list.

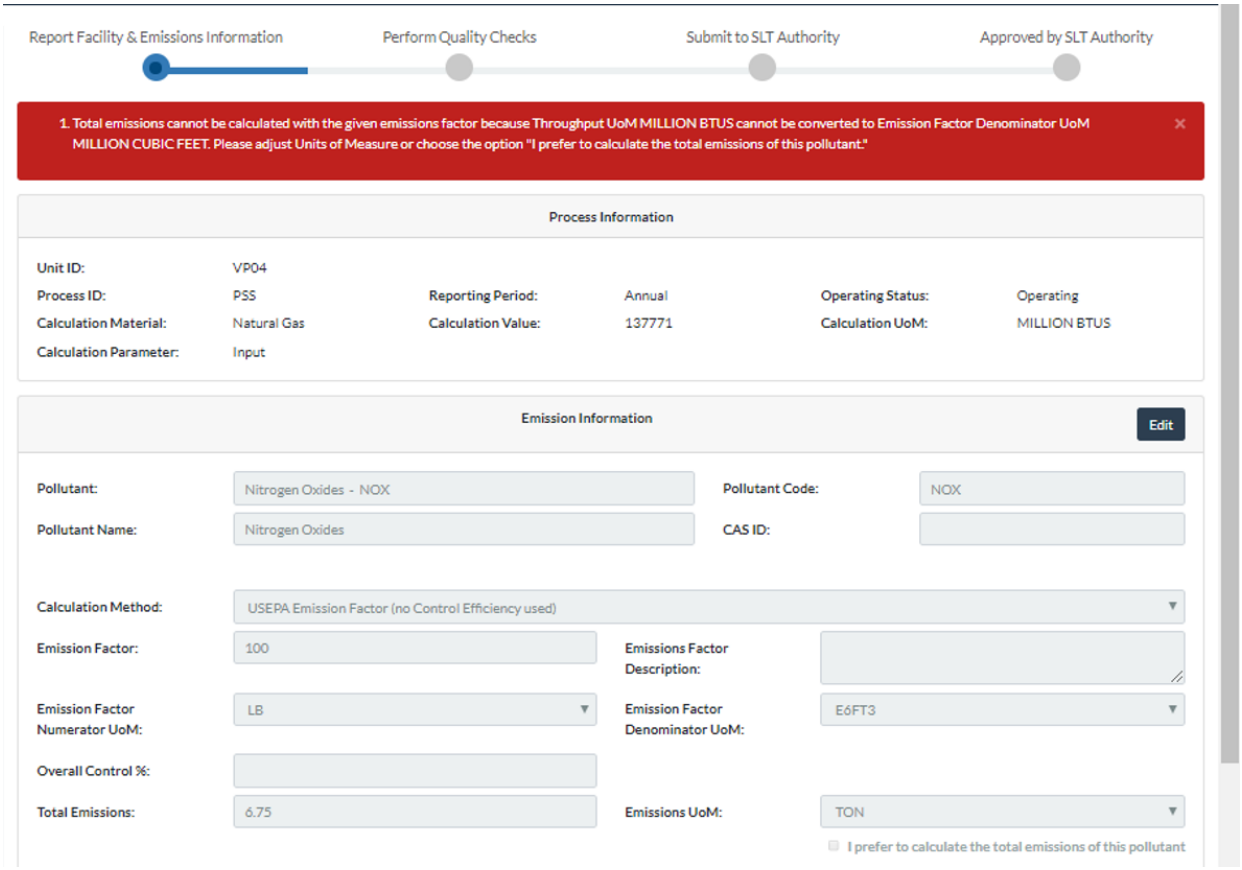
Figure 7-1. Quality Review Page



Note: Example errors here are not comprehensive in this figure.

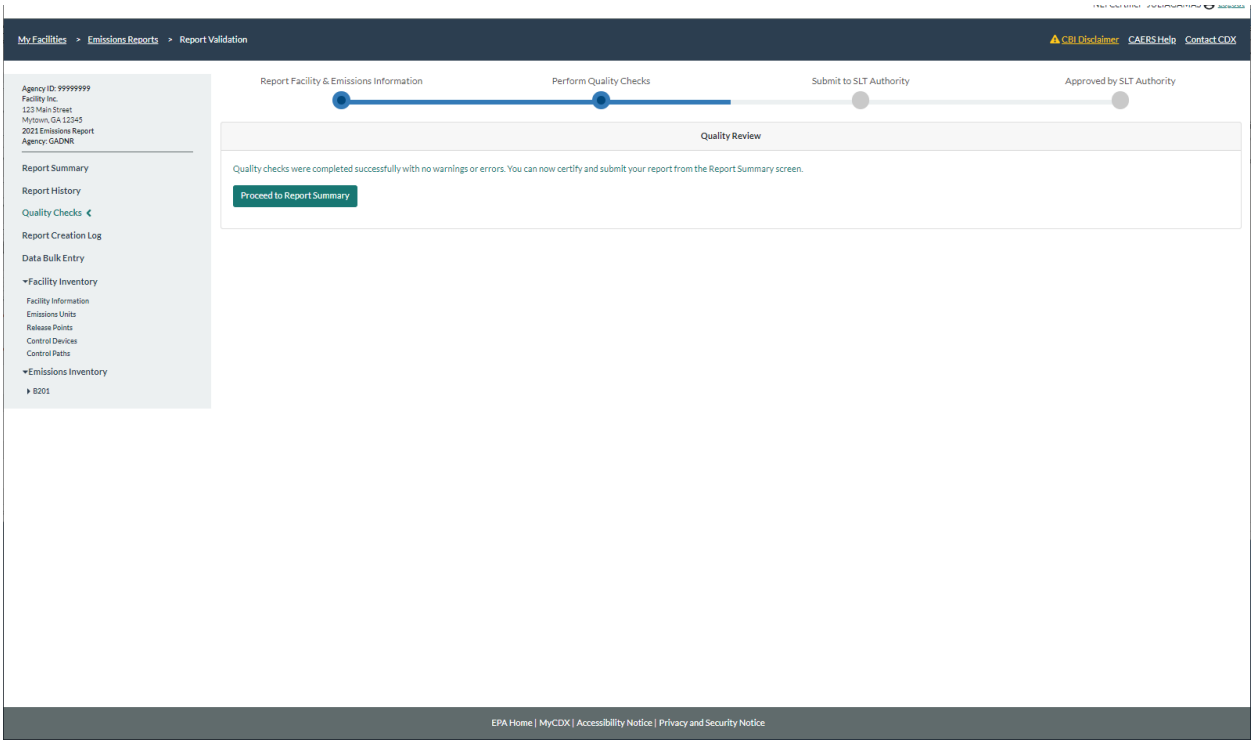
To address each error on the quality review page, click on the name of the error (underlined), to be taken to the screen where the error is occurring (Figure 7-2). You will see a red bar at the top of your screen containing the error to be addressed. Click on the "Edit" button of the relevant box to make your edits, then click "Save". You can now click on the "x" at the top right of the error message in the red box to remove it from view.

Figure 7-2. Correcting an Error



Click on "Quality Checks" link on the left-hand side of your screen to return to the "Quality Review" page. When you return to the "Quality Review" screen the error will have disappeared. Once you have finished correcting your errors you should re-run the quality checks. Once you have addressed all errors you will see the "Quality Review" screen devoid of error messages (Figure 7-3). Note that warnings may still appear. You will also see the blue line has advanced on the top of your screen to show that the quality checks step has been completed.

Figure 7-3. Completing Quality Checks



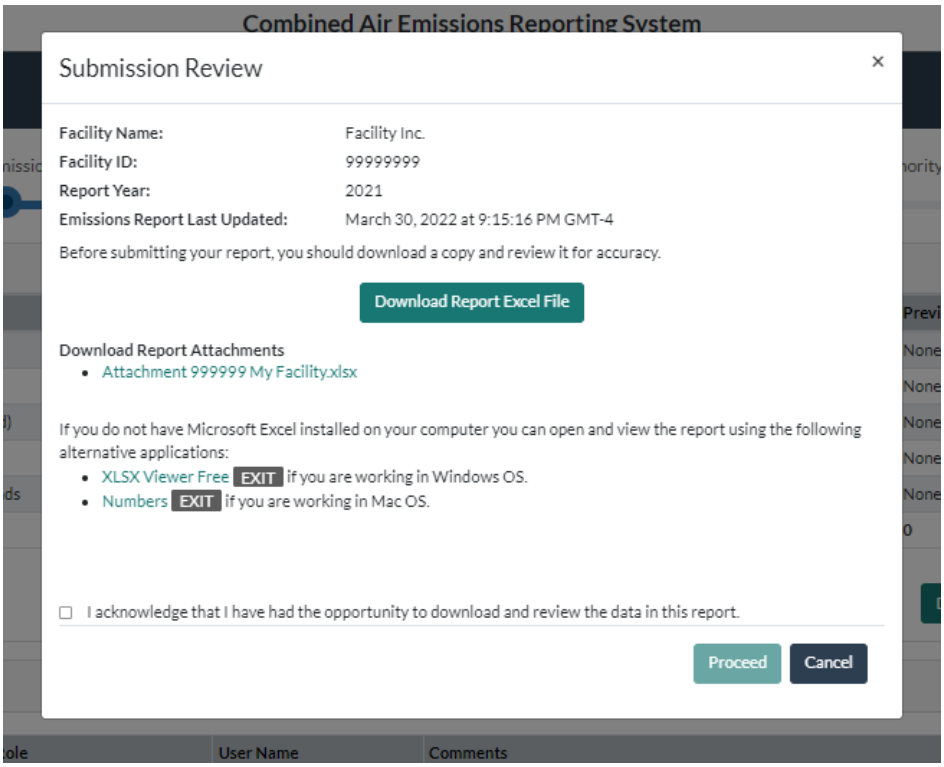
8 Certifying and Submitting to your State, Local, or Tribal (SLT) Authority

As an NEI Certifier, you will log into CAERS and chose the "certifier" role from the "My CDX" page (Figure 3-14). You will see the same screens as the preparer. However, when you are in the "Report Summary" page, you will see an additional button "Certify and Submit to SLT". When you are ready to certify that your submission is complete and accurate, click on that button.

You will see a window stating that you can download and review a copy of your report as in Figure 8-1, indicating the date and time since the last time the report was updated. The current copy of record is in Excel (Windows). The window also shows links to instructions for you to download free versions of the software for viewing in Windows or Mac.

If in a final review of your report, you find an error, please correct it before certifying and submitting, to avoid delaying your submission further (see Section 8.2 for instructions on how to correct a report after it has been certified).

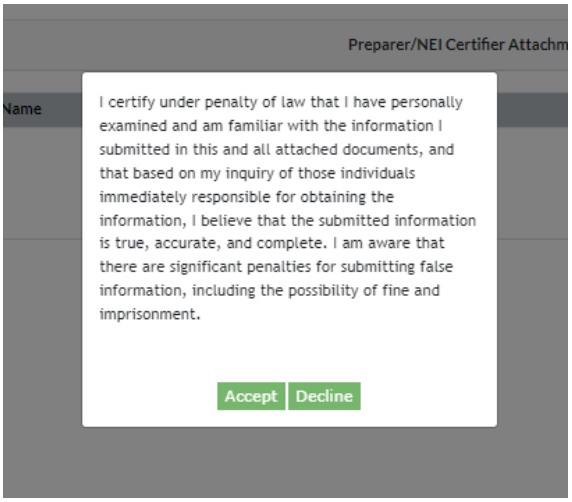
Figure 8-1. Submission Review Screen



8.1 Certification and Submission of Report

If you are satisfied with the report, you can click "Proceed". This will take you to a three-stage (CROMERR) process. First, it will request your password, then it will ask you to answer a security question. Finally, it will ask you to click certify and verify you are submitting correct information (Figure 8-2). You will see a "please wait" sign while you are waiting. Once the submission has been certified, a message will appear in green at the top right of your screen. The progress bar at the top of your screen will have changed and "Submit to SLT Authority" will now be highlighted in blue.

Figure 8-2. Submission Certification



Once you have submitted your report, you will also be able to click the “Report” button on the “to obtain a summary report for your records.

8.2 Correcting Reports with Errors

Once your report has been certified and submitted to your SLT, it will be locked and in “view only” mode. You will receive an email from the system notifying you that your report has been successfully submitted. You will now only be able edit the report if your SLT pushes it back to you. This may happen if your SLT has found errors and would like you to correct them. If so, you will receive an email with an explanation of what the SLT would like you to change.

However, if you have already certified your report and realize it contains an error, you should reach out to your SLT immediately, and have them reject the report and push it back to you so you may edit the report. The POC information for your SLT can be found by clicking on the “Help” tab, and is also listed in this document in Section 11.2.

8.3 Disputing or Repudiating a Report

In the unlikely event that you receive an email notifying you that your report has been submitted but:

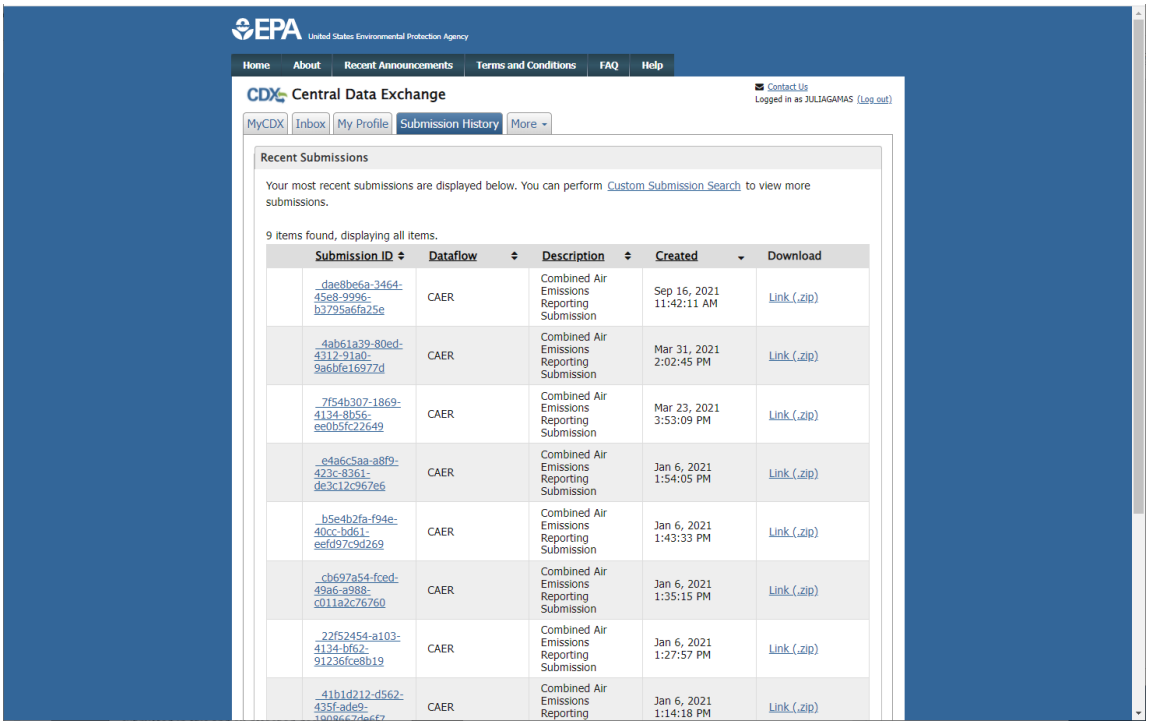
- You did not perform this submission,
- You have any reason to dispute or repudiate this submission,
- You determine there is a discrepancy between the electronic document you signed and submitted, and the record received by CDX,

then please reach out to the Help Desk immediately, and within the first 24 hours of realizing there is an issue with your report so that the relevant action may be taken promptly. The email notification from the original submission will contain instructions for how to proceed as well as the Help Desk information. Please do not reach out to your SLT first for this issue, as this will only delay solving the problem further. If you do, your SLT will have to direct you back to the Help Desk to start the repudiation process. Your Help Desk staff will take the necessary steps to address the matter. The Help Desk information can also be found in the Help tab at the top right of your screen, and in Section 11.1 of this document.

8.4 CDX Submission History

You can obtain copies of record for your submissions by going to the CDX "Submission History" page. From your MyCDX screen (Figure 3-14), at the top of your screen you will see the “Submission History” tab. By clicking on that tab, you will find your submission history. See

Figure 8-3. CDX Submission History Page



9 Submission Approval

Once the report has been submitted, your SLT Authority will review the report. The person listed as preparer, certifier, and the "Emissions Inventory" contact for your facility, will be notified of whether the report was approved or rejected.

Once your SLT has reviewed your report, it will then send that report to EPA. While every effort has been made to provide preparers with quality assurance checks that will help you submit the highest quality data, both your SLT staff and EPA's Emissions Inventory System (EIS) may present additional checks (either new, or checks that are not possible to include in CAERS given their nature). These checks may require you to make corrections to your report after you have certified it. In that case your SLT will return your report for revisions. These revisions usually take place in the Fall. To avoid some of these issues, we encourage you to review the "Additional Considerations" sections after each section and chapter.

If rejected, comments in the email will explain the issue(s) to be addressed. At that point you should re-open your report and issue the corrections indicated by your SLT Authority. If your preparer or certifier contact person will change at any time after the report was submitted, please let staff at your SLT know so the new contact person can be approved to enter CAERS and issue any corrections as needed.

10 Using Data Reported in CAERS for a TRI-MEweb submission

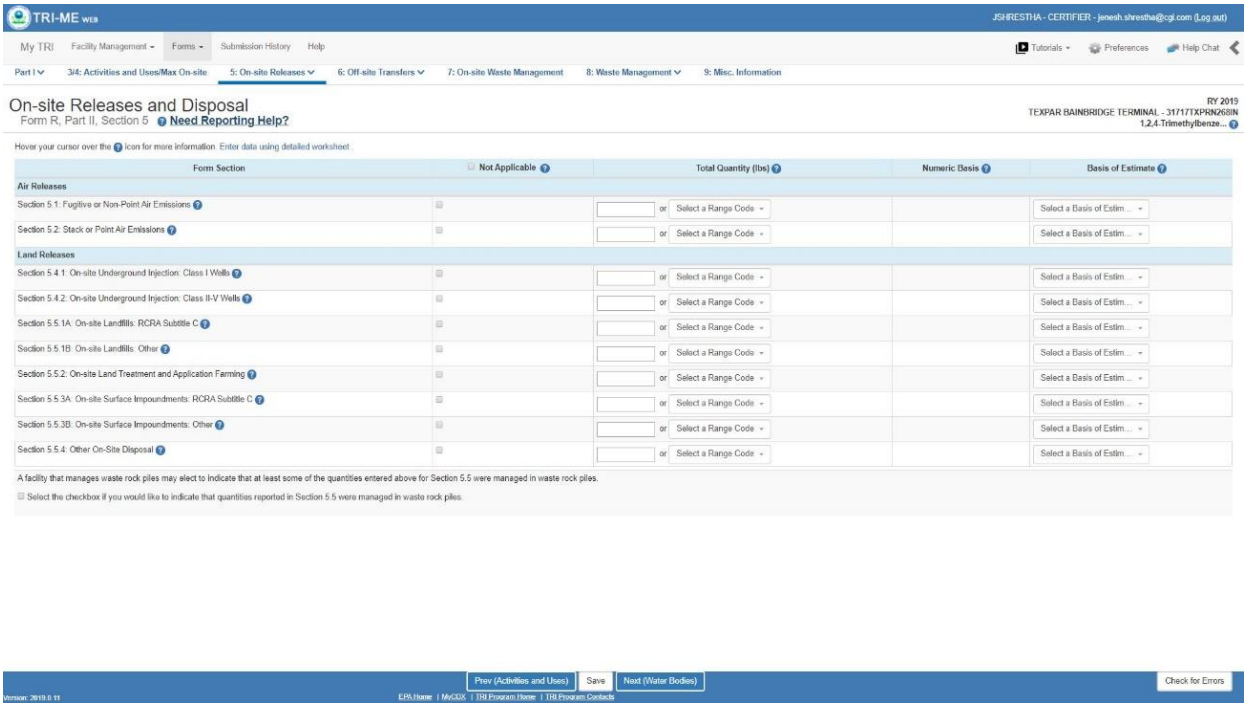
If you are an NEI-TRI facility reporter, you may start a TRI and NEI reportable chemical Reporting Year (RY) 2020 Form R in TRI-MEweb at anytime before the July 1 TRI reporting deadline. You must have

submited and certified your CAERS data before you start your TRI Form R in the TRI-MEweb application to use the API web service call to populate CAERS data into Section 5.1 and 5.2. You should follow these steps to use data reported to CAERS in TRI-MEweb to save time reporting to both systems.

Note that currently in CAERS, for your data to be usable in TRI, you must have a one to one match between your NEI and TRI facility, and pollutant. Your emissions types should also match: in your emissions inventory report you typically enter an emission operating type " routine", and can also enter shutdown, startup and upset. Your TRI report also includes a category of non-routine (catastrophic events not associated with normal or routine production processes which can apply to air emissions releases) in Form R, Section 8.8. You must ensure that your routine emissions in your annual inventory report in NEI matches your routine emissions in TRI.

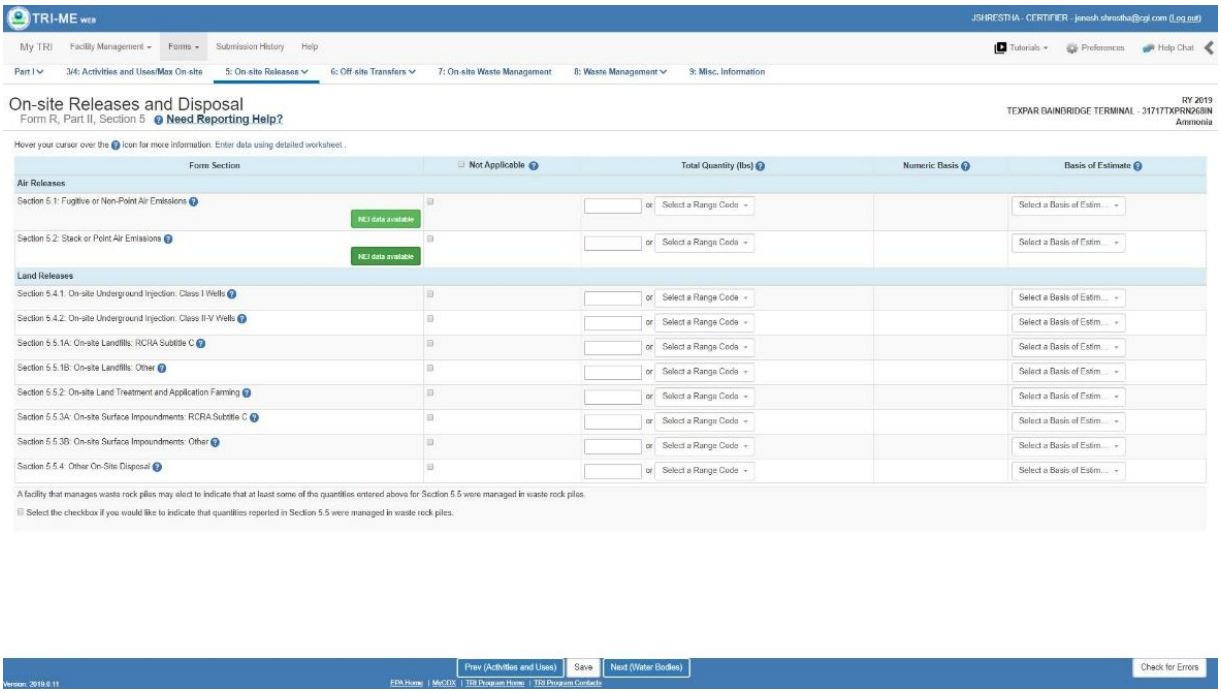
1. Upon arriving to Section 5 of the RY 2020 TRI Form R, an an application to application (Application Programming Interface or API) call between CAERS and TRI-MEweb will verify if your EPA Facility Registration ID and CAS number match any data point in the CAERS database. Data in the CAERS database must be certified for it to be used in TRI-MEweb. See Figure 10-1.

Figure 10-1. Example of Section 5 Form R Screen in TRI-MEweb



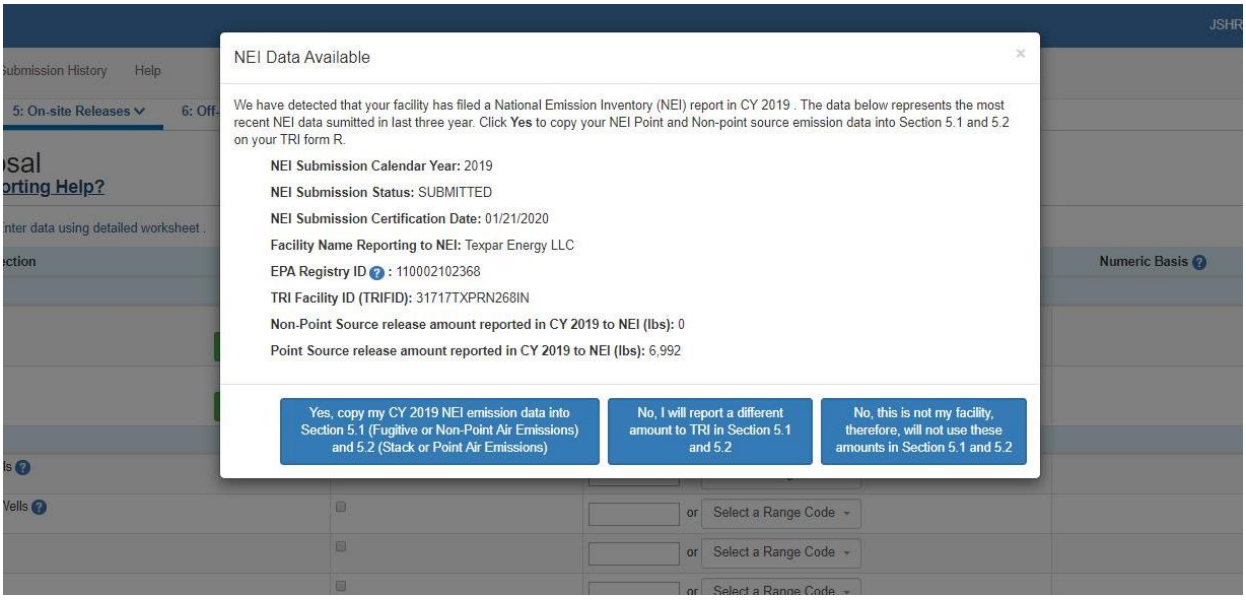
2. After a few seconds, if there is a match between the TRI-MEweb facility and chemical profile with the CAER database, a green icon titled "NEI data available" will appear (Figure 10-2).
3. As the preparer of the TRI Form R, click on the green button to call the NEI widget to appear on the Section 5 page of TRI-MEweb.

Figure 10-2. Example of "NEI Data Available" Screen



4. The following pop-up will appear (Figure 10-3). It contains the most recent active record that is found in the CAERS database: Reporters for large NEI facilities will see the most recent annual submission that is available in the CAER system.

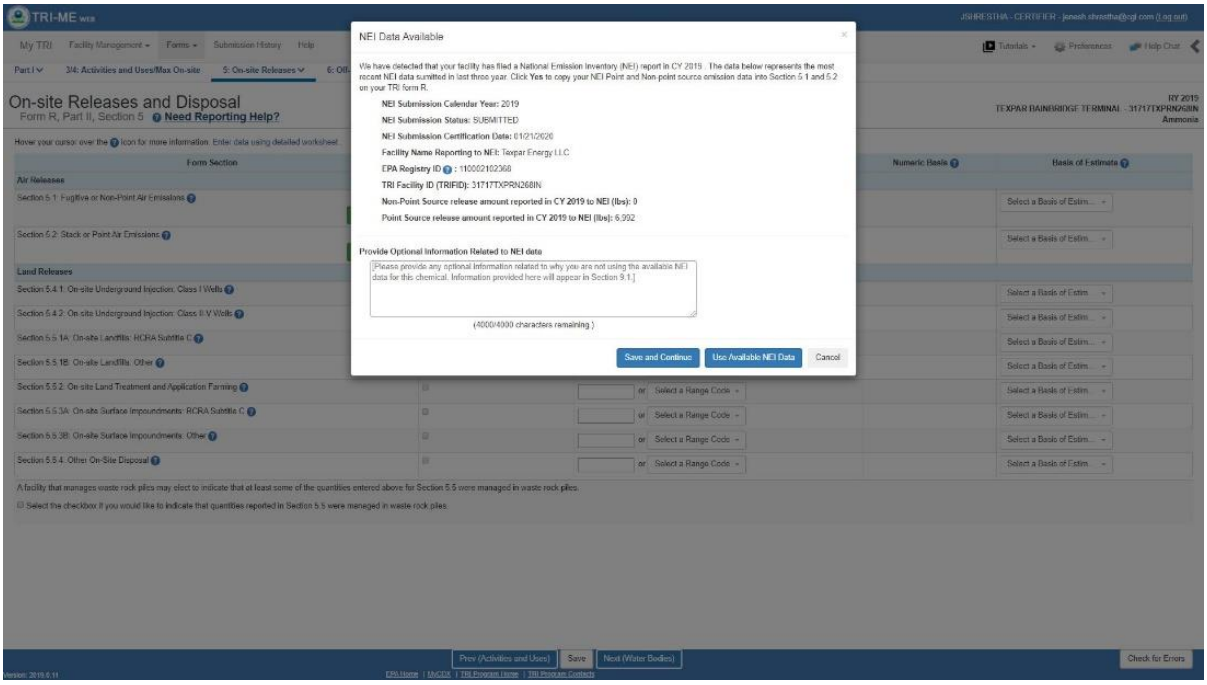
Figure 10-3. Example NEI Data Availability Pop-Up Window



5. If you decide, for whatever reason, not to transfer the amount that was shown in the pop-up or the facility information in the pop-up is inaccurate, a comment box will appear so that you can provide a rationale for why the NEI data point was not used (Figure 10-4). This comment will be

collected in Section 9.1 of the TRI Form R. We would like to make the submission process easier for you, and we appreciate knowing how we can improve this process for you.

Figure 10-4. Example Pop-Up Window for Comment

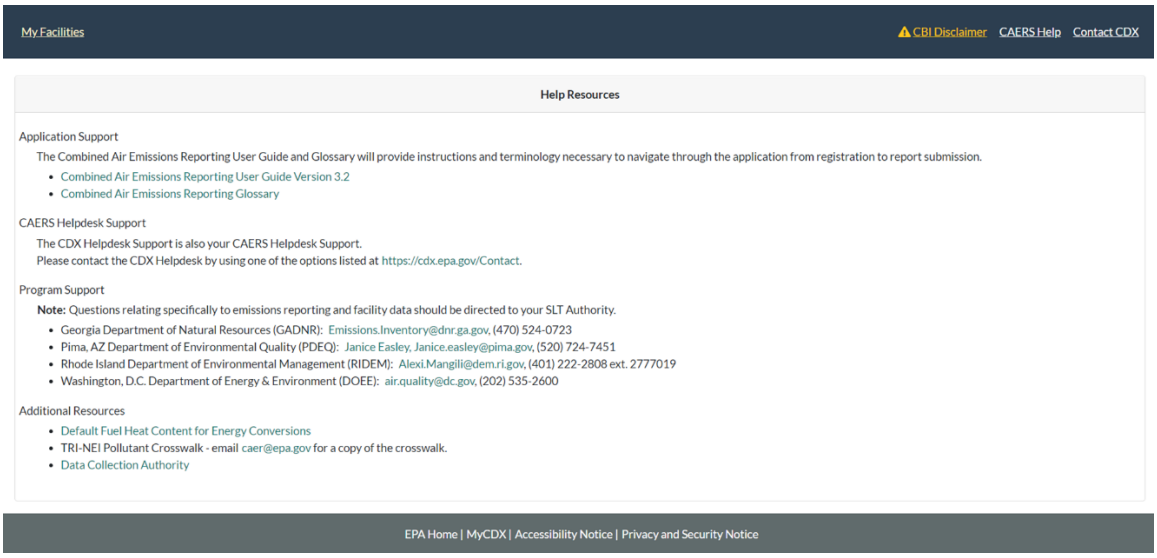


6. If you select “Yes, copy my CY [year] NEI emission data into Section 5.1 and 5.2”, the quantities will be copied into the TRI form R. You will then need to complete Form R, validate, and certify to complete their TRI reporting requirement.

11 Where to Go for Help

You can get help and more resources by clicking on the “CAERS Help” tab on the top right side of your screen (see Figure 11-1).

Figure 11-1. Help Screen in CAERS



11.1 Help with the CAERS application itself.

Reach out to the help desk for questions about how to enter data into CAERS: You can find that help by clicking on the "Contact CDX" link at the top right of your screen at any time while you are in the User Interface.

Questions for the CDX help desk include the following types of issues:

- Questions about logging into your CDX account
- Unexplained errors while using the application
- How to enter a specific piece of data
- How to navigate from one screen to another

Note that the help desk above is not the right resource for questions about the data itself. Those questions should be referred to your SLT Authority.

11.2 Help with programmatic questions:

Reach out to your SLT for questions related to the content of your submission, such as:

- Critical errors will appear in red. These errors must be addressed for the report to go through.
- Selecting an appropriate SCC and/or emission factor
- Finding out the unit capacity measure of a unit
- The appropriateness of a specific type of conversion for a specific kind of process:

Points of contact from your SLT are:

Georgia Department of Natural Resources (GADNR): Emissions.Inventory@dnr.ga.gov

Pima, AZ Department of Environmental Quality (PDEQ): Janice Easley, Janice.easley@pima.gov

Rhode Island Department of Environmental Management (RIDEM): Alexi.Mangili@dem.ri.gov

Washington, DC Department of Energy & Environment (DOEE): air.quality@dc.gov

Please do not contact EPA directly, or EPA contractors for any questions, or this will only delay getting you help further. Please reach out to the CDX help desk (registration, and CAERS application-related) or your SLT first (programmatic). This will ensure the right help gets to you as quickly as possible.

Appendix A Understanding Controls

The U.S. EPA is moving to a new way of representing controls in the National Emissions Inventory (NEI). In this section, we introduce the new concepts regarding controls to help you understand how to set the controls up for your facility in the CAERS.

It is important to capture the overall control reduction percentage for a given Process-Release Point-Pollutant combination, and thus, capture emissions totals correctly.

In the previous control device requirements for the NEI, we were not able to:

- Describe how controls are configured at a facility
- Define the relationship among Controls and Units, Processes, and / or Release Points
- Reuse the Definition a Control in the data, so that the same Control Equipment can be used by many components (Units, Processes, and Release Points)
- Change the values of controls data fields easily

The new way of setting up controls for emissions reporting will include the following features:

- A list of controls can exist for the facility as those controls exist in the real world.
- A control will only define one single piece of control equipment.
- Only the pollutants impacted by this piece of equipment will be listed with the control.
- The percent reduction for the pollutant will be the amount of emissions reduced due to this one piece of equipment.
- The "path" of can be described with the data:
    - In series
    - In parallel

There will be three new items to track in the new controls approach that are worth explaining. A few examples are included to illustrate the application of the concepts:

1. **Control Path:** defined as one or more controls at a facility that are linked. The path will allow the user to define multiple kinds of control setups. A path can consist of controls or other "children" paths. A path cannot refer to itself (or another path that contains it). Ultimately, there should be a "main path" that will define the controls that are encountered from the emissions generation point to the release point. That is, there should ultimately be at least one master path between a unit and a release point. These concepts will become clearer in the examples to follow.
2. **Control Apportionment:** defined as the percentage of the emissions that flows to the next control or path. For example, if emissions coming out of one control flow into one other control in a series, then the control apportionment is 100%. If emissions from one control flow to two or more other controls or paths, then the combined apportionment of those emissions to the other controls or paths must be equal to 100%. For example, 60% of emissions move from control 1 to control 2, and 40% of emissions flow from control 1 to control 3.
3. **Control Assignment:** defines the sequence or order in which controls are configured within a path. The first control in a path would have sequence number 1, the second control would have sequence number 2, and so forth. If there is a path within the path, that path will also have a sequence number.

A. 1 Example of a Facility with No Controls

A facility that has no controls does not need to create any paths. All the user must do is provide a release point apportionment for the process(es) that send emissions to one or more release points. Figure A. 1 shows a graphic example of a facility with no controls. The red arrow represents emissions that ultimately move from the process to the release point: in this case all Process 1 emissions go to Stack 1. Table A. 1 shows how the data would be entered into the CAERS (or the bulk upload template) for the facility absent any controls. In this example, emissions from Process 1 are sent to Stack 1, so Stack 1 is apportioned 100% of Process 1 emissions.

Figure A. 1. Example of a Facility with No Controls

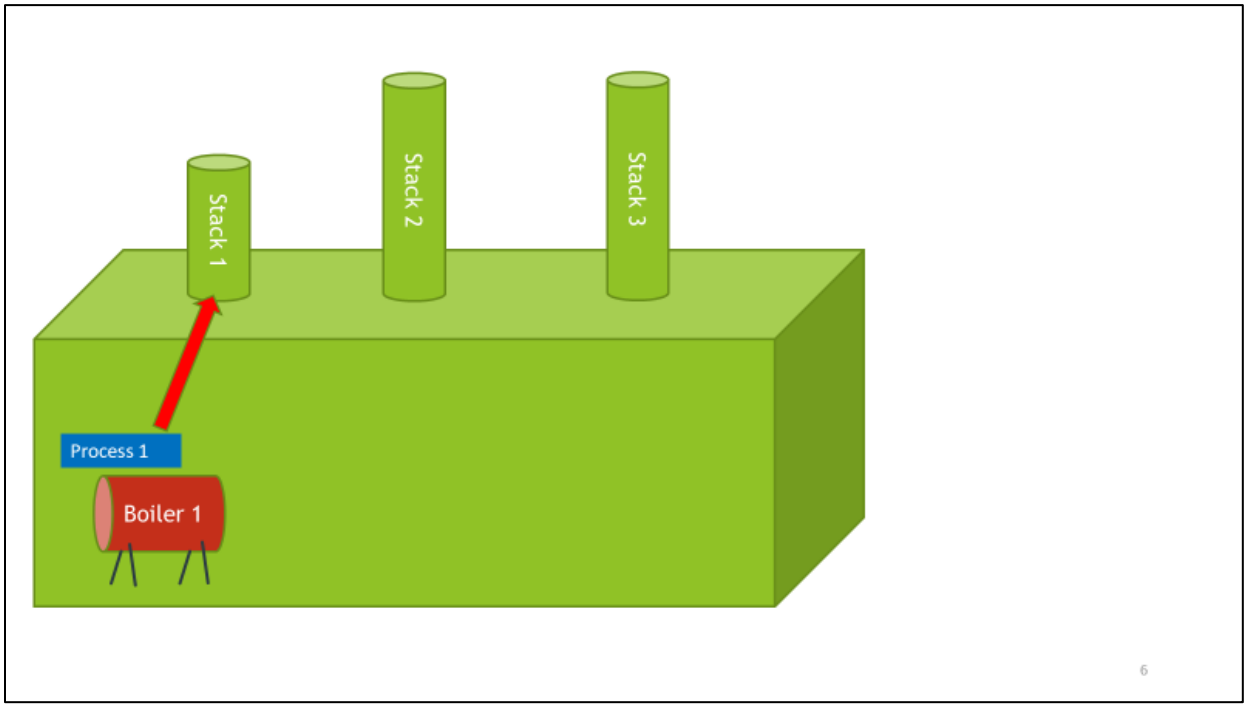


Table A. 1. Example Associations for a Facility with No Controls

Unit ID	Process ID		Path ID	Release Point ID	Release Point Apportionment
Boiler 1	Process 1			Stack 1	100%

If the process emits to more than one release point, then the relevant percentage of emissions ultimately moving from Process 1 to each release point would need apportionment percentages. For example, assume that Process 1 emissions ultimately go to all three stacks with 50% going to Stack 1, 25% of its emissions going to Stack 2 and 25% going to Stack 3. In this case, the release point apportionments would be as shown in Table A. 2.

Table A. 2. Example Associations with No Controls

Unit ID	Process ID		Path ID	Release Point ID	Release Point Apportionment
Boiler 1	Process 1			Stack 1	50%
Boiler 1	Process 1			Stack 2	25%
Boiler 1	Process 1			Stack 3	25%

A. 2 Example of a Facility with a Single Control

Figure A. 2 shows the example of a facility with a single control. The yellow arrow indicates emission moving from the process to the control device. The red arrow shows the emissions moving to the release point. In this scenario, assume there is one process, Process 1. The Control 1 is placed in Path 1. The control apportionment is 100% and the control assignment sequence number is 1. **Error! R eference source not found.** shows the assignment of the control. Table A. 4 shows the associations for that control and the other relevant sub-facility components.

Figure A. 2. Example of a Facility with a Single Control

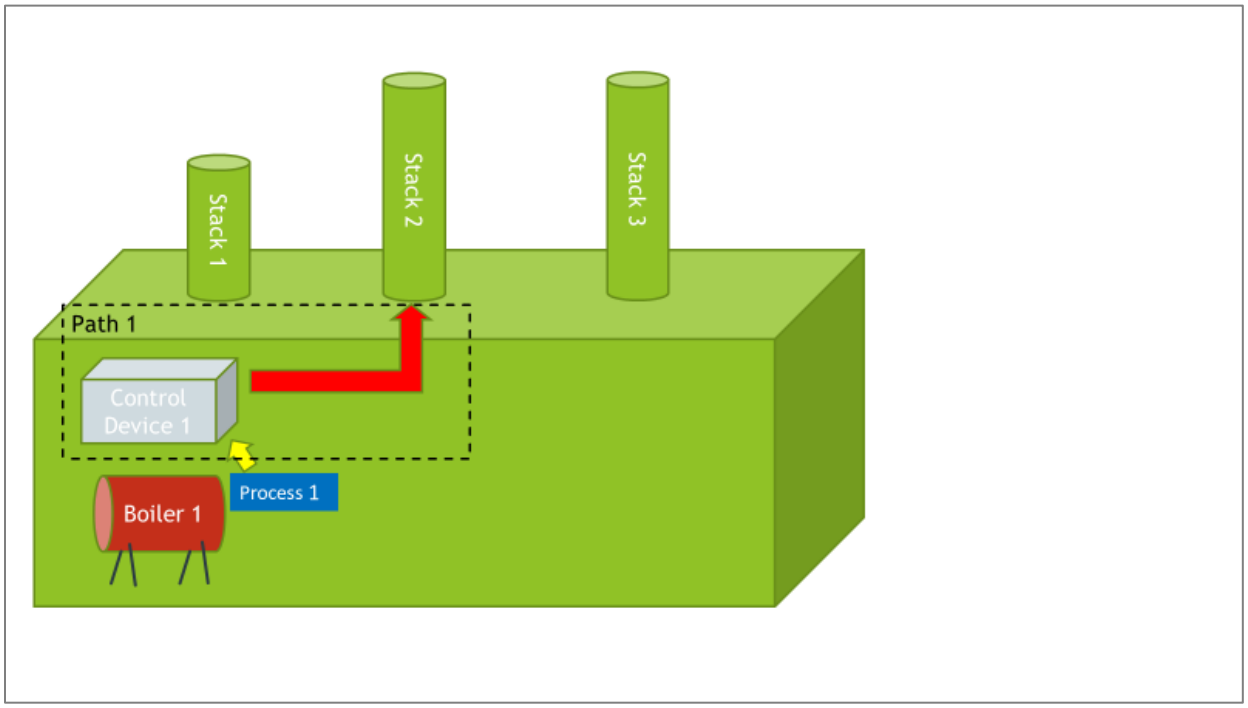


Table A. 3. Example Path Data for a Facility with a Single Control

Path ID	Sequence Number	Control or Child Path Assignment	Apportionment (for Control or Path)
Path 1	1	Control Device 1	100%

Table A. 4. Example Associations for a Facility with a Single Control

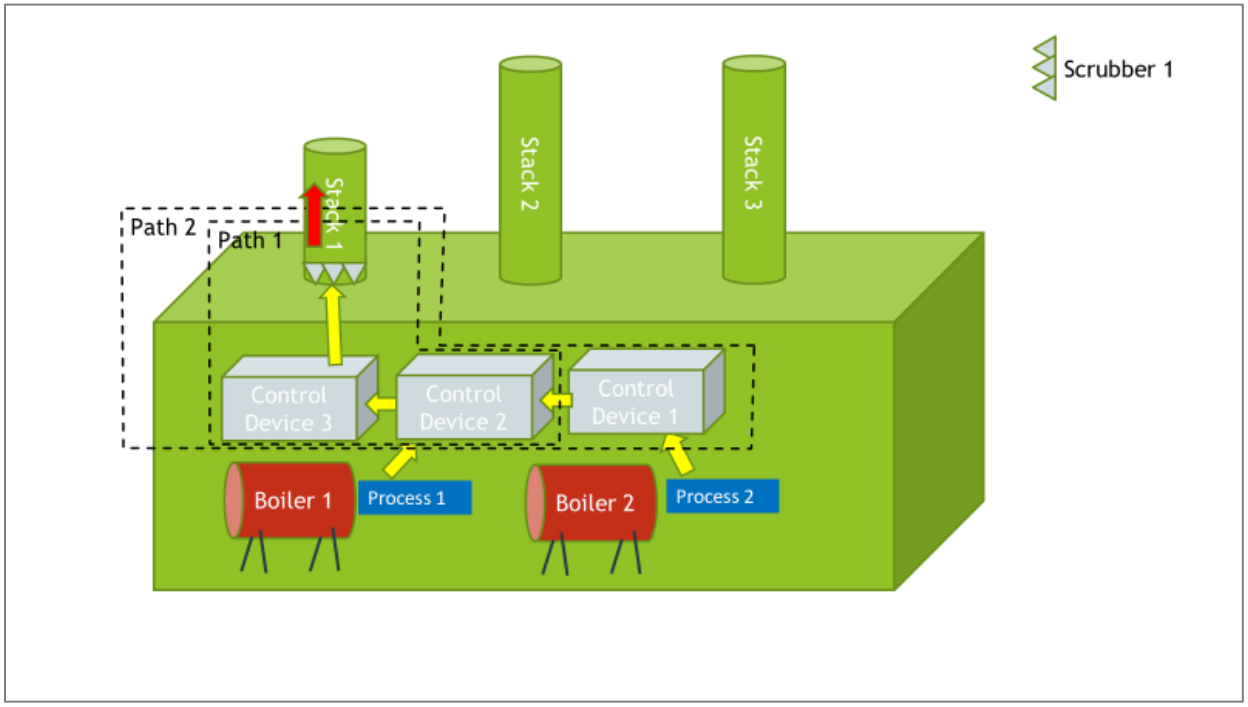
Unit ID	Process ID	Path ID	Release Point ID	Release Point Apportionment
Boiler 1	Process 1	Path 1	Stack 2	100%

A. 3 Example of a Facility with Controls in Series

In Figure A. 3 we can see an example of a facility that has controls in series. Assume there is one process per unit, Process 1 and Process 2 for Boiler 1 and Boiler 2 respectively. In this case, there are three controls. Controls 2 and 3 have been placed in Path 1. Path 2 contains Control Device 1 and Path 1. Path 1 is a child path of Path 2.

You should configure your controls into paths is a matter of how your controls are laid out in the facility from the units to the release points. There should ultimately be one master path between a unit and a release point. In this case, that master path is Path 2. If more than one process is being run from the unit, then all the processes would be associated with the control path in the same manner as Process 1.

Figure A. 3. Example of a Facility with Controls in Series



For this example, we can see in Figure A. 4 that the controls are in series. The emissions flow directly from one control to the other. Thus, the control apportionment for Control 1 to Path 1 is 100%, and the control apportionment for each control within Path 1 is 100%. In Path 1, Control 2 is first in the sequence, Control 3 is second. In Path 2, Control 1 is first in the sequence, Path 1 is second in the sequence, and, and Scrubber 1 is third. Table A. 5 shows the assignment for this facility. Table A. 6 shows the associations for the different sub-facility components. Also, note that all emissions enter Stack 1 after leaving Path 2 (as indicated by the red arrow). Finally, 100% of emissions from Process 1 went to Stack 1, and 100% of emissions from Process 2 also went to Stack 1.

Figure A. 4. Path Assignments for a Facility with Controls in Series

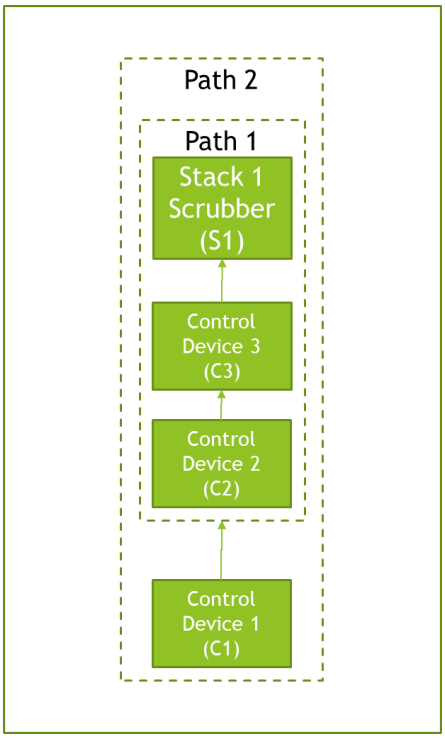


Table A. 5. Example Path Data for a Facility with Controls in Series

Path ID	Sequence Number	Control or Child Path Assignment	Apportionment (for Control or Path)
Path 1	1	Control Device 2 (C2)	100%
Path 1	2	Control Device 3 (C3)	100%
Path 1	3	Scrubber 1 (S1)	100%
Path 2	1	Control Device 1 (C1)	100%
Path 2	2	Path 1	100%

Table A. 6. Example Associations for a Facility with Controls in Series

Unit ID	Process ID	Path ID	Release Point ID	Release Point Apportionment
Boiler 1	Process 1	Path 1	Stack 1	100%
Boiler 2	Process 2	Path 2	Stack 1	100%

A. 4 Example of a Facility with Complex Controls

Figure A. 5 represents a more complex controls set up. Again, we show just one process for the unit, but all processes associated with that unit (if shown) would be treated in the same way as Process 1. This controls setup is a combination of controls in series and parallel. Path 1 contains Control 2 and Control 4. Path 2 contains Control 1, Control 3, and Path 1 (child path), and Control 5. Path 3 contains Path 2 (child path), and Scrubber 1.

Figure A. 5. Example of Complex Controls

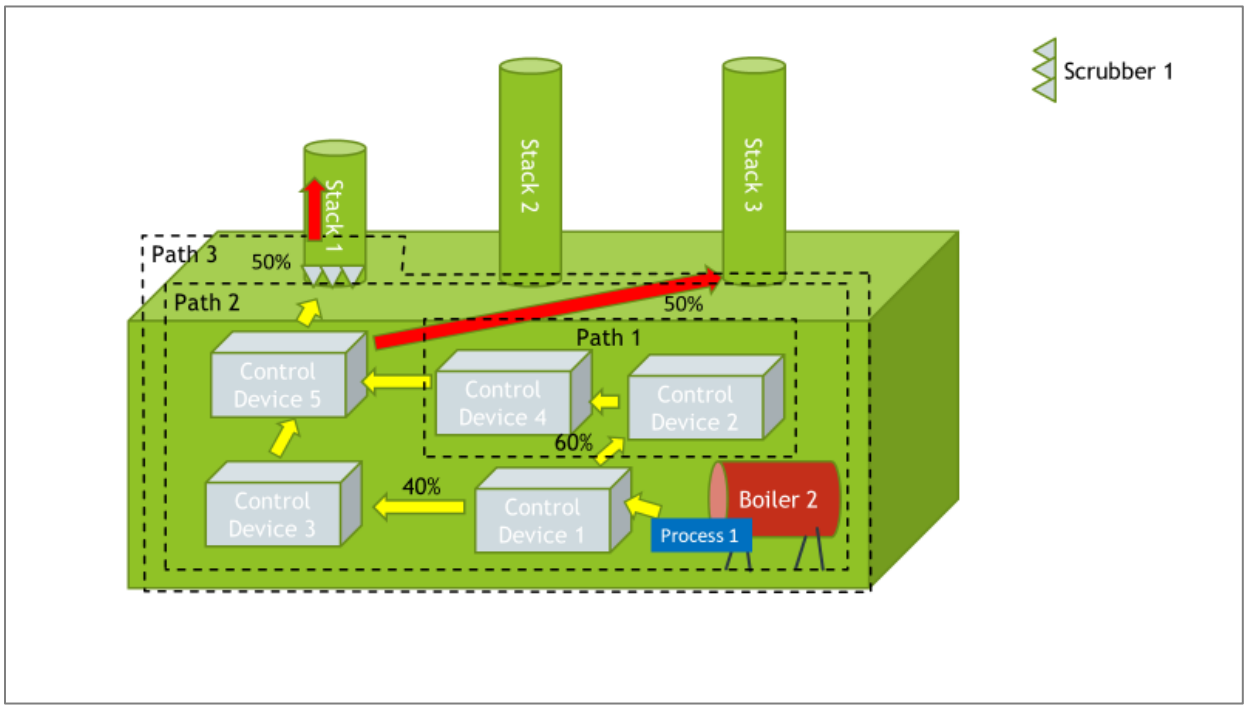


Figure A. 6. shows the different assignments and apportionments given this set up. In Path 1, Control 2 is first in the sequence, Control 4 is second, and 100% of emissions flow from Control 2 to Control 4, and 100% of the emissions flow to Control 5 from Path 1. Path 1 is a child path of Path 2. In Path 2, Control 1 sends 60% of its emissions to Path 1 (where Control 2 is first in the sequence), and 40% of its emissions go on to Control 3. Then 100% of emissions go from Control 3 to Control 5, 100% of emissions exit Path 2 (via Control 5) to Path 3. In Path 3, Path 2 (child path) is first in the sequence, then the Scrubber is second in the sequence. Assignments are shown in Table A. 7. How the different sub-facility components are associated is shown in Table A. 8. Note that 50% of emissions from Process 1 go to Stack 1, and 50% of emissions from Process 1 went to Stack 3 (as indicated by the red arrows in Figure A. 5).

Figure A. 6. Path Assignment for a Facility with Complex Controls

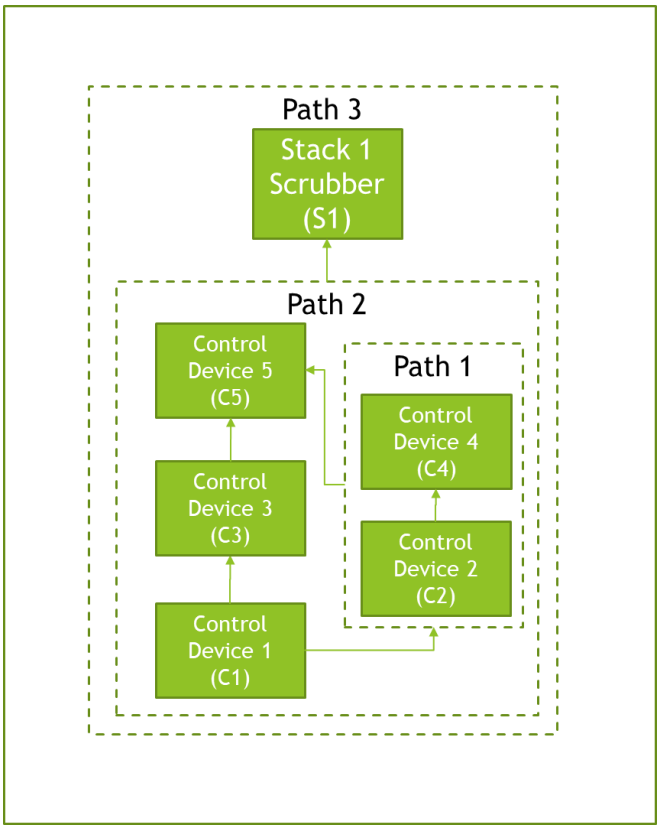


Table A. 7. Example Path Data for a Facility with Complex Controls

Path ID	Sequence Number	Control or Child Path Assignment	Apportionment (for Control or Path)
Path 1	1	Control Device 2 (C2)	100%
Path 1	2	Control Device 4 (C4)	100%
Path 2	1	Control Device 1 (C1)	100%
Path 2	2	Control Device 3 (C3)	40%
Path 2	2	Path 1	60%
Path 2	3	Control Device 5 (C5)	100%
Path 3	1	Path 2	100%
Path 3	2	Scrubber 1 (S1)	100%

Table A. 8. Example Associations for a Facility with Complex Controls

Unit ID	Process ID	Path ID	Release Point ID	Release Point Apportionment
Boiler 2	Process 1	Path 2	Stack 3	50%
Boiler 2	Process 1	Path 3	Stack 1	50%

A. 5 Additional Examples of Control and Path Assignments

Example 1: Planer Mill Cyclofilter (single control)

Figure A. 7 shows an example of a single control where a Planer Mill Cyclofilter is used. In this case there is only one control and it should be placed in one path. All processes (planer and planer trim block hog) should be associated with that path and the corresponding release point. Table A. 9 and Table A. 10 show path and association data respectively.

Figure A. 7. Planer Mill Cyclofilter Path Assignment

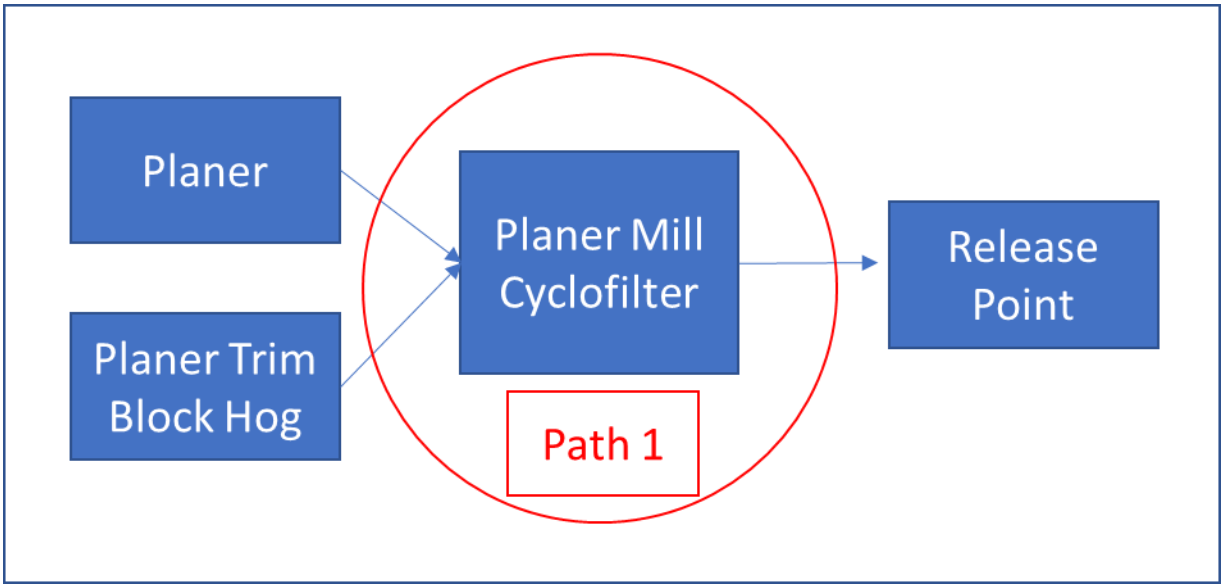


Table A. 9. Path Data for Planer Mill Cyclofilter

Path ID	Sequence Number	Control or Child Path Assignment	Assigned Control or Child Path Apportionment
Path 1	1	Planer Mill Cyclofilter	100%

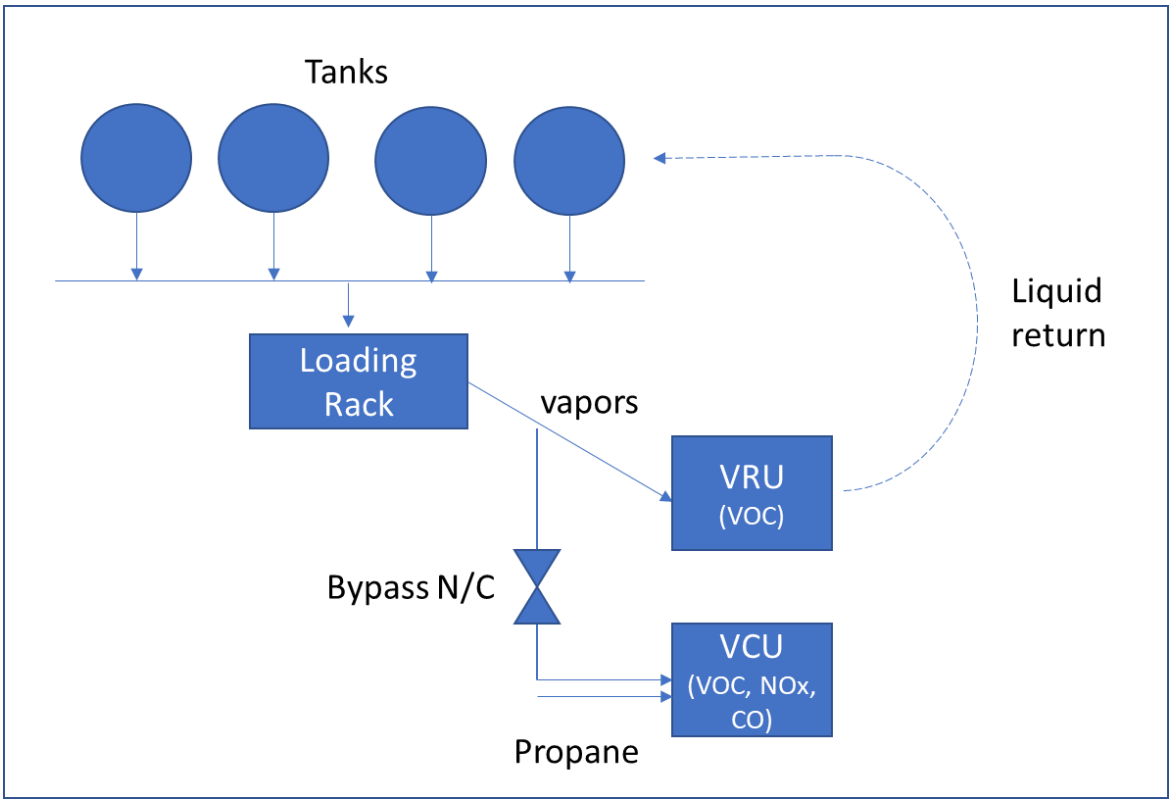
Table A. 10. Associations for Planer Mill Cyclofilter

Unit ID	Process ID	Path ID	Release Point ID	Release Point Apportionment
Planer	Process 1	Path 1	Stack 1	100%
Planer Trim Block Hog	Process 2	Path 1	Stack 1	100%

Example 2: Controls Working Alternately Example

In this example, emissions go from a loading rack to a vapor combustor unit (VCU) or a vapor recovery unit (VRU), but not to both. There are VOC emissions from the VRU. When the VRU is used, the emissions go to a stack. The VCU works when the VRU is not working. The VCU is a backup to the VRU, and in this example, assume it only works 1% of the time. However, when each one of these controls is working, it takes in 100% of the emissions. When the VCU is operating, the emissions are flared. The VCU uses propane, so its emissions are VOC as well as NOX and CO. See Figure A. 8

Figure A. 8. Example for Controls Working Alternately



In this case, while the vapors could go to either the VRU or the VCU, because of the use of propane in the VCU, we effectively have two different processes with two different SCCs (Figure A. 9). Furthermore, each process is going to a different release point. Specific information about the number of hours each component is working would be entered in with the process information. For example, the number of hours that each is run. Note that because in this case the original process has been divided in two processes to run through each of the two control devices, effectiveness for each would be 100% and you would enter the hours that each control runs. Table A. 11 and Table A. 12 show path and association data respectively.

Figure A. 9. Path Assignment for Controls Working Alternately

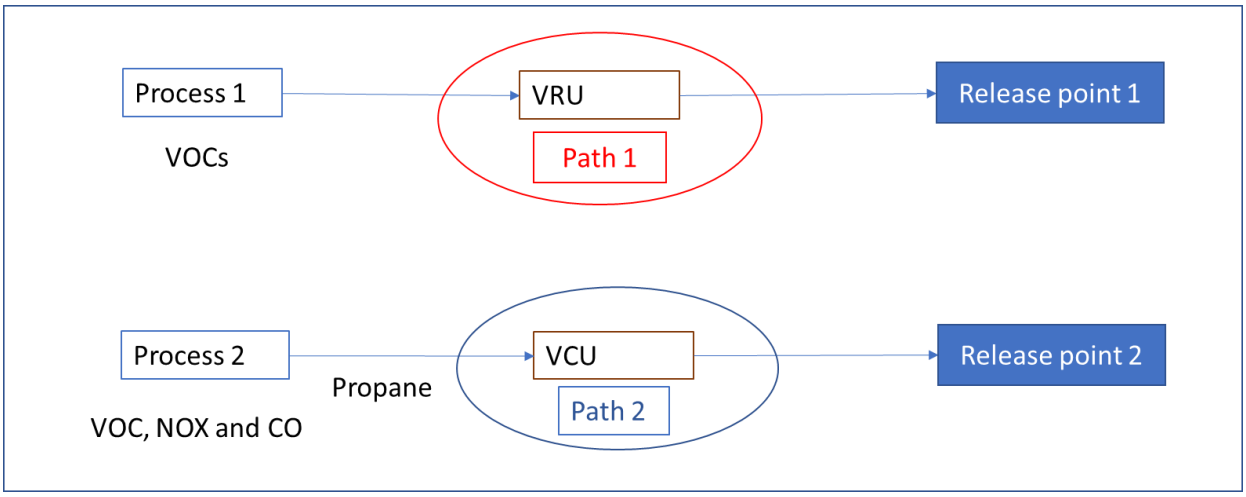


Table A. 11. Path Data for Controls Working Alternately

Path ID	Sequence Number	Control or Child Path Assignment	Assigned Control or Child Path Apportionment
Path 1	1	VRU	100%
Path 2	1	VCU	100%

Table A. 12. Associations for Controls Working Alternately

Unit ID	Process ID	Path ID	Release Point ID	Release Point Apportionment
Unit 1	Process 1	Path 1	Release Point 1	100%
	Process 2	Path 2	Release Point 2	100%

A. 6 Example of Controls Calculations

The following example may help you understand how the different percentages involved in controls calculations are related. This example may help you estimate your "Overall Control %" for your individual control and/or control path. The example is illustrative, you should work with your SLT authority to determine the best way to do these calculations for your specific control device configuration.

The following definitions are used in this example:

Percent Capture Efficiency: The percentage of an exhaust gas stream that is actually collected for routing to a set of control devices. This value could be obtained from the vendor or measured at the facility. The capture is equivalent to the release point apportionment.

Percent Control Effectiveness: The percentage of time or activity throughput that a control approach is operating as designed, including the capture and reduction devices. This percentage accounts for the

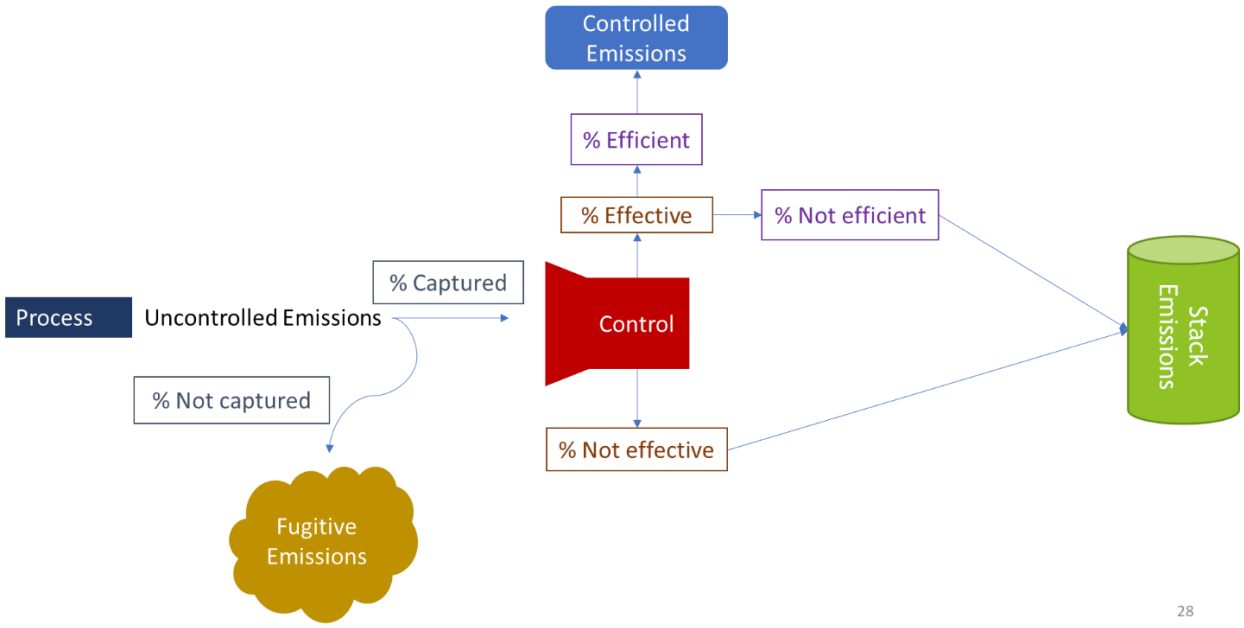
fact that controls typically are not 100 percent effective because of equipment downtime, upsets and decreases in control efficiencies. This could be estimated from the amount of time the control is operational, versus down for maintenance or repairs.

Percent Reduction Efficiency: The percent reduction achieved for the pollutant when all control measures are operating as designed. This could be obtained from the vendor.

Assume you have a control or control path for Particulate Matter with the following:

- capture efficiency (cap) is 90%,
- control effectiveness (effect) is 80%,
- control efficiency (effic) is 95%, and
- uncontrolled (unc) or pre-control emissions total 100 tons.

Figure A. 10. Flow of Uncontrolled Emissions



Then:

Total uncontrolled emissions = captured emissions + fugitive (non-captured emissions) = [unc x cap] + [unc x (1-cap)].

Captured emissions= emissions when control is not effective + emissions when control is effective = [unc x cap x (1-effect)] + [unc x cap x (effect)]

Emissions when control is effective = emissions reduced from control efficiency (controlled emissions) + emissions from control inefficiency = [unc x cap (effect) x effic] +[unc x cap x (effect) x (1-effic)]

Stack emissions = emissions when control is not effective + emissions from effective control inefficiency = [unc x cap x (1-effect)] + [unc x cap x effect x (1-effic)] = unc x cap [(1-effect) + effect x (1-effic)] = unc x cap (1-effect + effect x effic) = unc x cap x (1-effect x effic)

Fugitive emissions = 100 x (1-0.9) = 10

Stack emissions = 100 x 0.9 x (1-0.8 x 0.95) = 21.6

Controlled emissions = unc x cap x effect x effic = 100 x 0.9 x 0.8 x 0.95 = 68.4

Total emissions = Controlled emissions + Stack emissions + Fugitive emissions = 68.4 + 21.6 + 10 = 100

Appendix B Types of Fugitive Release Points

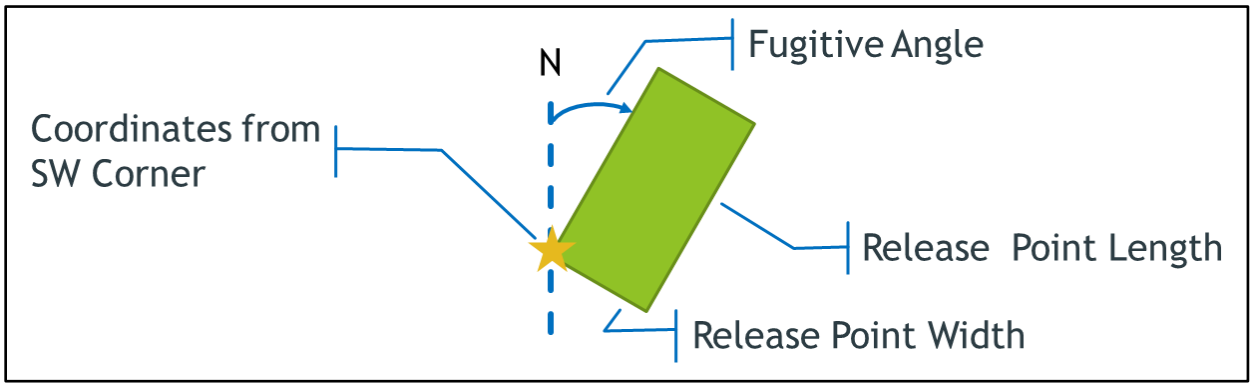
EPA is moving to have more detailed representations of fugitive emissions. While in the past data has only been entered using the "Fugitive – Area" format, there are now two new ways that you can enter your fugitive emissions data, in addition to the current form of representation. When you choose the format you will use, you will only need to enter data required by that format. Below are the three types of fugitives for the reporter to select.

1. Fugitive – Area

This is the current format for entering fugitive release point data. The reporter is asked to enter:

1. Fugitive "Area" Release Point
- Width
- Length
- Height
- Latitude from South West corner of the facility blueprint
- Longitude from South West corner Longitude
- Angle of Measure

Figure B. 1. Graphical Representation of Current "Area" Fugitive Release Points



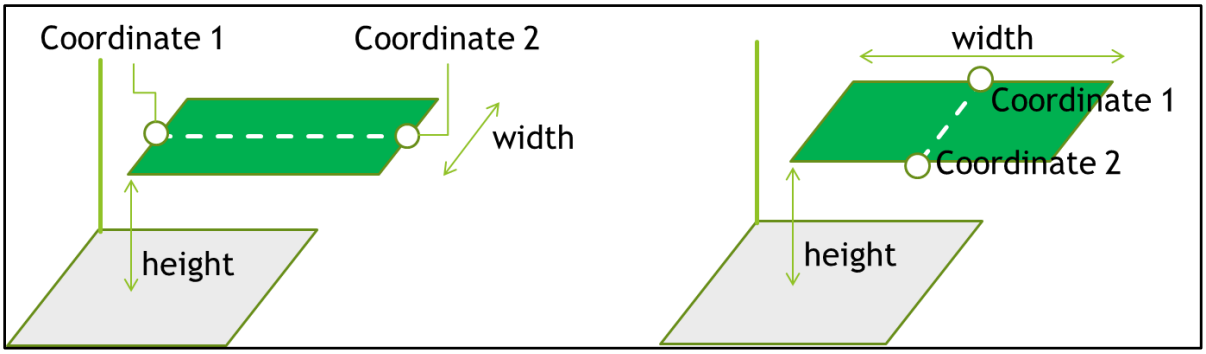
2. 2-Dimensional Fugitive Release Points

This is an updated version of a Fugitive "Area" representation as described above. Examples of 2-Dimensional release points include: a single elongated roof (horizontal) vent, opening, or window, typically greater than or equal to 10 square feet, or a wastewater holding pond for building fugitives, typically greater than 10 square feet. Data fields to be reported for this type of release point are:

- Height
- Width
- Two Sets of Coordinates (Latitude/Longitude of the Midpoints of Opposing Sides of Source). These should be within a default tolerance of 0.003, from the facility latitude and longitude. If you feel your fugitive coordinates should be allowed beyond the default tolerance, please contact your SLT as soon as possible.
    - Coordinate 1 Latitude
    - Coordinate 1 Longitude
    - Coordinate 2 Latitude

- Coordinate 2 Longitude

Figure B. 2. Graphical Representation of 2-Dimensional Fugitive Release Points

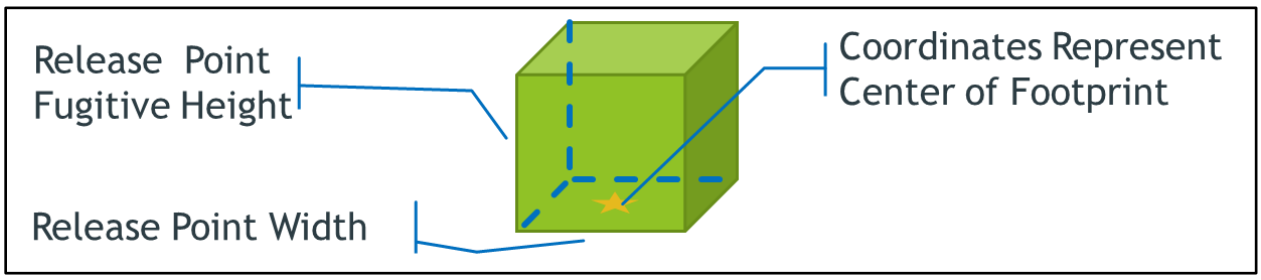


3. Graphical Representation of 3-Dimensional Fugitive Release Points

Unlike two-dimensional release points that emit only at a specific height, the emissions from three-dimensional release points are emitted across the entire height of the release point. Typically, a single vertical window should be reported as a "low flow vent" type of release point, unless there are multiple windows of that nature in which case the 3D fugitive type is more appropriate.

Examples of this type of release point include: an entire building with multiple release point on walls and/or roof where each release point could not be easily identified by using many low flow vent releases, and an outdoor storage pile. The assumption is that the base of the release point is square. While the shape of a storage pile, for example, is unlikely to be a shape with a square base, reporters should simply set the width and length so that the horizontal dimension represents or encompasses, as best as possible, the actual shape and set the height to represent the height span of the release. If the release is not a square shape, the length and width must be set as best as possible to represent the actual shape of the source, since width and length are required to be the same.

Figure B. 3. Graphical Representation of 3-Dimensional Fugitive Release Points



Data fields to be reported for this type of release point are:

- Height
- Width
- Latitude of the footprint center
- Longitude of the footprint center

Additional Considerations: Dimensions for height, width, length, as the case may be, are expected to be greater than 0. Also, latitude and longitude values are expected to be within a 0.003 tolerance of the

facility latitude and longitude coordinates. If you feel that the release point coordinates for your facility should be allowed beyond that default tolerance, please get in touch with your SLT as soon as possible.

Appendix C Additional Resources

C. 1 Heat Content for Energy Conversions

The following is a list of default heat content values for energy conversions for a variety of fuels. You should reach out to your SLT to determine the best approach for your specific fuel type and fuel use, as these default values may not be appropriate for you to use under your specific circumstances.

Table C. 1. Default Heat Values for Fuels

Fuel Name	Default High Heat Value	Units of Measure	Source
Anthracite	25.09	Million BTU/Short Ton	GHGRP
Anthracite Culm	11.513	Million BTU/Short Ton	EIA A5
Bagasse At 50% moisture	4000	BTU/Pound	AP42 AA
Bark At 50% moisture	4,500	BTU/Pound	AP42 AA
Bituminous Coal	24.93	Million BTU/Short Ton	GHGRP
Bituminous/Subbituminous Coal	17.25	Million BTU/Short Ton	GHGRP
Butane	0.103	Million BTU/Gallon	GHGRP
Coal	19.292	Million BTU/Short Ton	EIA A5
Coal Mixed (Commercial sector)	21.39	Million BTU/Short Ton	GHGRP
Coal Mixed (Industrial coking)	26.28	Million BTU/Short Ton	GHGRP
Coal Mixed (Industrial sector)	22.35	Million BTU/Short Ton	GHGRP
Coal Mixed (Electric Power sector)	19.73	Million BTU/Short Ton	GHGRP
Coke	24.8	Million BTU/Short Ton	EIA A5
Coke Mixed (Commercial sector)	21.39	Million BTU/Short Ton	GHGRP
Coke Mixed (Industrial coking)	26.28	Million BTU/Short Ton	GHGRP
Coke Mixed (Industrial sector)	22.35	Million BTU/Short Ton	GHGRP
Coke Mixed (Electric Power sector)	19.73	Million BTU/Short Ton	GHGRP
Coke Petroleum Coke	30	Million BTU/Short Ton	GHGRP
Coke Oven Gas	590	BTU/Dry Standard Cubic Feet	AP42 AA
Crude Oil	0.138	Million BTU/Gallon	GHGRP
Digester Gas	0.619	Million Btu/Thousand Cubic Feet	EIA RNW
Distillate Oil Average	5.771	Million BTU/Barrel	EIA A3
Distillate Oil 15ppm sulfur and under	5.7	Million BTU/Barrel	EIA A1
Distillate Oil > 15 ppm to 500 ppm sulfur	5.817	Million BTU/Barrel	EIA A1
Distillate Oil >500 ppm sulfur	5.825	Million BTU/Barrel	EIA A1

Fuel Name	Default High Heat Value	Units of Measure	Source
Distillate Oil Diesel	137381	Btu/Gallon	EIA CC
Distillate Oil No. 1	0.139	Million BTU/Gallon	GHGRP
Distillate Oil No. 2	0.138	Million BTU/Gallon	GHGRP
Distillate Oil No. 4	0.146	Million BTU/Gallon	GHGRP
Gas Blast Furnace Gas	0.092×10^{-3}	Million BTU/Dry Standard Cubic Feet	GHGRP
Gas Coke Oven Gas	0.599×10^{-3}	Million BTU/Dry Standard Cubic Feet	GHGRP
Gas Fuel Gas 4	1.388×10^{-3}	Million BTU/Dry Standard Cubic Feet	GHGRP
Gas Other Biomass Gases	0.655×10^{-3}	Million BTU/Dry Standard Cubic Feet	GHGRP
Gasoline	5.222	Million BTU/Barrel	EIA A1
Gasoline Natural Gasoline	0.11	Million BTU/Gallon	GHGRP
Gasoline Motor Gasoline	0.125	Million BTU/Gallon	GHGRP
Gasoline Aviation Gasoline	0.12	Million BTU/Gallon	GHGRP
Kerosene-Type Jet Fuel	0.135	Million BTU/Gallon	GHGRP
Kerosene-Type Jet Fuel	5.67	Million BTU/Barrel	EIA A1
Special Naphtha	0.125	Million BTU/Gallon	GHGRP
Naphtha Type Jet Fuel	5.355	Million BTU/Gallon	EIA A1
Kerosene	0.135	Million BTU/Gallon	GHGRP
Landfill Gas	0.485×10^{-3}	Million BTU/Dry Standard Cubic Feet	GHGRP
Lignite	14.21	Million BTU/Short Ton	GHGRP
Liquid Waste Rendered Animal Fat	0.125	Million BTU/Gallon	GHGRP
Liquid Waste Vegetable Oil	0.12	Million BTU/Gallon	GHGRP
Liquid Waste Ethanol	0.084	Million BTU/Gallon	GHGRP
Liquid Waste Biodiesel (100%)	0.128	Million BTU/Gallon	GHGRP
Liquid Waste Black Liquor	11.758	Million Btu/Short Ton	EIA RNW
Liquid Waste Waste Alcohol	3.800	Million Btu/Barrel	EIA RNW
Liquified Petroleum Gas (LPG)	0.092	Million BTU/Gallon	GHGRP
Natural Gas (Weighted U.S. Average)	1.026×10^{-3}	Million BTU/Dry Standard Cubic Feet	GHGRP
Natural Gas Methane	0.841	Million Btu/Thousand Cubic Feet	EIA RNW
Propane Gas	2.516×10^{-3}	Million BTU/Dry Standard Cubic Feet	GHGRP
Natural Gas Liquids Ethane 1	0.068	Million BTU/Gallon	GHGRP
Natural Gas Liquids Isobutane 1	0.099	Million BTU/Gallon	GHGRP
Natural Gas Liquids Natural Gasoline	0.11	Million BTU/Gallon	
Oil Used Oil	0.138	Million BTU/Gallon	GHGRP
Oil Unfinished Oils	0.139	Million BTU/Gallon	GHGRP

Fuel Name	Default High Heat Value	Units of Measure	Source
Oil Heavy Gas Oils	0.148	Million BTU/Gallon	GHGRP
Oil Lubricants	0.144	Million BTU/Gallon	GHGRP
Oil Asphalt and Road Oil	0.158	Million BTU/Gallon	GHGRP
Petroleum Liquid Other Oil (>401 deg F)	0.139	Million BTU/Gallon	GHGRP
Petroleum Liquid Pentanes Plus	0.11	Million BTU/Gallon	GHGRP
Petroleum Liquid Petrochemical Feedstocks	0.125	Million BTU/Gallon	GHGRP
Petroleum Liquid Butylene 1	0.105	Million BTU/Gallon	GHGRP
Petroleum Liquid Ethylene 2	0.058	Million BTU/Gallon	GHGRP
Petroleum Liquid Isobutylene 1	0.103	Million BTU/Gallon	GHGRP
Petroleum Liquid Still Gas	0.143	Million BTU/Gallon	GHGRP
Naphtha (<401 deg F)	0.125	Million BTU/Gallon	GHGRP
Propylene	0.091	Million BTU/Gallon	GHGRP
Blast Furnace Gas	0.092×10^{-3}	Million BTU/Dry Standard Cubic Feet	GHGRP
Process Gas	0.599×10^{-3}	Million BTU/Dry Standard Cubic Feet	GHGRP
Landfill Gas	0.485×10^{-3}	Million BTU/Dry Standard Cubic Feet	GHGRP
Methane	0.841	Million BTU/Thousand Cubic Feet	EIA RNW
Propane	0.091	Million BTU/Gallon	GHGRP
Residual Oil No. 5	0.14	Million BTU/Gallon	GHGRP
Residual Oil No. 6	0.15	Million BTU/Gallon	GHGRP
Sludge Waste	7.512	Million BTU/Short Ton	EIA RNW
Sludge Wood	10.071	Million BTU/Short Ton	EIA RNW
Solid Waste Municipal Solid Waste	9.95 3	Million BTU/Short Ton	GHGRP
Solid Waste Agricultural Byproducts	8.25	Million BTU/Short Ton	GHGRP
Solid Waste Peat	8	Million BTU/Short Ton	GHGRP
Solid Waste Solid Byproducts	10.39	Million BTU/Short Ton	GHGRP
Solid Waste Tires	28	Million BTU/Short Ton	GHGRP
Solid Waste Plastics	38	Million BTU/Short Ton	GHGRP
Solid Waste Agricultural Byproducts	8.248	Million BTU/Short Ton	EIA RNW
Solid Waste MSW Biogenic	9.696	Million BTU/Short Ton	EIA RNW
Solid Waste Paper Pellets	13.029	Million BTU/Short Ton	EIA RNW
Solid Waste Railroad Ties	12.618	Million BTU/Short Ton	EIA RNW
Solid Waste Solid Byproducts	25.830	Million BTU/Short Ton	EIA RNW
Solid Waste Spent Sulfite Liquor	12.720	Million BTU/Short Ton	EIA RNW
Solid Waste Utility Poles	12.500	Million BTU/Short Ton	EIA RNW
Subbituminous	17.25	Million BTU/Short Ton	GHGRP
Wood and Wood Residuals (dry basis)	17.48	Million BTU/Short Ton	GHGRP

Energy Conversion Sources:

- EIA CC: https://www.eia.gov/energyexplained/units-and-calculators/energy-conversion-calculators.php
- EIA A1-A5: https://www.eia.gov/totalenergy/data/monthly/#appendices
- EIA RNW: https://www.eia.gov/renewable/annual/trends/pdf/table1_10.pdf
- GHGRP: Table C-1 to Subpart C of part 98'; https://www.epa.gov/sites/production/files/2015-06/documents/ghg-mrr-finalrule.pdf
- AP42 AA: https://www3.epa.gov/ttnchie1/ap42/appendix/appa.pdf

C. 2 Unit Conversions in the CAER System

The following is a list of simple conversions that the CAER system can perform on units of measure to the level of detail (decimal values) that the form is performing them:

Table C. 2. List of Simple Unit of Measure Conversions in CAERS

Type of conversion:	Amount to convert from:	Units to convert from:	Amount to convert to (application conversion):	Units to convert to:
Area	1	ACRES	43560	SQUARE FEET
Area	1	SQUARE YARDS	9	SQUARE FEET
Area	1	ACRES	4840	SQUARE YARDS
Length	1	MILES	5280	FEET
Mass	1	KILOGRAMS	1000	GRAMS
Mass	1	POUNDS	0.45359237	KILOGRAMS
Mass	1	GRAMS	0.000001	MEGAGRAMS
Mass	1	KILOGRAMS	.001	MEGAGRAMS
Mass	1	POUNDS	.00045359237	MEGAGRAMS
Mass	1	GRAMS	1000000	MICROGRAMS
Mass	1	KILOGRAMS	1000000000	MICROGRAMS
Mass	1	POUNDS	453592370	MICROGRAMS
Mass	1	MEGAGRAMS	1E+12	MICROGRAMS
Mass	1	MILLIGRAMS	1000	MICROGRAMS
Mass	1	NANOGRAMS	0.001	MICROGRAMS
Mass	1	TONS	907,184,740,000	MICROGRAMS
Mass	1	GRAMS	1000	MILLIGRAMS
Mass	1	KILOGRAMS	1000000	MILLIGRAMS
Mass	1	POUNDS	453592.37	MILLIGRAMS
Mass	1	MEGAGRAMS	1000000000	MILLIGRAMS
Mass	1	GRAMS	1000000000	NANOGRAMS
Mass	1	KILOGRAMS	1E+12	NANOGRAMS
Mass	1	POUNDS	453592370000	NANOGRAMS
Mass	1	MEGAGRAMS	1E+15	NANOGRAMS
Mass	1	MILLIGRAMS	1000000	NANOGRAMS

Type of conversion:	Amount to convert from:	Units to convert from:	Amount to convert to (application conversion):	Units to convert to:
Mass	1	GRAMS	.0022046226218488	POUNDS
Mass	1	TONS	2000	POUNDS
Mass	1	GRAMS	.000001102311310924388	TONS
Mass	1	KILOGRAMS	.0011023113109244	TONS
Mass	1	MEGAGRAMS	1.102311310924388	TONS
Mass	1	MILLIGRAMS	.000000001102311310924388	TONS
Mass	1	NANOGRAMS	.000000000000001102311310924388	TONS
Volume	1	DRY STANDARD CUBIC FEET	.028316846592	DRY STANDARD CUBIC METERS
Volume	1	GALLONS	.00378541178	DRY STANDARD CUBIC METERS
Volume	1	DRY STANDARD CUBIC FEET	.037037037037037	CUBIC YARDS
Volume	1	GALLONS	.004951131682011	CUBIC YARDS
Volume	1	CUBIC METERS	1.307950619314392	CUBIC YARDS
Volume	1	DRY STANDARD CUBIC FEET	7.480519488424055	GALLONS

C. 3 Volume Conversions for Natural Gas

Volumetric conversions of natural gas depend on the physical conditions of the natural gas as follows.

To convert the volume of natural gas below 60 psia:

Under these conditions the Ideal Gas Law can be applied. Subscript 1 indicates gas at one set of conditions of absolute temperature (T) in degrees Rankine (˚R), and absolute pressure (P) in pounds per square inch absolute (psia), subscript 2 indicates the same gas at a different set of conditions for the gas.

V1 = T1/P1 (P2 V2/T2), to get V1 in cubic feet (cf).

A dry standard cubic foot (scf) of gas is defined as a cubic foot at a temperature of 21 °C (70 °F or 530 ˚R) and a pressure of 101.325 kilopascals [kPa] (14.696 psia), except for liquefied petroleum gas.

Therefore, if converting from a gas with volume V2 at standard cubic feet of gas to V1, the formula to apply would be:

V1=T1/P1 (14.696 x V2)/530

To convert the volume of natural gas above 60 psia:

Natural gas does not behave like an ideal gas in this case. The formula requires a compressibility factor (Z).

V1=V2(Z1 T1 P2)/(Z2 T2 P1), to get V1 in cf,

where Z1/Z2 is the compressibility ratio.

For example: If converting from a gas with volume V2 at 60 ˚F (or 520 ˚R) and 14.73 psia to another volume, the formula would be:

V1=V2(Z1 x T1 x 14.73)/(Z2 x 520 x P1),

Sources:

Paul R. Ludtke, Natural Gas Handbook, National Bureau of Standards, U.S. Department of Commerce, Boulder, CO, August 1986. p 14.

NIST, Uniform Laws and Regulations in the Areas of Legal Metrology and Engine Fuel Quality (2017 ed.). National Institute of Standards and Technology (NIST). November 2016. p. 120. doi:10.6028/NIST.HB.130-2017. Retrieved 21 November 2017.

C. 4 State Emission Factor Compendium

If your SLT Authority allows it, you may use emission factors available from other states. To browse the Emission Factor Compendium, go to the CAER website and look under the "Development of a State-Local-Tribal Emission Factors Compendium". You will find three spreadsheets (from Minnesota, Michigan and South Carolina), that may contain an emission factor your SLT deems appropriate for you to use.

The current version of CAERS (V3) will be upgraded later in 2022 to allow facility reporters to select an SLT factor from the compendium when selecting "SLT Emission Factor" from the calculation method list when estimating emissions.

Appendix D CAERS Submission Checklist

While CAERS is equipped with a number of QA checks designed to prevent you from sending incorrect data to EPA and your SLT, there are still some checks that CAERS cannot run. It is in your best interest to check this list to remove as many issues as possible that may delay your submission, and/or cause your report to be rejected by EPA's Emissions Inventory System if it finds additional errors. EPA reserves the right to send a report back to your SLT even if all these steps have been taken, if additional issues that are not listed here, appear in your report.

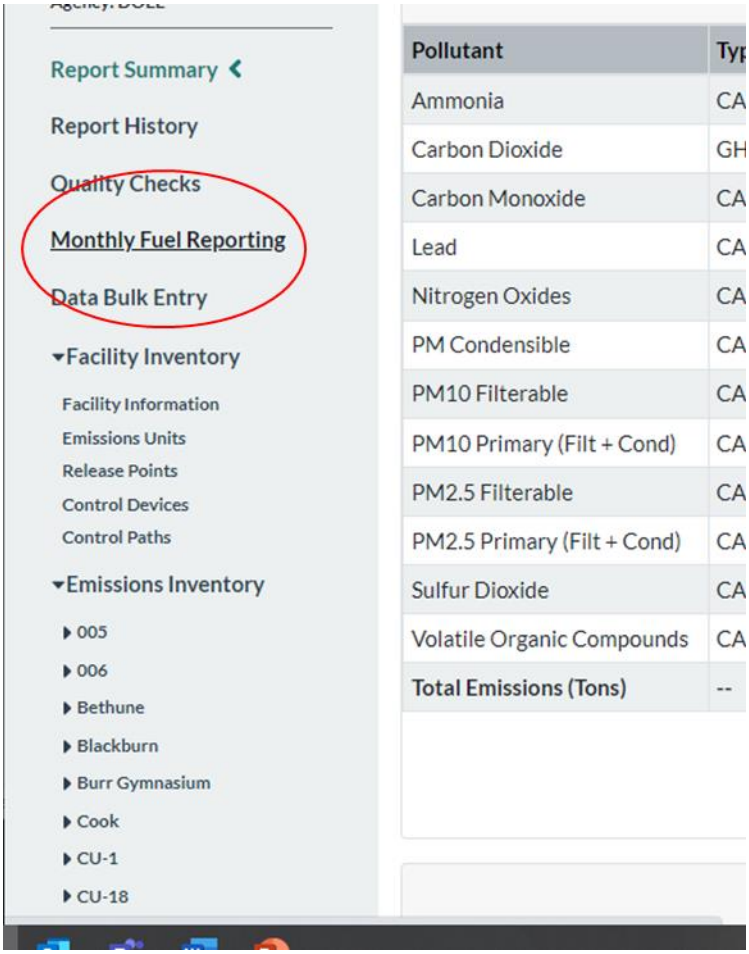
Before Entering CAERS	
	Make sure you're registered and have an account with CDX as preparer or certifier.
	Make sure you remember your password or have allowed time for password changes every 90 days.
Before Starting a Report or Downloading the Bulk Upload Template	
	Your facility is listed in "My Facilities" page, or you have requested access to your facility.
	You have gone into the User Interface and have checked that your facility information is correct before certifying the report, and have reached out to the SLT to help with corrections only the SLT can make.
	You have run the QA checks in the User Interface to see any new QA checks that need to be addressed in your report.
	You have made any edits or corrections in the UI that you would prefer to do there, to have them appear in your Bulk Upload template.
	If your facility did not report last year, your operating status is set to "Operating", and that status year is not in conflict with a previously reported status year. E.g. you have not reported your facility as "TS" in 2019, but are now reporting it as "Operating" also in 2019.
While Creating a Report	
	Bulk Upload Template
	You have not deleted entire rows in the template.
	You have not replaced entire rows in the template.
	You have not attempted to enter component IDs in columns where you must select them from the drop-down menu.
	All Reporting Methods
	You have not deleted a component (e.g. unit, control) that existed in a previous report. You must report it or mark it as "PS" or "TS".
	You have not simply re-labeled a component, as you must keep the original ID, or mark as "PS" a component you want to re-label, then you must recreate it.
	You have not created a brand new component and then marked it as "TS" or "PS". Any new components must be operating.
	For any components you have marked "PS" or "TS" you have also provided an "operating status year" that is greater than the last year you reported the component as operating. E.g. you cannot report that an item was operating in 2020 in a previous report, and then say it was "PS" in this year's (2020) report.
	For any process you have marked as "PS" or "TS" you have also provided an operating status year that is consistent with the operating status of its unit. E.g. you cannot have an operating process in 2019 if the unit was "TS" in 2019 unless it is a landfill.
	You have not marked as "PS" or "TS" a component for the same year when that component operated and had emissions and is reporting emissions. E.g. if a unit operated only 3 days in a year, it is still considered "Operating" for that year.

	You have put all controls in their respective paths, and have no empty paths.
	You have cleared all critical quality checks.

Appendix E Monthly Reporting for DOEE Facilities

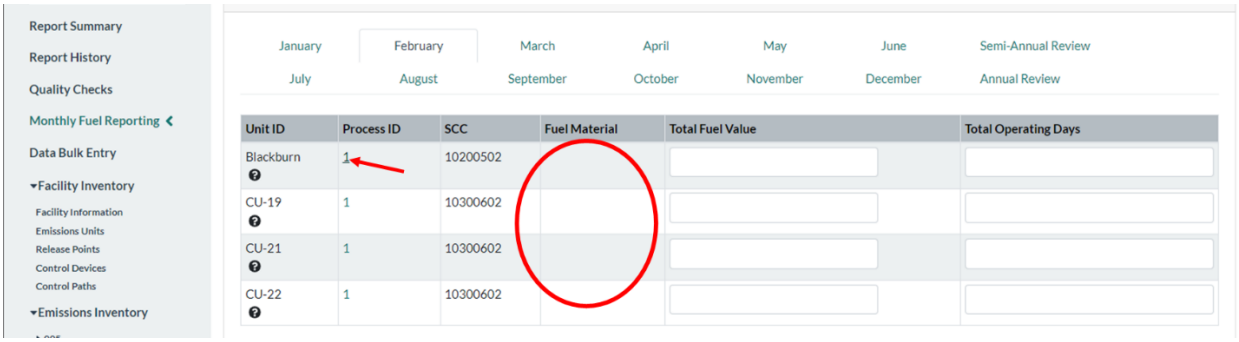
This section only applies to facilities reporting to DOEE as their SLT. Starting 2022, facility reporters will be able to enter fuel data on a monthly basis. To do so, you should look for the "Monthly Fuel Reporting" link on the left hand side of your screen (Figure E. 1).

Figure E. 1. Monthly Fuel Reporting Link for DOEE Facilities



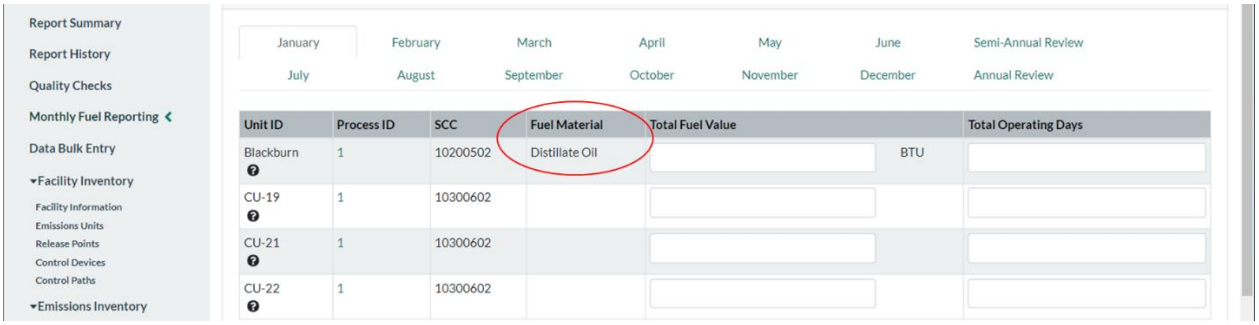
When you click on that link, you will be taken to a separate set of screens where you can see, at the top, a tab for each month of the year (Figure E. 2). To report fuel for a specific process, that process must already have been created in CAERS. If you have reported to DOEE in previous years, the list of previously reported processes will be prepopulated for you. To this list you should add any data that may be missing for new processes that operated that inventory year. You should not attempt to start reporting monthly fuel for the inventory year 2022 until after you have completed your 2021 inventory year report, as processes cannot be created for a future year in CAERS at this time.

Figure E. 2. Monthly Fuel Reporting Screens for DOEE Facilities



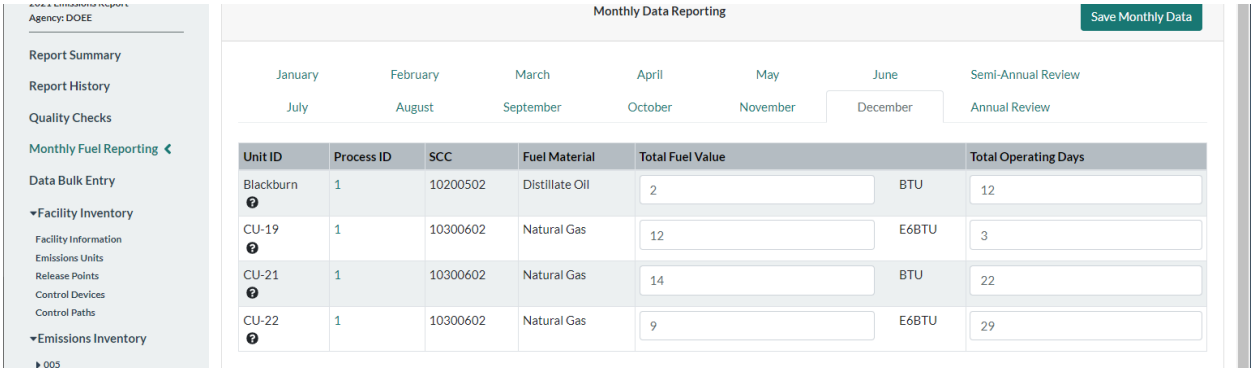
From Figure E. 2, we can see that in this example, the facility has no fuel material reported. The reporter would click on the process ID to be taken to that process page (refer to section 4.3.2) and enter the fuel material there. Then the fuel material will appear on the monthly reporting screen (see Figure E. 3). Note that many SCCs have a single fuel allowed to be reported. While future versions of CAERS may prepopulate this fuel for you, as of now, the reporter must enter it.

Figure E. 3. Monthly Fuel Reporting with Fuel Material Listed



Enter amount of fuel used in the "Total Fuel Value" column, as well as the total operating days that month (Figure E. 4). Click "Save Monthly Data".

Figure E. 4. Example of a Monthly Fuel Report



Once you have entered data from January to June for the year, you will be able to submit your Semi-Annual fuel report. Note that for 2021 inventory year, you will not be submitting that report, but instead, will be entering monthly data for 2021. Please note that if the process operated at all during the year, then it is considered as "Operating". Any process that did not operate at all during the

inventory year can be marked as “Permanently” or “Temporarily” shut down, as the case may be. However, this should be done at the beginning of reporting (before certifying) or so long as you have reported zero fuel use throughout the year. Once you have submitted a Semi-Annual Report, and/or once you have reported any emissions for a process, you will not be able to mark that process as shut down nor edit previous process or fuel data entered unless the SLT has pushed back your report. If you find an error in your semiannual submission after you have certified and submitted it, you should reach out to your SLT to have them reject your report so you may edit it.