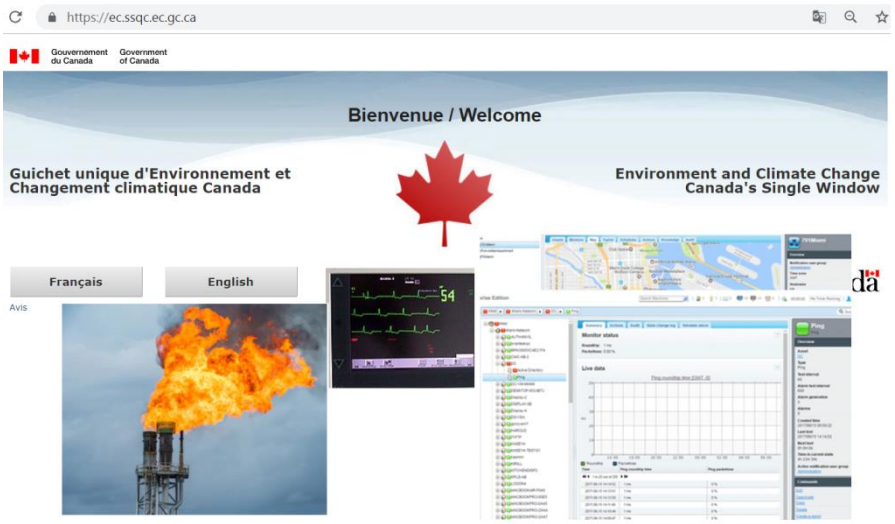
Illustrated User Guidebook

Understanding BC's GHG Reporting

Through Single Window Reporting System



Climate Action Secretariat

Ministry of Environment and Climate Change Strategy

The Government of British Columbia

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Highlights:

Illustrated User Guidebook: Understanding BC GHG Reporting Through Single Window Reporting System

- *Describes industrial GHG emissions reporting to the provincial Government of British Columbia as required by the Greenhouse Gas Emission Reporting Regulation (the Regulation) under the authority of Greenhouse Gas Industrial Reporting and Control Act (GGIRCA), through the Single Window Reporting System (SWRS).*
- *Details how to create an account in the Single Window Information Manager (SWIM), a component module of the SWRS, including how to add the organization and facility's administrative information etc.*
- *Details how to enter GHG emissions from each individual emission source from an activity listed in Table 1 or Table 2 in the Regulation.*

[***Disclaimer***]

This Guidebook is intended to assist operators of industrial operations, emission offset project proponents, and persons involved in the validation or verification of emission reports, understand their obligations, roles and rights under the Greenhouse Gas Industrial Reporting and Control Act (GGIRCA). This Guidebook does not constitute legal advice, is not legally binding and does not alter any obligations or requirements imposed under the Greenhouse Gas Industrial Reporting and Control Act (GGIRCA). Users are responsible for ensuring compliance with GGIRCA and are cautioned to carefully review GGIRCA and regulations made under it, including the Greenhouse Gas Emissions Reporting Regulation, Greenhouse Gas Emission Control Regulation and Greenhouse Gas Emission Administrative Penalties and Appeals Regulation to determine their rights and obligations.

Preface

This book, *Illustrated User Guidebook: Understanding BC GHG Reporting Through Single Window Reporting System*, focuses on GHG Reporting through the Single Window Reporting System (SWRS). It describes how to create an account in the system, how to add organization and facility administrative information and how to enter GHG emissions, how to submit a report and verification statement etc. It is intended to provide guidance to enhance the reporting quality and efficiency. It can also be a valuable tool especially for those who are new to a reporting role.

Additionally, it is worthy of noting that, as a result of the latest updates to the BC GHG module, some arrangements of Windows may differ from those illustrated herein, but the functionalities should remain the same. If there are any problems or concerns, please contact us.

Comments, suggestions or ideas etc. for further improvement can be directed to ghgregulator@gov.bc.ca.

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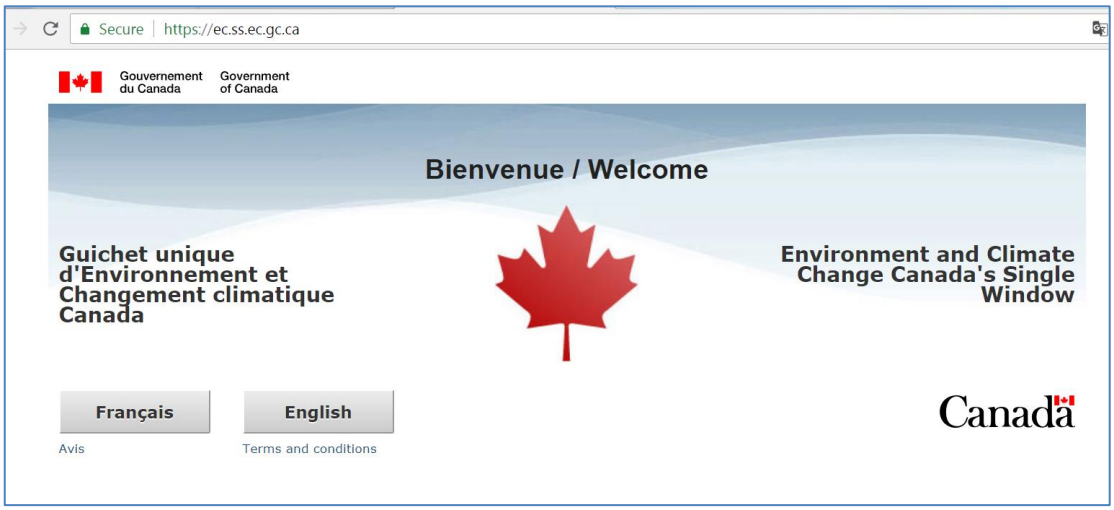
Through Single Window Reporting System



Access to the Single Window Reporting System

Website:

https://ec.ss.ec.gc.ca

CONTENTS

Terminology, Glossary and Acronyms

Attributable Emissions – The emissions of greenhouse gases as listed in column 4 Greenhouse Gas Type released from the Source Type in column 3, opposite Greenhouse Gas Type, and further opposite the applicable activity listed in column 2 of either Table 1 or 2 in Schedule A of the Greenhouse Gas Emission Reporting Regulation (GGERR). Attributable emissions include the carbon dioxide released from biomass sources listed in Schedule C.

BC – British Columbia

BC GHG – A GHG reporting module for BC within the Single Window Reporting System (SWRS)

Biomass – Non-fossilized plants or parts of plants, animal waste or any product made of either of these and includes, without limitation, biomass derived fuels, wood and wood products, agricultural residues and wastes, biologically derived organic matter from municipal and industrial wastes, landfill gas, black liquor, kraft pulp fibres and sludge gas etc.

Biomass in Schedule C –the specific biomass as cited in Schedule C of the BC's Greenhouse Gas Emission Reporting Regulation (GHGERR)

CEMS – Continuous Emissions Monitoring System, a system or an installation that is used to monitor or measure continuously emissions concentrations and/or rates including gases and particulate matters from a discharge point such as stacks from combustion or other industrial processes

$CO2_{bio}$ – carbon dioxide from any biomass

$CO2_{bio\text{-}C}$ – carbon dioxide from biomass, which is specified in Schedule C in the GGERR

$CO2_{bio\text{-}nC}$ – carbon dioxide from biomass, which is not specified in Schedule C in the GGERR

$CO2_{nonbio}$ – conventional carbon dioxide, may come from fossil fuels, may come from industrial process as a result of chemical reaction (not involving biomass) or decomposition of minerals

CO_2e – carbon dioxide equivalent, an equivalent amount of carbon dioxide from the amount of a greenhouse gas multiplied by that greenhouse gas' global warming potential (GWP).

ECCC – Environment and Climate Change Canada

EIO – Electricity Import Operation, an industrial operation that imports electricity generated at an electricity generating facility located outside British Columbia into British Columbia to the first point of delivery in British Columbia. The reporting threshold for EIO is zero ("0") tonne of CO_2e.

Energy Production – An industrial process, usually combusting fuels, to convert fuels into energies. Two categorized processes exist: "**useful energy**" (heat, hot water and electricity) and "**non-useful energy**", i.e. energy produced and discharged into the atmosphere without any use. For example, natural gas used to start burning of municipal waste just for the purpose of reducing waste volume is

used for non-useful energy production. Nuclear electricity, solar/wind energy etc. are also considered useful energy production, but not included here.

GGIRCA – BC's Greenhouse Gas Industrial Reporting and Control Act

GHG – Greenhouse gases. For the purpose of this document, they are referenced in BC's GGERR as CO_2, CH_4, N_2O, SF_6, HFCs and PFCs. Water vapor in atmosphere is an important greenhouse gas, but it is usually ignored.

GHGERR – BC's Greenhouse Gas Emission Reporting Regulation, or the Regulation here.

GWP – **Global Warming Potential**, an index used to compare the relative radiative forcing of different gases without directly calculating the changes in atmospheric concentrations. GWPs are calculated as the ratio of the radiative forcing that would result from the emission of one kilogram of a greenhouse gas to that from the emission of one kilogram of carbon dioxide over a fixed period of time, such as 100 years [8].

Linear Facilities Operation -- referred to as LFO, an industrial operation that carries out one or more activities listed in column 2 of Table 2 in Schedule A of the GGERR at one or more facilities that are controlled and directed by the same operator(s). Activities listed in column 2 of Table 1 of the GGERR may also be carried out in such a facility within the operation. A Linear Facilities Operation is required by law to submit **two or more** of the following four (4) report types, missing anyone will constitute a non-compliance status:

Report Type	Description
LFO	An emission report for the entire Linear Facilities Operation. Emission report verification is mandatory when the verification threshold is met.
IF_a	An emission report for an individual facility within the Linear Facilities Operation whose emission is equal to or greater than 10,000 t CO_2e
IF_b	An emission report for an individual facility within the Linear Facilities Operation whose emission is equal to or greater than 1,000, but less than 10,000 t CO_2e
L_c	An emission report for an aggregated group of individual facilities within the Linear Facilities Operation with each individual's emission is less than 1,000 t CO_2e

Methane – CH_4, a strong greenhouse gas.

Mobile Equipment – Machinery used for the onsite transportation or movement of substances, materials or products, including but not limited to tractors, mobile cranes, log transfer equipment, mining machinery, graders, backhoes and bulldozers, but does not include on-road vehicles, aircraft or marine vessels.

> ***[Note]***: in the oil and gas industry, drilling rigs etc. are not considered as mobile equipment; instead they are treated as ordinary combustion equipment. Reporting emissions from mobile equipment is not required for linear facilities operation under the current GGERR

NAICS code -- North American Industrial Classification System (NAICS). BC and other Canadian jurisdictions have adopted the system, using its 6-digit code under the Canadian version published by Statistics Canada to describe an activity(s) carried out in an industrial establishment. For BC's GHG reporting, 2017 Canadian version is applied to 2017 reporting cycle and onwards, while the 2012 version can still be used for previous years' reporting.

N_2O – Nitrous oxide, one of the nitrogen's oxides, usually referred to as laughing gas, also a greenhouse gas with greater global warming potential

On-road Vehicle -- A motor vehicle that (a) can exceed a speed of 40 km per hour on a level paved surface, and (b) has features customarily associated with safe and practical highway use such as a reverse gear, unless the vehicle is a motorcycle, a differential and safety features required by federal or provincial laws, but does not include a vehicle that exhibits features that render its use on a highway unsafe, impractical or highly unlikely, such as tracked road contact means or inordinate size.

RATA -- relative accuracy test audit.

Reporting-only Emissions -- Carbon dioxide from biomass listed in Schedule C and emissions from source types listed in items 2 and 25 of Table 1 of Schedule A of the GGERR. Reporting-only emissions are not counted into the calculation towards comparison to the verification threshold of 25,000 t CO_2e.

Reporting Operation -- An industrial operation, being either a single facility operation or a linear facilities operation, is a reporting operation for a reporting period if, during the reporting period, the industrial operation has a total amount of attributable emissions greater than or equal to 10,000 tonnes of carbon dioxide equivalent, not including carbon dioxide released from biomass listed in Schedule C (i.e. total reportable emissions). An electricity import operation is a reporting operation.

A reporting operation continues to fulfill its reporting obligation even when its emissions less than 10,000 t CO_2e, when conditions set out in section 9 of the GGERR are met.

Reporting Threshold – Total amount of attributable emissions of 10,000 t CO_2e, not including carbon dioxide from biomass in Schedule C.

Single Facility Operation -- Referred to as SFO, an industrial operation that involves one or more activities listed in column 2 of Table 1 of Schedule A of the GGERR that are carried out in a single facility, located on one site or on conjunctive sites

Simple Report – A simplified report format, where only the total amounts of attributable emissions are entered. Reporting operations with total emissions less than 10,000 tCO_2e and without verification obligations can choose to submit a report in the format of Simple Report. Simple Report only applies to SFO or LFO report. **No reporting operation with verification obligation can submit a report in the format of Simple Report**.

Standard Report – A regular report format with a set of prescribed procedures to enter various datasets. All reporting operations with total (attributable) emissions exceeding the reporting threshold and those even with emissions less than 10,000 t CO_2e but with report verification obligations must report their emissions in the format of the Standard Report.

SWIM – Single Window Information Manager, a module within the Single Window Reporting System (SWRS) to manage the administrative information of organizations, facilities and contacts etc.

SWRS – Single Window Reporting System, usually referred to as Single Window or simply the System, which hosts a number of reporting programs such as greenhouse gas emission reporting programs for various jurisdictions (i.e. AB, BC, NB, ON and ECCC), Chemical Management Plan program, …. Single Window Reporting System is hosted and maintained by ECCC at its website **https://ec.ss.ec.gc.ca** through partnering associated jurisdictions.

Standard Conditions – For GHG reporting purpose, the standard conditions refer to the pressure of 1 atm (i.e. 101.325 KPa) and temperature of 15˚C (i.e. 288.15 K). Standard conditions are frequently simplified as STP (Standard Temperature and Pressure).

Total Attributable Emissions – The sum of all attributable emissions from all source types from associated activities in Table 1 or 2 in Schedule A of the GGERR.

Total Reportable Emissions – The sum of all attributable emissions from all source types from associated activities in Table 1 or 2 in Schedule A of the GGERR, but not including carbon dioxide from biomass cited in Schedule C of the GGERR. Total reportable emissions is used to determine if an industrial operation is a reporting operation, against the reporting threshold.

Total Verifiable Emissions – The total attributable emissions less the amount of reporting-only emissions. Total verifiable emissions is only used to compare with the verification threshold.

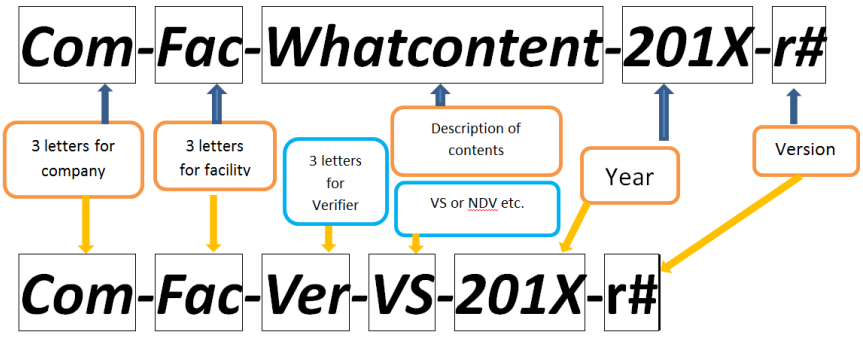
Verification Threshold – A threshold for emissions to be verified by a third party, of 25,000 tCO_2e, not including reporting-only emissions under the current GGERR. For facilities participating in the CleanBC Industrial Incentive Program the threshold is 10,000 tCO_2e.

Verifier – an individual employed or contracted by a verification body, or by a subcontractor of a verification body, for the purpose of conducting a verification of greenhouse gas emission report independently, without "threat to independence", and thus it is also called "Third-party Verifier"

Verification body -- A person is qualified as a verification body if the person is accredited as a verification body by, and is in good standing with, a member of the International Accreditation Forum, in accordance with ISO 14065 through a program developed under ISO 17011. However, a person is not qualified to act as a verification body in relation to an emission report or a compliance report of an industrial operation if the person has performed verifications of emission reports or compliance reports for the industrial operation in 6 of the 9 most recent calendar years.

File Naming Convention

When attaching any files to a report, the file names should adhere to the following file naming convention to keep the reported information concise and manageable.



For example, Action Progressive Energy Inc.'s Victoria facility has two files (Process Map (2nd version) and a verification statement by Responsible Verification Ltd. (1st version) to be attached to the emission report. Taking three letters for company, facility and verifier, their expected file name can be as below, respectively:

APE-Vic-ProcessMap-2018-r2

APE-Vic-RVL-VS-2018-r1

Additionally, any scanned files must be machine readable and searchable.

[Note]

Due to resource and time limitations, the files used to attach to a report as illustrated example in this guidebook do not always adhere to the File Naming Convention. This doesn't mean that the requirement for adhering to the File Naming Convention is invalid.

Determining the number of reports required for linear facilities operations

Facility	# of Facilities	Reports Required
IF_a or IF_b or L_c	only 1	IF_a or IF_b or L_c } + LFO
IF_a and/or IF_b and/or L_c	More than 1 in total	IF_a and/or IF_b and/or L_c } + LFO

Summary of Legal Requirements

Record Retention (EIO, LFO and SFO)

Record Retention Period	Applies to	Record Contents
≥ 7 years	All reporting operation facilities; Reporting and Verification	• Data management system, • Collected data, • Calibration records, • Lab test results and associate quantification methods, • Raw materials and products purchase and sale records, • Fuel receiving and usage records, etc.

Reporting Obligations (LFO and SFO)

Obligation	Activities	Threshold (tCO2e)	Action
Reporting	**Table 1 or 2** in Schedule 1 **(SFO, LFO)**	≥ 10,000 Excluding biomass CO_2	• Reporting operation; • Annual reporting
		< 10,000 Excluding biomass CO_2	• Reporting operation; • Obligation continues for 3 cons years after GHGs < 10,000 t CO_2e or before ceasing to be a reporting operation, whichever comes first

Verification Obligations (LFO and SFO)

Obligation	Activities	Threshold (tCO2e)	Action
Verification	**Table 1 or 2** in Schedule 1 **(SFO, LFO)**	E ≥ 25,000 Not including Reporting-only GHGs (Verifiable emissions)	• Annual verification obligation • Option: - Delayed Verification for 2 cons years. • Pre-requisites : - Meet S.28(3) requirements
		E <25,000 Not including Reporting-only GHGs (Verifiable emissions)	• Continue for 3 cons years after the verifiable GHGs < 25,000 tCO_2e or before ceasing to be a reporting operation, whichever comes first • Option: - Delayed Verification for 2 cons years. • Pre-requisites : - Meet S.28(3) requirements

Obligations for Electricity Import Operations

Obligation	Activity	Threshold (tCO2e)	Action
Reporting & Verification	Electricity Import (EIO)	E ≥ 0	**Annual obligation** for Reporting & Verification • **Option:** - Delayed Verification for 2 cons years. • **Pre-requisites** : - Meet S.28(3) requirements

*[**Note**]:*

Omitting to report the mandatory additional reportable information will constitute a non-compliance status, and entering "0" (zero), while actually being something else, will be of misleading or misrepresenting. This is a common rule and applies to all activities for the reporting.

Meaning and function of frequently used icons

	Book-Plus mark. Create/add a new report
	Dropdown arrow. Option selection, usually includes Add New Report, Prepopulation, Edit, Delete etc.
	Pencil mark. Start a new report or edit an existing uncompleted report
	Searching glass. To find an organization, facility or a report
	Book-Upward-arrow. Submit a report
	Option for selection
	Generate a report from the system as PDF file for record
	Expanding an address field for entry, edit/change etc.
	Delete. Deleting a report, an item or a component
	Completion. A component has been successfully completed.
	Warning. Indicates incomplete, error or invalid entry. Any component marked with an "" requires further attention
	Paper clipper. Attach a file
*	Indicates a required field that must be entered properly
**	Indicates an optional field that needs to be entered when following the conditions apply
	A new report to work on
	A completed report and ready to submit
	A report in progress
	A report has been submitted

[WARNING]

Once a report is submitted by clicking the “Submit” button, it becomes an official report. Later on, if the report is updated (i.e. through the “Update” process) regardless of whether any changes are actually made to it or not, the previously official report is archived and will no longer be considered “**CURRENT**” unless it is resubmitted by pressing the “Submit” button.

Thus, in order to keep the latest report “Official”, one must “Submit” the updated report again after going through the “Update” process regardless whether any changes were made or not. Otherwise, the system will consider the report as being “In-Progress” or “Completed”, which may incur a non-compliance status.

[Advice]

In order to increase the reliability and accuracy of the reported data, it is strongly recommended that data not be round during entering process. For GHG emissions, the system allows the data with more than four (4) decimal places (though the automatic calculated CO_2e will only show up to four (4) decimal places); For fuel quantities up to two (2) decimal places are allowed, and for other data entries, relevant notes about the numeric requirements will be provided in the context when applicable.

For linear facilities operation, ensure that the total for each source in LFO report exactly matches the sum of emissions from the same source in each individual report i.e. IF_a, IF_b and L_c, as below:

$$E_{LFO,\,source\ i} = \sum_i^n E_{IF\_a,\,source\ i} + \sum_i^n E_{IF\_b,\,source\ i} + E_{L\_c,\,source\ i}$$

Chapter 1 Getting into the Single Window Reporting System

1. Language selection

The Single Window Reporting System (SWRS) works in two languages: English and French.

At the entrance to the system (i.e. SWRS) as shown below (Fig. 1.1.1), select the working language that you prefer.

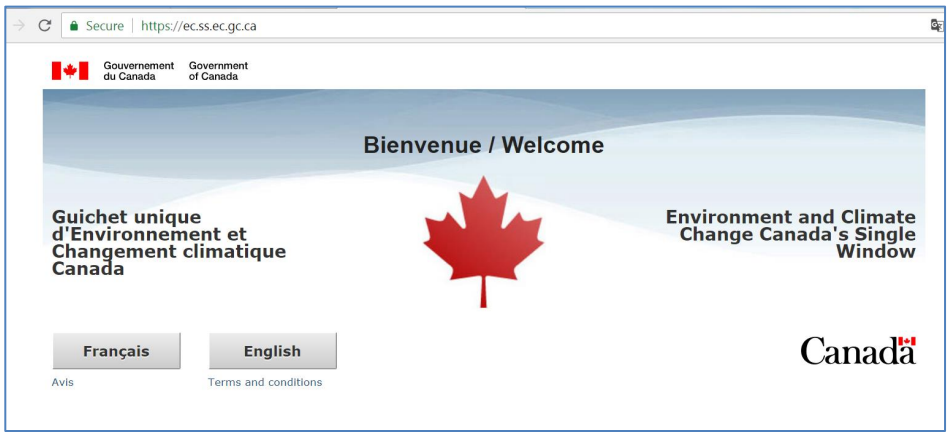


Fig. 1.1.1 Entrance to the SWRS and working language selection

This Guidebook uses English herein as the working language by clicking the **English** button. The contents apply equivalently to the French version.

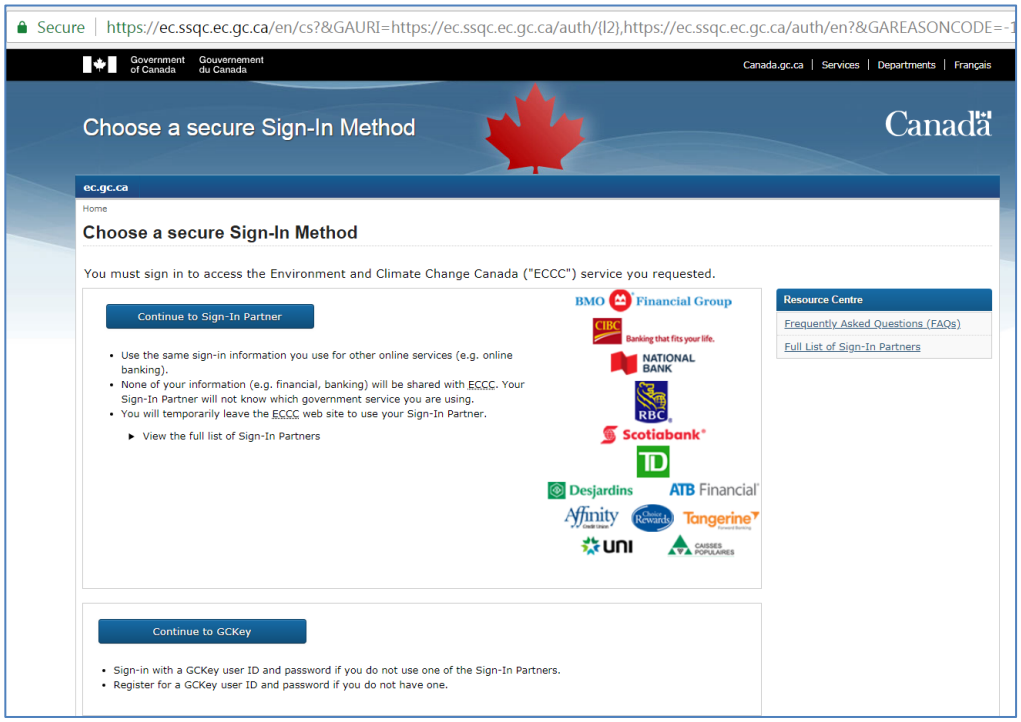


Fig. 1.1.2 Selection of Sign-In Method

Clicking "**English**" button brings you into the "Choose a secure Sign-In Method" page (Fig. 1.1.2), where you can choose a method to securely sign into the system. If you have an account with any of the Sign-In Partners, you can choose "Continue to Sign-In Partner" by using the sign-in credentials that you use for signing into the partner's website. Here we choose to use "Continue to GCKey" sign-in method.

Clicking the "Continue to GCKey" button brings you to the "Welcome to GCKey" page (Fig. 1.1.3), where you can sign in by entering your sign-in credentials that you already have.

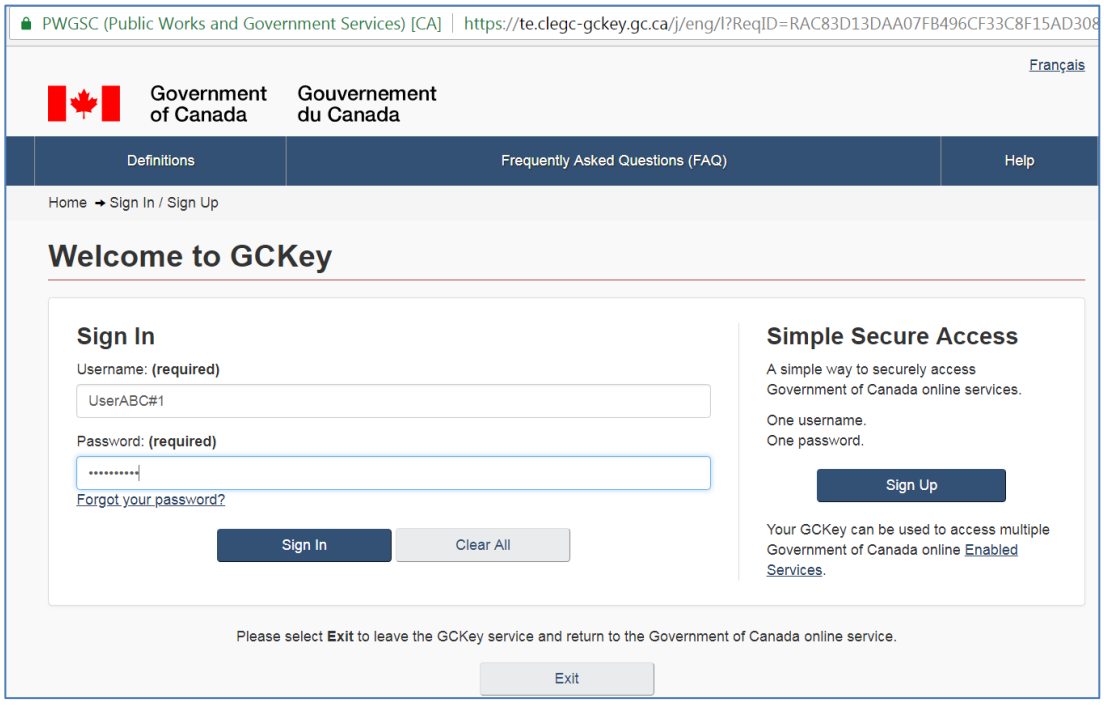


Fig. 1.1.3 SWRS Sign-in page

2. Current User

If you already have an account, enter your Username and Password (i.e. sign-in credentials) here, as shown in Fig. 1.1.3 above, and then click the "**Sign in**" button to get into the system as Fig. 1.2.1 shows below, where a Welcome message confirms you are signed in, and tells you when you last signed in. Clicking the "**Continue**" button takes you to the home window of the Single Window Reporting System (SWRS) – the "Single Window Information Manager" page (Fig. 1.2.2), where you can access various programs. Chapter 2 Single Window Information Manager and onwards will describe the details of the modules of Single Window Information Manager (SWIM) (managing various administrative information) and of BC Greenhouse Gas (GHG) programs.

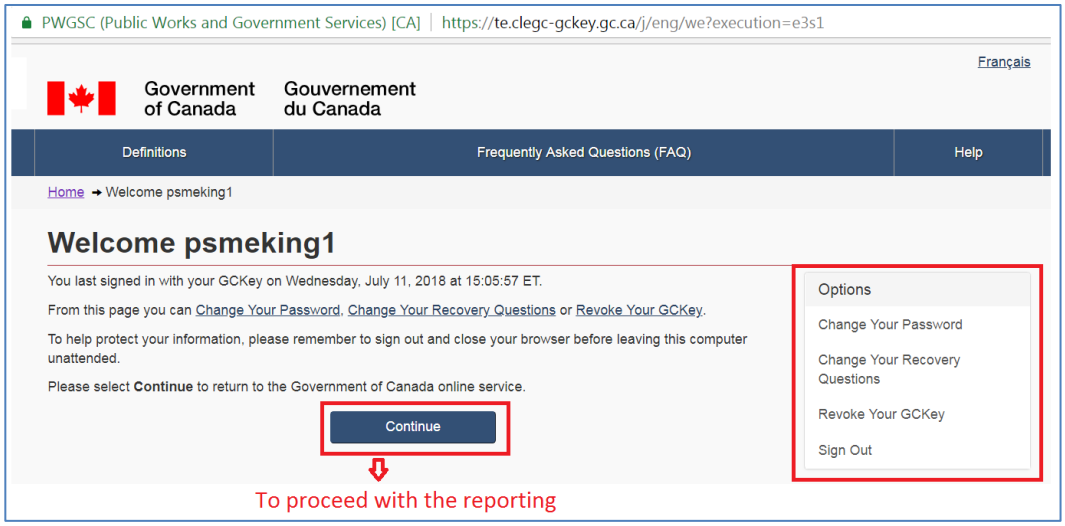


Fig. 1.2.1 Welcome page

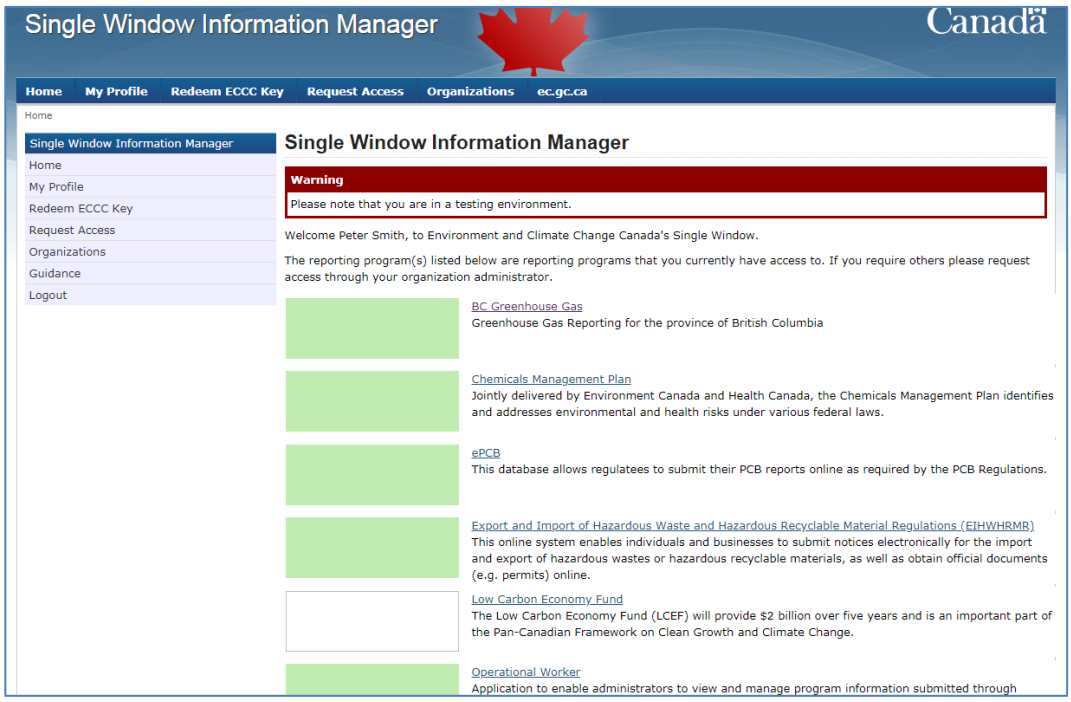


Fig. 1.2.2 SWRS home window – Single Window Information Manager page

Other things can be done on this page are: changing password and recovery questions in case you forget your Sign-In credentials, and revoking GCKeys, which issued to someone(s) earlier but inappropriate, as highlighted in the right panel in Fig. 1.2.1. However, details on these will not be described here but they are easy by following the online instructions.

If you want to terminate the reporting process here, just click the "**Sign Out**" button.

3. New User

If you are new to the SWRS, you will need to create an account by clicking the "**Sign Up**" button under the "**Simple Secure Access**" at the right pane of the Sign-In page (Fig. 1.1.3).

Clicking the "**Sign Up**" button brings you to the consent page (Fig. 1.3.1) to confirm you agree to the Terms and Conditions of Use. If you agree to the terms and conditions, click the "**I accept**" button to continue the next steps (i.e. creating a Username, Password, Recovery Questions and Answers). The online instructions will guide you through the process. Clicking "**I decline**" button will end the account creation process, and you will not be able to access the system.

[Tips]

If you remain inactive at the sign-in step for 15 minutes without signing in, the system will display a message as shown in Fig. 1.3.2 after clicking any button, advising you that your attempt to sign in was not successful.

If after signing in you are inactive for 20 minutes, the system will automatically log you off for security reasons. In such a case if you have ever entered any data and not saved, the data will be lost. Thus, always save the data you entered before leaving the system unattended.

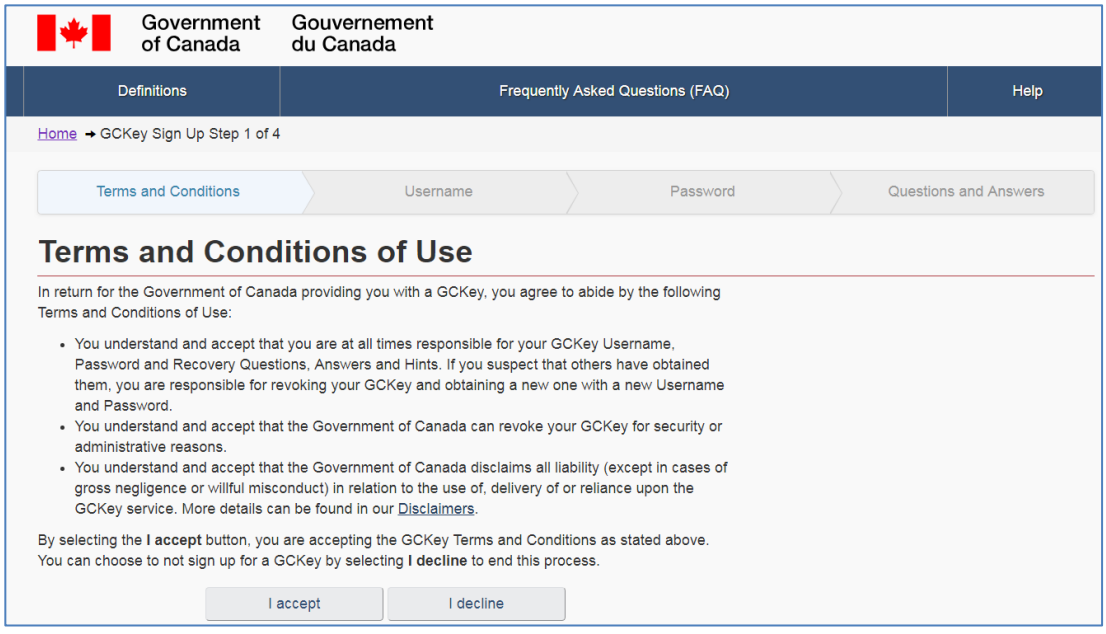


Fig. 1.3.1 Terms and Conditions Consent

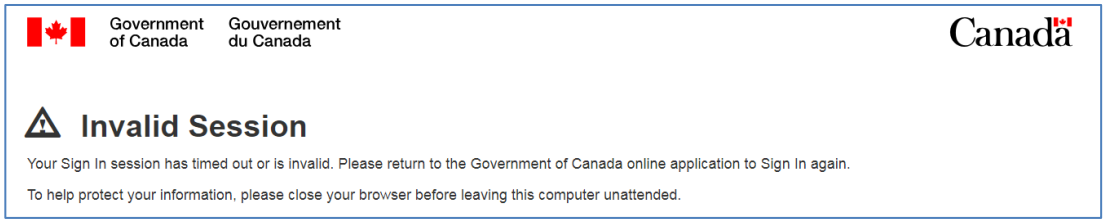


Fig. 1.3.2 Unsuccessful sign-in notice

*[**Note**]*

- *In most cases the system provides a "**Back**" button (Back) to facilitate going back to a previous page, in such cases using your browser's "**back**" function (i.e. "←") will make the system malfunction. Thus it is recommended that, if applicable, always using the "**Back**" button (Back) provided by SWRS rather than the browser's back function (i.e. "←").*
- *The Sign-in password is case sensitive. Please keep your sign-in credentials in a safe and secure place.*

Chapter 2 Single Window Information Manager

1. Introduction

For further information on the system, refer to *Guidance on Reporting through Single Window by Environment and Climate Change Canada, where tutoring materials are also provided, though some contents will not apply to BC's GHG reporting program.*

After successfully signing into the system, you are taken to the **SWRS'** home page - "Single Window Information Manager" (called SWIM home page, Fig. 2.1.1, the same as Fig. 1.2.2). There, you can select to work with one of the two module blocks: (1) SWIM Module -- the Single Window Information Manager (SWIM) or (2) Program Module, which contains programs such as BC Greenhouse Gas (simply as BC GHG), Ontario GHG, Chemicals Management Plan, National Pollutants Inventory Reporting (NPIR) …… We will discuss the SWIM first below, followed by BC GHG.

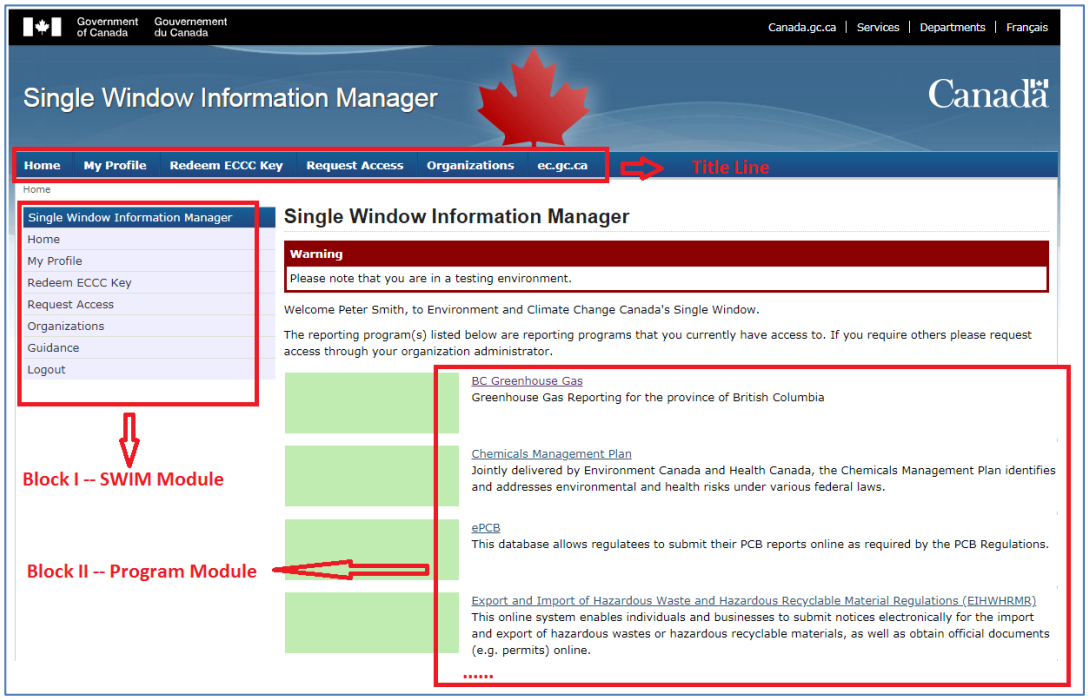


Fig. 2.1.1 Single Window Information Manager -- Program selection page (SWIM home page)

*[**Tips**]*

***Reiteration**: If you are anticipated to be inactive for a while, it is wise to periodically click the "Validate" button to keep you "alive" in the system if you're distracted from other things for a little while, whereas clicking "**Save/Continue**" on your working page will save the things you done already and then jump to next step.*

*Depending on your monitor's setting, the layout of the screen may differ from what is shown here. For example, if your monitor is set at "Portrait (flipped)", then the layout of Fig. 2.1.1 will look like Fig.2.1.1a, where two "[redacted]" shows at the up-right corner, #1 corresponds to the **Menu** of the SWIM block (clicking it will display both the SWIM Table Content and those in the **Title Line** in Fig. 2.1.1b); #2 corresponds to Settings - the language selection (clicking it will show the language selection option as shown in Fig. 2.1.1c), further clicking the small*

*greyed-circle at the right side of the "**Languages**" will activate the specific language. Once you get into one of the SWIM content area, three "●"s appear as shown in Fig. 2.1.1d and the third "●" (#3) corresponds to the "**Home**" page.*

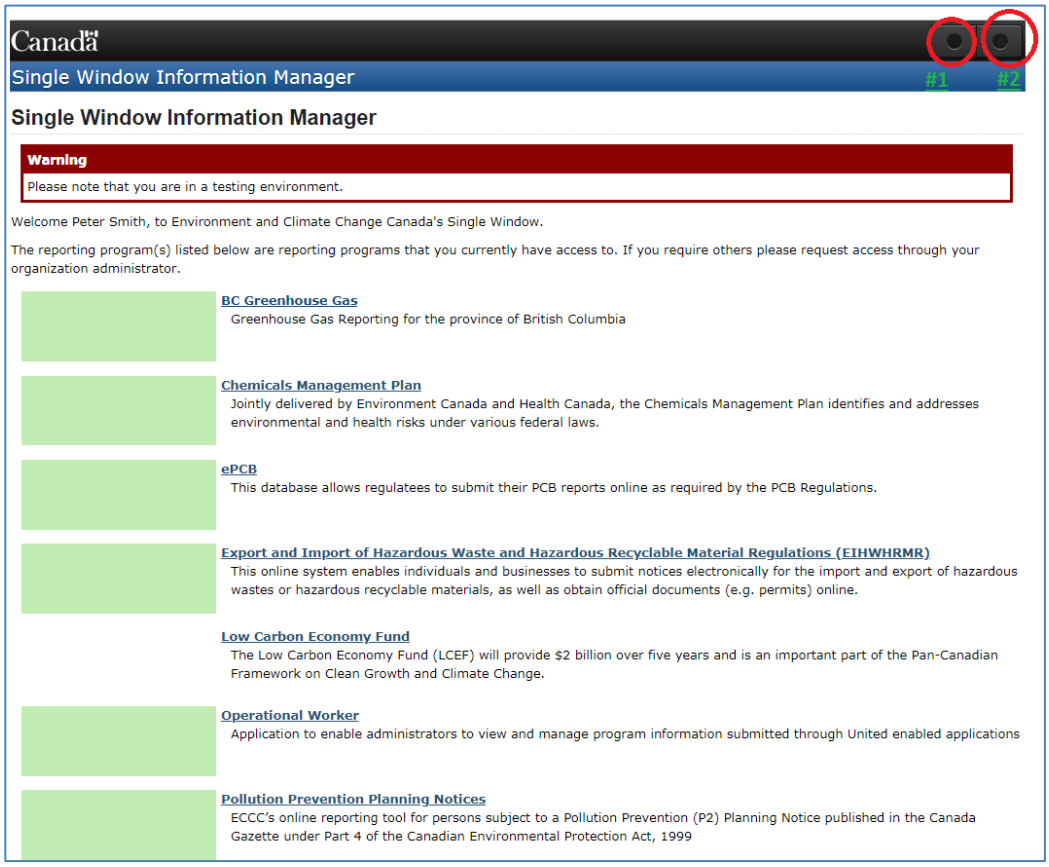


Fig. 2.1.1a SWIM home page layout in monitor's "Portrait (flipped)" setting

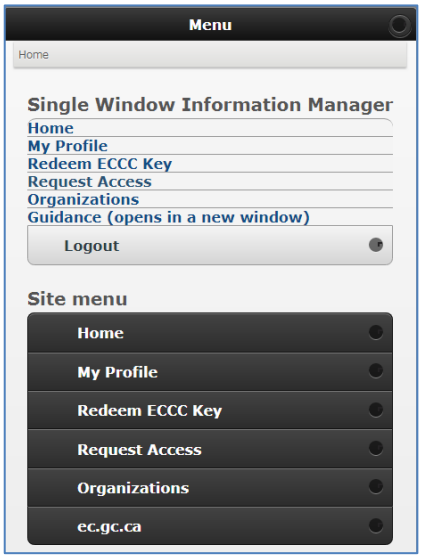


Fig. 2.1.1b SWIM block menu in a monitor's Portrait setting

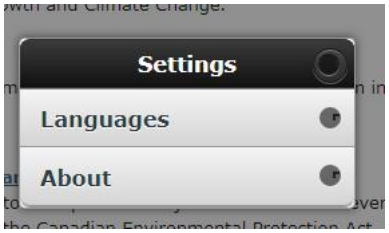


Fig. 2.1.1c Language selection

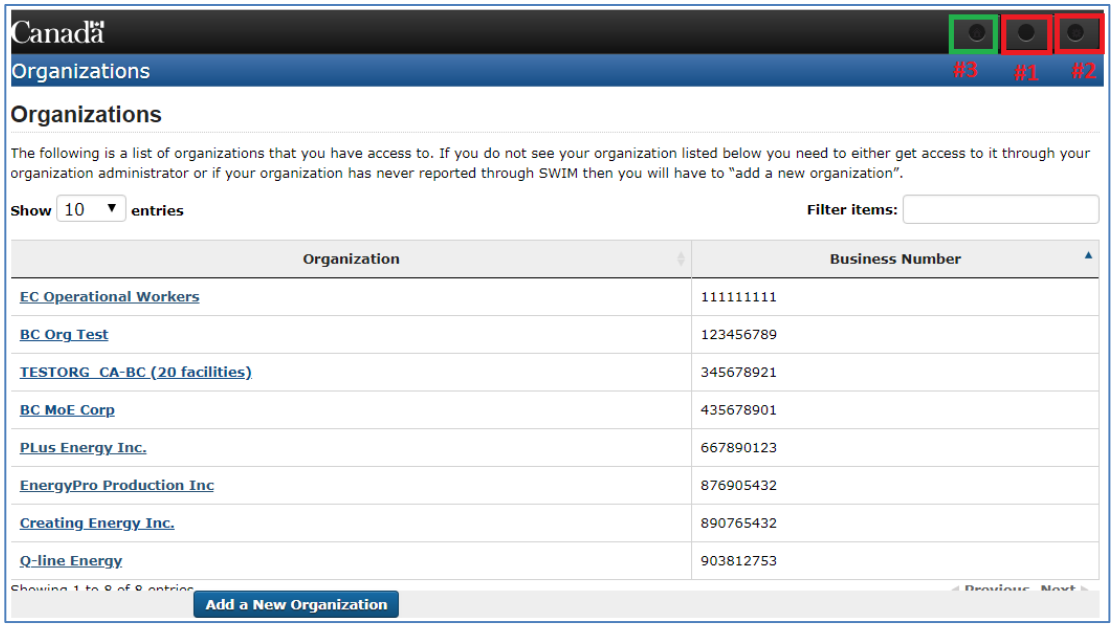


Fig. 2.1.1d Layout of working page in SWIM

1.1 SWIM Block

The Single Window Information Manager (SWIM) module allows users to enter, edit or update information about their profiles, organizations, facilities and contacts, and to manage roles for other users etc.

The SWIM module contains a list of items, which can be called SWIM Content Menu as highlighted at the up-left corner in Fig. 2.1.1, including:

- **Home**,
- **My Profile**,
- **Redeem ECCC Key**,
- **Request Access**,
- **Organizations**,
- **Guidance** and **Logout**

The options listed on the **Title Line** (Fig. 2.1.1) closely mirror these options. Choosing the same option from different places at the page will lead you to the same webpage.

1.2 ECCC Website

Clicking "ec.gc.ca" will bring you to the website of Environment and Climate Change Canada (ECCC) where you can explore more information and services that ECCC provides.

1.3 Guidance

Clicking "**Guidance**" will lead you to the website of ECCC's guide materials on the SWRS, including some tutorial materials.

1.4 Logout

At any time, if you want to leave the system, click "**Logout**". A warning message will appear to remind you of that any unsaved data will be lost if you continue the logout.

1.5 Home page

While working in the SWIM module, clicking any one "**Home**" link at any page (there are three "Home" links at any page in the SWIM) will bring you back to the home page - Single Window Information Manager – Program selection page (SWIM home page) as Fig. 2.1.1 shows.

*[**Note**]*

> *In the BC GHG module, the SWIM home page is simplified as "SWIM". Clicking it can also bring you back to the SWIM home page.*

1.6 My Profile

Clicking "**My Profile**" will open a page where you can enter, edit or update your own personal information, including name, phone and Fax numbers, email address, position, language of correspondence, mailing address as shown in Fig. 2.1.2a and physical address (Fig. 2.1.2b).

Address: If the mailing address is the same as physical address, clicking the button "**Copy To Physical**" will copy the entire mailing address information to the physical address area. Otherwise you will need to click the "**Physical Address**" tab and manually enter all the information for the physical address (Fig. 2.1.2b). Vice versa. After all information is entered, click the "**Save**" button to save the data entered.

1.7 Redeem ECCC Key

If you have requested access to the System, a program or an organization/facility, and have been provided with ECCC Keys, then you can redeem them by clicking "**Redeem ECCC Key**" as shown in Fig. 2.1.3. There are usually **two keys**: one for SWIM and one for BC GHG. Copy and paste one of the ECCC Keys each time to the field under "**Please input your ECCC Key**" and then click the "**Activate Key**" button to redeem the key, repeat this process to redeem the other one. If you don't have access to the system yet, you need to request the access as described in section **2. Request Access** later.

After successfully redeeming your ECCC keys you can access and edit the information about your organization(s) and facilities in both the SWIM and BC GHG Modules, if your organization and facilities exist in the system already and someone else worked on them previously. However, if you are the first person to enter information about your organization, facility(s), you will not need to request the ECCC keys. You can directly enter the information required as described here.

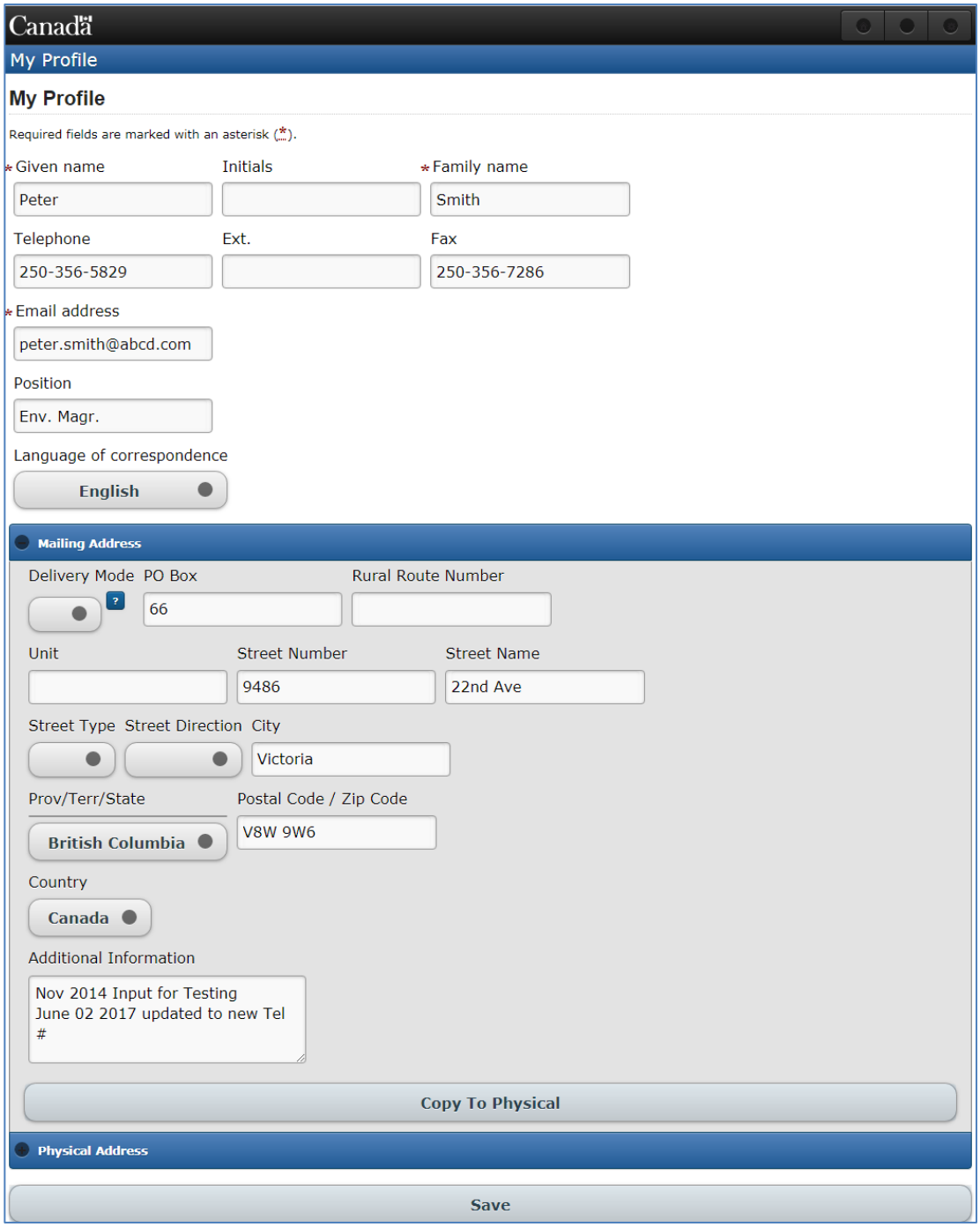


Fig. 2.1.2a Personal information and mailing address in My Profile (monitor setting: Portrait (flipped) here)

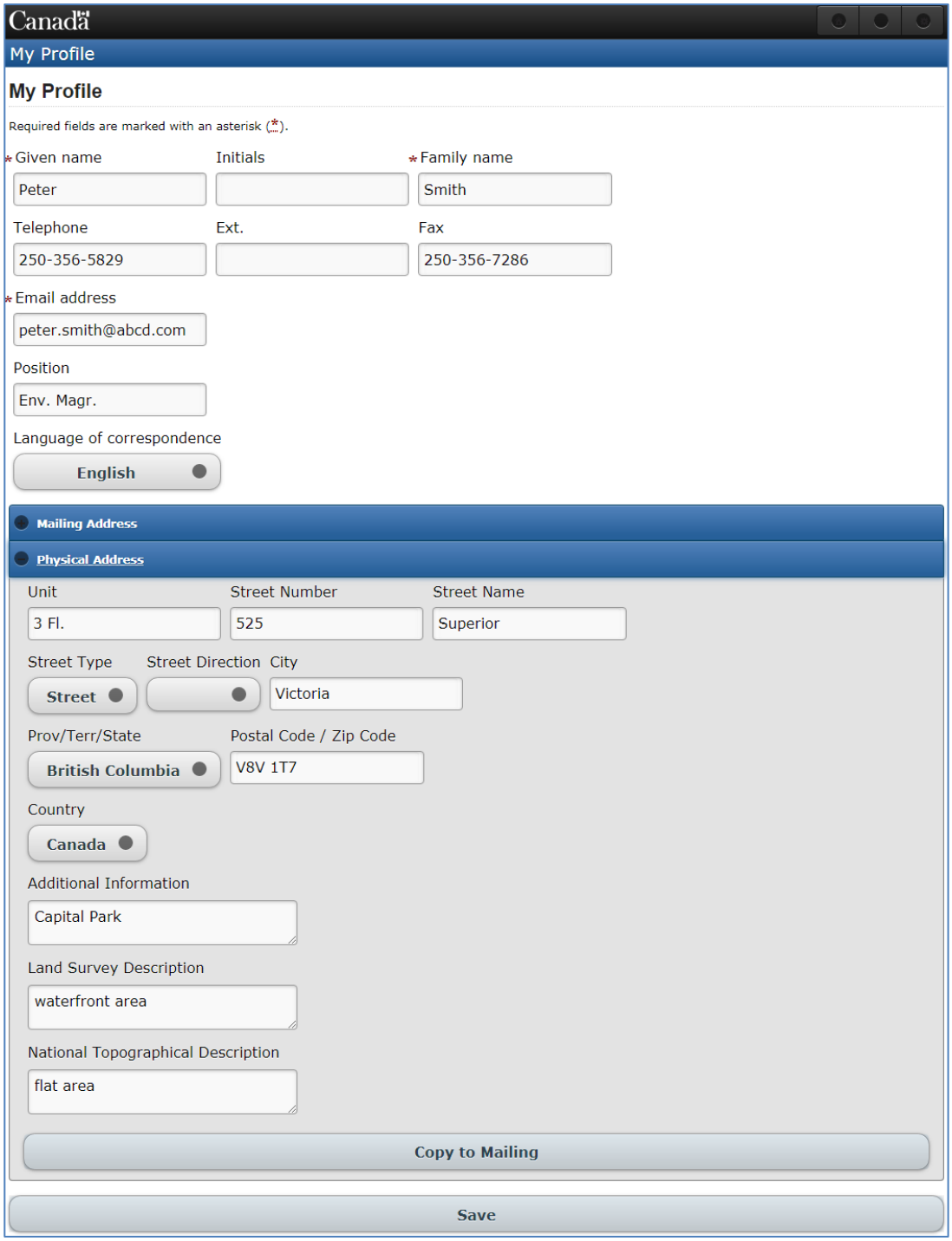


Fig. 2.1.2b Personal information and physical address in My Profile (monitor setting: Portrait (flipped) here)

Fig. 2.1.3 Redeeming ECCC Keys

2. Request Access

2.1 Access the SWIM Module

If you are new to the System or if you want to access another facility(s) or organization(s) that you don't have the access yet, you need to request the access first. Clicking the "Request Access" in the SWIM Content Menu will create a request and send it to ECCC. Keep in mind that it will take up to three (3) business days before you get the access. However, contacting a person in your organization who has the administrator role (i.e. "Lead") to grant your access will be much quicker for you to get the access keys.

Clicking the "Request Access" opens the following page (Fig. 2.2.1) where you can select which program you are requesting access for.

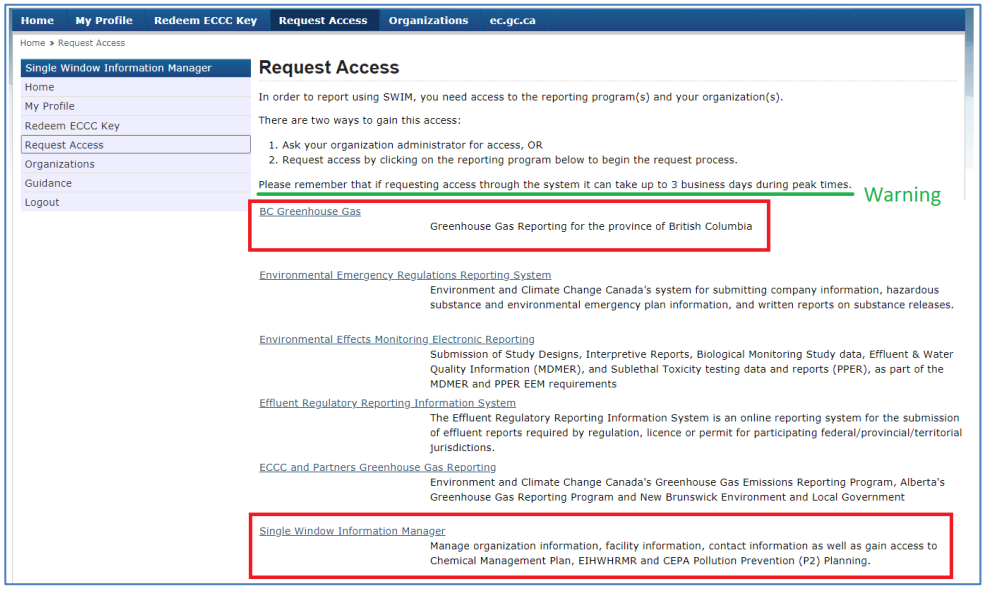


Fig. 2.2.1 Request Access to Programs

Our focus here is the BC GHG (i.e. BC Greenhouse Gas) and Single Window Information Manager (SWIM) modules. Clicking either one will lead you to the specific program access request page as shown in Fig. 2.2.2 where access to SWIM can be requested.

Fig. 2.2.2 Request Access to SWIM

[Note]

There are three roles with SWIM, and each has different functionalities or privileges as described below:

SWIM Organization Lead – a person has the full functionalities and can manage all information of the organization and facilities, and can grant access to other users. There may be more than one SWIM Organization Lead in an organization.

SWIM Editor – a person has limited functionalities, can manage the information of an organization and of selected facilities (to which he/she has access), but cannot grant access to others. There can be many SWIM editors.

SWIM Member – a person who can only access (i.e. to read, review) the information of the organization and selected facilities. There can be many SWIM members.

Once clicking one of the roles that is selected, a new window appears (Fig. 2.2.3) where you will be prompted to search for the organization to which you are requesting access.

However, if you are the first ever person for an organization working in the SWIM, or if the organization hasn't been reported through the system previously, you do not need to do this. Instead you will need to create a new organization and the associated facilities in SWIM for which you will prepare the reports.

You can enter either the organization name (part of the name is acceptable) or business number, or both to shortlist the results. If the search produces too many results, you can further enter filtering elements in the filter area as shown in Fig. 2.2.3 to reduce the list. Full name or a part of a name, an organization's business number, or (part of) physical address etc. can be used as filtering element(s).

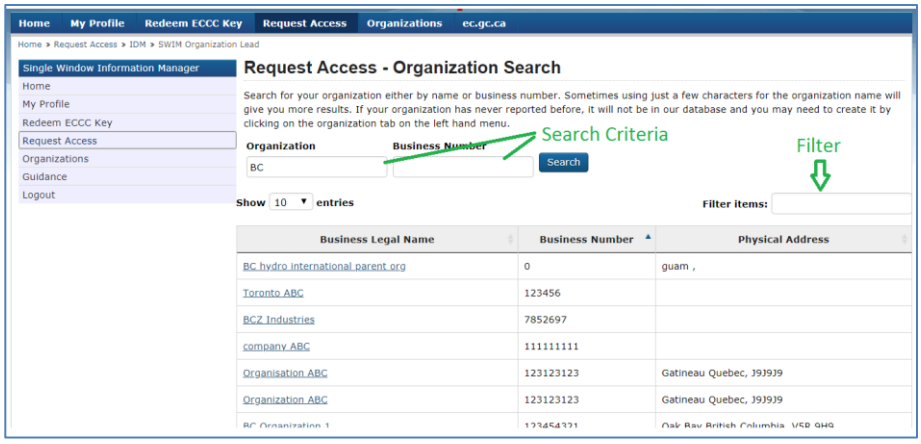


Fig. 2.2.3 Request access to SWIM – Organization Search

*[**Tips**]*

Entering multiple elements into the search criteria area at the same time will produce a result equivalent to the results of a series search conducted by entering individual search element separately.

The search doesn't support wildcard option. Using wildcard search will result in zero (0) result.

Once you have found the organization you wanted, clicking its name will take you to the following window (Fig. 2.2.4), which confirms your request for the specific role, program and organization. where the requested role, program and organization are shown. If the result is incorrect, you will need to repeat the process.

Immediately after completing the access request, you will receive an automatic email notification (Fig. 2.2.5), advising you that your request has been taken and sent to the system administrator in ECCC.

Fig. 2.2.4 Request-Access Result

Guichet unique d'Environnement et Changement climatique Canada

Demande d'accès

Ce courriel confirme que le Guichet unique d'Environnement et Changement climatique Canada a reçu votre demande pour l'accès au **Gestionnaire d'information du Guichet unique** en représentant **Devon Canada Corporation** en tant que **Responsable organisationnel du programme GIGU**.

Pour les rôles *Entrée de données sur les installations*, *Pouvoir de signature*, et *Lecture seulement*, nous vous encourageons à communiquer avec la personne de votre organisation qui a le rôle de *Gestionnaire d'organisation* ou de *Gestionnaire d'installation*.

Pendant les périodes de pointe, le traitement de votre demande pourrait prendre jusqu'à trois jours ouvrables.

Prière de ne pas répondre à ce courriel.

Environment and Climate Change Canada's Single Window

Access Request

This email is to confirm that Environment and Climate Change Canada's Single Window has received your request to access **Single Window Information Manager** representing **Devon Canada Corporation** as a **SWIM Organization Lead**.

For *Facility Data Entry*, *Signing Authority*, and *Read-Only* roles, we encourage you to contact your *Organization Administrator* or *Facility Administrator*.

During peak activity periods processing may take up to 3 business days.

Please do not reply to this email

Fig. 2.2.5 Automatic email confirmation about your Request-Access

2.2 Access the BC GHG Module

If you request access to the BC GHG module, the process is similar. You need to click "**Request Access**" and then select the program "**BC Greenhouse Gas**". Go through the same process as did for "Access the SWIM Module" as described in the above section.

There are more roles for BC GHG Module (Fig. 2.2.6) than for the SWIM module.

Fig. 2.2.6 BC GHG access role

Reporting Lead - **All Facilities**: A person, having full privileges over the entire organization and all facilities, can enter, view, edit all information of the organization and its associated facilities and can grant access to other users. There may be more than one Reporting Lead for the organization.

Reporting Lead - **Specific Facilities**: A person, having full privileges over specific facility(s) within an organization, can enter, view, edit all information of the organization and the specified facilities and can grant access to other users to those facilities. There may be more than one Reporting Lead for the specific facility(s).

Data Entry: A person, with this role, can only enter, view, edit all information of the organization and facilities who has the access to, but cannot grant access to others. There may be more than one Data-Entry person for a facility/organization.

Signing Authority: A person who has the signing authority can view, review the data/report(s) and then sign off and submit the report(s) for the organization and the facilities. This person can be either a senior officer or a delegated person with signing authorization. The Signing Authority role can be granted to more than one person.

Read Only: A person, with this role, can only view/read the information of the organization and facilities who has the access. A number of persons can have this role simultaneously. Contractors and/or verifiers can also be granted this role if it is deemed reasonable.

Once received your request(s), the ECCC staff will grant you the access(s) by issuing the ECCC Key(s) to you through email. You will then need to redeem these keys to access the system as described in **section 1.7 Redeem ECCC Key.**

[***Tips***]

If you know the administrator or the Lead in your organization, you can skip this request step and contact that person directly to ask for the ECCC Keys.

3. Managing Organization's Information

Once you have access to an existing organization(s) and its facilities, you can access its information in SWIM with the functions corresponding to the level that your role is allowed.

For new reporting operation(s), you will need to create new organization(s) and facilities in SWIM, as discussed in section 3.2 below.

3.1 Managing existing organizations

Clicking the "Organizations" leads you to the Organizations list window (Fig. 2.3.1) where all the organizations to which you have access are shown up and where you can select the organization that you want to work on. If this is a new organization its name won't be shown, for which you need to add its information into the system as discussed in section **3.2 Creating a new organization**.

Clicking an organization name that you want to work on brings you to the organization's window (Fig. 2.3.2), where you can view or edit the existing information about it.

The organization's name, for instance, "BC MoE Corp" here, appears under the title "**Organizations**" at the left pane **SWIM Content Menu** (Fig. 2.3.2). Now you can review and edit the information at the right side. There are "**Mailing Address**" and "**Physical Address**" as highlighted in Fig. 2.3.2 where appropriate information must be entered. If the physical address is identical to the mailing address, clicking "**Copy to Mailing**" button will copy the entire physical address information to the mailing address to simplify the entry process and increase the efficiency. Vice versa, if the information is already entered in the mailing address area, it can be copied to physical address in the same way.

After all information has been entered successfully, click the "**Save**" button to save the information.

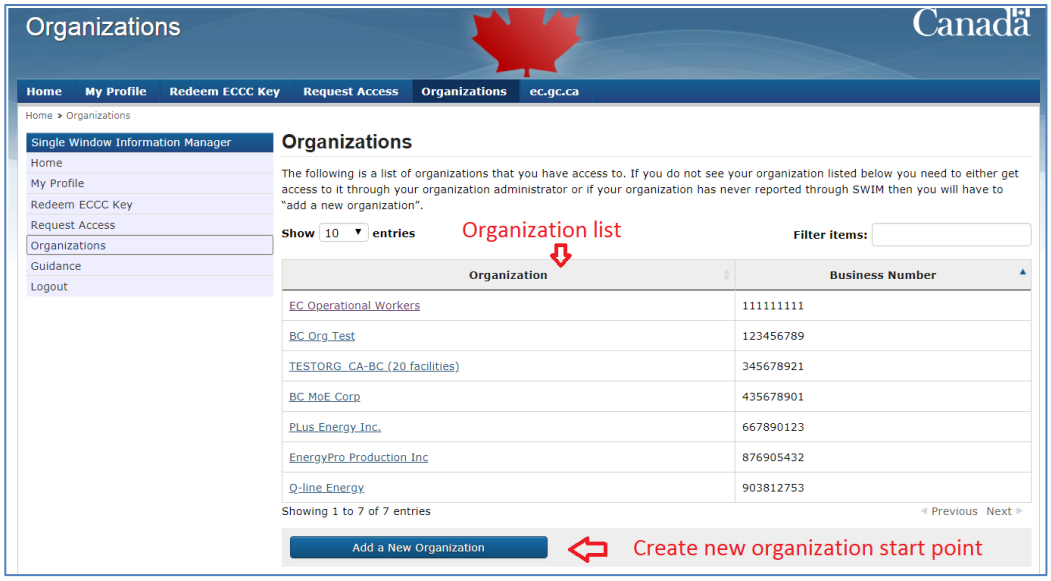


Fig. 2.3.1 Organization list window

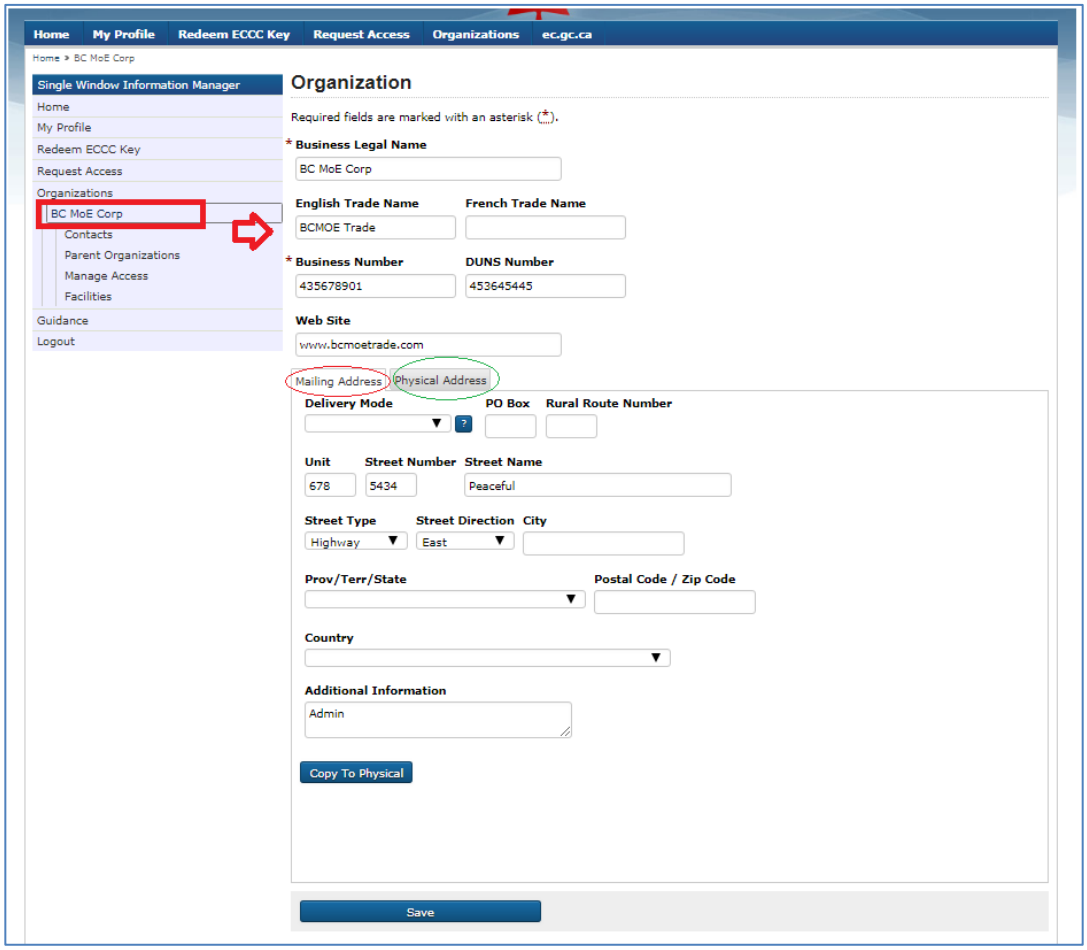


Fig. 2.3.2 Organization Information window

There are other items that appear below the organization name, for example, **Contacts**, **Parent Organization**, **Manage Access** and **Facilities** underneath the organization "**BC MoE Corp**" at the left pane. They will be discussed below separately.

3.2 Creating a new organization

If an organization you want to work on doesn't appear on the list in Fig. 2.3.1, it means that either the organization doesn't exist in the system or you don't have access to it.

If you are sure that the organization doesn't yet exist, you will need to create a new account for it. Clicking the "**Add a New Organization**" button as shown in Fig. 2.3.1 brings you to a new page "**Search for an existing Organization**" (Fig. 2.3.3) for search first in order to confirm that organization doesn't exist in the system. Enter either the organization's name or business number or both to conduct the search (Fig. 2.3.3 shows an example of only entering a business name).

If the search produces no result, then you need to click the "**Add a New Organization**" button at the bottle of Search Results page (Fig. 2.3.4) to create a new account for the organization. Fig. 2.3.5 shows the information entry page for the new organization. Fill out the fields properly that apply.

[***Note***]

- *"Organization" here means a company who owns, operates and manages a facility directly, for which the emissions are reported to the Government of British Columbia. Thus, its "Business Legal Name" must be what is registered.*
- *The "Business Number" is a number that is issued by Canada Revenue Agency (CRA) for registration for tax purposes. In future the Business Number may be directly linked to CAR's website for validation.*
- *Depending on your monitor's setting, the layout of the window may differ from what shown here.*
- *Regarding the Delivery Mode, clicking the question mark "*  *" in Fig. 2.3.5 will show the definitions of each mode (Fig. 2.3.6).*

If the physical address is identical to the mailing address, you can just press the "**Copy to Physical**" button to copy mailing address information to the physical address. If it is different, then click the "**Physical Address**" tab to manually complete the physical address entry accordingly (Fig. 2.3.7).

After entering the information, click the "**Save**" button to save the entered data, and the system will jump to the "**Organizations**" page where all organizations that you have access to are displayed (Fig. 2.3.1).

However, if the search does produce some results, select the organization that you want to add to your list and double click it, you will be taken to the "**Request Access**" page as shown in Fig. 2.2.1, where you need to select which program you want to access. Following the steps discussed earlier in

section **2 Request Access** will complete the process for accessing the organization both in SWIM and BC GHG Modules.

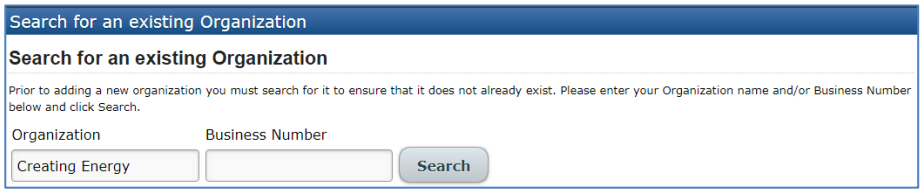


Fig. 2.3.3 Search for an organization

Fig. 2.3.4 Search result for an organization

*[**Tips**]*

> *Requesting Access to an organization is a time consuming process. If you want access to an organization's information in the role of Facility Data Entry, Signing Authority, and Read-Only, contacting your organization's Administrator or the Lead will be more time efficient as the automatic email notification suggests (Fig. 2.2.5).*

3.3 Managing Contacts

The Contacts window, as shown in Fig. 2.3.8, allows you to add new contacts or delete existing ones. You can search a contact through filtering the list if it is too long. Filtering by first name, last name or full name, email address or telephone number will shortlist the targeted contacts quickly with less effort. The contact information details are shown in Fig. 2.3.9. If anything needs to be updated, edit it appropriately and then click the "**Save**" button to save the changes.

If a new contact needs to be added to the list, simply click the "**Add a new contact**" button (Fig. 2.3.8), a new "Contact" page will show up (Fig. 2.3.10). Fill in the required information properly, including the contact's mailing address and physical address, by following the steps discussed for an organization earlier.

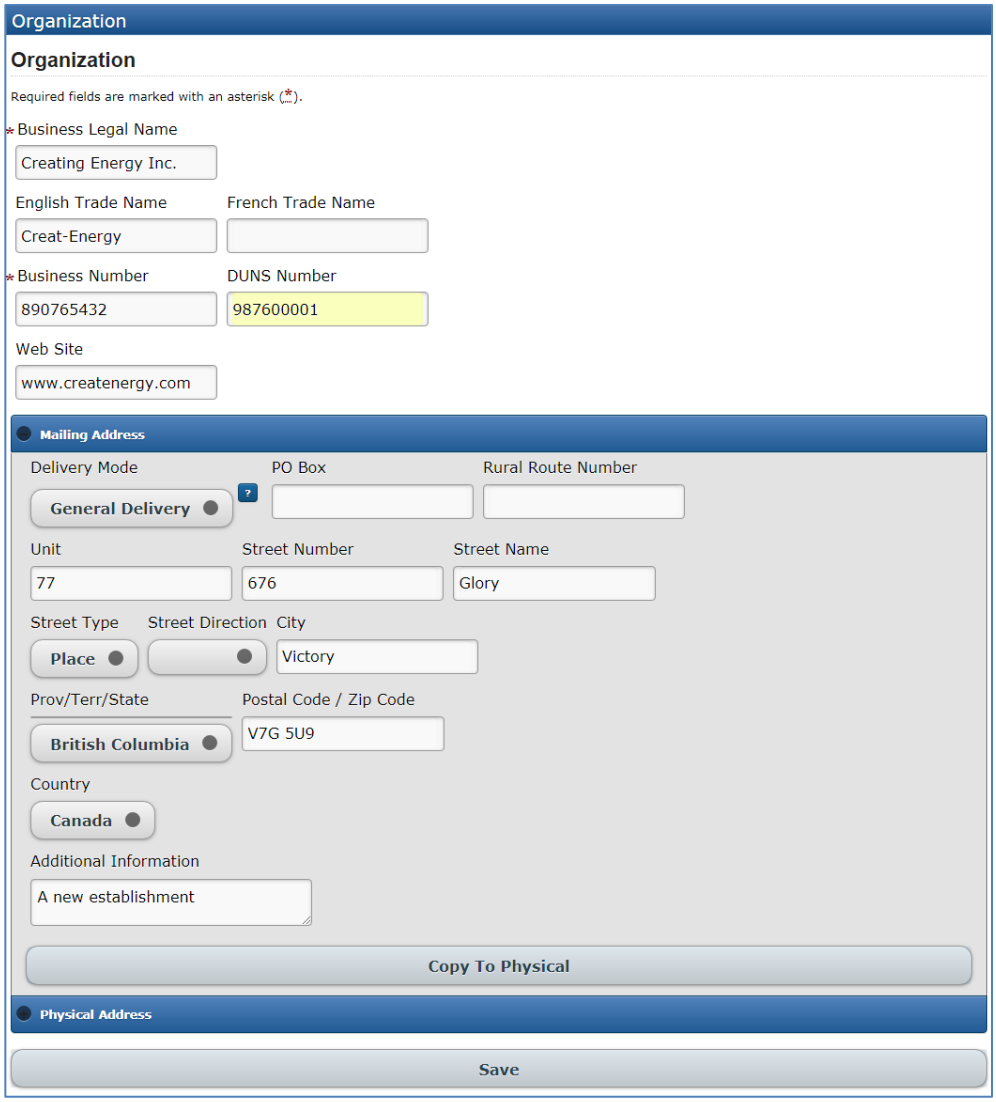


Fig. 2.3.5 Creating new organization in SWIM

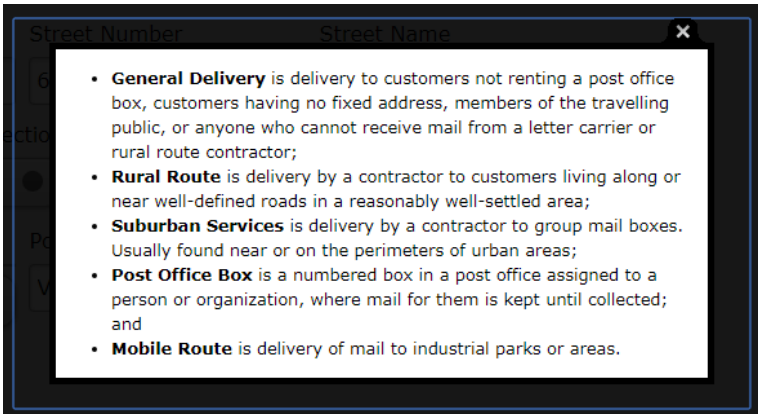


Fig. 2.3.6 Delivery Mode definitions

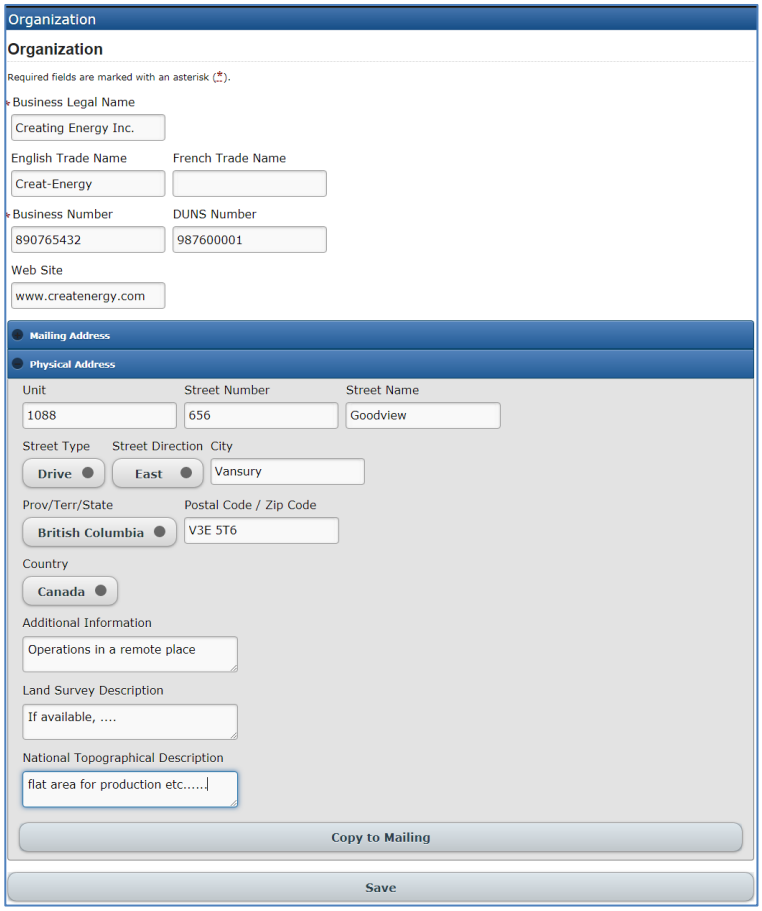


Fig. 2.3.7 Organization's physical address information entry page

Fig. 2.3.8 Contact list

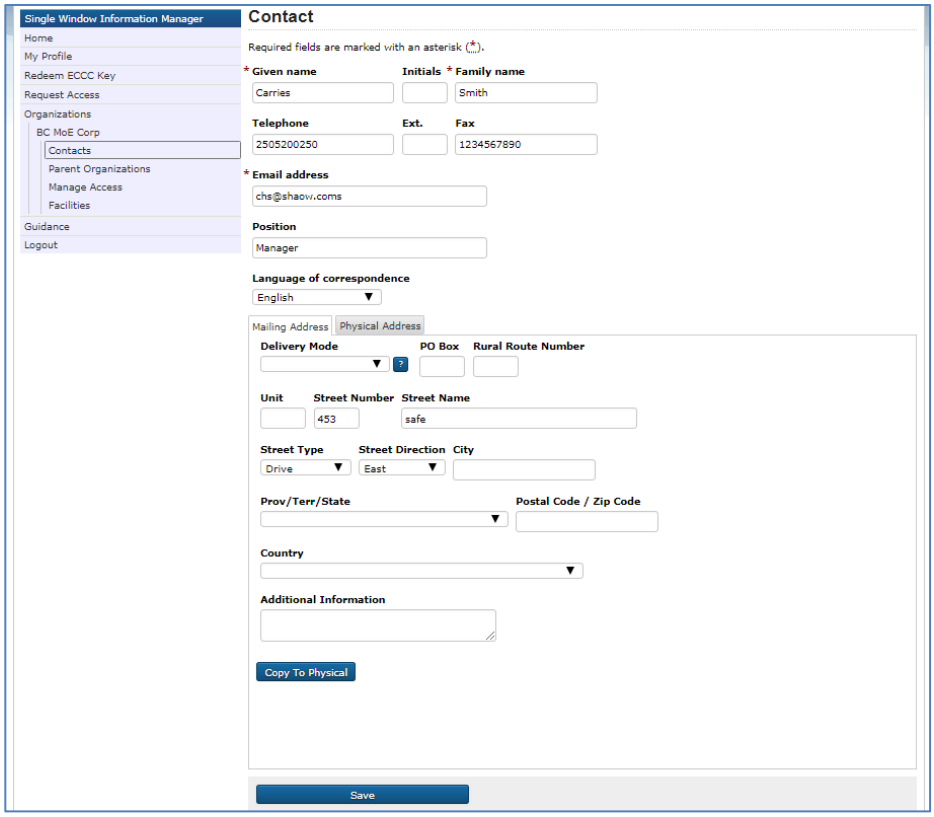


Fig. 2.3.9 Contact information details

After all information is entered properly, click the "**Save**" button to save the new contact information into the system.

If any contacts need to be removed from the list, select them by ticking off the checkbox"☐"at the left side of the names and click the "**Delete all selected**" to remove them from the list, or just clicking one name each time and click the "**Delete all selected**" to remove them one by one from the list.

3.4 Parent Organization

Clicking the "Parent Organization" under the organization's name at the left SWIM pane displays a list of parent organizations (Fig. 2.3.11a). A parent organization is who holds the shares of your organization. There may be more than one parent organization. You can add a parent organization onto the list, if it doesn't exist yet in the system, by following the same procedures as discussed earlier for the organization. For existing parent organization(s), clicking the name shows its detailed information (Fig. 2.3.11b), so you can check, edit or update the relevant information. Remember to save any changes made by clicking the "**Save**" button. If a parent organization on the list is no longer a parent organization of your organization, you can remove it from the list by selecting it and clicking the "Delete all selected" button (Fig. 2.3.11a).

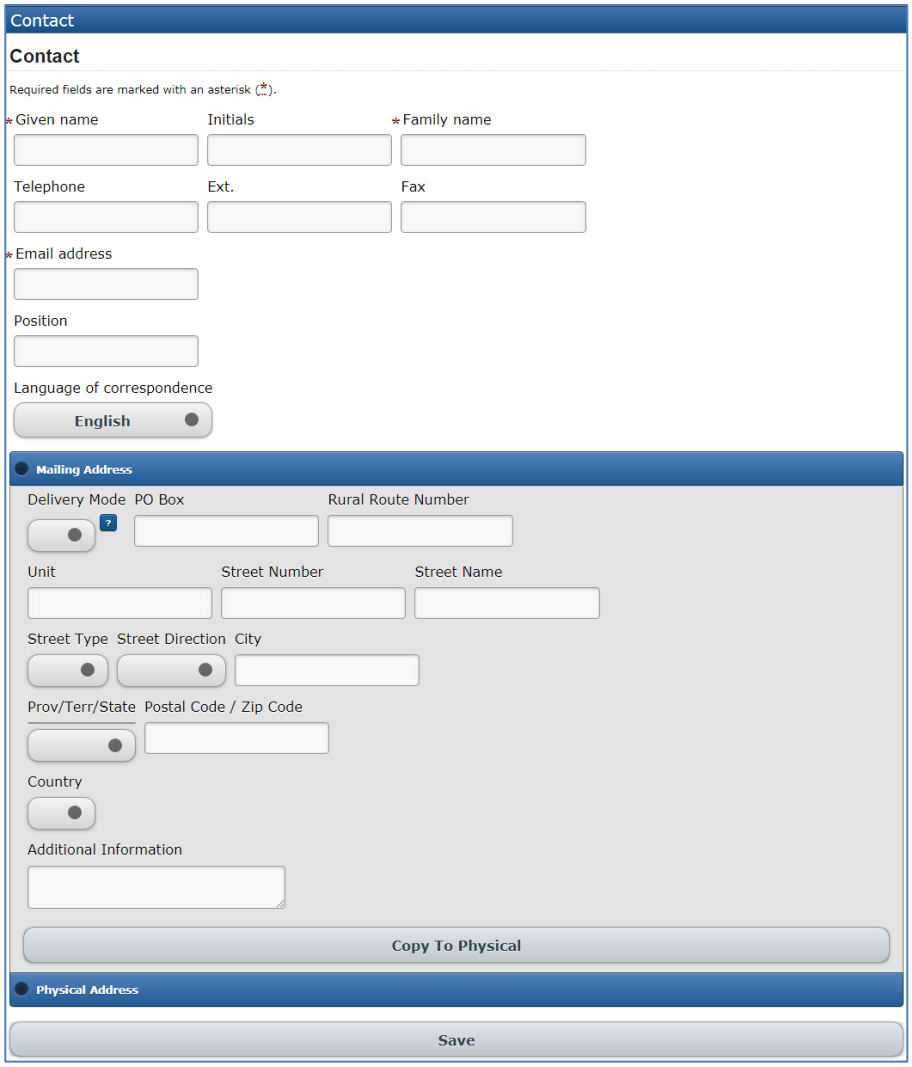


Fig. 2.3.10 New contact entry window

Fig. 2.3.11a Parent organization list

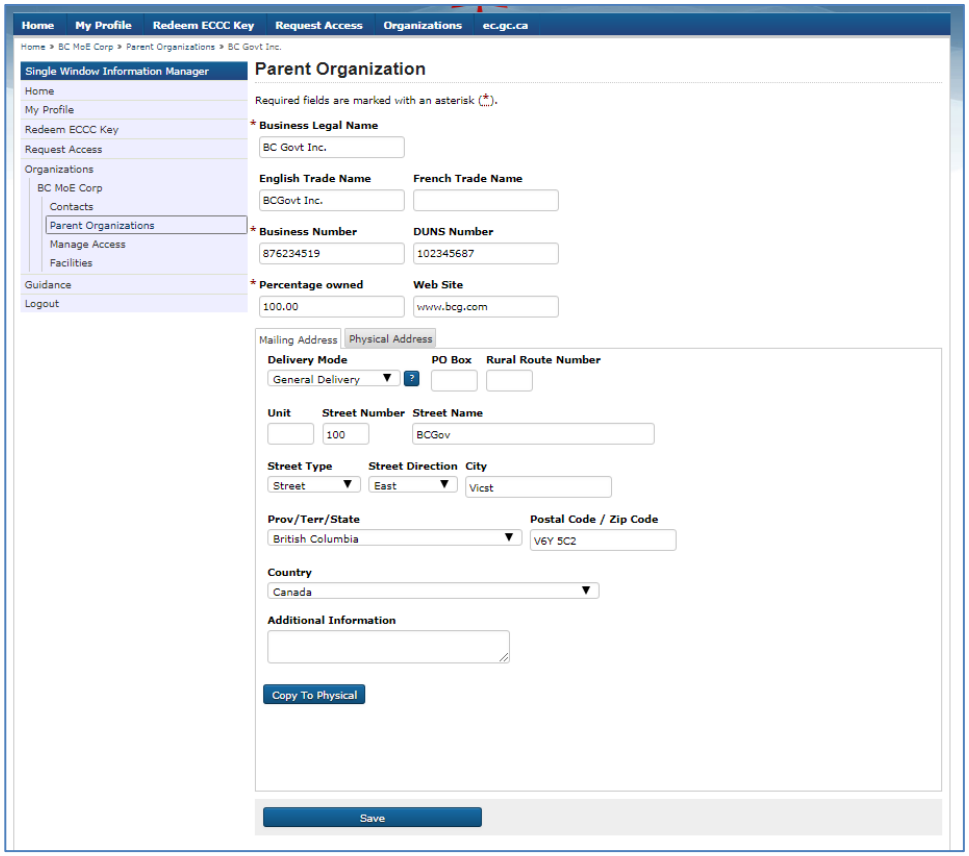


Fig. 2.3.11b Parent organization information details

[***Note***]:

The field of "Percentage owned", mandatory requirement, must be correctly entered. The total of "percentage owned" by parent organizations should be "100".

3.5 Manage Access

If you have a Lead roles in both SWIM and BC GHG modules, you can manage others' access to the system (either SWIM or BC GHG module) by granting or revoking someone's access.

Clicking the "**Manage Access**" under the organization's name at the left side of the SWIM pane will display a list of persons who have the access to the organization in the system (Fig. 2.3.12). To search for a specific person, you can use the filtering function by entering the person's name. For each person there may be two entries: one for SWIM and one for BC GHG.

To revoke someone's access, select that person's name (either ticking off the checkbox"☐" or just clicking the name) with the specific role in the system (i.e. SWIM or BC GHG, depending on what function to be removed), then click the "**Delete all selected**" button to complete the process (Fig. 2.3.13).

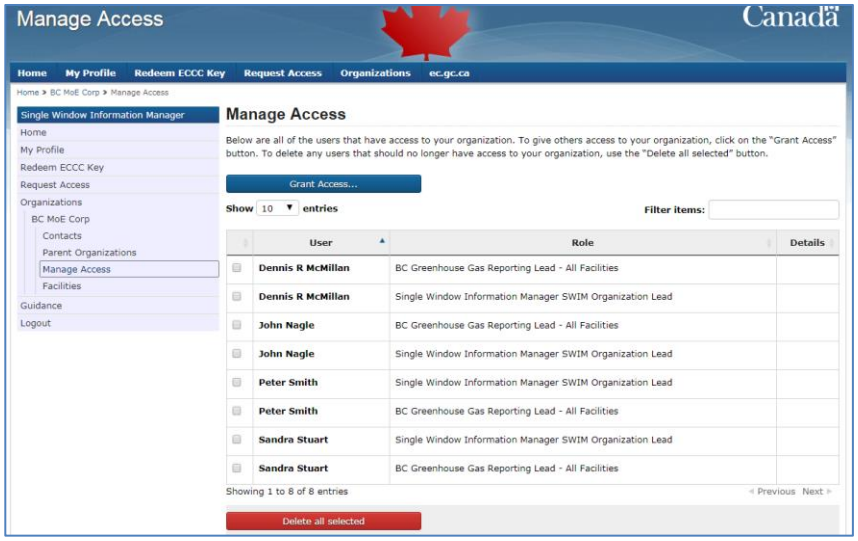


Fig. 2.3.12 Managing the access

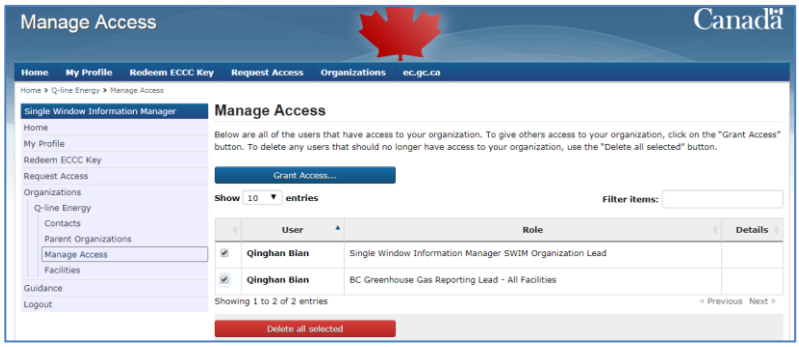


Fig. 2.3.13 Revoking someone's Access

To grant access to someone(s) who has requested it, click the "**Grant Access**" button as shown in Fig. 2.3.13, which leads you to the **"Grant Access …"** page where you must be select a program (here i.e. SWIM, BC GHG) to which the access(s) is to be granted (Fig. 2.3.14). Clicking the program that applies prompts a new page as shown in Fig. 2.3.15, and further clicking a specific role in each program for that person(s) to whom the access is granted, a new page like Fig. 2.3.16 shows up, where you can review if the role and the program selected are correct for that specific person(s). If anyone is wrong, go back by clicking the back button "←" on the browser and reselect the program and the role. If being correct, enter the number of keys to be granted and then click the "**Generate**" button, the results are produced as shown in Fig. 2.3.17. Copy each key and send it to the persons who have requested the accesses, separately. Repeat the foresaid steps to generate a key(s) for another program. Usually there is a pair of keys to be granted for each person: one for SWIM and one for BC GHG.

[Note]

One key for one person only. The key cannot be shared and valid one time only.

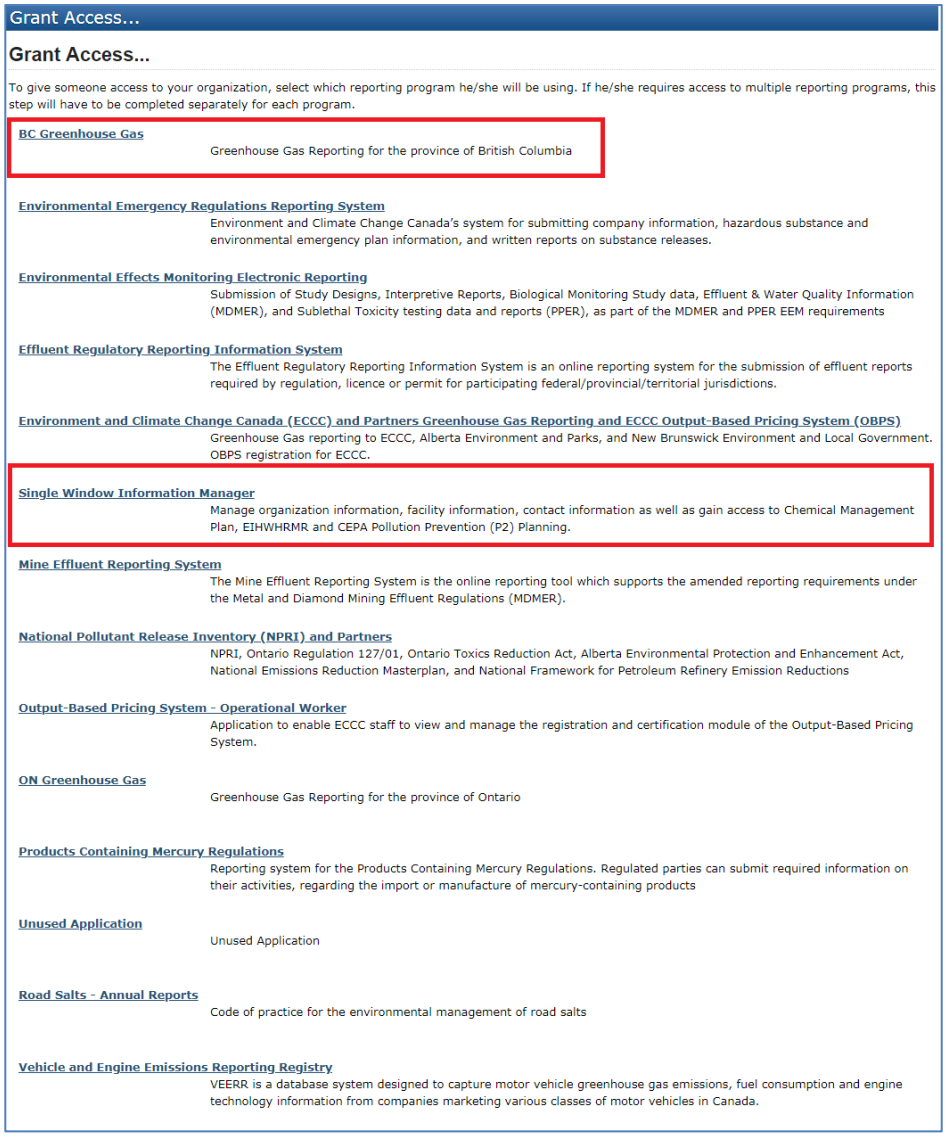
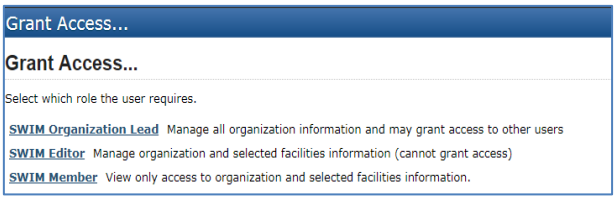


Fig. 2.3.14 Grant access – program selection

Grant access for BC GHG program: select role



Grant access for SWIM program: select role

Fig. 2.3.15 Grant new accesses

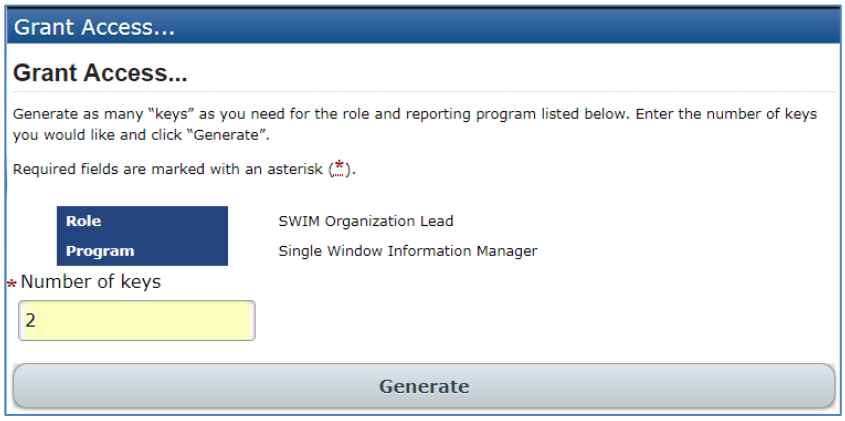


Fig. 2.3.16 Grant access: confirming the program and the role; determining the number of keys to be granted

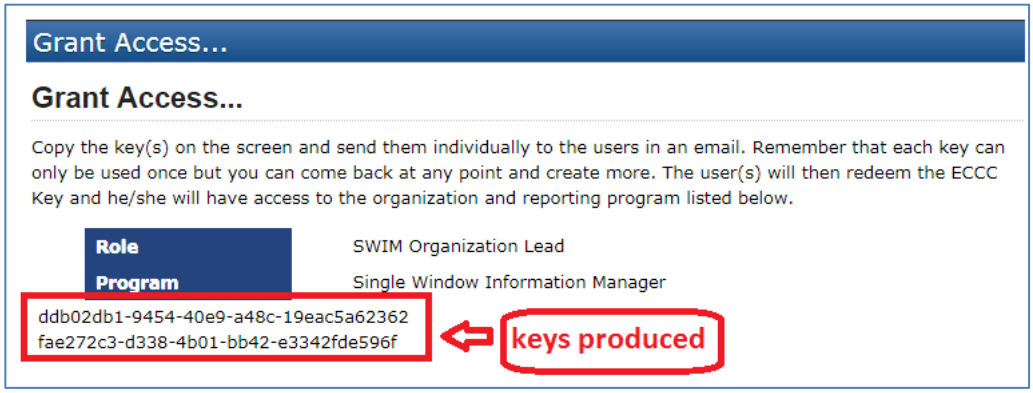


Fig. 2.3.17 Generated access keys for a specific program and role as required

3.6 Managing Facilities

Clicking the "**Facilities**" under the organization's name at the left side of the SWIM pane will display a list of facilities within the organization (Fig. 2.3.18).

A facility can be added to or removed from the Facility list of your organization. To remove one or more facilities, select the facility(s) by ticking off the checkbox"☐" at the left side of the facility name(s) and then click the "**Delete all selected**" button (Fig. 2.3.18).

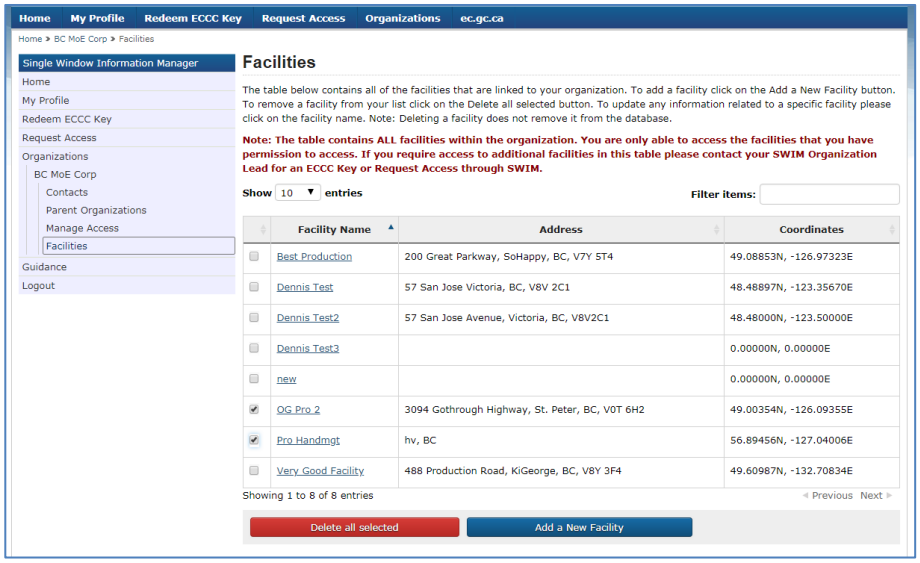


Fig. 2.3.18 Facility list within an organization

[Tips]

Removing a facility from the list doesn't completely remove it from the system. Indeed this facility is still residing in the background "warehouse" waiting for someone else to use it sometime in future.

Facility and Organization Names are case sensitive. A facility or organization with the same spelling but with different uppercase and lowercase letters will be considered as different organizations/facilities. For example, DElta Gas Plant and Delta Gas Plant are treated as different facilities.

To add a facility to the list, click the "**Add a New Facility**" button. The "**Search for an existing facility**" page will be displayed (Fig. 2.3.19), where you can enter a (part or a full) name, or a post code, or both, of the facility to conduct a search.

If the search produces any results (Fig. 2.3.20), pick one that you are looking for, and click the "**Add this Facility**" button in the column "**Add**" at the right side to add this facility to the Facility list within your organization. However, if a facility shown in the results is **underlined** as highlighted in Fig. 2.3.20, it means that is currently linked to another organization. You must request a "transfer" of this facility from its current organization to your own by indicating the ownership type as indicated (Fig. 2.3.21). After submitting the request, you may be asked for documentation of the transaction in order to be able to move the facility. Only after that properly done can you again add it to your list.

If the search produces no result (Fig. 2.3.22) or if the facility you are searching for is not included in the search result (Fig. 2.3.20), it indicates simply that the facility is completely new to the system. You will need to manually enter all the information required to add it to the list. Click the "**Add a New Facility**" button, a new facility information page will show up (Fig. 2.3.23), where you must enter the facility name correctly and the ownership type of an organization (i.e. owned, operated or owned and operated). You will also need to confirm if this facility is a portable one.

You will also need to provide the facility's Mailing Address, Physical Address and Geographical Address.

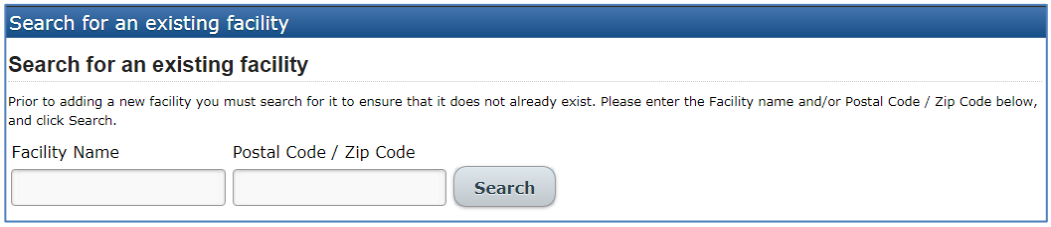


Fig. 2.3.19 Search for existing facility

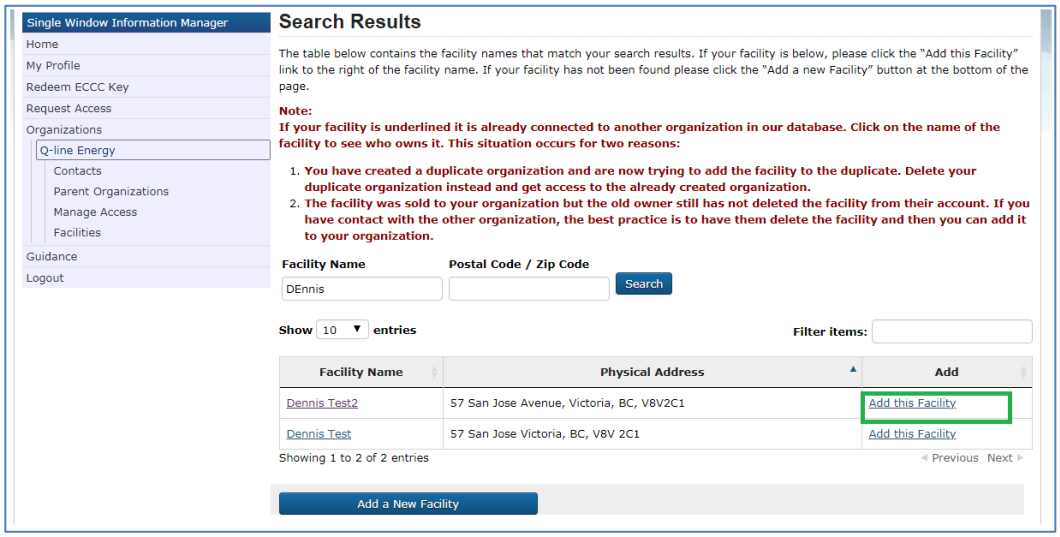


Fig. 2.3.20 Results of searching for existing facility

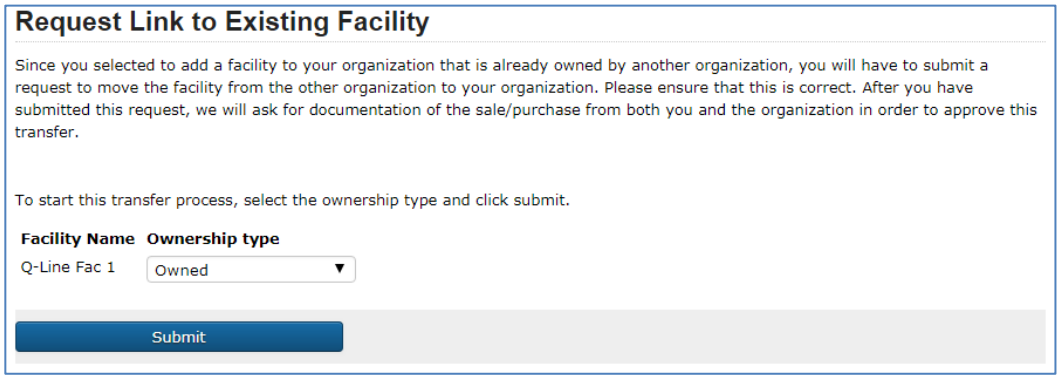


Fig. 2.3.21 Request to link to an existing facility in another organization's asset.

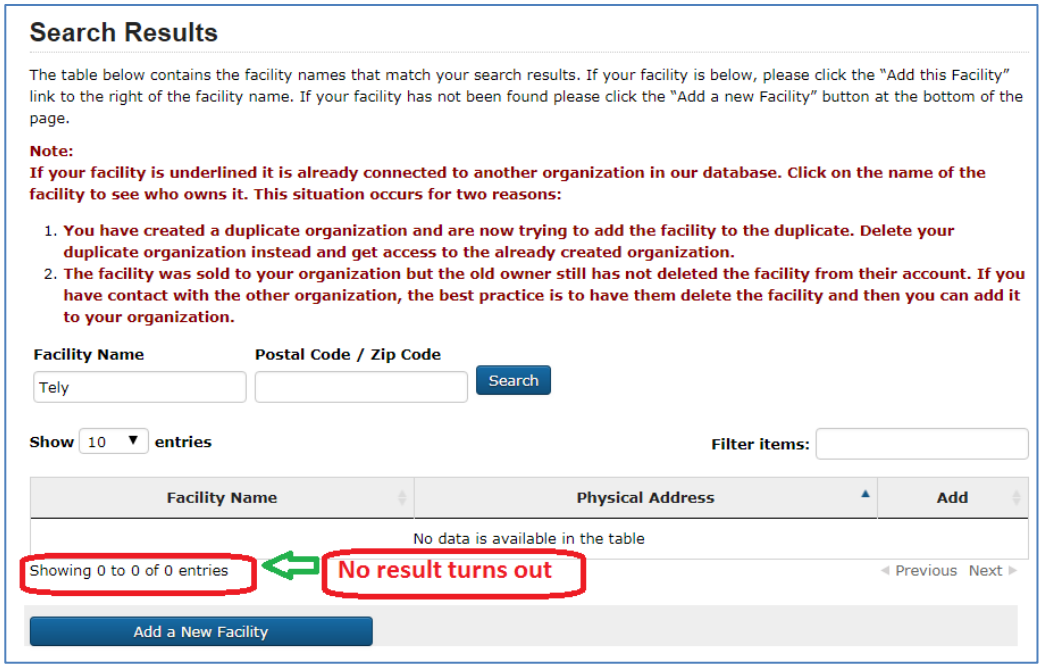


Fig. 2.3.22 Facility search turns out no result

[***Note***]

Ensure the name of an organization is always consistent with its registered name and the facility's name is meaningful. The following examples indicate what names are and are not acceptable for the purpose of BC GHG reporting, and this is intended to avoid confusion.

Company Name	Facility Name	Acceptable?
ABC Company- Victoria	ABC Company- Victoria	X
ABC Company- Langley	ABC Company- Langley	X
ABC Company	(ABC) Victoria Plant	V
ABC Company	(ABC) Langley Plant	V
XYZ Company	Aggregated Linear Facilities Operation (LFO)	X
MGH Inc.	Aggregated Linear Facilities Operation (LFO)	X
XYZ Company	XYZ Aggregated Linear Facilities Operation (LFO)	V
MGH Inc.	MGH Aggregated Linear Facilities Operation (LFO)	V
XYZ Company	Aggregated Linear Facilities Operation (L_c)	X
MGH Inc.	Aggregated Linear Facilities Operation (L_c)	X
XYZ Company	XYZ Aggregated Linear Facilities Operation (L_c)	V
MGH Inc.	MGH Aggregated Linear Facilities Operation (L_c)	V

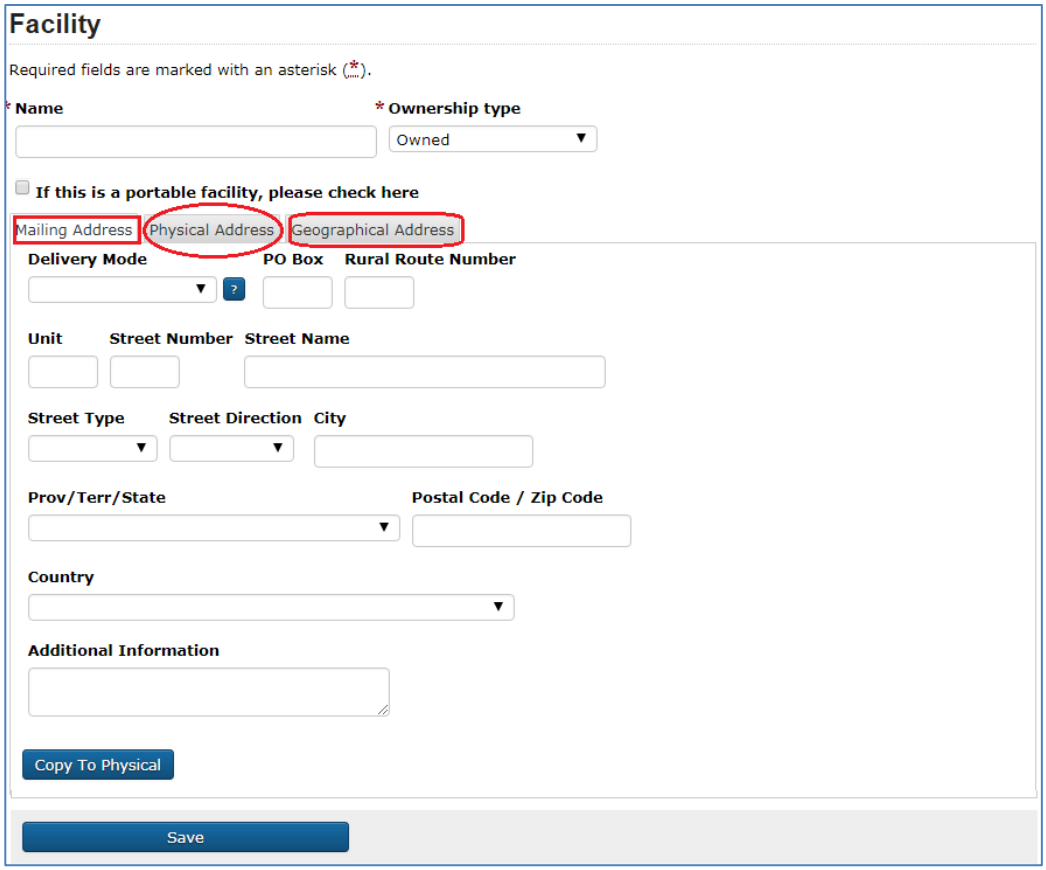


Fig. 2.3.23 New facility information entering window

Mailing Address: All details of a mailing address must be entered properly for an Organization, Parent Organization, facility and Contacts. If the mailing address is identical to the physical address, then clicking the "**Copy to Physical**" button will copy all the information from the Mailing Address to the Physical Address. Otherwise, click the Tab "**Physical Address**" to complete the physical address information.

Physical Address: Similar to Mailing Address, fill it out correctly. If it is identical to the Mailing Address, you can click the "**Copy to Mailing**" button to copy it to the Mailing Address.

[**Note**]:

*For the facility's **Physical Address**, the post code/zip code, if applicable, must start with "V" as it is located in the Province of British Columbia. Any other post code will be considered invalid.*

*For all addresses, the system provides the street types for ease and convenience, which you need to select from the dropdown list. Thus, do not enter the street type in the "**Street Name**" field as shown in Fig. 2.3.24.*

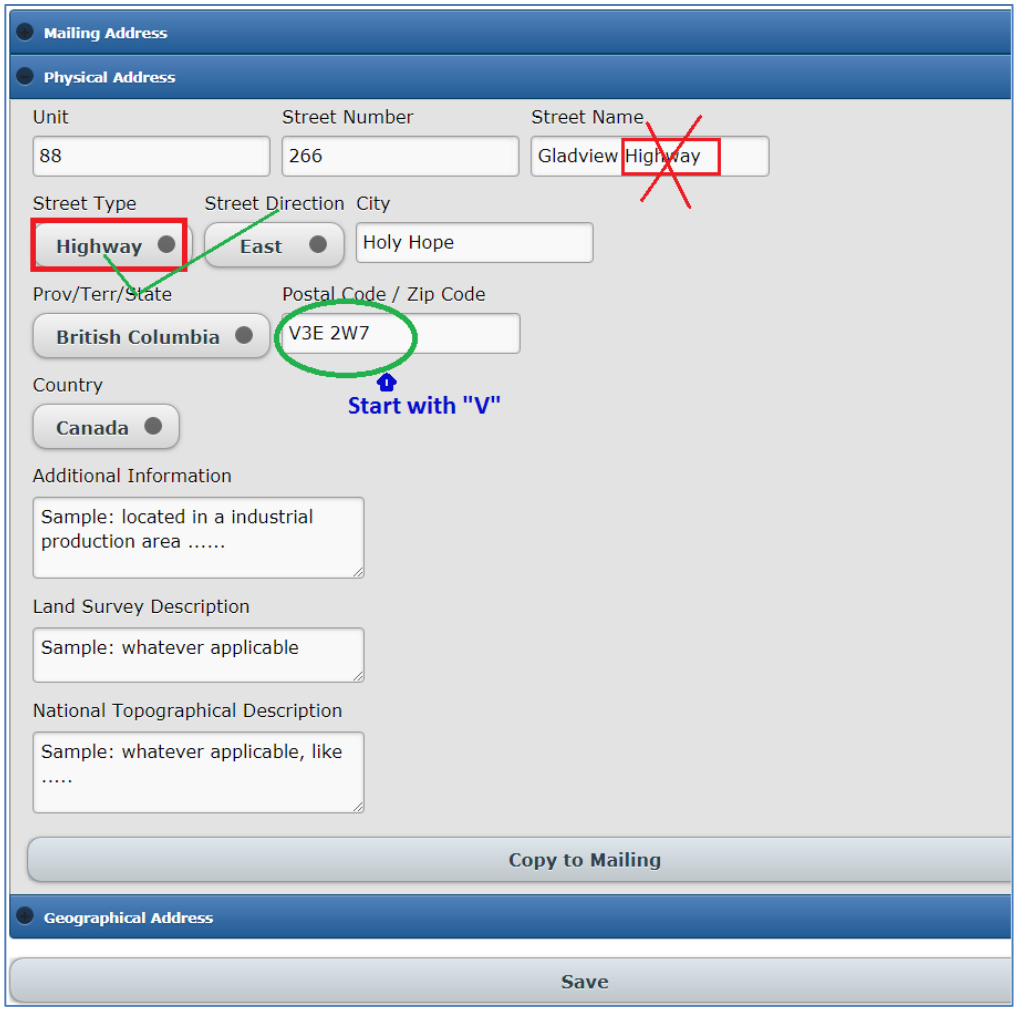


Fig. 2.3.24 Address information entry: (a) Avoid duplicating "Street Type"; (b) facility physical address post code must start with "V", when applicable

Geographical Address: also referred to as geographical coordinates, consisting of latitude (Lat.) and longitude (Long.). For locations in the Province of British Columbia, the values of the geographical coordinates range are shown below (Table I). The values of geographical coordinates are preferred to have 5 decimal places (Fig. 2.3.25) in order to accurately identify a place. Attention needs to be especially paid for those places on the borderlines since the provincial's territory is not in a regular rectangle shape.

Table I Geographical coordinates value range in BC

	Value Range
Latitude	48.00000 ~ 60.00000
Longitude	-114.00000 ~ -134.00000

The Universal Transverse Mercator (UTM), another kind of geographical address, is not required at this time, and thus its entry is optional.

After all information is entered and no error exists, click the "**Save**" button to save the data to the system, and the system jumps back to the Facilities (list) page as shown in Fig. 2.3.18.

*[**Warning**]*

Ensure the geographical coordinate values are in the range for the Province of British Columbia. Values are with 5 decimal places;

Ensure that the "-"sign appears in front of a longitude value. Without it, a location would be allocated to eastern hemisphere.

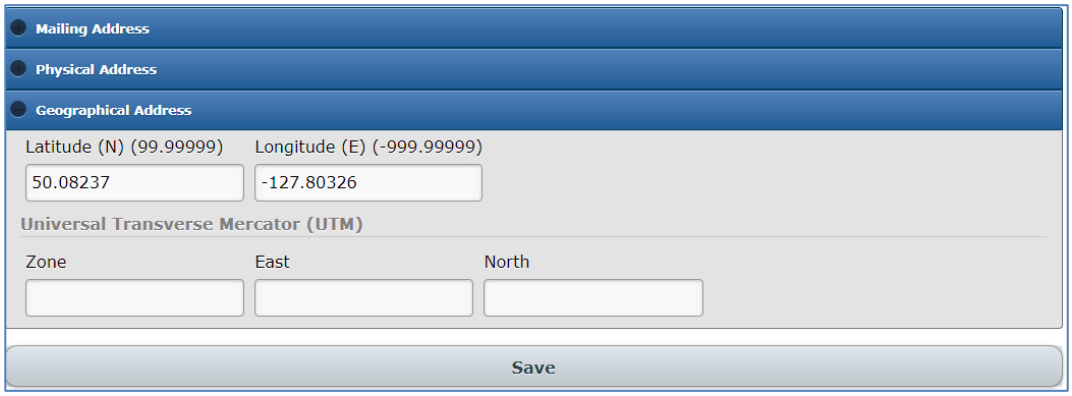


Fig. 2.3.25 Geographical address entries. Latitude and longitude are preferred to have 5 decimal places

*[**Tips**]*

For entries with errors that are saved but not corrected yet, you can always come back later to correct them before submission. Otherwise, they will prevent you from submitting a report. This applies to all the steps in the reporting.

NAICS, Identifiers and Permits

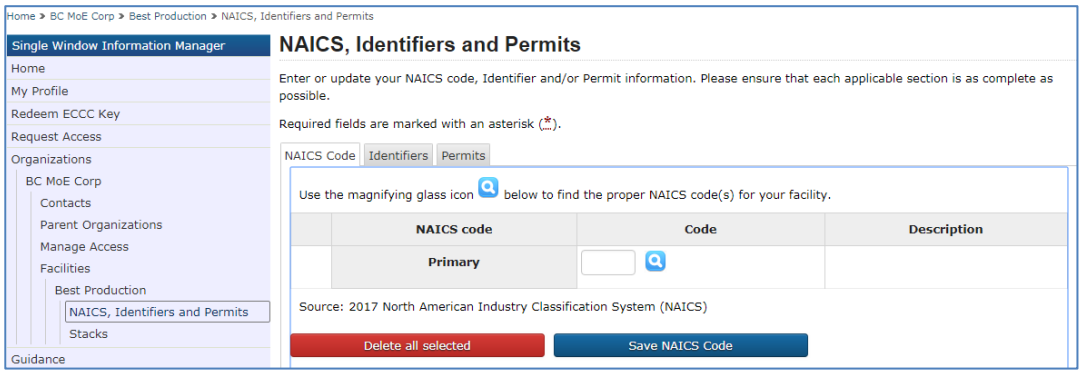


Fig. 2.3.26 NAICS, Identifiers and Permits entries for a facility

According to the Regulation, facilities are required to provide the following:

(1) NAICS codes

Any activities carried out in a facility correspond to specific codes designed by the North American Industrial Classification System (NAICS), referred to as the NAICS code. In SWIM the 2017 version of NAICS code is adopted. Facilities in oil and gas sector as well as cannabis sector are strongly recommended to review their entries to make sure they are current and updated, and reflect the actual activities carried out in the facilities. NAICS code must appropriately reflect the real activities carried out in your facility.

Clicking the magnifying glass "🔍" brings up the NAICS code list. Clicking the "⊞" consecutively will expand a code to its bottom line, corresponding to the detailed activity. When a correct code is found, clicking it (Fig. 2.3.27) will make the code appear in the window. Clicking the "**Save NAICS Code**" will save it into the system and another code entry fields will pop up (Fig. 2.3.28). The system can take up to three NAICS codes for one facility. They are as identified as Primary, Secondary and Tertiary codes, respectively.

To delete a NAICS code, tick off the checkbox "☐" for the specific one and click the "Delete all selected" button.

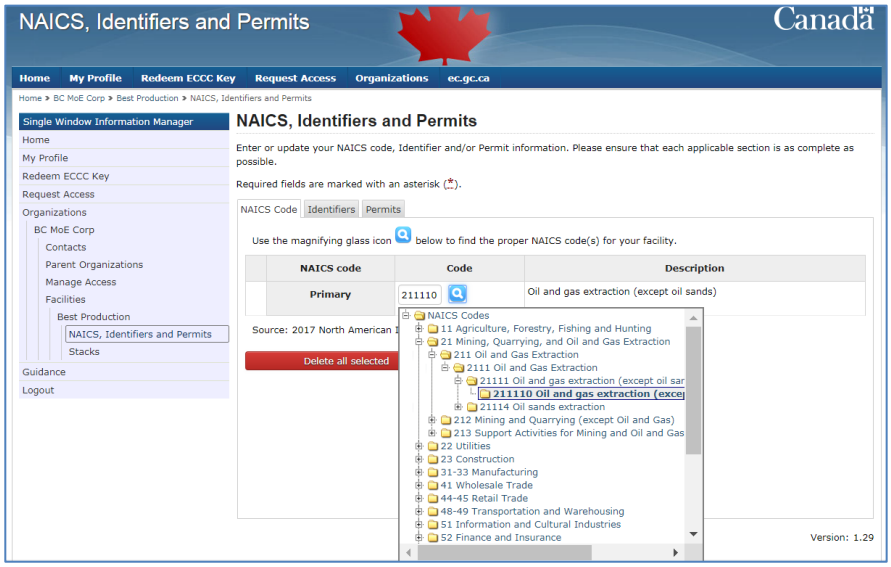


Fig. 2.3.27 Primary NAICS code entry

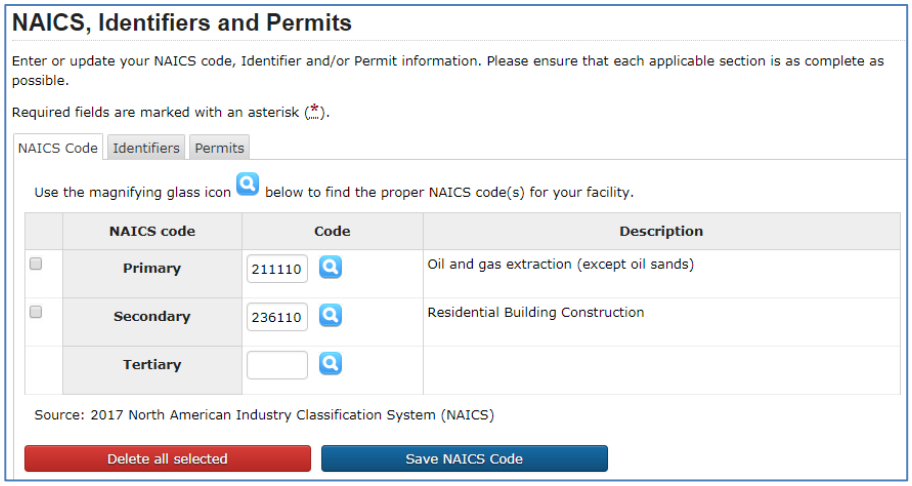


Fig. 2.3.28 Secondary and tertiary NAICS codes entry

(2) Identifiers

The system accepts identifiers for a facility such as BC GHG ID, NPRI number under the "Identifier" tab. However, in order to avoid any confusion, BC GHG ID has been removed from the dropdown list. Climate Action Secretariat staff enters each facility's BC GHG ID into the system on behalf reporters. For other identifiers a reporter must manually enter them as shown in Fig. 2.3.29 when applicable, by clicking the dropdown list under the "**Type of Identifier**" to select the appropriate one first.

After entering an identifier properly, clicking the "**Add Identifier**" button saves the entry to the system. Repeat this procedure until all the identifiers are entered.

To delete an identifier, tick off the checkbox "☐" for the specific one and click the "**Delete all selected**" button.

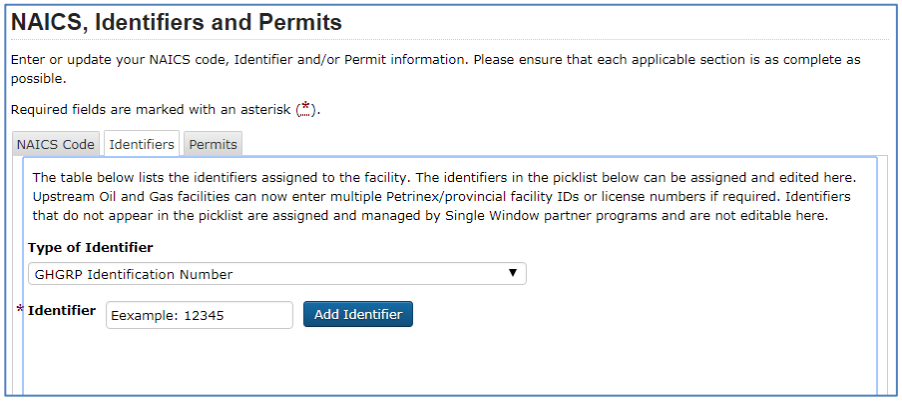


Fig. 2.3.29 Identifier entry

(3) Permits

Permits like air discharge permits etc. must be entered and reported to the government as required by the Regulation. Fig. 2.3.30 shows the permit entry window, where you need to enter the name of the permit issuing agency and the associated permit number. Clicking the "**Add Permit**" button will save the permit entry (Fig. 2.3.31). Repeat these steps until all the permits are entered. Fig. 2.3.31 shows the Permits that have already been entered as highlighted at the bottom. To delete any Permit, tick off the checkbox "☐" for the specific one and click the "**Delete all selected**" button. You can also conduct a search for a Permit by entering searching elements in the "**Filter items**" field in Figs. 2.3.30 and 2.3.31.

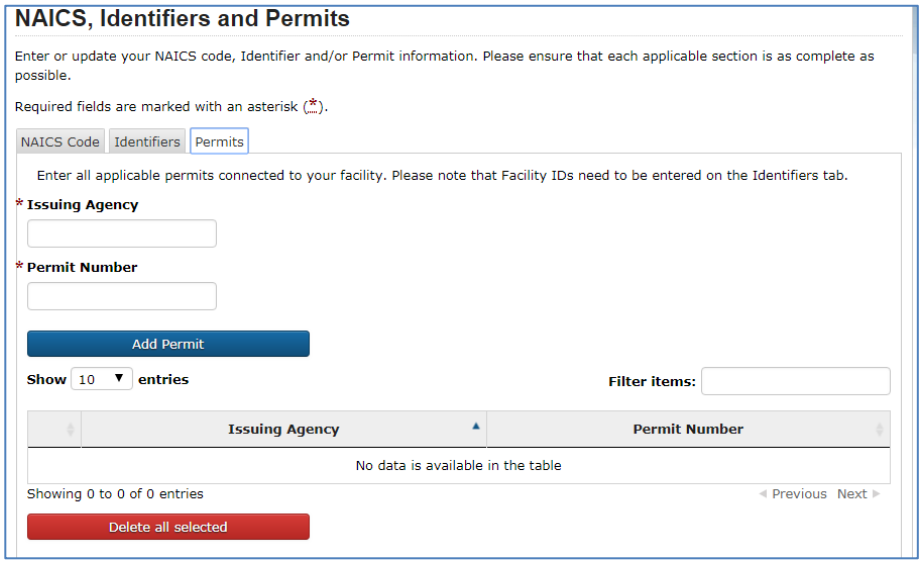


Fig. 2.3.30 Facility permits entry

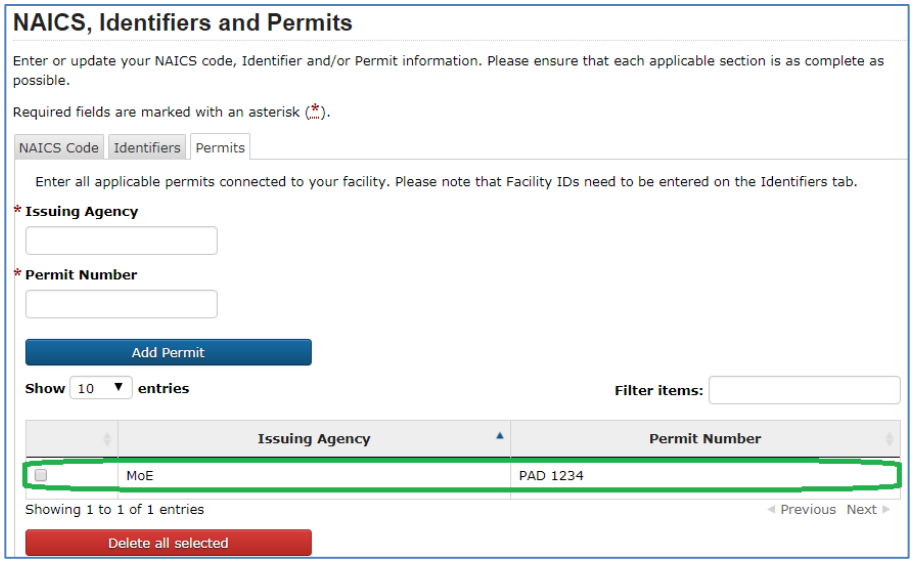


Fig. 2.3.31 New entry fields for Permit and existing Permit(s)

Stacks

It is recommended that all stacks at a facility be reported. Clicking the Tab "**Stacks**" brings up the "**Stacks**" entry window (Fig. 2.3.32). Further clicking the "**Add a new stack**" button starts the process of entering stack information (Fig.2.3.33). After entering all related information, clicking the "**Save**" button returns you back to the "**Stacks**" window again but with an entry there already (Fig. 2.3.34). The stack that you have just entered should be listed there now (Fig. 2.3.34).

Repeat the foresaid process until all stacks are entered. You can search for an existing stack by entering stack information into the "**Filter items**". To delete an existing stack(s), tick off the checkbox "☐" for the specific one(s) and click the "**Delete all selected**" button.

Fig. 2.3.32 Stacks entry window

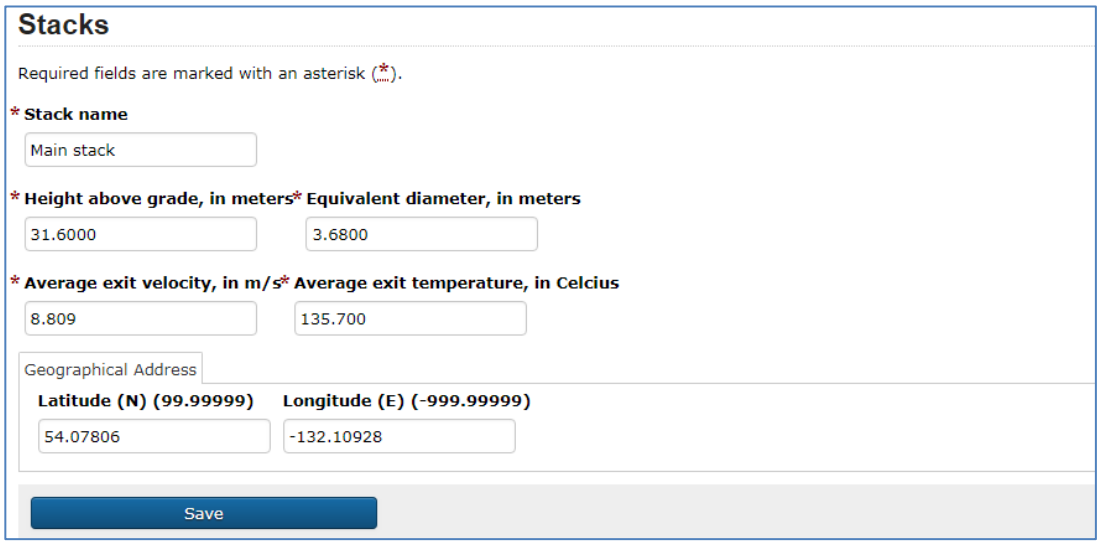


Fig. 2.3.33 Stack information entry window

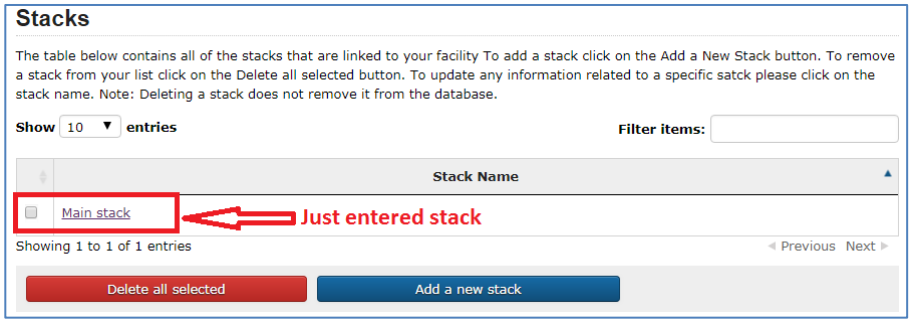


Fig. 2.3.34 Stacks window with existing entry

This sums up all of the data entry requirements for the SWIM module. Enjoy the further journey!

4. Program Module block contents

The program module block hosts many different programs for partners across Canada including those for Environment and Climate Change Canada (such as GHGRP, NPIR), BC GHG, Ontario GHG, Ontario TRA, AB GHG etc.

Below we will only focus on BC GHG Program.

Chapter 3 BC GHG Module

Once you completed necessary data entries in SWIM, you can now move to the "BC Greenhouse Gas" (i.e. BC GHG) module to work on GHG emissions reporting for the activities carried out at your facility(s) within your organization(s). The following will walk you through each step of the entire process.

1. Reporting Dashboard

When you are in the SWIM module, clicking any one of the three "Home" links (Fig. 3.1.1) will bring you to the Home page (Fig. 3.1.2).

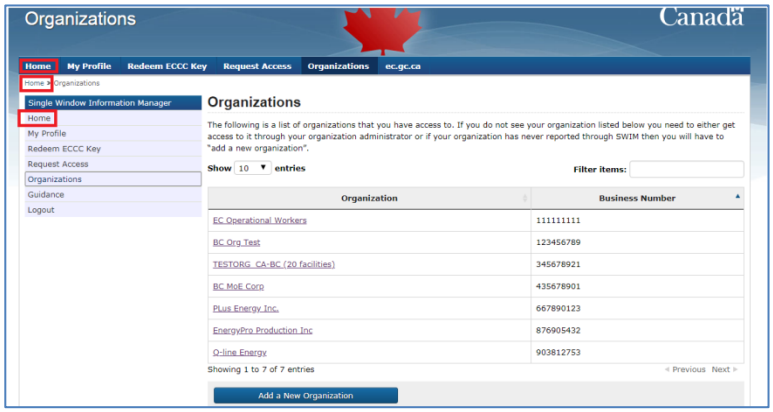


Fig. 3.1.1 Accessing the Home page from anywhere in SWIM by clicking the "Home" link

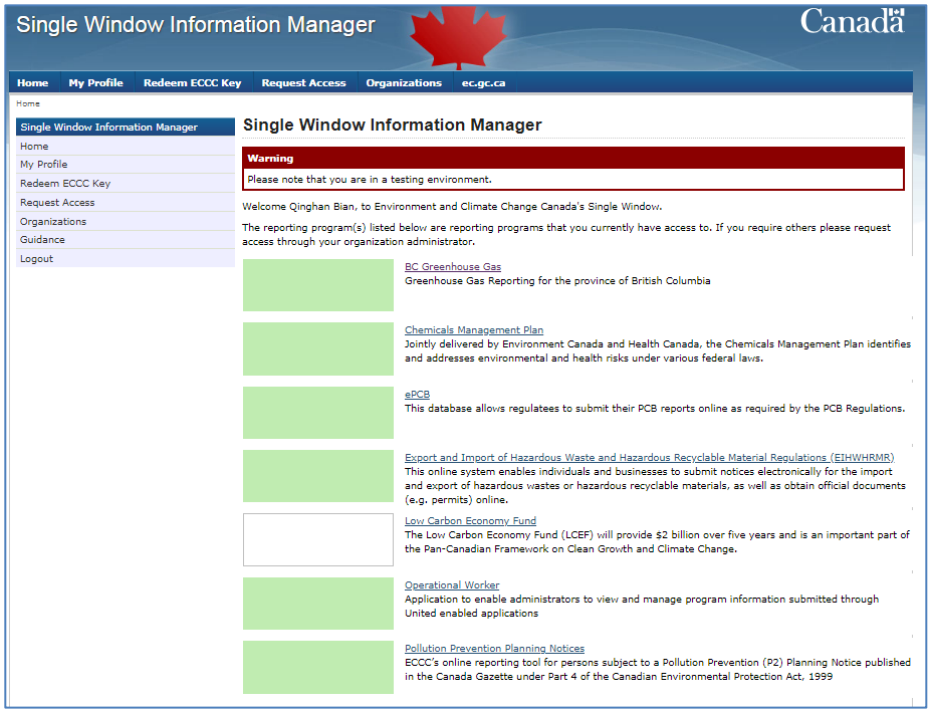


Fig. 3.1.2 Single Window Reporting System (SWRS) "**Home**" page

From the "**Home**" page clicking "**BC Greenhouse Gas**" brings you to the "**Reporting Dashboard**" (Fig. 3.1.3).

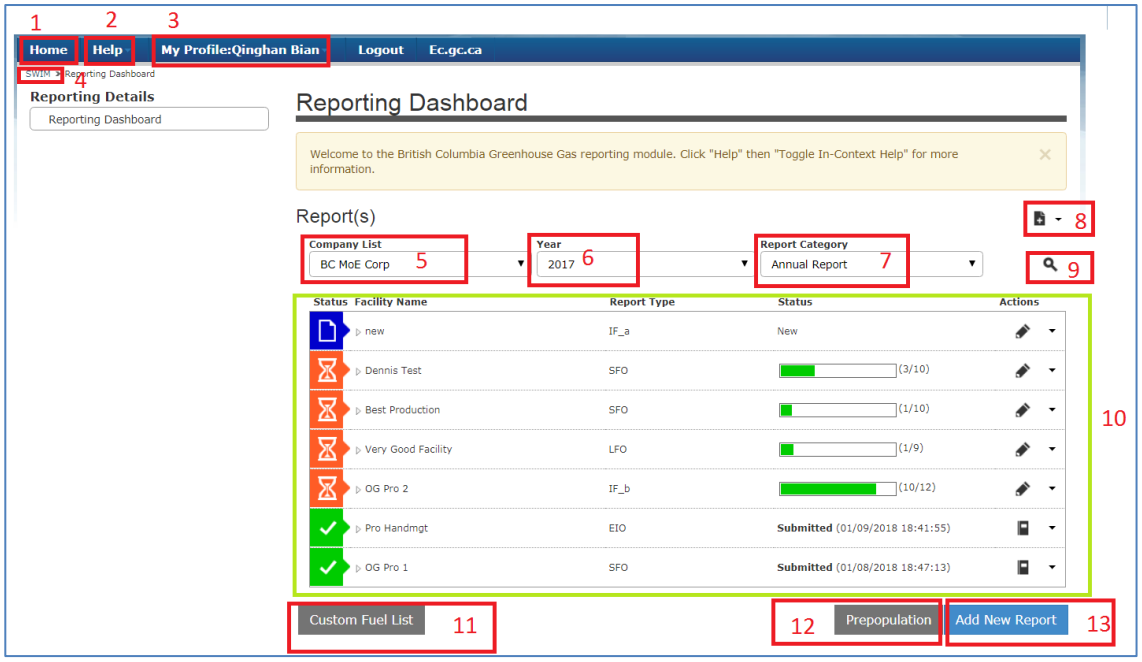


Fig. 3.1.3 Reporting Dashboard

There are several components on the **Reporting Dashboard** as shown in Fig. 3.1.3, which are elaborated below.

#1 - "**Home**" and #4 – "**SWIM**": clicking either one will bring you to the "**Home**" page

#2 - "**Help**": Clicking the "**Help**" shows 4 options as shown below: **Toggle In-Context Help**; **Contact BC GHG**, **Report a Problem** and **SWIM Guidance** (Fig. 3.1.4). Further clicking "**Toggle In-Context Help**" prompts a window shown in Fig. 3.1.5., where detailed explanation on each action that can be implemented is given.

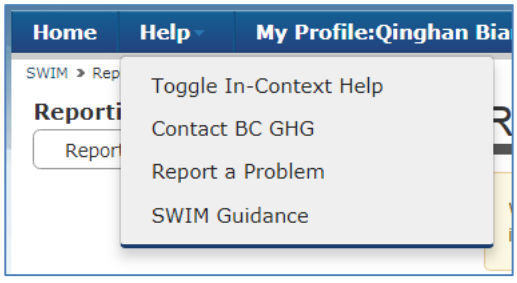


Fig. 3.1.4 Help Contents List

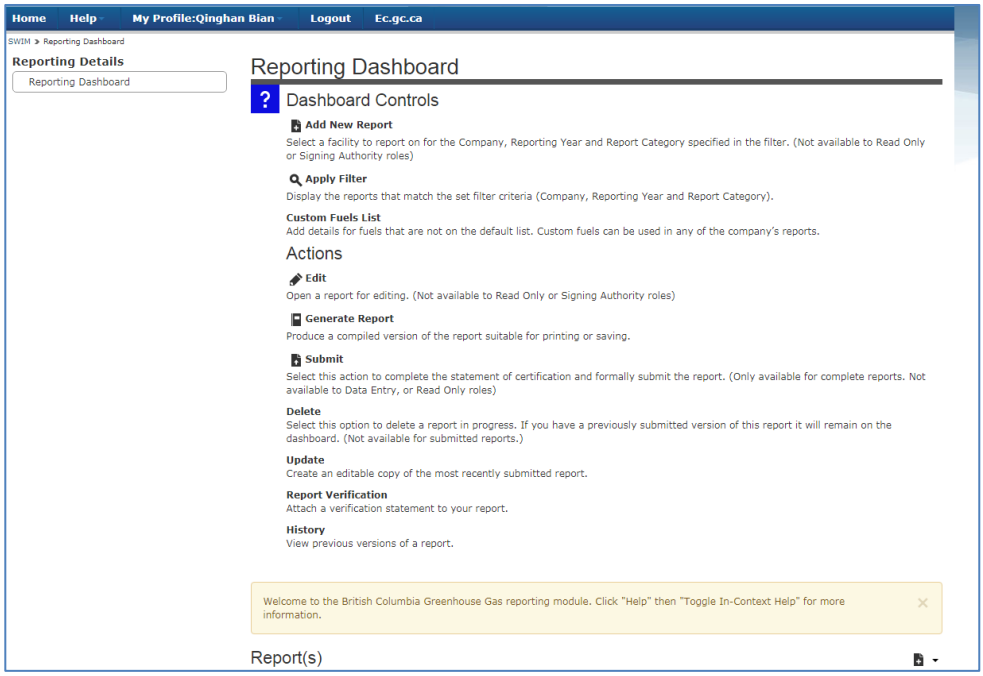


Fig. 3.1.5 Contents of Toggle In-Context Help

Clicking "**Contact BC GHG**" gives you the contact information about BC GHG reporting as shown in Fig. 3.1.6, where Mailing Address, Tel#, Fax # and Email address are provided. You can also explore more information about BC's industrial GHG reporting program from the embedded link provided with **British Columbia Ministry of the Environment**. If you are experiencing any technical difficulties, you can send email to the SWRS team as indicated at the bottom in Fig. 3.1.16.

Fig. 3.1.6 Contact information about BC's industrial GHG Reporting

Clicking "**Report a Problem**" will let you send an email to the BC GHG Reporting Team if you have any difficulty in the system or anything else you want them to be aware of.

Clicking the "SWIM Guidance" will lead you to ECCC's Single Window's Guidance website https://www.canada.ca/en/environment-climate-change/services/reporting-through-single-window/guidance.html.

#3 "**My Profile:Your Name**": clicking it shows your role in the BC GHG Module.

#5 - "**Company List**": shows your organization's name(s). If it is not shown automatically, you may want to click the dropdown arrow ( ) to double check if it is there. Click the dropdown arrow and select your organization name from the dropdown list, then click the magnifying glass ( ) icon to bring any facility names up to front.

#6 – "**Year**", refers to the year for which period the GHG is to be reported.

#7 – "**Report Category**": There are "**Annual Report**", "**Sale, Close or Purchase Report**" to select. "**Annual Report**" refers to the annual GHG report, and "**Sale, Close or Purchase Report**" refers to the report when a facility's status has been changed for example, sold to or purchased from another owner, or closed or decommissioned etc.

#8 – "" mark means adding a new report for the selected organization. Further, clicking the dropdown arrow beside of it shows two options: "**Add**" and "**Prepopulation**". "**Add**" means adding a new report from scratch and "**Prepopulation**" means adding a new report by using a prepopulated report from a previous year.

#9 – "": Magnifying glass for search.

#10 – Shows the list of reports of facilities within the reporting operation (i.e. organization) indicated in #5 for the year shown in #6 corresponding to the Report Category #7. You can start or continue a report by clicking the pencil mark ("") or a report can be submitted by clicking the "" mark or a report can be generated for record by clicking the "" mark. If you want to delete a report, click the dropdown arrow at the most right side and select "Delete" to complete the deletion.

Depending on the progress status of a report, clicking the dropdown arrow ( ) at the most right side of a report will show the action options that can be applied to it (Fig. 3.1.7). In addition to "**Edit**", "**Delete**" and "**Generate Report**" commands, "**Report Verification**" and "**Update**" may show up if a report has already been completed. Selecting any of these options will lead you to the dedicated process to that command.

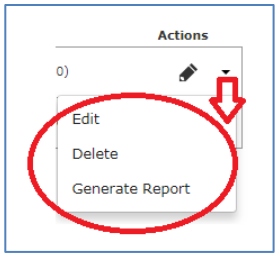


Fig. 3.1.7 Work options for a report

[**Warning**]: *If a facility has changed the ownership, even if its name still appears on the list, clicking "**Update**" or "**Edit**" will display the following warning (Fig. 3.1.7a)*:

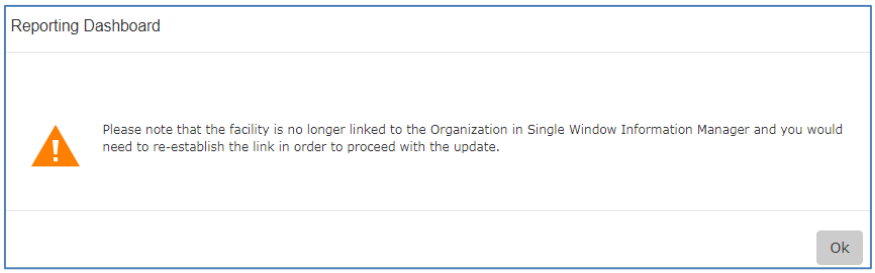


Fig. 3.1.7a Warning message when a facility doesn't belong to the previous organization

#11 – "**Custom Fuel List**": If a fuel used in the facility is not on the default fuel list and is new, before starting a new report, you can add the new fuel to the list. **Otherwise, you will not be able to use the fuel in the system.** Clicking the "**Custom Fuels List**" button at the bottom in Fig. 3.1.3 brings up a "**Custom Fuels List**" child page (Fig. 3.1.8). If there are any custom fuels listed there, you can edit or update their information by clicking the " ". Click the " " mark will open a new page (fig. 3.1.9) to proceed with addition of a new fuel to the list.

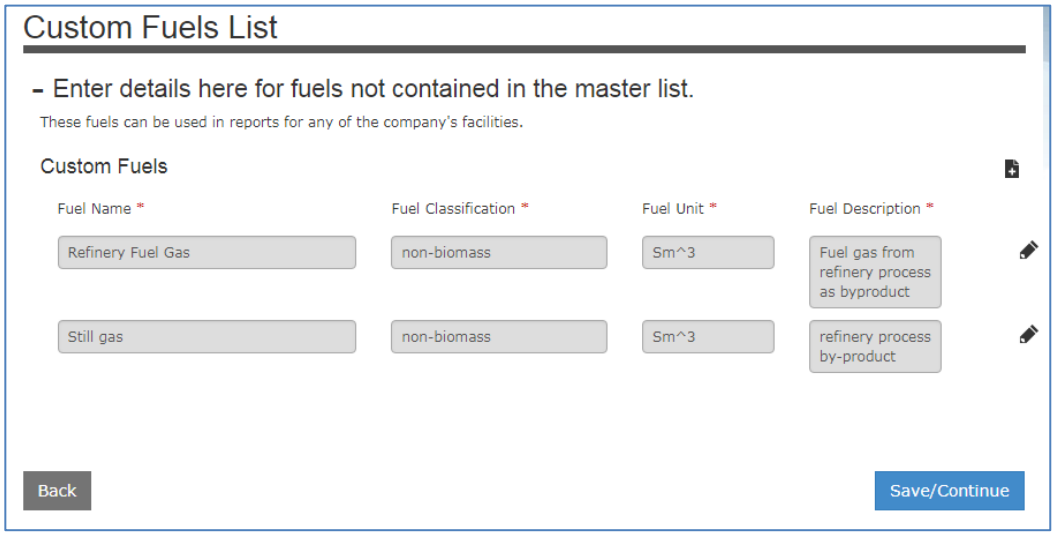


Fig. 3.1.8 Custom Fuels List child page

#12 – "**Prepopulation**": Clicking it will populate a list of reports for the facilities from **previously years** within the organization that are available, pick one that you want to use for the specific facility for the current reporting year. Remember you need to remove all the existing information and attached files and then re-enter all new information for the current year. Using prepopulation function is convenient and saves efforts when you had reported for the same facility previously, but it is double-edged sword. Unremoved previous data will risk your report quality.

*[**Warning**]:*

> *When using Prepopulation function, the previous data and attached files still exist, and it is the reporter's responsibility to remove them and then enter the new to reflect the situation for the current reporting period. Submitting previous data for the current reporting period will constitute a non-compliance situation.*

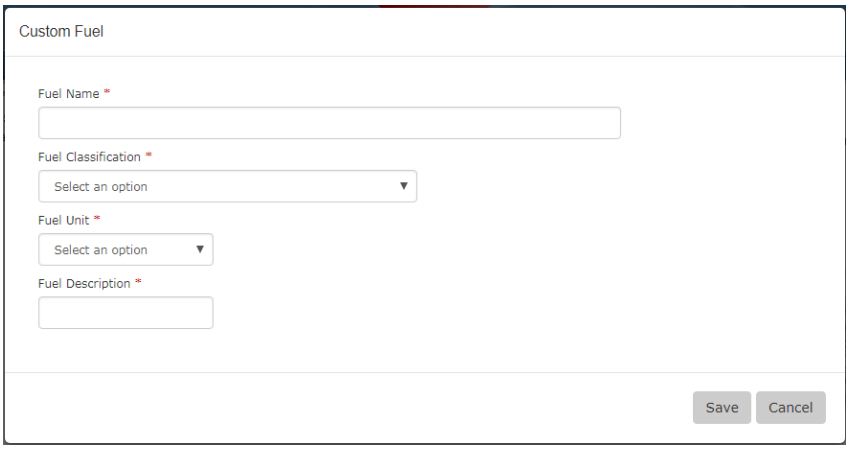


Fig. 3.1.9 Custom fuel entry page

#13 –"**Add New Report**": Clicking "**Add New Report**" button will start a new report from very beginning as the processes shown below. This particularly applies if a facility doesn't show up on the list as discussed in #10.

- ***Find Facility***: Clicking the "Add New Report" button brings up the "Find Facility" page where the facilities already existing in the system shows up. First find the facility that you want to report for. If it is not on the list, do the search by typing the facility's (part or full) name into the "**Facility Name**" box, then clicking the search button (i.e. magnifying glass 🔍) as discussed in the SWIM part (Fig. 3.1.10). If the facility shows up, clicking the "📄" opposite the facility name will take you back to the **Reporting Dashboard** with the new facility's added on, and following the steps discussed in #10 to continue the process.

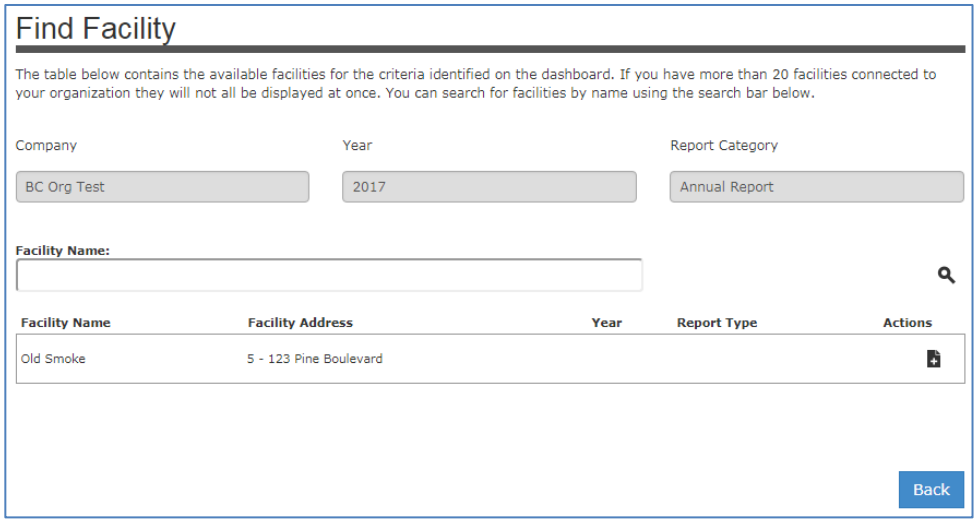


Fig. 3.1.10 Finding facility for a new report

*[**Note**]*

*Clicking "**Back**" button when available will go back to the previous page. Or if you are in the middle of a reporting process, and if you want to go to somewhere, another option is to click the item at the left-hand side directly.*

2. Facility Status Change Report

If a facility changed its status such as Sale/Purchase or Close, a report on the status change must be submitted through the SWRS. To do that, select "**Sale, Close or Purchase Report**" by clicking the dropdown arrow in the "**Report Category**" column.

If the facility you are planning to report for is a new reporting entity with the reporting obligation under the BC GGERR, then you must submit a Registration Form first before you start working with the SWRS.

There are many actions you can do on a report in the system. Depending on the status of a report, the options vary. If it is a new report, "***New***" under the "***Status***" column indicates that it is a "brand new" facility report and nothing has been entered yet (Fig. 3.2.1).

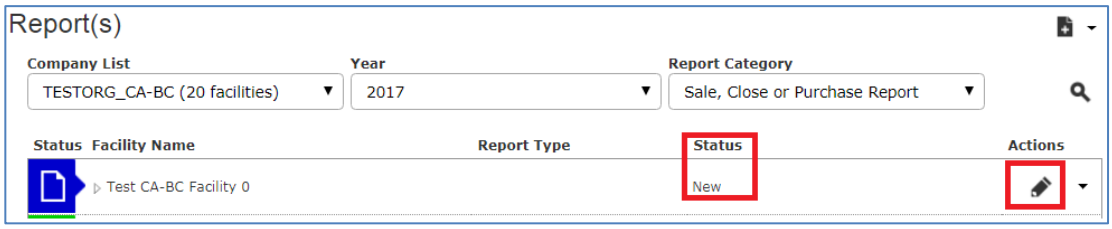


Fig. 3.2.1 Brand new report's status

2.1 Report Creation

To start a new report, follow the brief instructions discussed in section **1. Reporting Dashboard** earlier. If the organization name is listed under the "**Company List**", then locate the facility and click the pencil mark ( ) (Fig. 3.2.2) to start the reporting for that facility. Depending on where you've been in the process, the status may vary: **New**, blank content ("(0/1)"), **Ready to Submit**, **Submitted** (with a time stamp) or **Verified** will appear.

On the reporting page (Fig. 3.2.2), the "**Notification Type**" such as "Purchase", "Close" etc. under the "**Company Information**" section can be selected by clicking the dropdown arrow in the corresponding column at the right-hand side.

"**Effective Date**" and "**Facility Type**" under "**Facility Details**" must be filled accordingly; and the information about the person who prepared this report (i.e. "**Notification Prepared By**") must also be entered.

"**Other Company Information**" and "**Other Company Contact Person**" must be correctly entered as well if the facility had changed ownership. However, if the facility experienced "Close", or "**Shut-in**" or "**temporary closure/Closed**", this information is not required.

After successfully completing these data entries, you can check if everything is correct by clicking the "**Validate**" button. If everything is good you can click "**Save/Continue**" button, which will lead you back to the section **1. Reporting Dashboard**, where the status will become to "**Ready to Submit**" (Fig. 3.2.3).

*[**Note**]*

No rule exists to check the postal code here as does for regular GHG reporting and thus carefulness is advised.

*[**Tips**]*

*Clicking the " " from " " at the right upper corner (Fig. 3.2.1) will do the same thing as clicking the "**Add New Report**" button.*

Clicking the " " from " " at the right upper corner (Fig. 3.2.1) will show "Add New Report" and "Prepopulation" for selection.

These apply to GHG report as well.

Remember to carefully check if the information entered corresponds correctly to what required. Keep in mind that the postal code must also represent the place indicated properly.

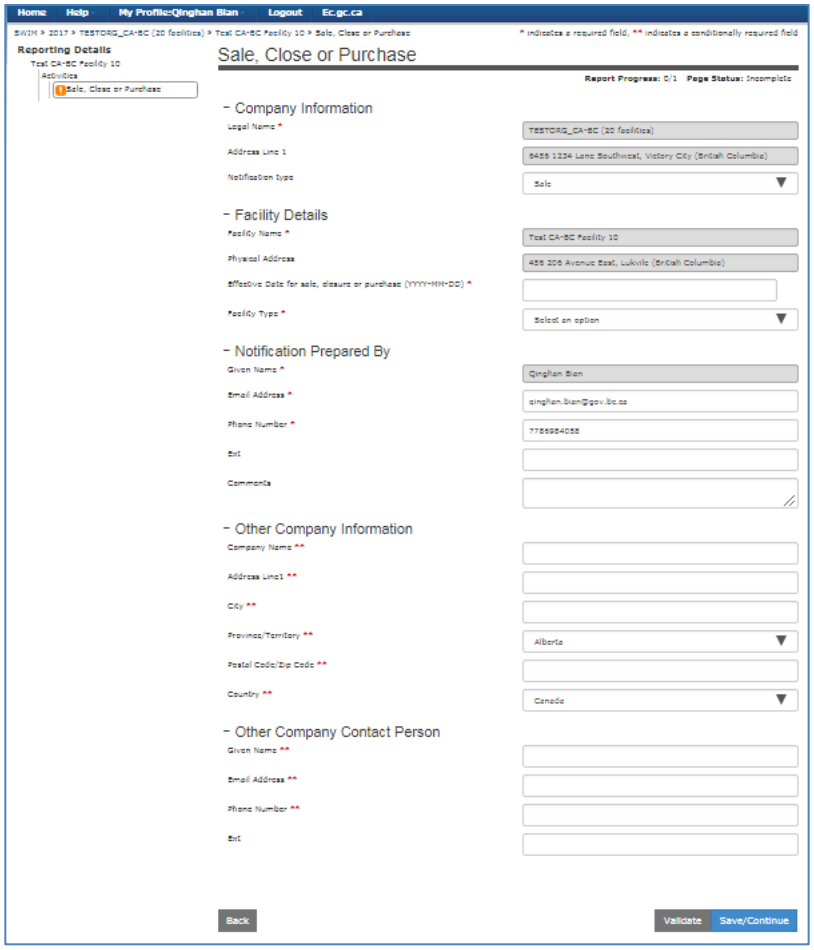


Fig. 3.2.2 Sale, Close or Purchase report page

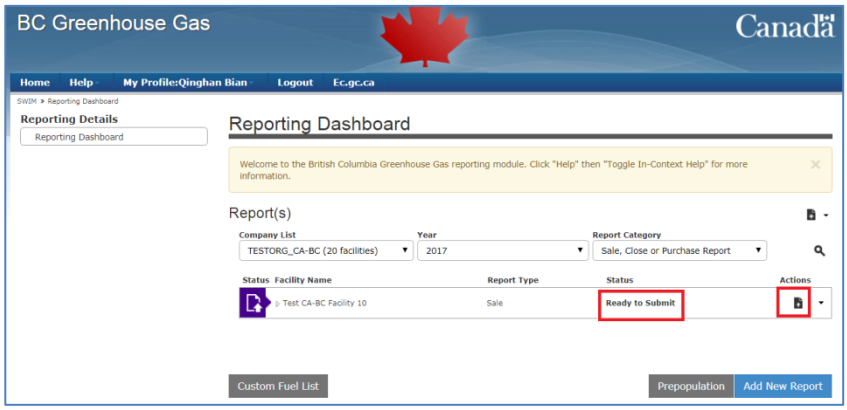


Fig. 3.2.3 Status after completing entries for Sale, Close or Purchase Report

*[**Note**]*

*It's worth to note that if you press the **Save/Continue** button to save the report before completion, the Status column in Fig.3.2.3 will be blank ("(0/1)") like that shown in Fig. 3.2.3a.*

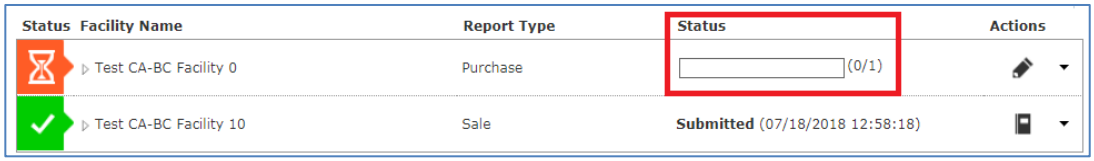


Fig. 3.2.3a The status of an In-Progress Status Change Report shows blank

2.2 Report Submission

When the entry is completed and the Status shows "**Ready to Submit**", you can either click the mark "" or click the dropdown arrow ( ) and select the "**Submit**" to submit the report. Then you will be prompted to the "**Report Submission and Electronic Certification**" page where you can double check the information entered to make sure no error exists. If there is any error, click the "**Back**" button for correction (which will be elaborated later). If everything is good, scroll down to the bottom of the "**Approval**" section where electronic certification is required. Check the box "" and click the "**Submit**" button to submit the report and complete the reporting process (Fig. 3.2.4).

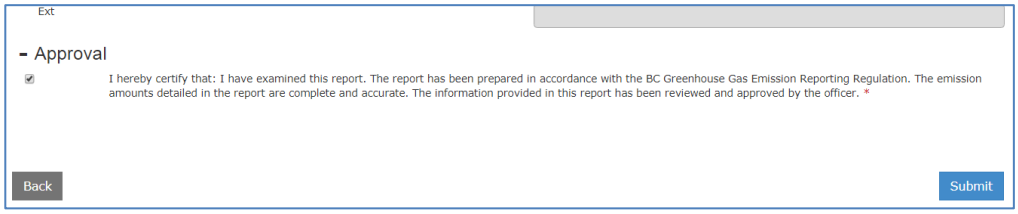


Fig. 3.2.4 Report electronic certification

*[**Tips**]*

Checking the box "" as shown in Fig. 3.2.4 is mandatorily required in order to submit a report.

Once the report is submitted, a new window pops up, advising you that "***The report was successfully submitted***" (Fig. 3.2.5), and the Status in the "**Reporting Dashboard**" changed to "**Submitted**" (with time stamp attached) (Fig. 3.2.6).

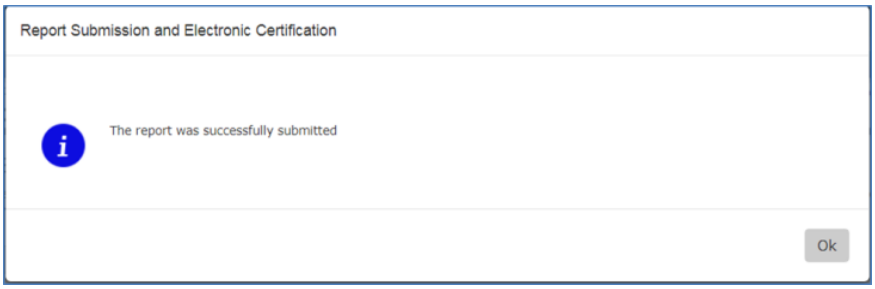


Fig. 3.2.5 Notification of successful submission of a report

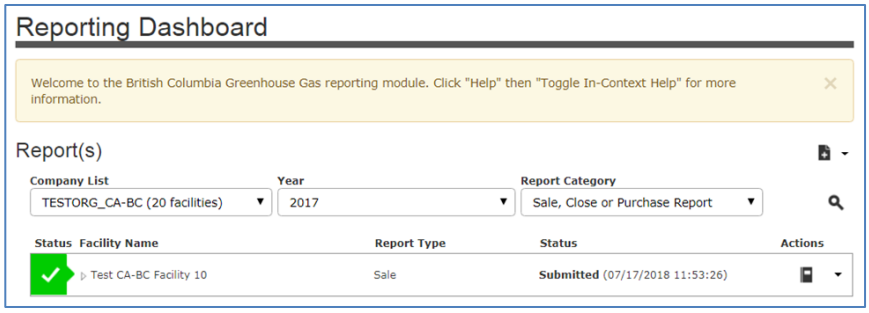


Fig. 3.2.6 Status changed to "Submitted" in Reporting Dashboard

A system generated automatic email notification (Fig. 3.2.7) (with left side in French and right side in English) will be sent to your email box immediately after the submission, advising you for which organization, which facility and which year and at what time etc. the report has been submitted.

Fig. 3.2.7 Automatic email notification of a report submission

2.3 Report Generation

After submitting the report, you may want to keep a copy of what you have submitted for your own records. This can be done by "**Generate Report**". Clicking the mark "" or the dropdown arrow ( ) and selecting the "**Generate Report**" (Fig. 3.2.6) pops up a Consent window (Fig. 3.2.8) for confirmation, and once consenting to continue by clicking the "**Yes**" button the report is displayed (Fig. 3.2.9). Clicking "**No**" will cancel the report generation process.

At the bottom of the window, there are two buttons: "**Export"** and "**Back"** (Fig. 3.2.9). Clicking the "**Export**" generates the report in PDF format, which can be saved in a place you want. Clicking "**Back**" will go back to the Reporting Dashboard.

*[**Tips**]*

When the working page is longer than the screen the function buttons are floating instead of fixed to the bottom of the page. This provides you with the convenience and flexibility to proceed quickly.

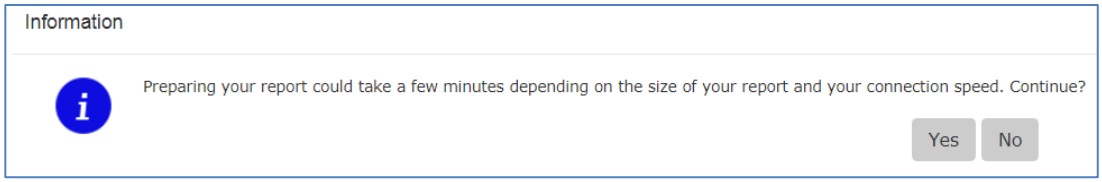


Fig. 3.2.8 Report generation consent

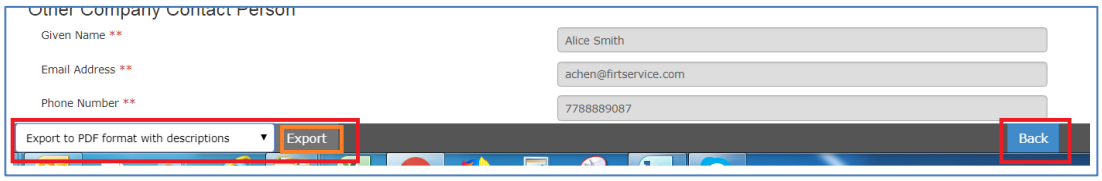


Fig. 3.2.9 Report generation through "**Export**"

2.4 Report Update

At any time after submission of a report, you can edit or update the report by using the "**Update**" function to correct errors or make updates. This is referred to as "**Report Update**", usually happens when verification finds any errors.

To update a report, click the dropdown arrow (▾) and select "**Update**" (Fig. 3.2.10), the system will prompt you to provide comments on why you are updating the report – "**Report Update Comments**" (Fig. 3.2.11).

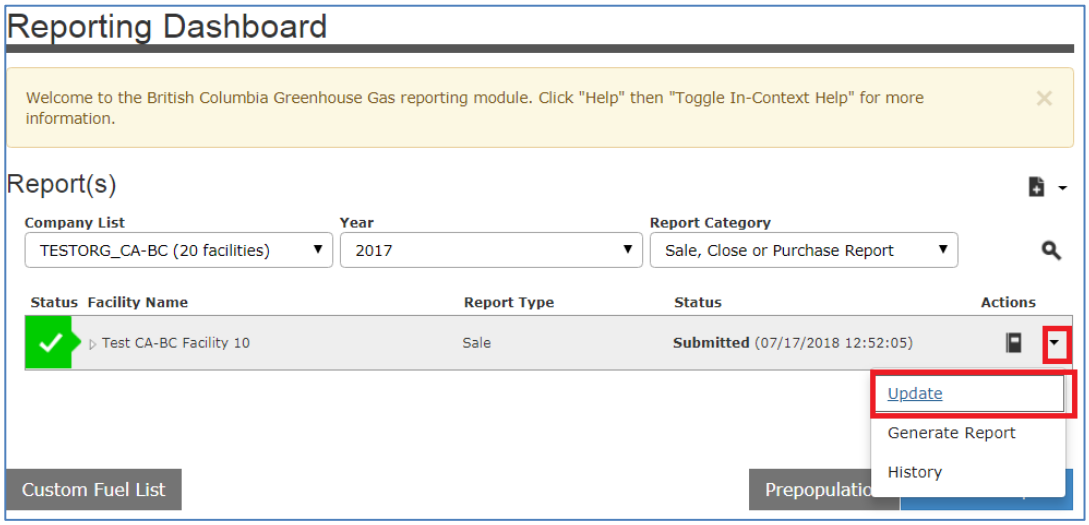


Fig. 3.2.10 Select "Update" to update a report

After entering comments, clicking the "**Save/Continue**" button will pop-up a confirmation page asking "***Are you sure you want to update the report?***"(Fig. 3.2.12). Clicking "**Yes**" will lead you to edit/change/update the report; clicking "**No**" goes back to the "**Report Update Comments**" page (Fig. 3.2.10).

Clicking "**Back**" button will go back to the **Reporting Dashboard** page and leave the report untouched.

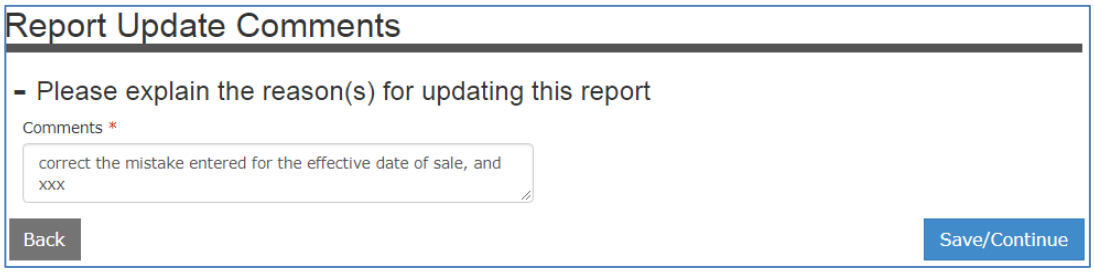


Fig. 3.2.11 Comments on the reasons for updating a report

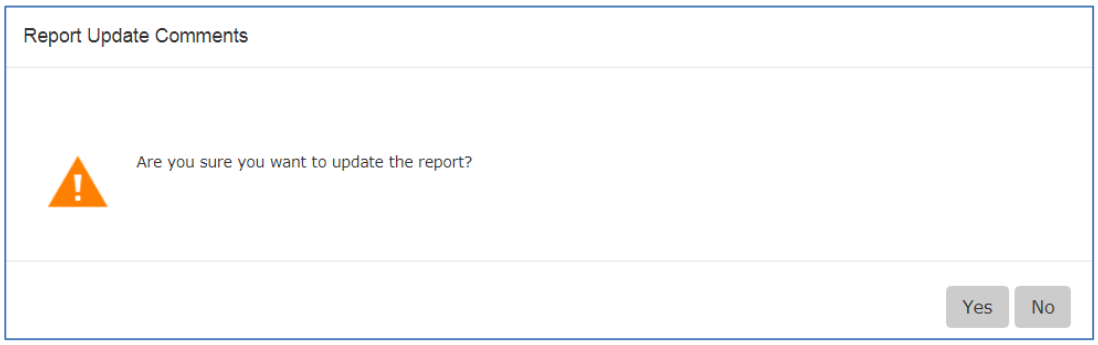


Fig. 3.2.12 Consent to update

2.5 Other Tasks That Can Be Performed in the System

(1) If a report is "**Ready to Submit**", clicking the dropdown arrow (▾) will display "***Edit***", "***Delete***", "***Submit***" (discussed earlier), "***Generate Report***" (discussed earlier) and "***History***" (Fig. 3.2.13a).

"***Edit***" allows you to change or modify a report **before submission**. Any errors, mistakes etc. found can be dealt with at this stage. Clicking "***Edit***" will bring you directly to the report window.

"***Delete***" allows you to remove a report from the system. All data contained in a report will be lost when performing the "**Delete**" function. After clicking the "***Delete***" a warning message appears to remind you of the risk of losing data (Fig. 3.2.13b). However, a submitted report cannot be deleted from the system.

"***History***" shows you a report's history including its versions, update comments. Selecting the "History" will bring you to a "**Report History**" page as shown in Fig. 3.2.14. From there you can generate a report (as discussed above) for any of the versions of the report for your record. From the history you can also see when the report was submitted or resubmitted and for what reasons. After opening the generated reports you can also see who submitted which report.

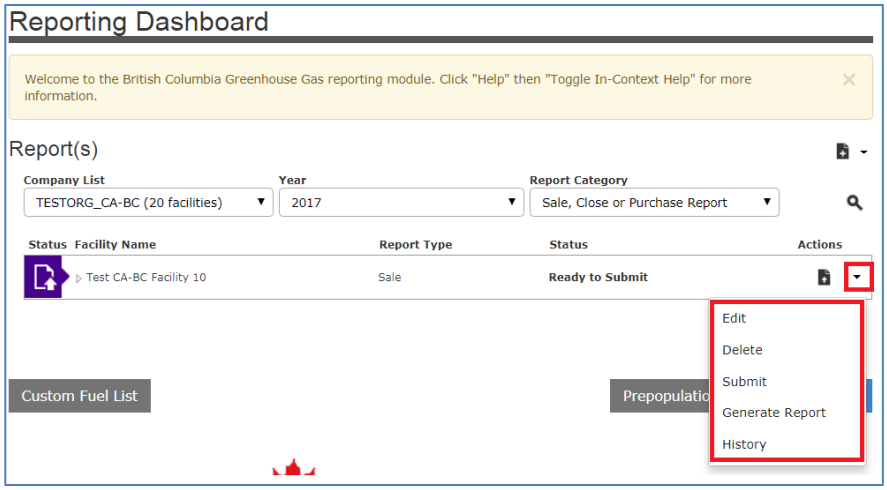


Fig. 3.2.13a Activity options for a Report at the "Ready to Submit" stage

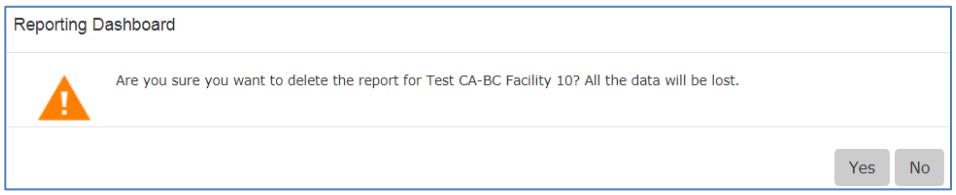


Fig. 3.2.13b Warning message for deleting a report

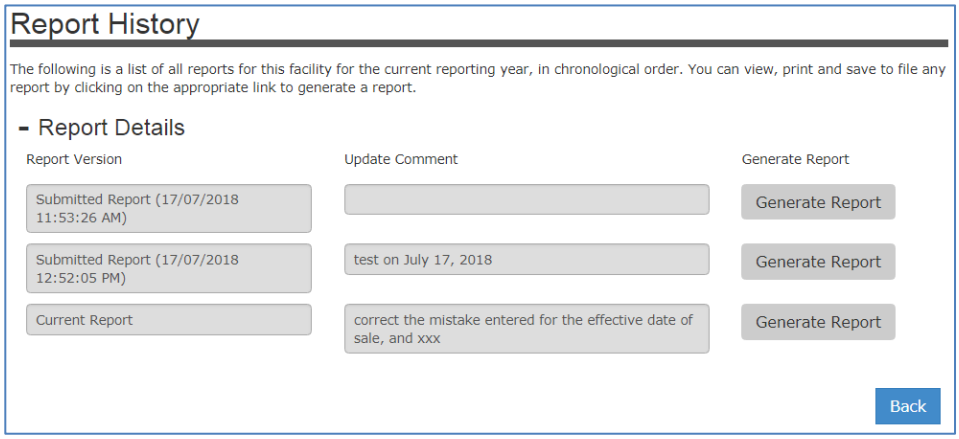


Fig. 3.2.14 Report history tracking

(2) If a report's status shows "**Submitted**", there are three actions that you can take for the report: "***Update***", "***Generate Report***" and "***History***" as shown in Fig. 3.2.15. <u>You cannot delete any report from the system after submission</u>.

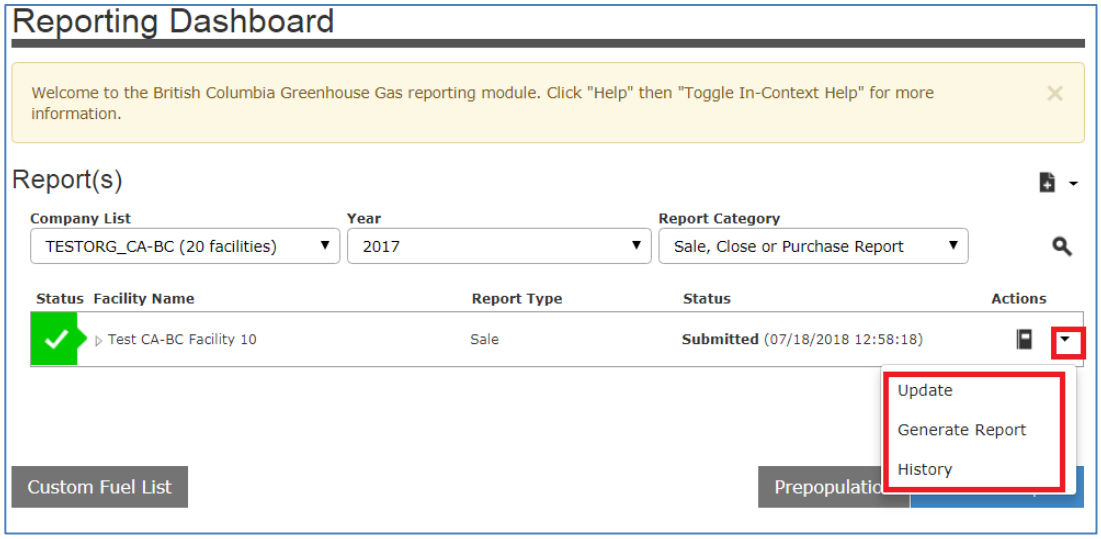


Fig. 3.2.15 Actions can be taken for a Report after submission

(3) However, if a report is brand new, then only "***Edit***", "***Delete***" and "***Generate Report***" options will be available (Fig. 3.2.16).

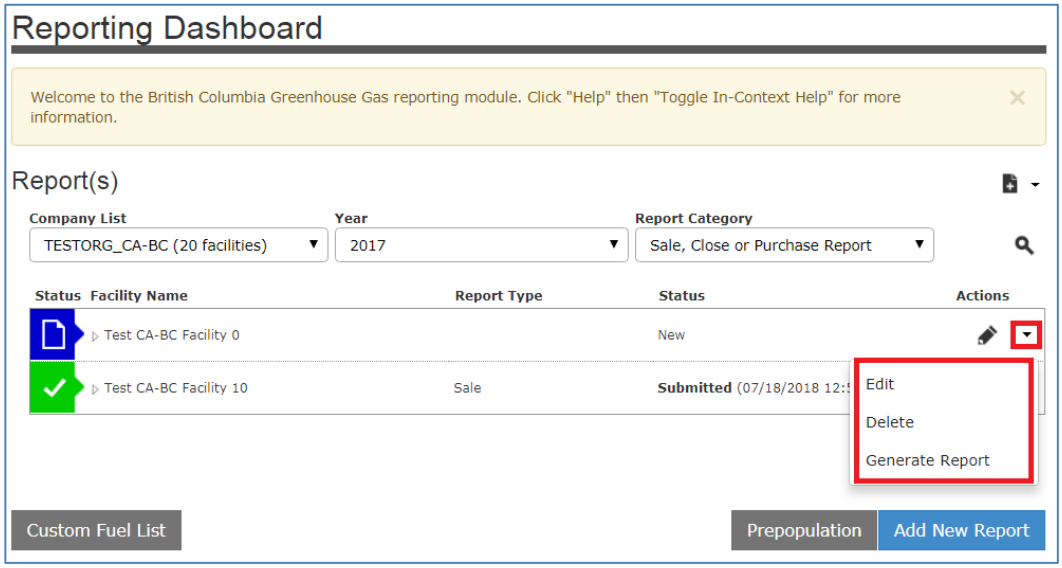


Fig. 3.2.16 Actions can be taken for a new report

3 GHG Annual Report

3.1 Selecting Report Category

Once you have accessed your organization or reporting operation in the system, on "**1. Reporting Dashboard"** as shown in Fig. 3.3.1 click the dropdown arrow "▾" at the right side of the "**Report Category**" column and select "**Annual Report**" as highlighted, then click the magnifying glass "🔍" to populate the facility report list (Fig. 3.3.2).

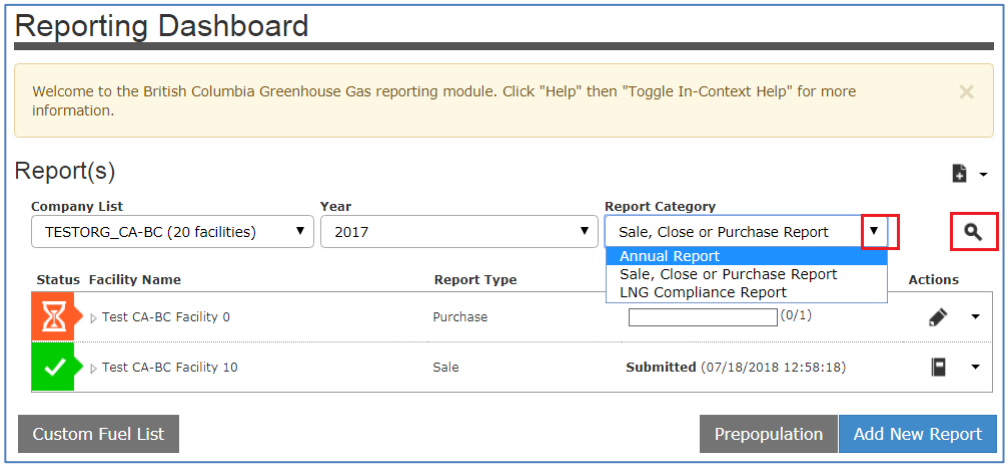


Fig. 3.3.1 Selecting GHG Annual Report on Reporting Dashboard

3.2 Selecting Reporting Facility

If you are new to the system, or even if you are an experienced user of the system but just started the reporting for a new cycle, it is quite possible that, , after searching for a facility (using the magnifying glass (🔍)), you will come to a page like Fig. 3.3.2 where no any facility is shown. No worry. What you need to do is to add a facility(s) on the list.

Clicking "📄" at the right upper corner "📄▾" or "**Add New Report**" button at the right bottom corner will bring up the "**Find Facility**" page to show the facilities available, if any (Fig. 3.3.3).

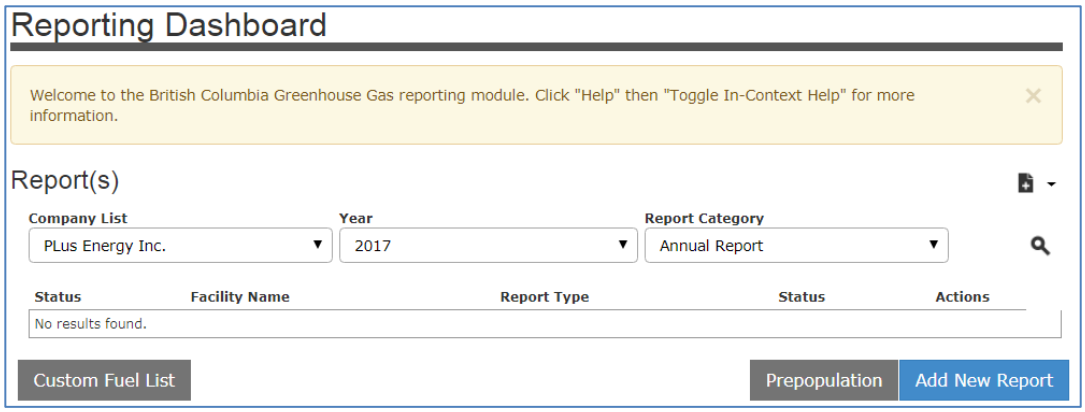


Fig. 3.3.2 GHG Annual Report starting window

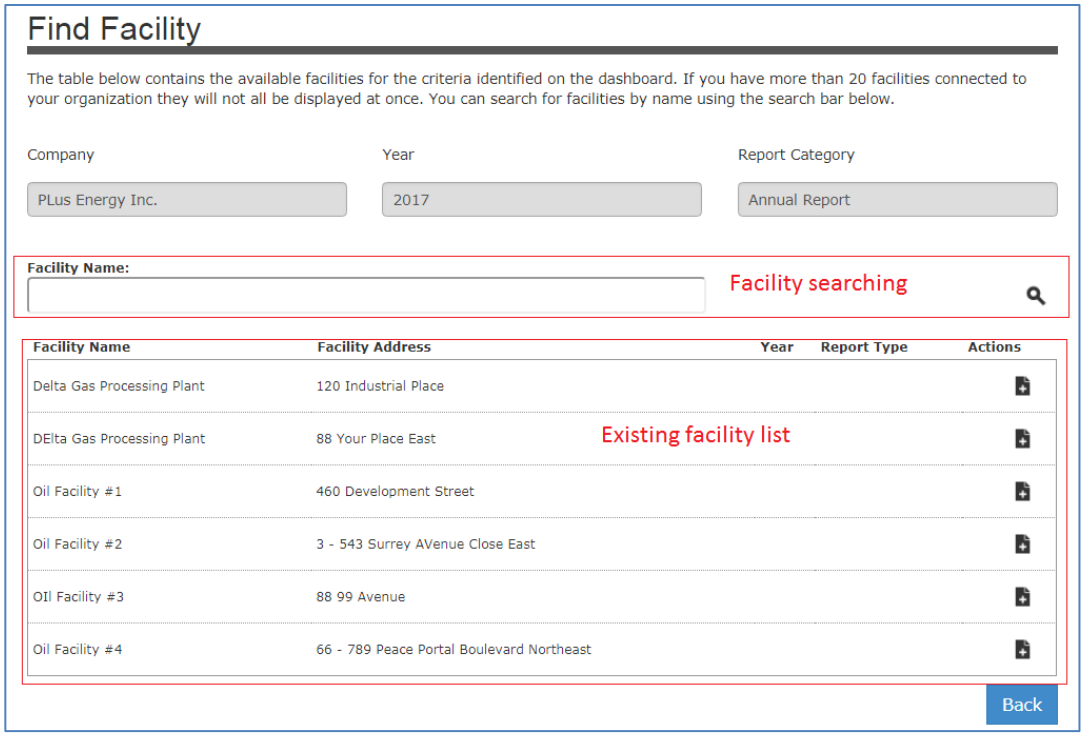


Fig. 3.3.3 Find Facility window for GHG annual reporting

Clicking the "" at the right side of the window opposite the facility name for which you want to report, will bring up a new window (Fig. 3.3.4).

If no facility shows up, you will need to do a facility search by entering a part or full name of the facility you want, then clicking the magnifying glass "" and locate the facility from the search results.

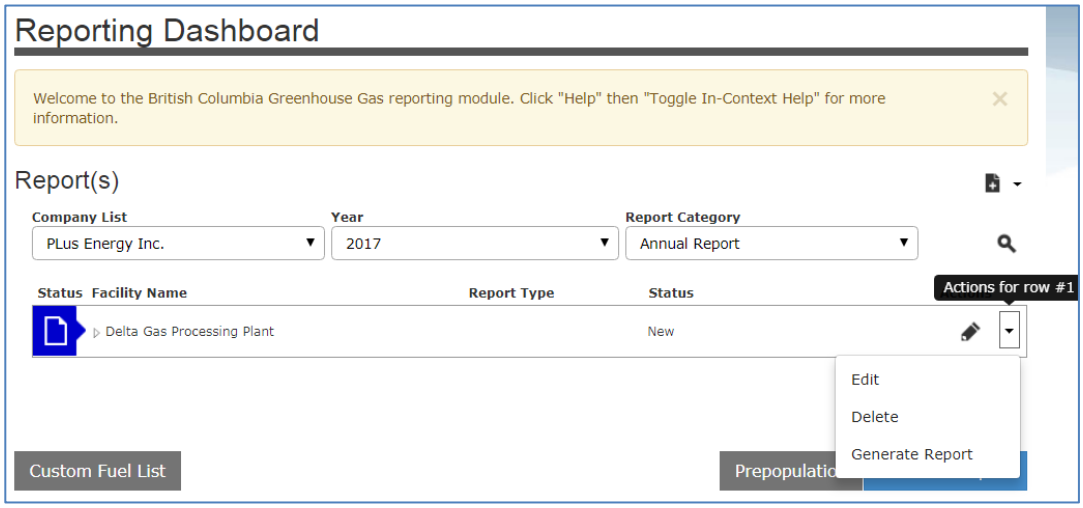


Fig. 3.3.4 New report start window

3.3 Starting a New Report

Clicking the pencil mark " " or clicking the dropdown arrow "▾"and selecting "***Edit***" in Fig. 3.3.4 will start a new report by prompting you a window - "***Facility Reporting Options***" as shown in Fig. 3.3.5.

*[**Note**]*

*For a new report, the status will be "**New**".*

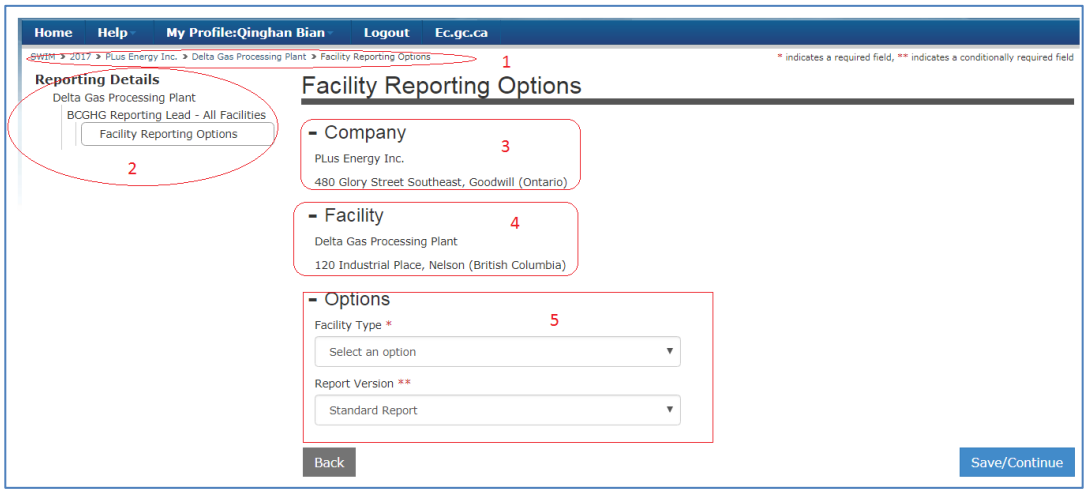


Fig. 3.3.5 Facility Reporting Options determination window

3.4 Facility Reporting Options

There are two places at the left upper corner to which reporters usually don't pay attention, which are #1 and 2, to be discussed below together with others.

First one (as marked as "***1***") in Fig. 3.3.5 advises you the details of the facility's report: reporting year, the organization and the facility.

The second one (marked as "***2***") shows your or a person's privilege (who is in the system now – as shown in the Title bar's "**My Profile:xxxx xxxx**") in the system (in this example here, the privilege is "***BCGHG Reporting Lead – All Facilities***"), and currently where the report is -- here at "***Facility Reporting Options***".

Third ("***3***") indicates the organization's name and address. Check it carefully.

Fourth ("***4***") indicates the facility's name and address. Check it carefully.

Fifth ("***5***") shows two mandatory options for a report that will determine the report's characteristics.

For "***Facility Type"***: Options available are "EIO", "IF_a", "IF_b", "L_c", "LFO" and "SFO" for selection as shown in Fig. 3.3.6 (refer to **Terminology, Glossary and Acronyms** for definitions about these facility types). Click the dropdown arrow to select one that fits the facility you are reporting for. For linear facilities operation, ensure you submit all the reports that must be submitted by referring to the section "**Determining the number of reports required for linear facilities operations**".

*[**Tips**]*

If you find an error or mistake about the organization or facility, click the "Home" link and go into SWIM/Organizations(/Facility) to correct it.

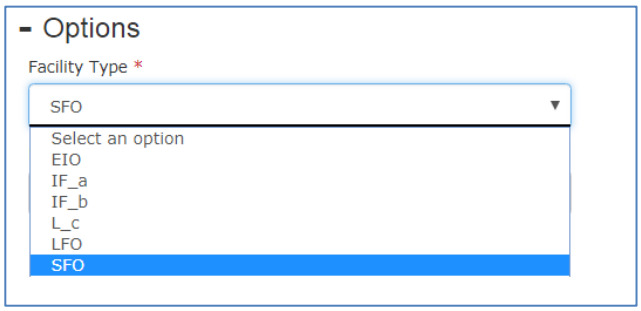


Fig. 3.3.6 Facility Type Options

Anytime you change the facility type, a warning message window will pop up to remind you of the **change's potential impact (Fig. 3.3.6a).** Changing it will delete all of the entered information and start a new report.

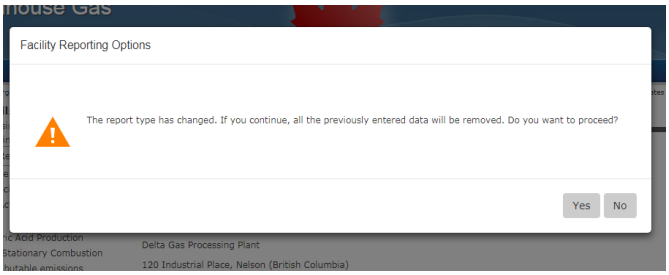


Fig. 3.3.6a Warning message to remind of the facility type change's potential impact

For **Report version**: There are two options: **Simple Report** (SFO and LFO only) and **Standard Report**. Click the dropdown arrow to pick one up that fits your report (Fig. 3.3.7).

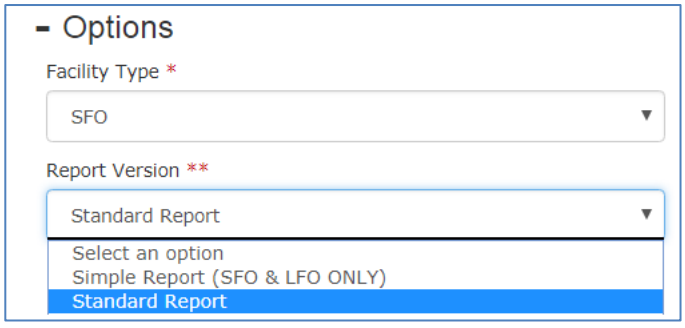


Fig. 3.3.7 Report Version selection

Anytime if the ***Report Version*** is changed from one to another, a warning message window (Fig. 3.3.7a) will show up to remind you about the restrictions around changing the report version. Changing the Report Version will start a new report.

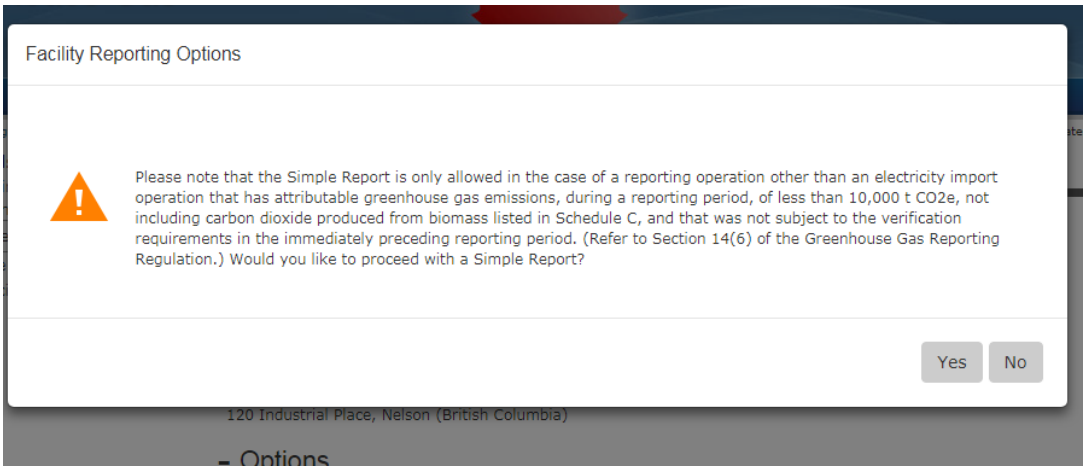


Fig. 3.3.7a Warning message about changing Report Version

*[**Note**]*

Even though a facility's emission is less than 10,000 t CO_2e, not including carbon dioxide from biomass in Schedule C, it is still required to submit a Standard Report if the facility is obligated to have report verification according to Section 27(2) of the Regulation.

[***Tips***]

*Refer to the **Terminology, Glossary and Acronyms** section in front of this Guide for definitions of related terms including Report Version (i.e. Simple Report and Standard Report).*

Click the "-" or "+" in front of a title will collapse or expand the contents. This applies to all in SWRS.

3.5 Determining Facility Contacts

After the **Facility Type** and **Report Version** being determined, click "**Save/Continue**" button to proceed further with the "**Select the Facility Contacts**" page (Fig. 3.3.8). Otherwise click the "**Back**" button to go back to the previous page.

There are three contact fields needing to be filled out on this page: ***Operator Contact***, ***Operation Representative*** and ***Person Primarily Responsible for Preparing the Report***. These contacts can be added into the contact list by following the instruction in the subsection **3.3 Managing Contacts** in section **Managing Organization's Information** in SWIM.

Click the dropdown arrows to select the proper contacts by following the requirements set out in the BC GHGERR to match their roles.

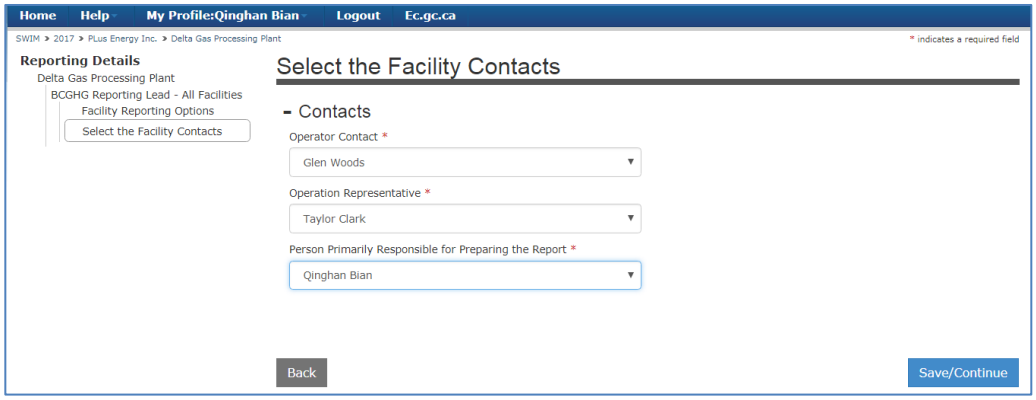


Fig. 3.3.8 Facility Contacts determination

*[**Tips**]*

Understanding each contact's role and position at your facility and/or company correctly is important. Usually the Operation Representative has the representative authority over the facility/company to deal with the legal issues, while the Person who primarily prepares the report often doesn't have this kind of authority but may be an expert in GHG data management and quantifications.

3.6 SWIM Validation

Once all the contacts have been selected, click the "**Save/Continue**" button to proceed with the next step -- **SWIM Validation** (Fig. 3.3.9).

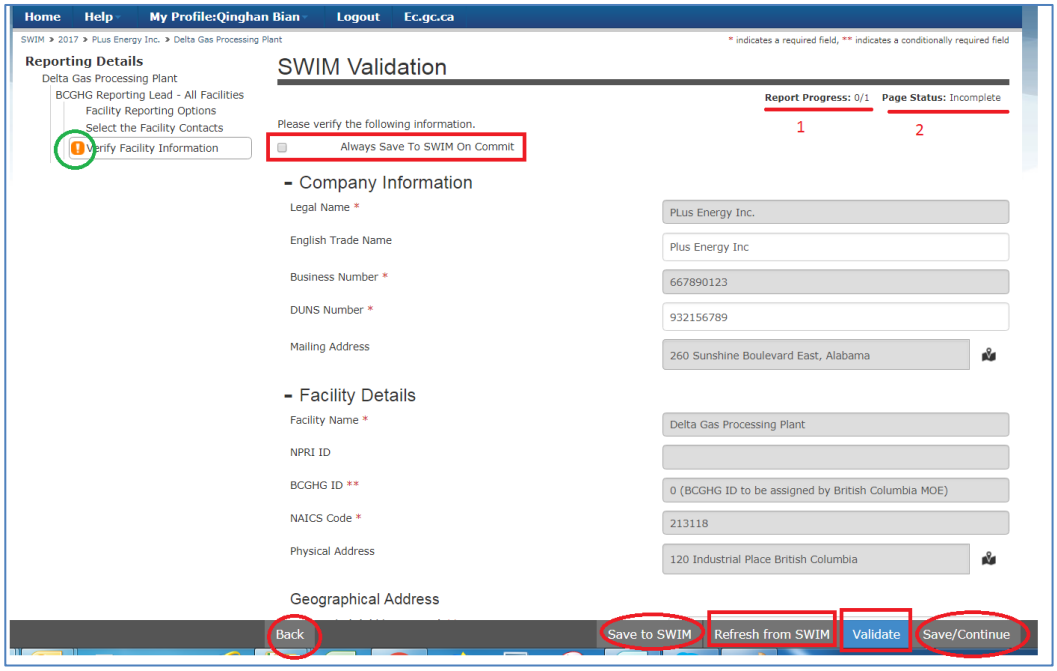


Fig. 3.3.9 SWIM Validation page

The validation page is long and complex. Some information fields (i.e. those with blank backgrounds) can be entered, edited/modified directly, while those with greyed backgrounds cannot be changed directly, except for those addresses with "" icon followed, where clicking the icon "" will prompt a new child window and its contents can be entered or edited there. After changes being made, clicking the "Save" button is imperative to save the new information.

There are many other things requiring your attention as described below by referring to Fig. 3.3.9, and these apply to all of the reporting procedures to be discussed later.

#1 – Indicator of Report Progress: This tells you how many steps are required for completing this report and which step you are now by "x/y". "x" represents the current step number and "y" represents the total number of steps;

#2 – Indicator of Page Status: This tells you if the page you are currently on has been successfully completed or not. If it is still in progress then "***incomplete***" is shown, and if the process is done successfully, then "***complete***" is shown.

"**Verify Facility Information**" at the left hand pane under "**Reporting Details**". Clicking it will display the "**SWIM Validation**" page.

- If an orange " " appears in front of the "**Verify Facility Information**", as Verify Facility Information , this means that the page has not been successfully completed yet.
- Once all information is completely entered and no error exists, a green check mark "" appears in front of the "**Verify Facility Information**" like Verify Facility Information , meaning this page is completed successfully.

" Always Save To SWIM On Commit" – This is an optional item, which provides the convenience to always save the information on this page back to SWIM module, if the mark "" is checked, instead of working in SWIM specifically for the information on this page.

As usual, clicking the "**Back**" button at the left bottom takes you back to the previous page.

"**Save to SWIM**" -- clicking it will save the information on this page into the corresponding areas in SWIM and replace the information currently existing there. This is especially useful when the information currently existing in SWIM is not correct or out of date, and saves efforts for doing it again in SWIM separately.

After the information being successfully saved into SWIM, a popup window (Fig. 3.3.10) will show you that the six (6) items have been saved to SWIM successfully and a green icon "" appears to the front of each item.

"**Refresh from SWIM**" – If (any of) the information on this page is with error or not current, but the that in SWIM is updated, then clicking the "**Refresh from SWIM**" will quickly refresh the information

from SWIM. Note that doing this will replace all the information on this page by those retrieved from SWIM, thus extra attention is required.

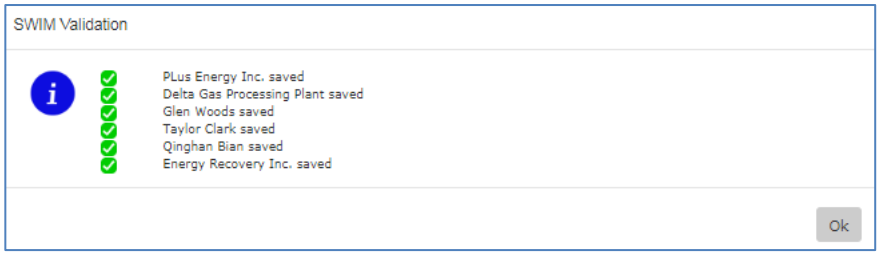


Fig. 3.3.10 "Save to SWIM" successful message

"**Validate**" – This will check if the information on the "**SWIM Validation**" page is error free against the predetermined rules etc. If anything is wrong, an error message with "!"will display at the top of the page -- advising you how many, what errors are and where they are (Fig. 3.3.11), allowing you to fix them easily and quickly. However, if everything is good, a popup child window as shown in Fig. 3.3.10 will appear.

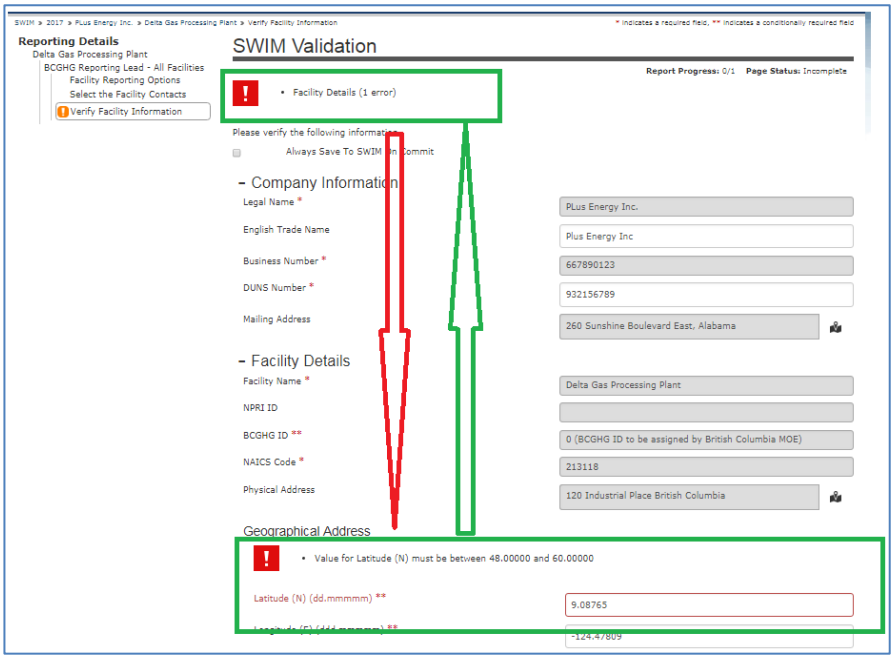


Fig. 3.3.11 Error and error message on SWIM Validation page

"**Save/Continue**" – Clicking it will save the information on this page to the system as part of the report and take you to the next step. If all information is correct, then a popup window (Fig. 3.3.10) will appear. Otherwise, if there is any error on the page, "!" will appear in front of "**Verify Facility Information**" as shown in Fig. 3.3.12. Invalid information on this page can be saved by clicking the "**Save/Continue**" button, but will prevent you from submitting the report.

*[**Tips**]*

During the report preparation regardless where you are, you can always tell if there is any error in the entries based on whether icon "!" exists at the front of any item at the left hand pane.

Grey fields cannot be directly entered (SWIM Validation page and anywhere else). To make changes, getting into the relevant sections in SWIM is necessary. For addresses with stamp icon "" attached, clicking the stamp icon "" will prompt a child window where information can be entered or edited.

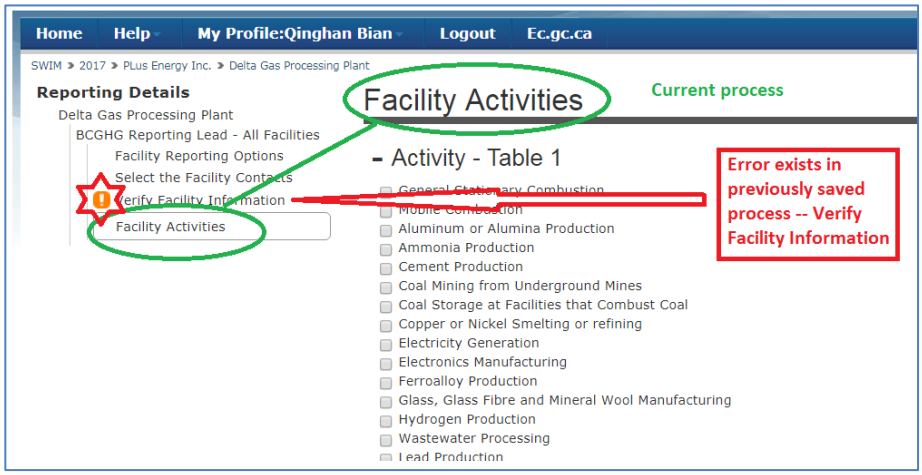


Fig. 3.3.12 Error existing on an already saved page

3.7 Select Facility Activities

"Facility Activities" selection is shown in Figs.3.3.12. A list of activities from Table 1 or 2 in the BC GHGERR is displayed, depending on your facility type. Activities that were carried out at your facility can be selected by checking the checkbox "☐" next to the activity. Figs.3.3.13 and 3.3.14 show the full list of activities that are categorized as Table 1 and 2 within the Regulation, respectively. The only activity excluded from these lists is Electricity Import, which applies only to the report type of Electricity Import Operation (EIO).

Generally, Table 1 activities apply to Single Facility Operations (SFO), and Table 2 activities apply to Linear Facilities Operations (LFO). However, it is reasonable that in some cases a linear facilities operation also carries out some activities listed in Table 1. For example, some oil and gas linear facilities operations carry out the electricity generation activity in situ. This is why for a linear facilities operation beside of Table 2 activities Table 1 activities are also available for selection. In contrast, a single facility operation cannot carry out any activities listed in Table 2.

Moreover, when any Table 2 activities except for General Stationary Combustion are selected, a Source Categories selection page will be prompted as shown in Fig. 3.3.15 below, where the emission source categories need to be determined.

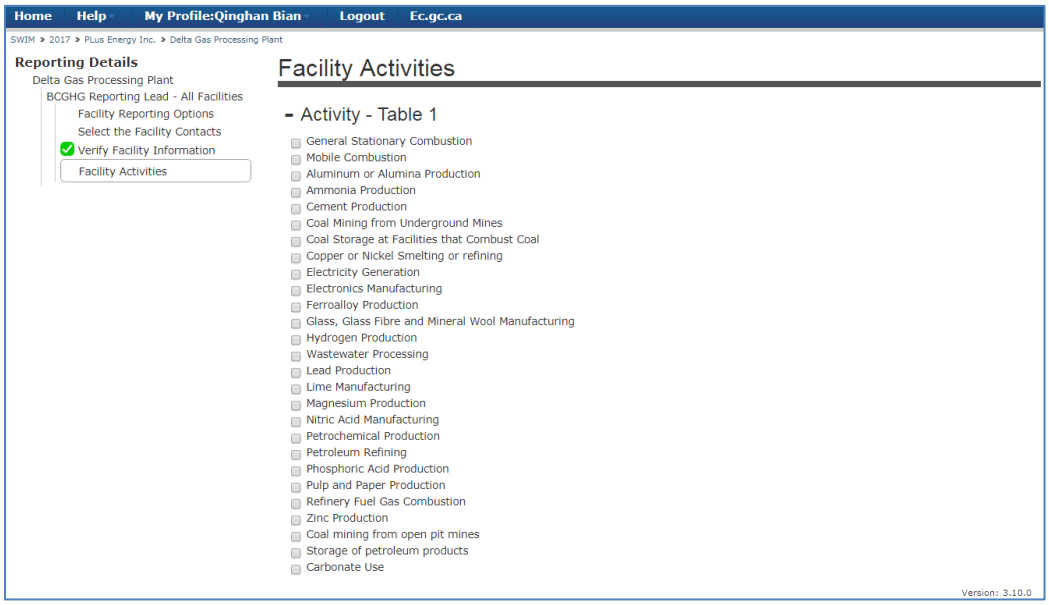


Fig. 3.3.13 Table 1 activity list

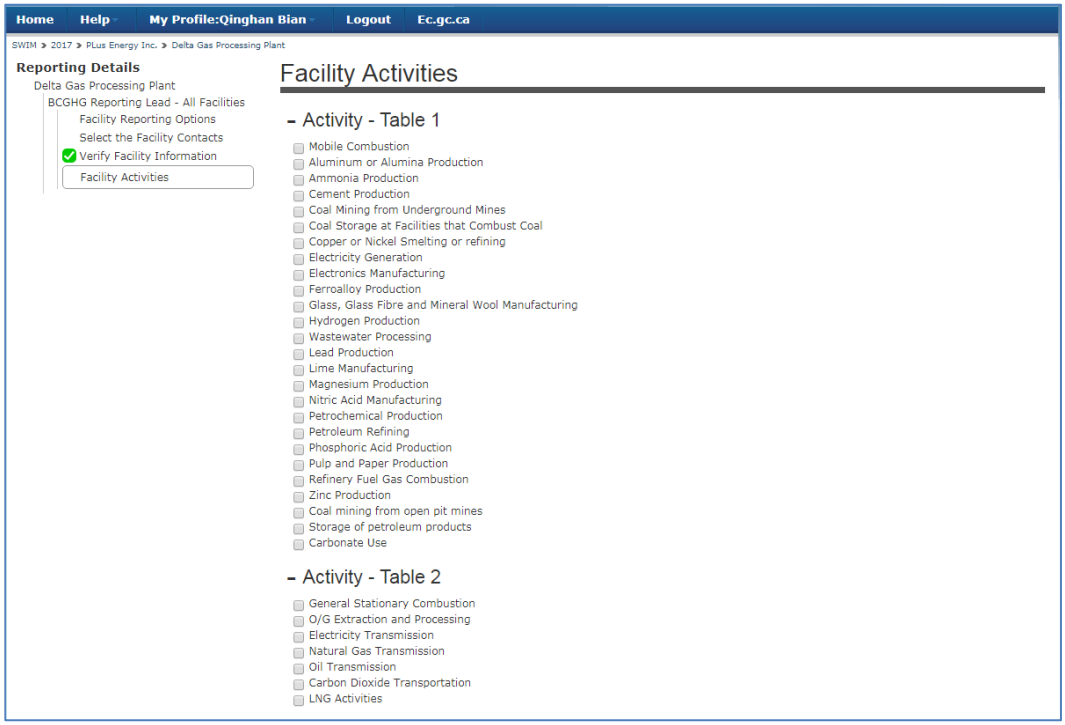


Fig. 3.3.14 Table 2 activities together with those in Table 1

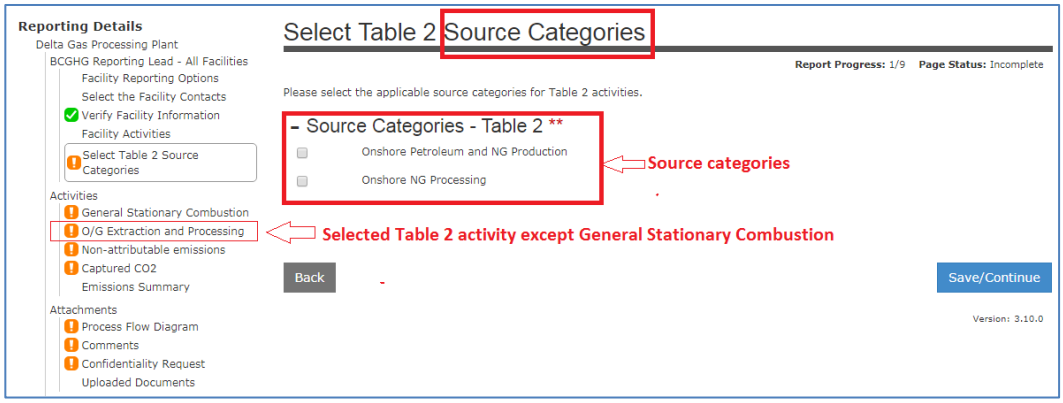


Fig. 3.3.15 Source category selection for Table 2 activities

Not all activities must be selected completely the same time. They can be selected and added to the report at any time. However, each time when a new activity(s) is selected and added, a warning message will appear in a small window to remind you of that the changes made in the activities will impact your entire report as shown in Fig. 3.3.16. Click "**Yes**" to accept it when you decided to go ahead.

Upon completing the Facility Activities step, entering or reconfirming the administrative information in a GHG report is considered complete. The next step will be the GHG emission information entries.

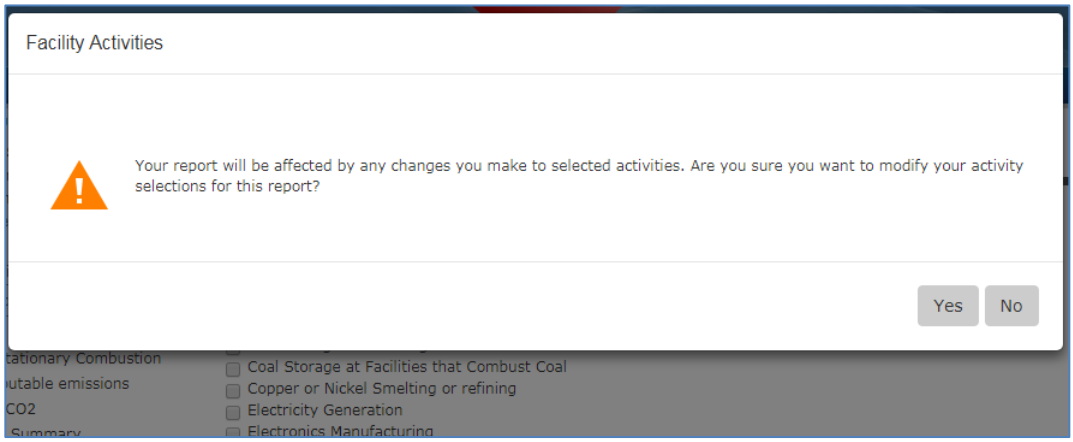


Fig. 3.3.16 Warning message after changing activities

4 GHG Simple Report

Whether for SFO or LFO, a simple GHG emission report consists only of several components. Simple Report format cannot be applied to EIO report.

*[**Note**]*

If a facility is obligated to emission report verification, a Standard Report must be submitted even though its emissions are less than 10,000 t CO_2e -- the reporting threshold.

4.1 Total Attributable Emissions

As shown in Fig. 3.4.1, clicking the "" will bring up a child window for each individual gas (Fig. 3.4.2), so that you can enter the emission quantity for each of them. On the child window, clicking the dropdown arrow "" opposite the "**Gas**" at left hand will let you select the applicable greenhouse gas. You can then enter that gas' emission quantity at the field opposite the "**Emissions (t)**" at the left hand. After entering them, clicking the "**Save**" button will save the entered information and then return you to the main window in Fig. 3.4.1, in which the emissions in equivalent quantity (tCO_2e) will be automatically calculated and displayed. Repeat these steps for each applicable greenhouse gas. Clicking the "Cancel" button will cancel the child entry window.

Fig. 3.4.1 Simple Report emission entering window

Fig. 3.4.2 Child window for entering individual gas quantity

*[**Tips**]*

Grey fields do not need data entry, instead will be automatically populated.

In the system every input for emission (t) can hold up to five (5) decimal places and the automatic calculation result can retain up to four (4) decimal places, so don't round up any input value when entering.

After entering all information on each greenhouse gas applicable to the report, the window looks like that shown in Fig. 3.4.3. Clicking the "**Validate**" button will validate the information entered. If there is any error or mistake, clicking the " ✎ " opposite the applicable gas will pop up the child window, enabling to make corrections. If an entry no longer applies, clicking the icon "🗑" will delete it. After clicking the "🗑", a warming message appears in a small window as shown in Fig. 3.4.4 below, reminding you of that the deletion cannot be UNDONE.

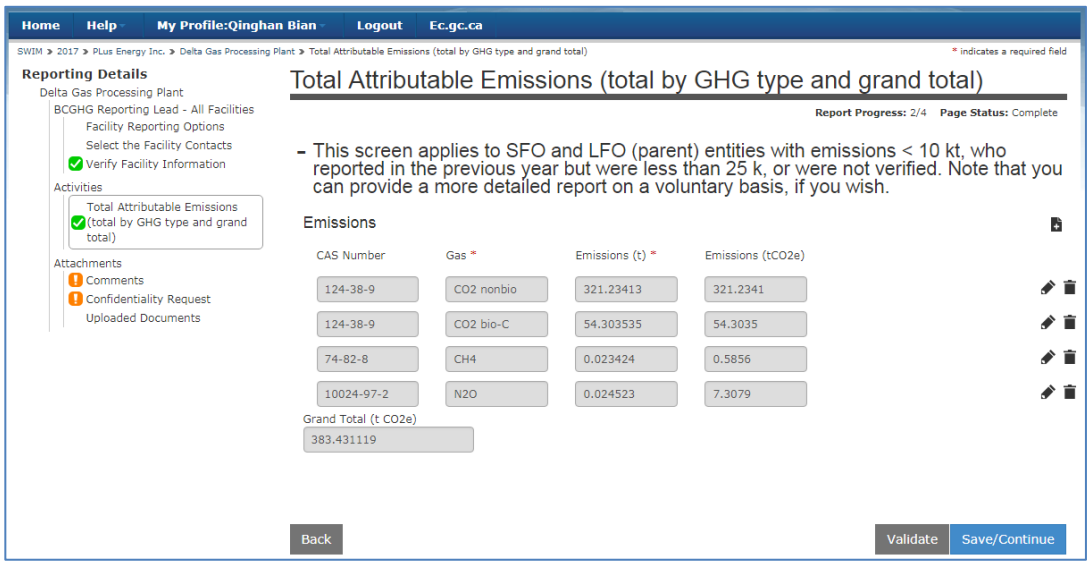


Fig. 3.4.3 Complete GHG entry image

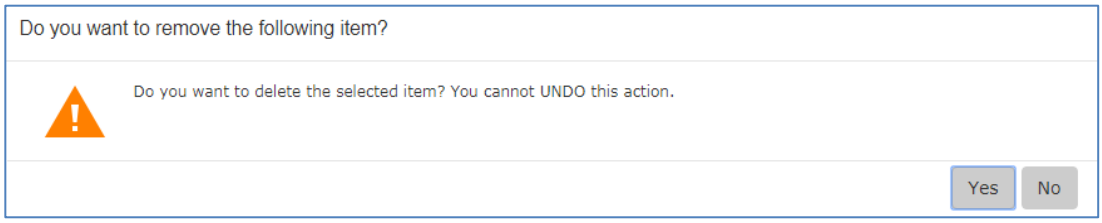


Fig. 3.4.4 Warning message about deleting an entry

4.2 Comments Entry

Clicking the "**Save/Continue**" button in Fig. 3.4.3 when everything entered is correct will bring you to the next step: the **Comments** entering page as shown in Fig. 3.4.5. Note this window will be updated from the 2018 reporting cycle to include the Industrial Incentive Program components. For Simple Report, no actions will be required regarding the Industrial Incentive Program.

You can make additional comments here to your report in order to make it more clear and understandable. Clicking the icon "📎" will attach a file to the report. After clicking "📎" a child window for attaching a file displays as shown in Fig. 3.4.6, where "**No file chosen**" will show up beside the "**Choose File**" button, meaning that no file has been selected yet. Clicking the "**Choose File**" button

will allow you to locate a file from a location where it is saved, which you want to attach to the report. Select the file and click "**Open**" (Fig. 3.4.7) to upload the file, and the window in Fig. 3.4.6 becomes like that in Fig. 3.4.8, where the uploaded (or to-be-attached) file name appears after the "**Choose File**" button. File Naming Convention must be followed for any attached file.

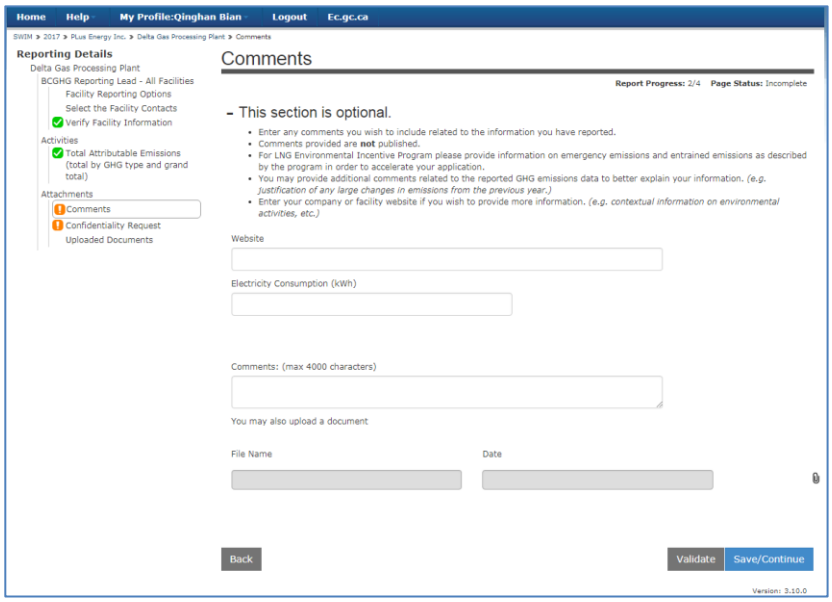


Fig. 3.4.5 Comments information entering window

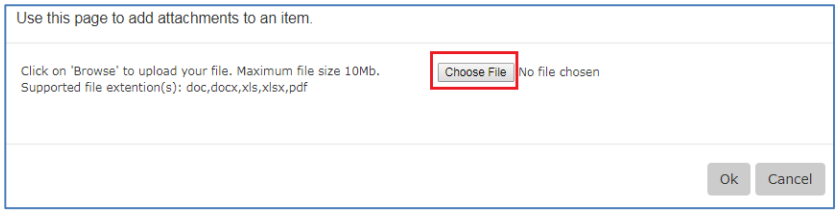


Fig. 3.4.6 Select the file to upload

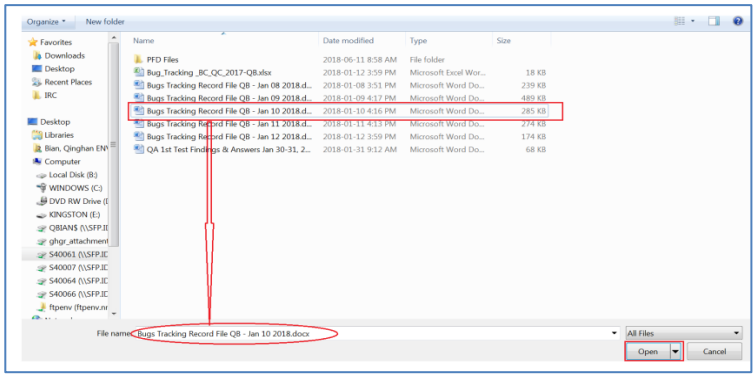


Fig. 3.4.7 Locate and upload the file

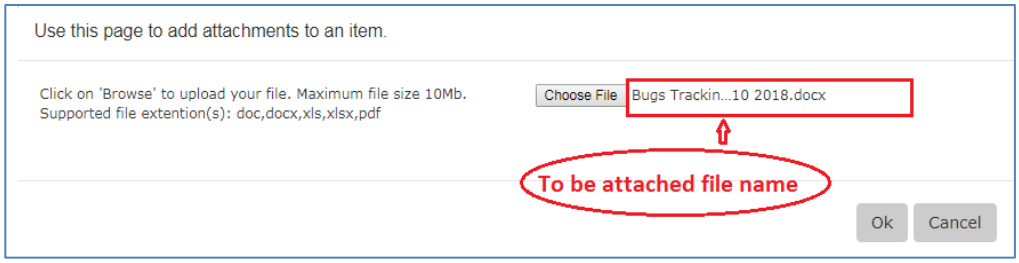


Fig. 3.4.8 To-be-attached file

Clicking "**Cancel**" in Fig. 3.4.8 will cancel the uploading-file process and return the system to the step shown in Fig. 3.4.5. Clicking "**OK**" button in Fig. 3.4.8 will change the window in Fig. 3.4.5 to Fig. 3.4.9, where the attached file name and the uploading date are shown. Further, clicking the "**Validate**" button validates the information entered. If no errors or mistakes exist, "✅" will appear at the front of "**Comments**" in the left pane, meaning this step is successfully completed.

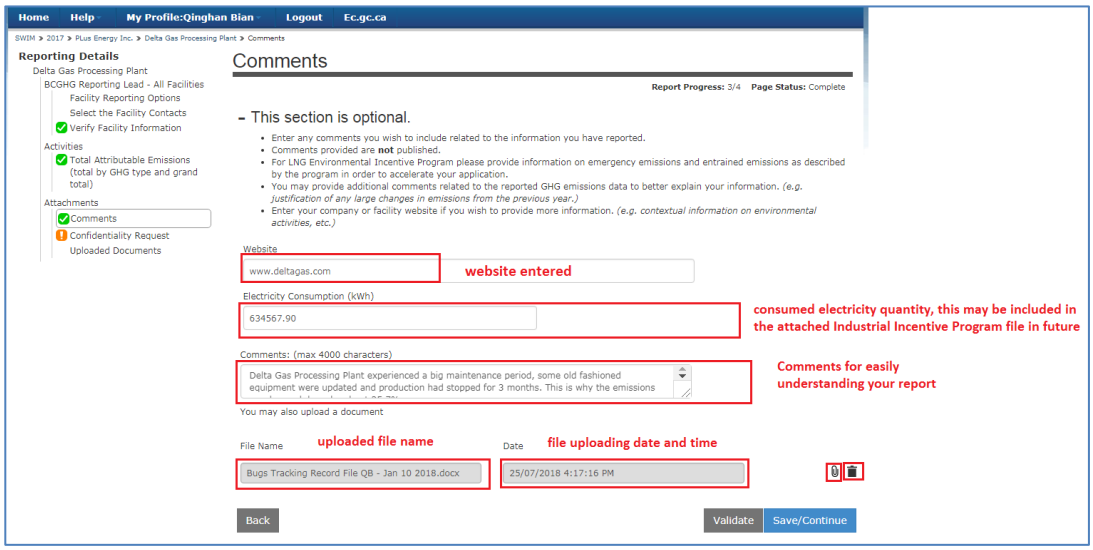


Fig. 3.4.9 Complete the Comments page

Clicking the "📎" opposite the uploaded file will upload a new file to replace the existing one; clicking the "🗑" will remove the uploaded file (Fig. 3.4.9).

*[**Tips**]*

- *At any time you can check a report's status by looking at the progress status bar as shown in Fig. 3.4.10, compared to Fig. 3.3.4, in the **Reporting Dashboard**. The green bar represents the extent of the progress.*
- *A report can be saved, by pressing the "**Save/Continue**" button, and left into the system at anytime and anywhere during a process when log-out is conducted. To continue the process, click the "✎" opposite the report in the **Reporting Dashboard** as shown in Fig. 3.4.10 after sign-in, and then from the left pane click the component from the Component List where you left the report last time as shown in Fig. 3.4.10a to continue.*

- *Use the proper file naming convention for the attached file as outlined at the beginning of this book. A three-letter company name and three-letter facility together with appropriate contents description and date etc. is preferential.*

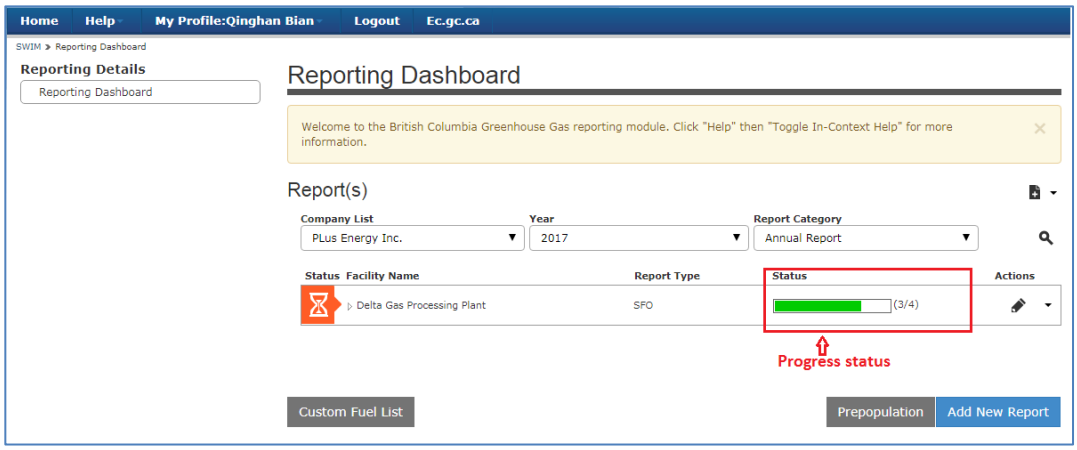


Fig. 3.4.10 Report progress status (comparing Fig. 3.3.4 to tell the difference)

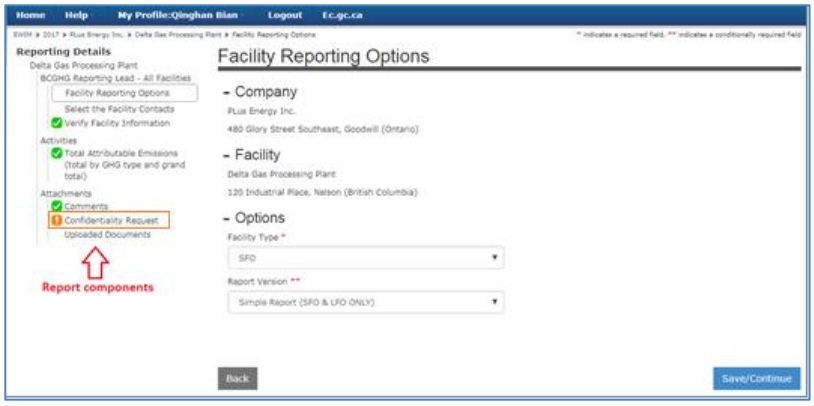


Fig. 3.4.10a Select a component to continue the report

4.3 Confidentiality Request

Clicking the "**Save/Continue**" button in Fig. 3.4.9 will lead you to the next step: **Confidentiality Request** (Fig. 3 4.11).

Whether you want to request the confidentiality or not, picking up one of the options i.e. "**Yes**" or "**No**" that applies to your report by clicking the dropdown arrow "▾" is a must.

If "**Yes**" is selected, it means the reporter requires the "**confidentiality Request**", then a letter describing the rationale must be attached to the report by clicking the "📎" at the lower part of the window (Fig. 3.4.11). Following the same procedures as described in "**Comments**" section to attach the letter for Confidentiality Request. Further, click "**Validate**" to check if any error exists.

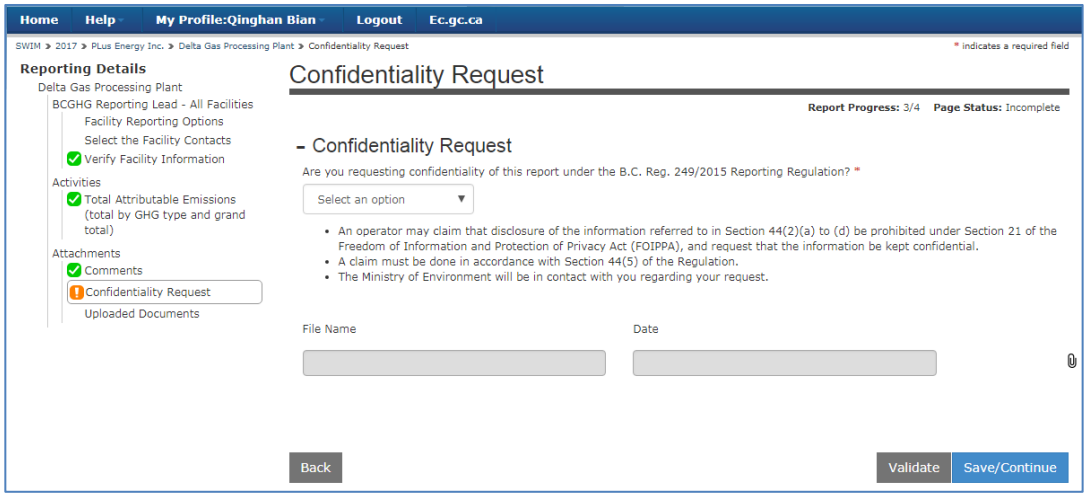


Fig. 3.4.11 Confidentiality Request Information

When a file is attached, you can always click the paper clipper "📎" to replace an existing file, or clicking "🗑" to delete the attached file (Fig. 3.4.12).

The Ministry of Environment and Climate Change Strategy will conduct the analysis and contact you regarding its decision over your request.

If "**No**" is selected, it means the reporter doesn't require the "**confidentiality Request**". However, if "**No**" is selected but a file is attached, an error is detected when clicking the "**Validate**" button to validate the page (Fig. 3.4.12). In such a situation, one needs to confirm if **"Confidentiality Request"** is required. If it is, then the "**No**" must be changed to "**Yes**"; otherwise, clicking the "🗑" to delete the attached file.

After all information has been entered, clicking "**Validate**" checks for any errors. If no error exists, the component – **Confidentiality Request** at the left-hand pane will be prefixed by the "✅" (Fig. 3.4.13).

At this point, if clicking the "**Save/Continue**" button, the system goes back to the **Reporting Dashboard**, where the report's status shows as "**Ready to Submit**" (Fig. 3.4.14), and the "📤" appears under the "**Status**" at left pane in the front of the facility name, meaning the data entry is complete and the report is ready for submission.

4.4 Reviewing Uploaded Documents

Clicking the component "**Uploaded Documents**" at the left pane directly will lead you to an uploaded document list window (Fig. 3.4.15) for review. Check if any uploaded document is inappropriate or incorrect or poorly named. If anyone is wrong, clicking "**Go to Source**" button will go directly to the corresponding page where the document was uploaded to correct it by following the procedures discussed earlier. Clicking "**Download**" button will download the attached file. This is especially convenient for you if you don't have this file but someone else in your organization has.

Clicking the "**Back**" button in Fig. 3.4.15 will simply bring the system back to the **Reporting Dashboard** as shown in Fig. 3.4.14.

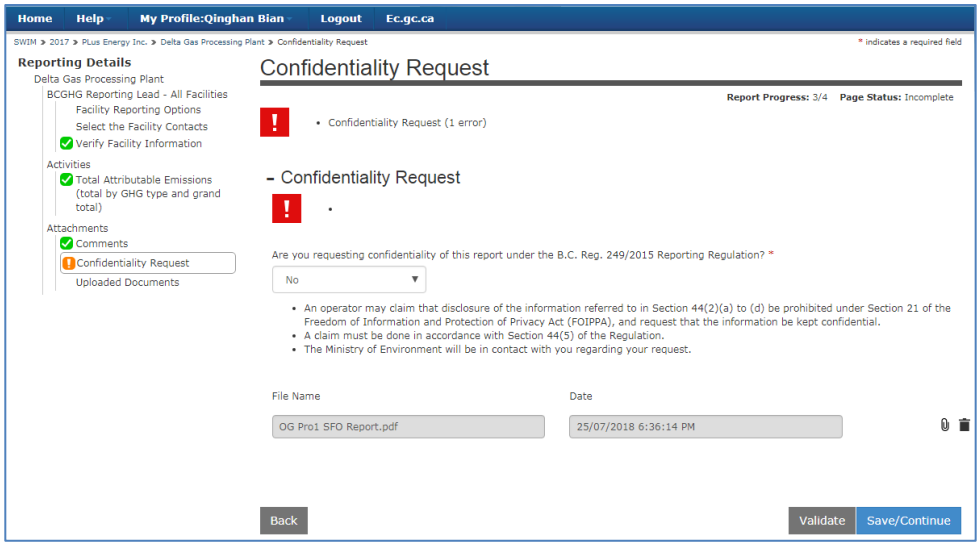


Fig. 3.4.12 Inconsistent entries incur error

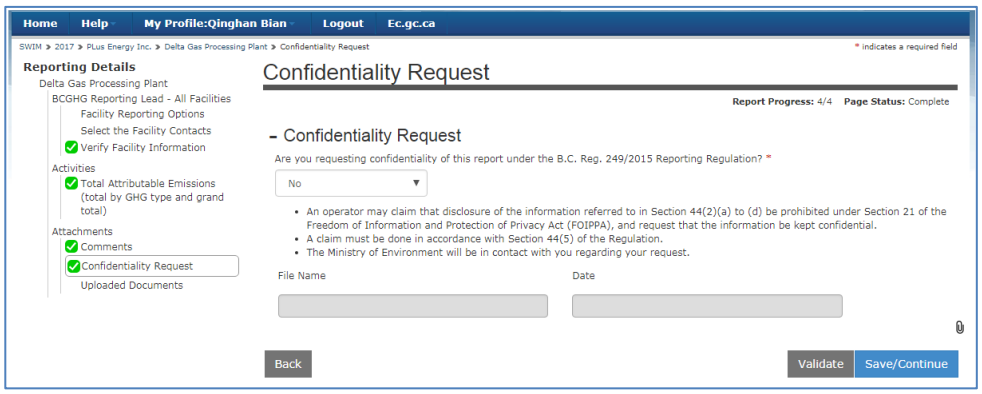


Fig. 3.4.13 Completed Confidentiality Request Status

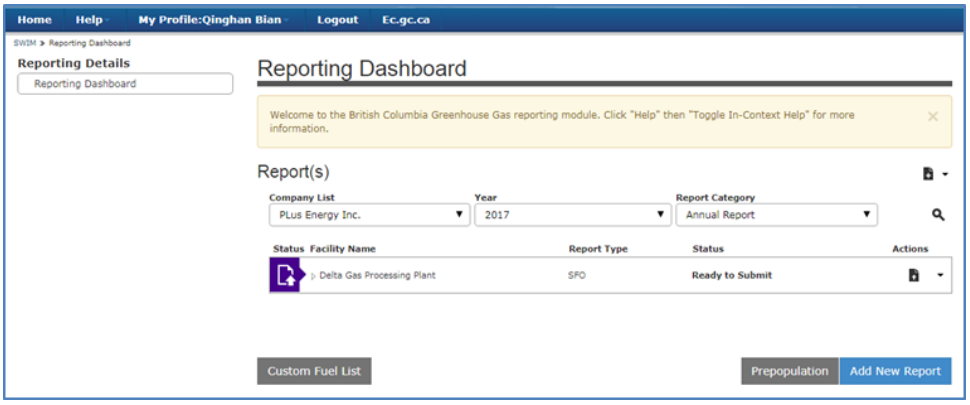


Fig. 3.4.14 Completed report in Reporting Dashboard

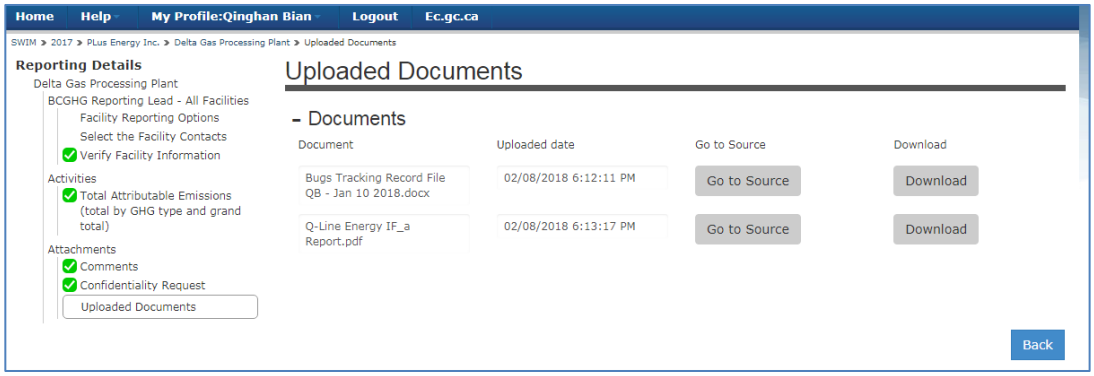


Fig. 3.4.15 Uploaded documents checking list

4.5 Submitting Report

Once all information has been entered correctly and the report is ready to be submitted, you can submit the report from the **Reporting Dashboard** as shown in Fig. 3.4.14, by clicking either the "" or the dropdown arrow "" at the right side (opposite the facility name) and picking the "**Submit**". A new page "Report Submission and Electronic Certification" will show up, which is a pre-view of the entire report. Double check all the information entered to make sure everything is good, scroll down to the bottom, tick off the checkbox "" for "**Approval**" and click the "Submit" button to submit the report (Fig. 3.4.16). After that a message shown in Fig. 3.4.17 tells you that your report has been successfully submitted and the **Reporting Dashboard** becomes like that shown in Fig. 3.4.17a, where "" appears in front of the facility name under the left "**Status**". If something inappropriate is identified at this point, click "Back" to go back and following appropriate procedures to edit it.

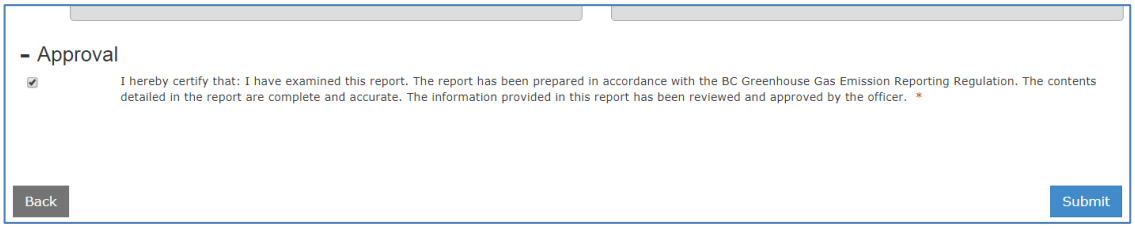


Fig. 3.4.16 Approving a report submission

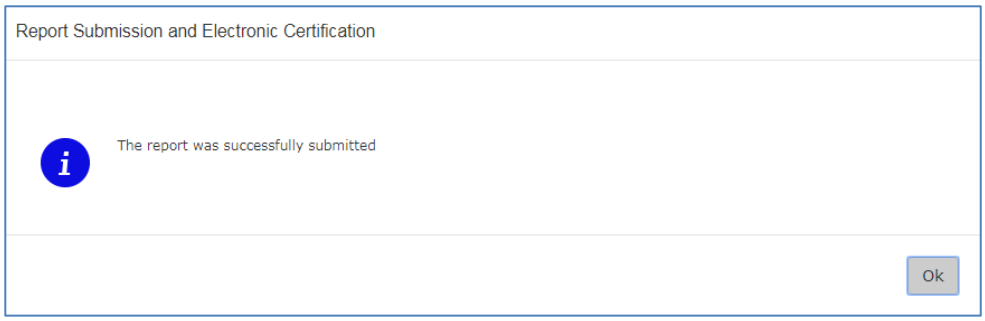


Fig. 3.4.17 Message on successful submission of a simple report

[Note]

The successful submission message is the same for all report categories and versions, i.e. GHG Annual Report (including Simple Report, Standard Report) and Sale, Closure or Purchase Report.

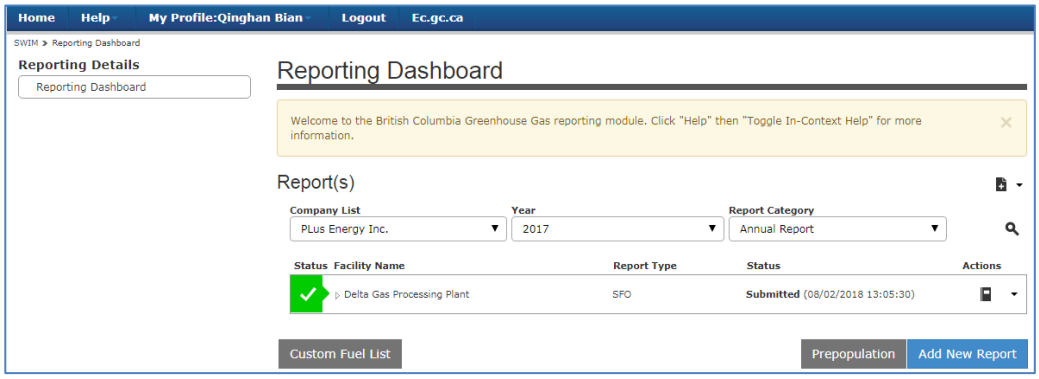


Fig. 3.4.17a Reporting Dashboard after submission

4.6 Other Tasks That Can Be Done with Simple Report

On the **Reporting Dashboard**, there are other things you can do. Though the Simple Report doesn't require verification, Report Verification is still listed as an option, because it is designed for the entire system and therefore don't get yourself confused. As for Report Verification, details will be elaborated later for the Standard Report.

Prior to submitting a Simple Report, task options that you can perform **include Edit**, **Delete**, **Submit, Generate Report** and also view the report **History** (Fig. 3.4.18a).

After submitting a Simple Report, the task options that you can perform include **Update**, **Generate Report** and view the report **History** (Fig. 3.4.18b).

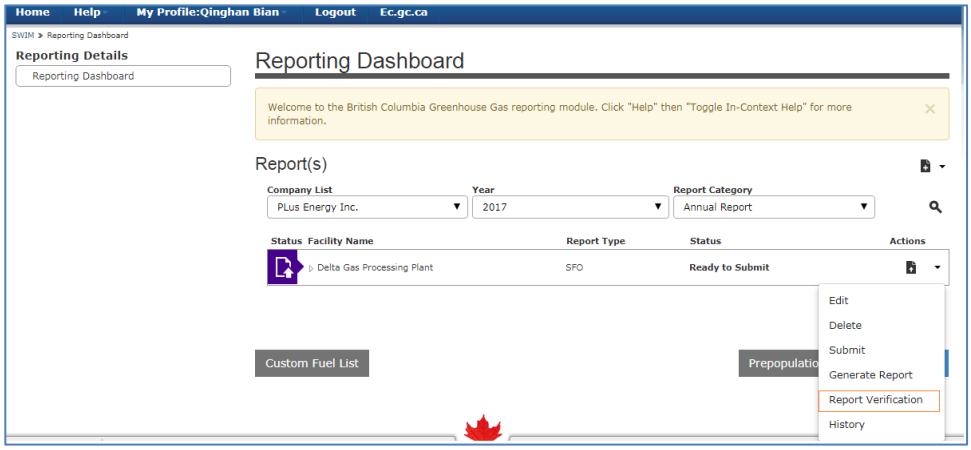


Fig. 3.4.18a Simple Report's other task options prior to submission

[***Note***]

After submission, a report cannot be deleted from the system.

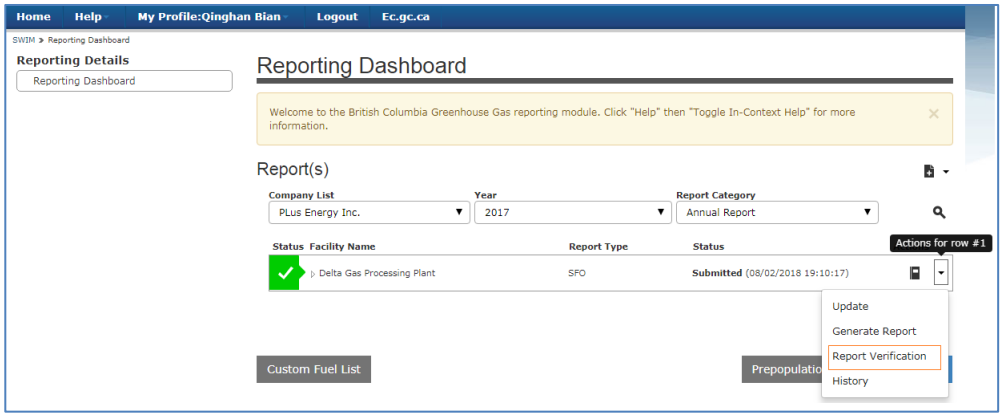


Fig. 3.4.18b Simple Report's other task options after submission

4.6.1 Editing Report

Even after a report is completed when its status is "**Ready to Submit**", you can still edit it before submission. Clicking the dropdown arrow in the column of "**Actions**" opposite the report's **Facility Name** and selecting "**Edit**" will make the report in "**Edit**" status. You can quickly locate the place where you want to make changes directly from the left pane – **Component List** to modify the report.

After making any changes, always click the "**Save/Continue**" button to save the changes made on that page or window. Otherwise, the changes made will be lost.

4.6.2 Deleting Report

A report can only be deleted prior to submission. Once a report has been submitted, it cannot be deleted or removed from the system anymore.

A report can be deleted by clicking the dropdown arrow in the "**Action**s" column opposite the report's **Facility Name** and selecting "**Delete**". A warning message window (Fig. 3.4.19) will show up to remind you of the risk of losing all the data associated with that report. Clicking "**Yes**" will delete the report and clicking "**No**" will cancel the deletion process.

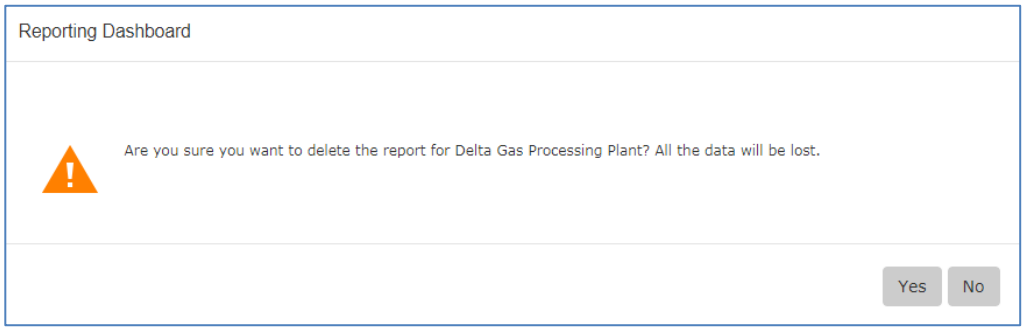


Fig. 3.4.19 Warning message on deleting a report

4.6.3 Updating Report

After submission of a report, if you find it needs to be modified to correct any errors, inaccuracies etc., you can update it through the "**Update**" process. Clicking the "**Update**" as shown in Fig. 3.4.18b above, a warning message window as shown in Fig. 3.4.20 will show up. Clicking the "**Yes**" button will lead you to the report's "Edit" process as described earlier in the **4.6.1 Editing Report**.

Clicking the "**No**" button will cancel the update process and the previously submitted report remains unchanged.

[***Note***]

Once "Update" is initiated, resubmission of the report is a must whether the report is changed or not.

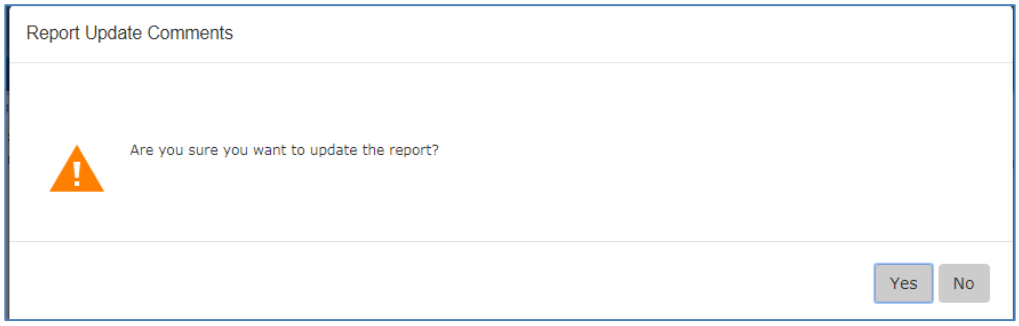


Fig. 3.4.20 Update confirming Message

4.6.4 Generating Report

You can create a copy of a facility's report for your own records. This can be done by clicking the "**Generate Report**" either after completing data entry and before submission (Fig. 3.4.18a) or after submission (Fig. 3.4.18b). The only difference between these two versions is that the prior-to-submission version of the generated report doesn't have an electronic approval certification and thus cannot be regarded as an official report, while the latter has. "**Generate Report**" can also be executed during the "**Edit**" stage, but that provides less value.

Once clicking the "**Generate Report**", a consent message window, notifying the process will take a few minutes, will appear to ask for your consent (Fig. 3.4.21).

Clicking "**Yes**" will generate the report and clicking "**No**" will cancel the process.

After clicking "**Yes**", the window becomes that shown in Fig. 3.4.22, where all the information on the report will be shown on this page. This provides you another opportunity for you to review and check the information. If anything is inaccurate, clicking the "**Back**" button will stop the report generation, and you can edit or update the report as described earlier in the section **Editing Report** or **Updating Report**. Clicking the "**Export**" button will save the report generated in PDF format to a place where you designated (Fig. 3.4.23).

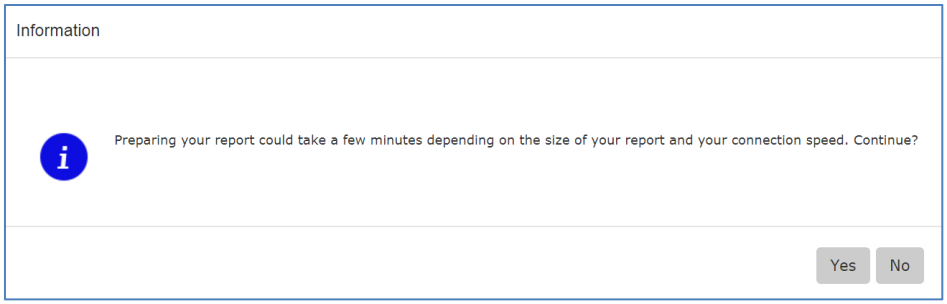


Fig. 3.4.21 Generate Report consent message

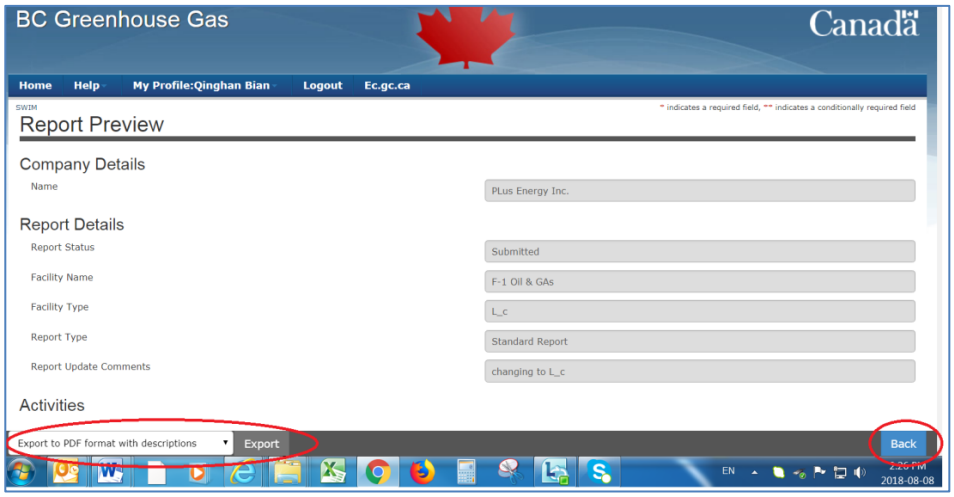


Fig. 3.4.22 Generate a PDF Report by clicking “Export”

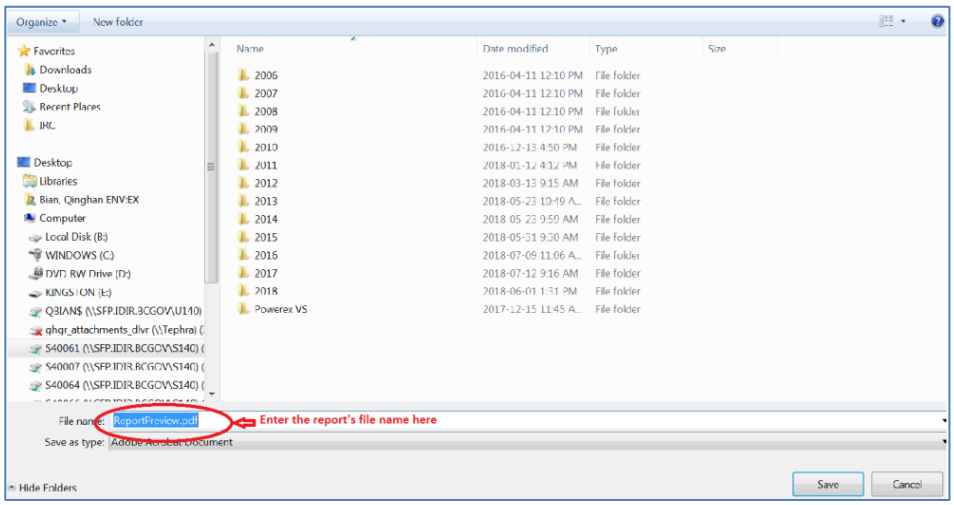


Fig. 3.4.23 Save the report in PDF format to a place you prefer

*[**Note**]*

- *Remember the place where you save the report and enter an appropriate file name for your report to replace the default file name “**ReportPreview**” as shown in Fig. 3.4.23.*

4.6.5 Viewing Report History

If a report had experienced a series of updates after the initial submission, then you can view its history by clicking the "**History**" as shown in Figs. 3.4.24a, 3.4.24b and 3.4.24c. However, if a report has never been submitted or just submitted, there is no history available.

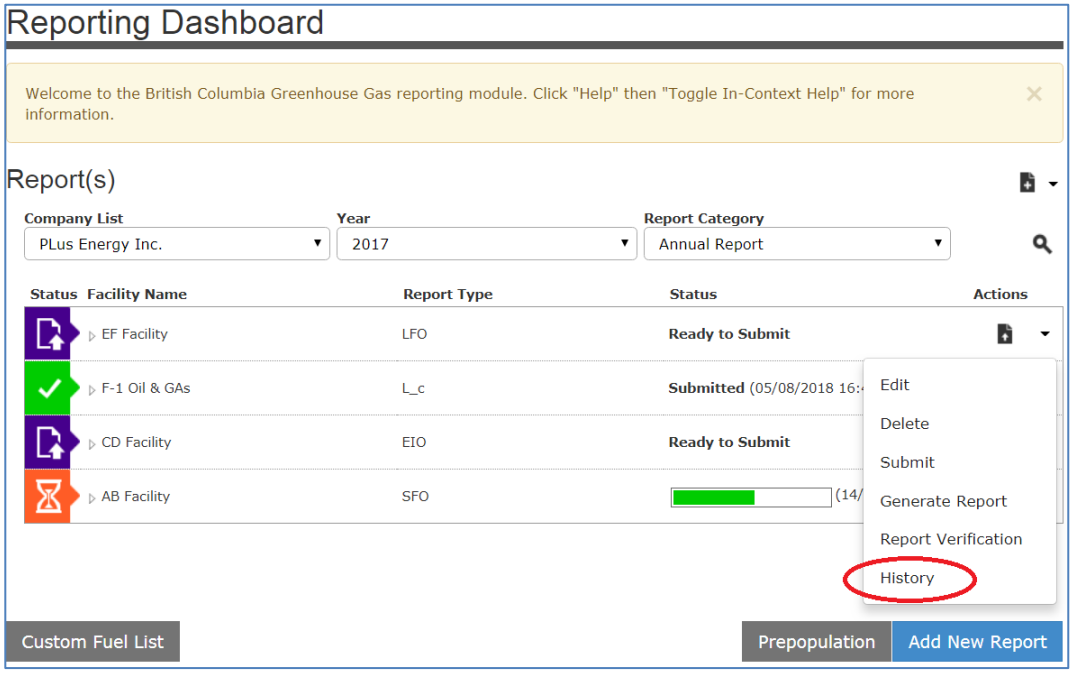


Fig. 3.4.24a To view the history of a completed (or Ready to Submit) report

*[**Tips**]*

*On **Reporting Dashboard**, when there are many reports on the list, sometimes you are confused with which one you want to work on. There are some indicators to help you locate the right one for you:*

1: clicking the dropdown arrow "▾" on the right side opposite the facility name as shown in Fig. 3.4-24c, "Actions for row #X**" in black background indicates the "**#X**" row (or report) from the top you want to work on; Further, on that row a rectangle "□" compassing the dropdown arrow also confirms that the report you want to work on.*

2: Hovering the mouse over either the following marks "✎", "📄", "🖩" that applies to your situation, "Edit row #X**", "**Submit row #X**" or "**Generate Report row #X**" pops up to indicate you what action you want to execute to the specific report.*

Get familiar with these marks as shown in Fig. 3.4.24c above

	A new report to work on		*A report in progress*
	A completed report and ready to submit		*A report has been submitted*

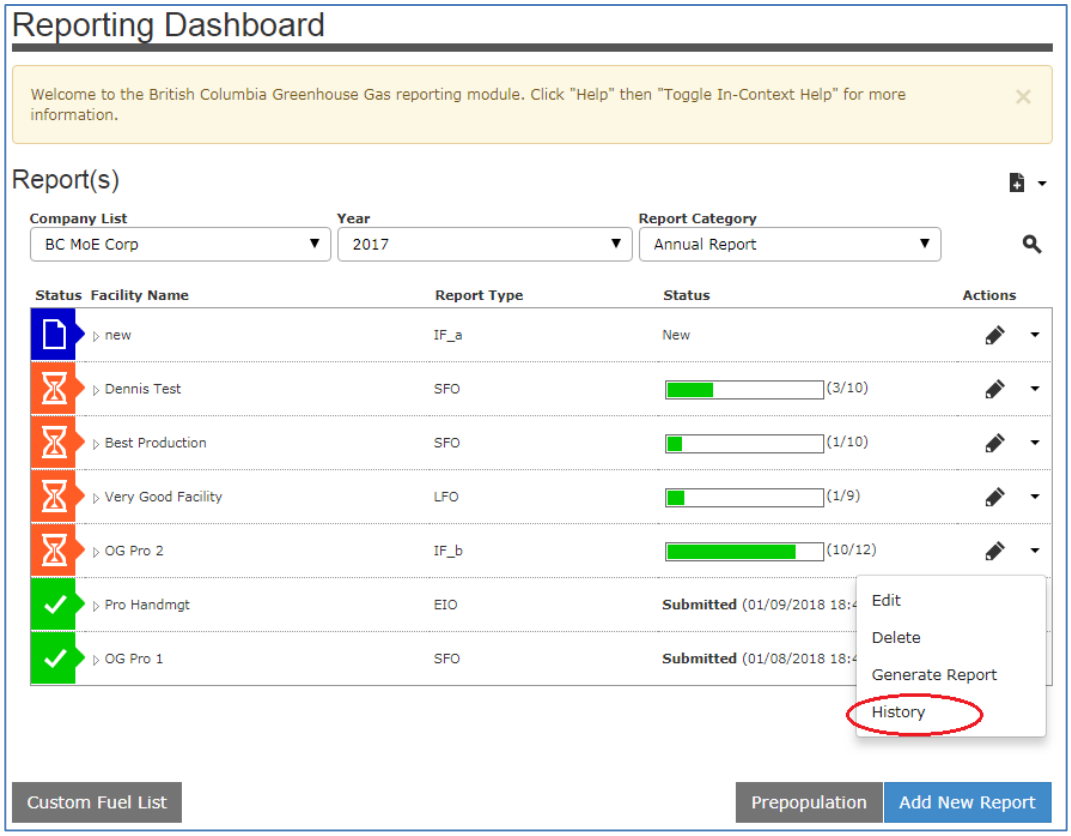


Fig. 3.4.24b To view the history of a report in Editing stage

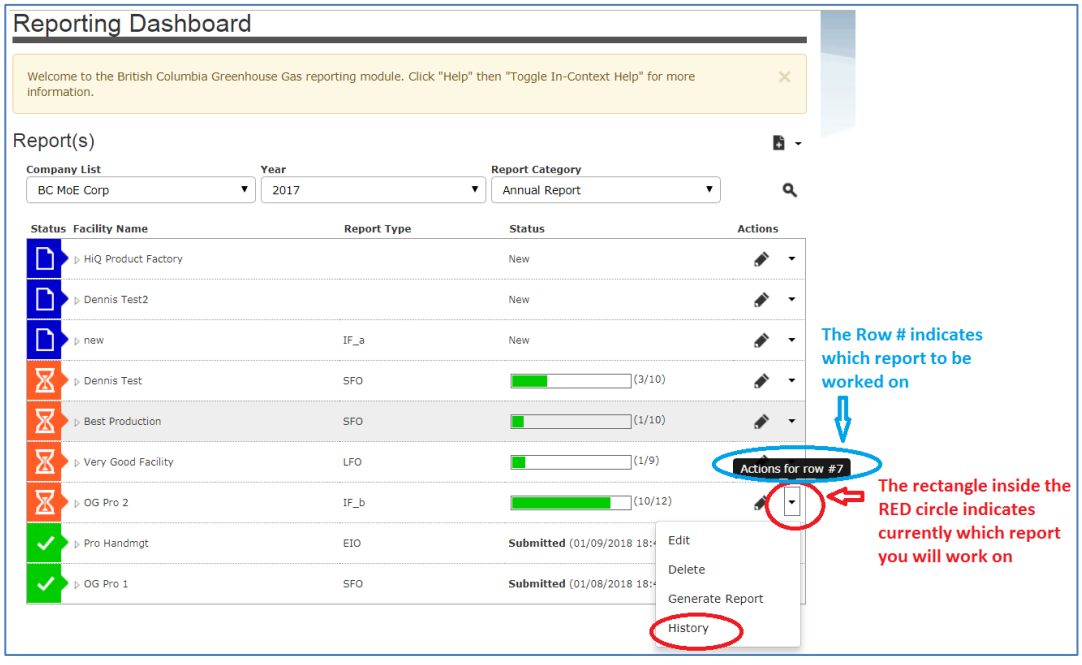


Fig. 3.4.24c To view the history of a submitted report

5 GHG Standard Report

[Note]

Standard Report must be submitted if:

- *An industrial facility is a reporting operation with total attributable emissions equal to or greater than 10,000 t CO_2e not including carbon dioxide from biomass in Schedule C in the Regulation, or*
- *If the report has a verification obligation, even if the total attributable emissions is less than the threshold i.e. 10,000 t CO_2e.*

Standard Report applies to all report types, i.e. SFO, LFO and EIO.

5.1 Starting the Standard Report

When a **Standard Report** is required, follow the instructions described in section **3.3 Starting a New Report** to start the report. To start, on the **Reporting Dashboard** page, select the line with reporting facility's name where "**New**" appears under the "**Status**" column and either directly click the pencil mark " " or click the dropdown arrow " " and pick "**Edit**" (Fig. 3.5.1).

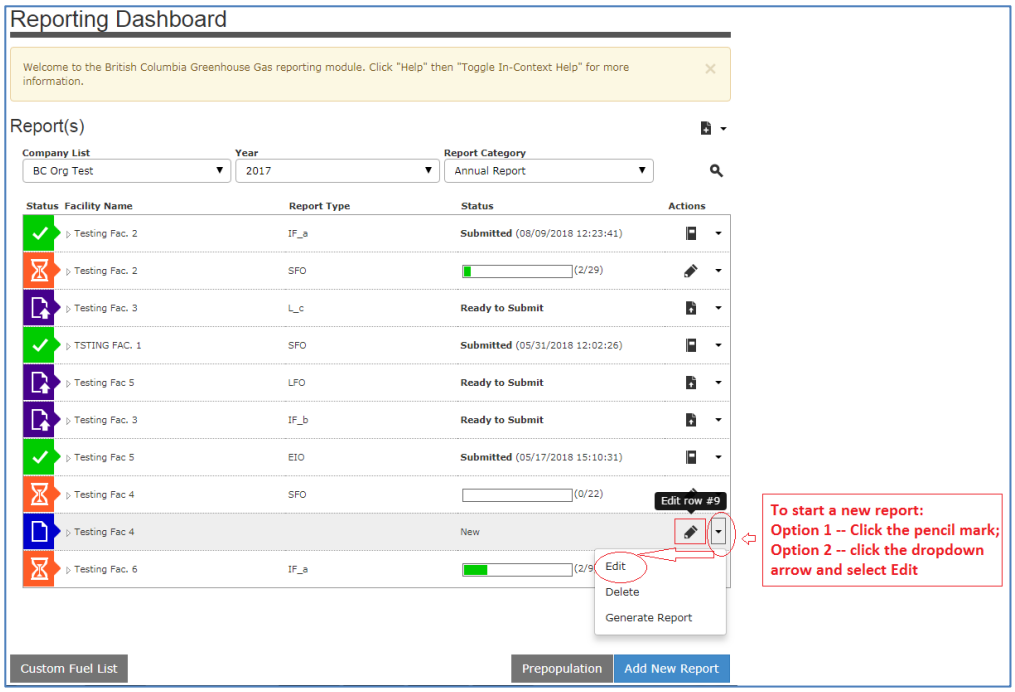


Fig. 3.5.1 Starting a new report from Reporting Dashboard

[Note]

When a report is selected, the line is highlighted in grey background.

*Your report progress status is indicated, on the Reporting Dashboard, by a green bar in a narrow long rectangle ((2/x)) with a pencil mark( ) located at the corresponding column of "**Actions**", where "**x**" represents the steps required to complete the report. However, if a report is saved at the step of "**Facility Reporting Options**" or "**Select the Facility Contacts**", no green bar in the rectangle will be shown.*

5.1.1 Facility Reporting Options

Upon starting a report, a **Facility Reporting Options** window is displayed (Fig. 3.5.2). Carefully review that the Company nd Facility names are correct. Select the appropriate options for Facility Type (i.e. EIO, IF_a, IF_b, L_c, LFO and SFO) that applies to the report, and make sure the Report Version is "**Standard Report**" as shown in Fig. 3.5.2. Once everything is OK, click the "**Save/Continue**" button to proceed with the next step - "**Select the Facility Contacts**".

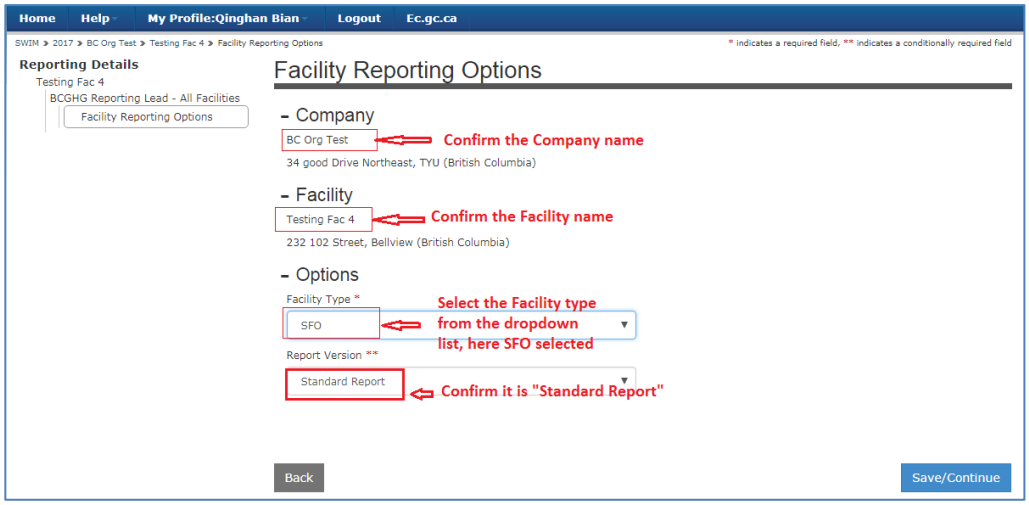


Fig. 3.5.2 Standard Report's Facility Reporting Options

5.1.2 Facility Contacts Selection

There are three contact types : **Operator Contact**, **Operation Representative** and the **Person Primarily Responsible for Preparing Report**. For each of them you should fill the field by clicking the dropdown arrow "▾"and selecting the right contact person's name. The contact information for these persons must have been entered into the system through SWIM as described earlier. After the selections, click the "**Save/Continue**" button to proceed further; clicking the "**Back**" button will go back to the previous step "**Facility Reporting Options**".

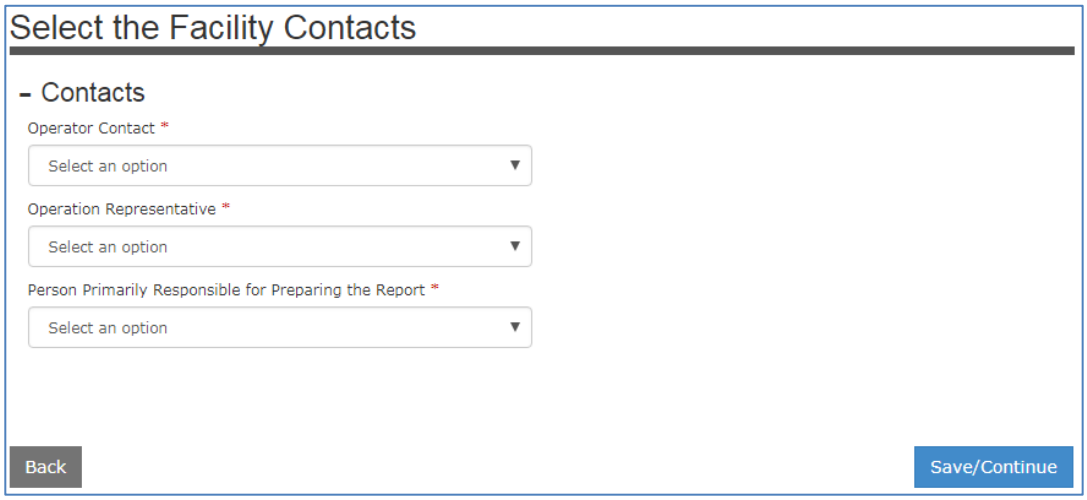


Fig. 3.5.3 Selecting Facility Contacts

5.1.3 SWIM Validation

SWIM Validation is also entitled "**Verify Facility Information**" as shown in Fig. 3.5.4. This is a long page, carefully examining every piece of information is advisable. If something is wrong, depending on the nature of the item you may be able to change here or you may need to go to SWIM module. Items with blank background can be directly edited here and those in grey background can only be edited in SWIM module. Those with stamp mark "" can be edited by clicking the stamp mark "", this prompts a child window where the information can be modified, changed. Clicking the "+" will expand the item in detail, clicking the "-" will collapse the item's details.

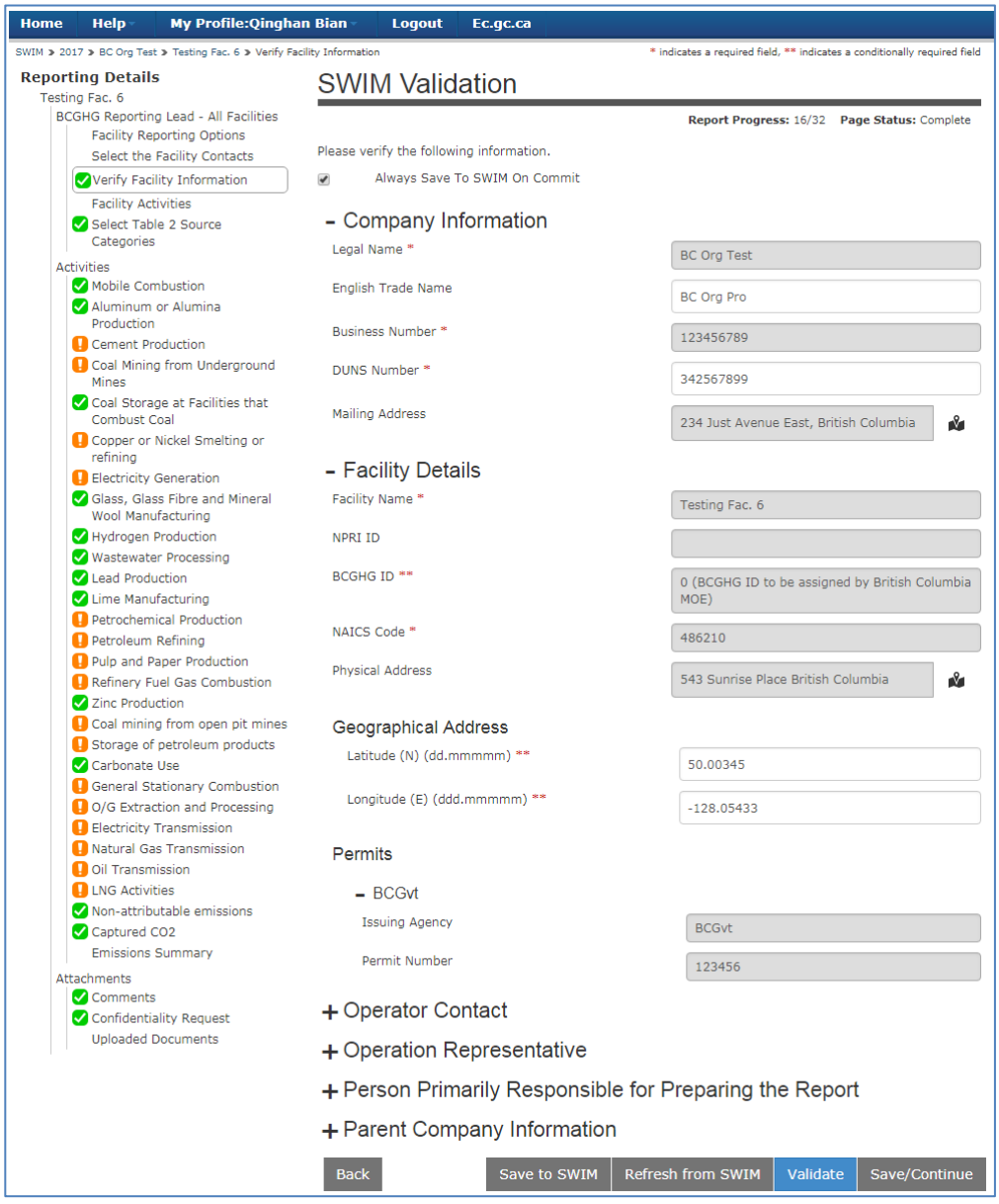


Fig. 3.5.4 SWIM Validation process

There are five (5) buttons at the bottom as shown in Fig. 3.5.4, their functionalities are described below (also refer to section **3 GHG Annual Report 3.6 SWIM Validation**):

1) **Refresh from SWIM** – if the information in the "**SWIM Validation**" page is old or out of date, but their counterpart in SWIM is current, you can simply click the "**Refresh from SWIM**" button to update the information on this page.
2) **Save to SWIM** – if the information on this page is current and updated, and those in SWIM is out of date, you can quickly save into SWIM the work you've done here by clicking the "**Save to SWIM**" button to replace those in SWIM now.
3) **Validate** – Clicking the "**Validate**" button checks whether the information on this page has any error. If there are any errors, error messages will appear as shown in Fig. 3.5.5 below. The top messages indicate in which section errors exist. The messages in the specific sections explain the errors in detail. If everything is good, then a confirmation child window shows up with a list of items, saying "**XXX saved**" with a green check mark appearing at left side (Fig. 3.5.6) when the "☐" at "☐ Always Save To SWIM On Commit" is ticked off. Click the **"OK"** button to proceed. However, if you don't tick off "☐" at "☐ Always Save To SWIM On Commit", clicking the "**Validate**" button will not trigger this confirmation child window in Fig. 3.5.6.
4) "**Save/Continue**" – clicking the "**Save/Continue**" button here saves the information appearing on this page back to the system and continue to the next step. As for "**Validate**", if the "☐" at "☐ Always Save To SWIM On Commit" is ticked off, then green check mark appears at the left side of each item in a child window when they are valid; otherwise, if there is any error the child window won't appear and a "!" will prefix "**Verify Facility Information**" at the left pane, even getting into the next step.
5) "**Back**" – clicking the "**Back**" button here will bring you back to the previous page – "**Select the Facility Contacts**".

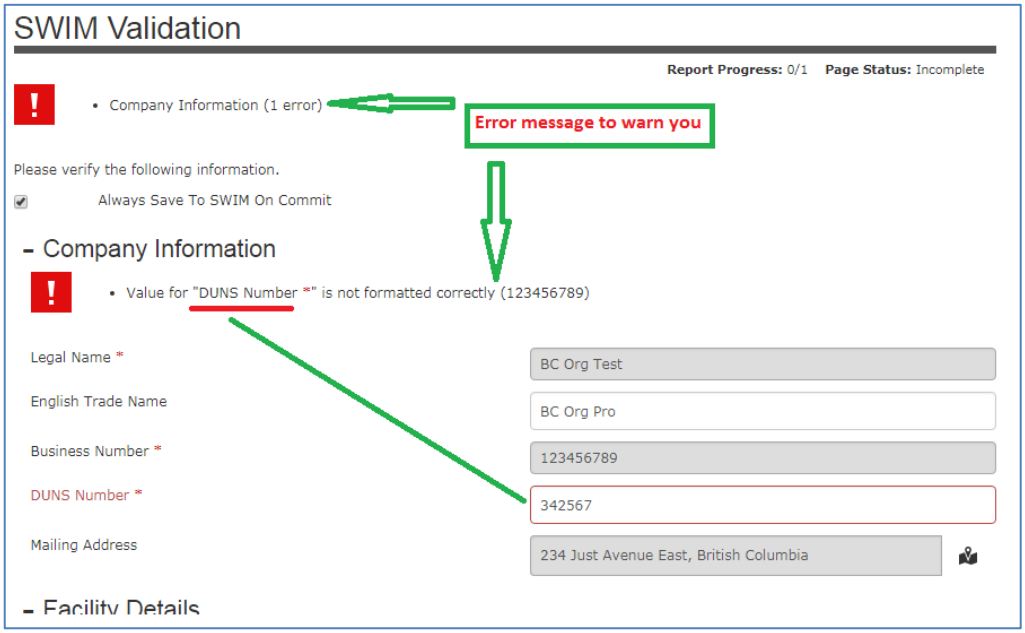


Fig. 3.5.5 Error messages on SWIM Validation page

*[**Note**]:*

*On the top of the page, "☐ Always Save To SWIM On Commit" exist. Ticking off the checkbox "☐" will save the information on this page to SWIM simultaneously when implementing other functions such as "**Validate**" or "**Save/Continue**". This is very useful and convenient especially when some pieces of information have been changed, modified or updated in case you would forget to click "**Save to SWIM**" first. With this checked off, the new changes will always be saved to SWIM. However, if the "☐" not being ticked off, then the changes made on this page will not be saved to SWIM simultaneously though they will be saved into the report only.*

Fig. 3.5.6 Confirmed SWIM Validation items

5.1.4 Selecting Facility Activities

After clicking the "**Save/Continue**" button on "**SWIM Validation**" page, **the "Facility Activities"** window appears, showing a list of potential activities depending on the operation type. For **Single Facility Operation** a list of activities listed in Table 1 of the Greenhouse Gas Emission Reporting Regulation (GGERR) will be displayed (Fig. 3.5.7), and for **Linear Facilities Operation**, both Table 1 and Table 2 activities will be displayed (Fig. 3.5.8).

From the list foresaid, select which activity(s) apply(s) to your facility and click the "**Save/Continue**" button to proceed with the next.

For facility(s) within a linear facilities operation that carry(s) out Natural Gas Transmission (NGT), or Oil/Gas (or O/G) Extraction and Processing (O/GEP) etc., further source category selection window will appear in order to confirm the specific source categories (Fig. 3.5.9 and Fig. 3.5.10). If NGT and O/GEP are carried out in a same facility, then the lists of the specific sources categories as shown in Figs. 3.5.9 and 3.5.10 are merged together. Confirm those that apply, otherwise error message appears and the system prevents you from going forward.

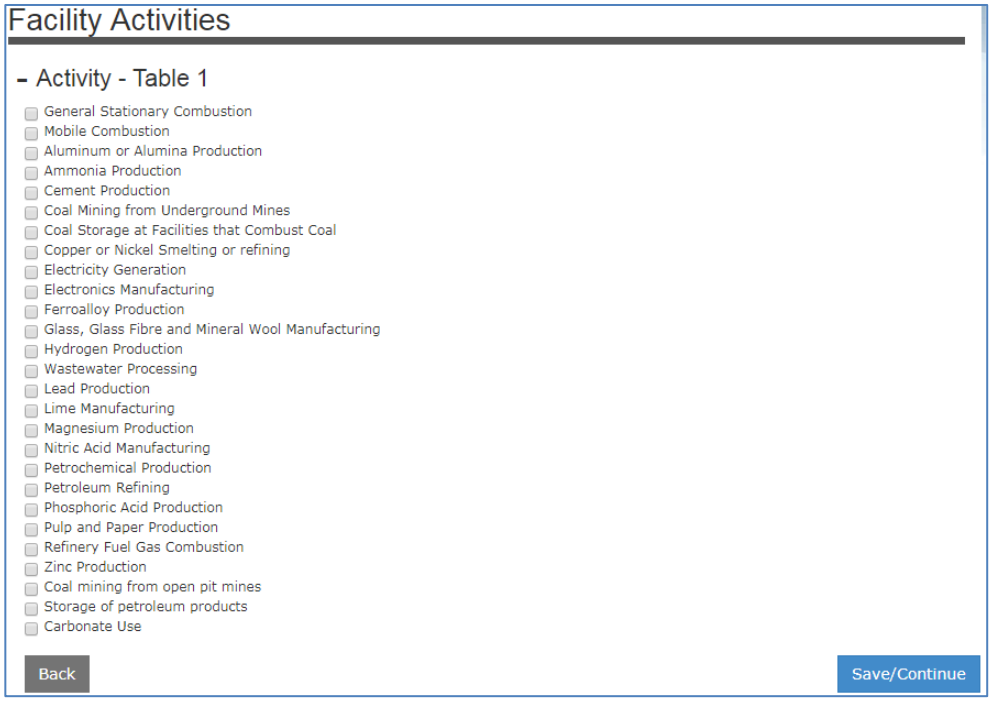


Fig. 3.5.7 Single Facility Operation's activity list from Table 1 of GGERR

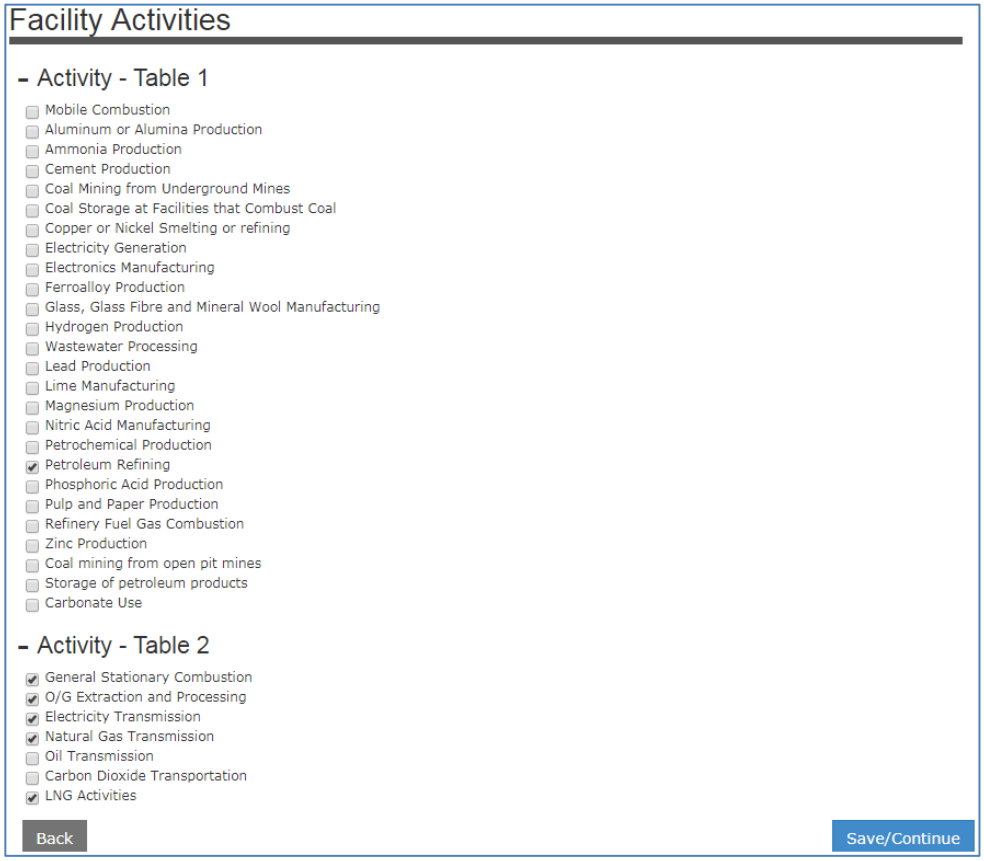


Fig. 3.5.8 Linear Facilities Operation's activity list from both Tables 1 & 2 of GGERR

Natural gas transmission:

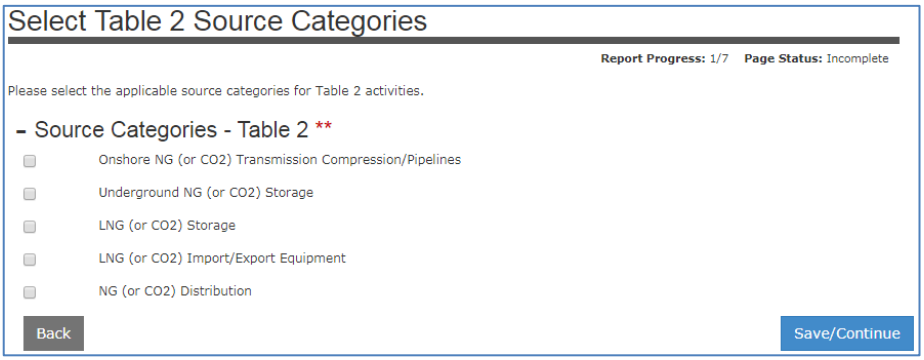


Fig. 3.5.9 Natural gas transmission source category list

Oil/gas extraction & processing

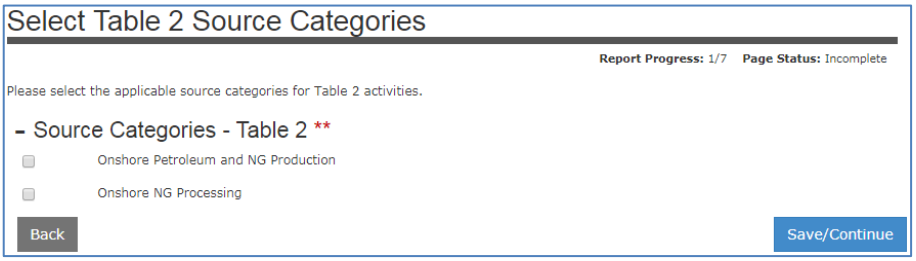


Fig. 3.5.10 Oil/gas extraction & processing source category

*[**Note**]:*

*Later on, if you find any activities were missing and want to add them on, you can just click the "**Facility Activities**" at the left pane, select the activities to be added and click the "**Save/Continue**" button, a Facility Activities change warning message will pop out in a small window, click "**Yes**" to continue and "**No**" to cancel the addition of the activities (Fig. 3.5.11).*

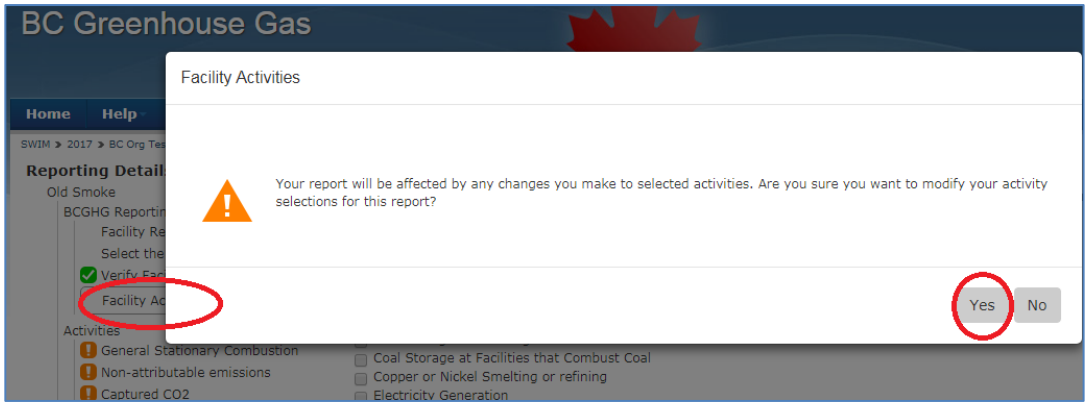


Fig. 3.5.11 Activity addition warning message

*[**Note**]:*

During the report preparation process, if anything needs to be changed, you can just do it by clicking the appropriate place at the progress extent indicators located at the upper left corner as shown in Fig. 3.5.12 or just from the left pane.

- *Clicking "**SWIM**" goes to the Program selection page;*
- *Clicking "**2017**" (Year), or "**Organization**" or "**company**" name, or "**Facility**" name, respectively, goes to the Reporting Dashboard where you can change the year, company, report category and even facility.*

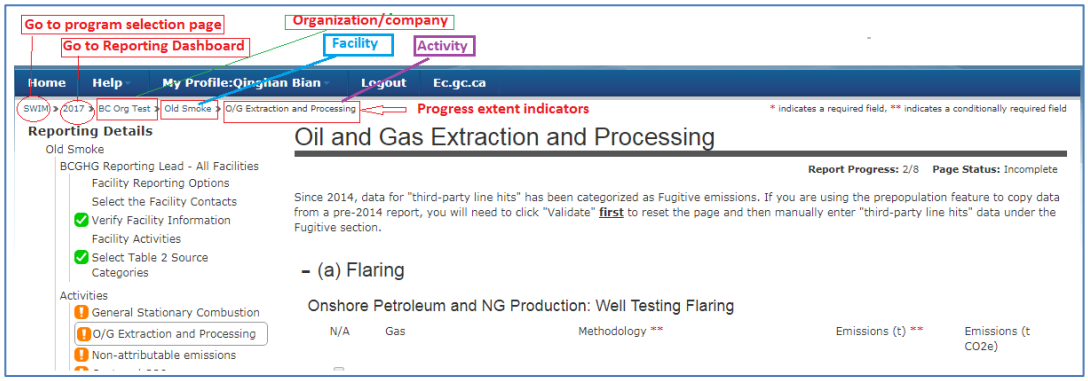


Fig. 3.5.12 Report content change quick approaches

From now on we will start to enter GHG related data into the system for specific activities, which is described in the coming chapters.

[***Tips***]

If being inactive for a certain period of time (20 minutes), the system will automatically sign you out. But before that a warming message will pop up to remind you of the time when the system will sign out.

*In order to be still in the system for convenience, frequently clicking the "**Validate**" button is advisable, doing so you will always stay at the same place.*

*In order to avoid any loss of entered data, clicking "**Save/Continue**" button is advised, by doing so you will be brought to next step, but the data just entered is saved properly.*

Chapter 4 Reporting for Specific Activities

For any activities specified in the GGERR that were carried out in a facility that was a reporting operation, the reporter or operator must report the emissions from the foresaid activities.

1. General Stationary Combustion

General stationary combustion (GSC) is a common industrial activity. Stationary combustion devices are those that combust solid, liquid, or gaseous fuels generally for producing useful energy such as electricity, steam or heat (including hot water) for industrial uses; or for reducing or eliminating waste volume by removing combustible matters such as incinerators in which case non useful energy is produced. The typical combustion devices include boilers, simple and combined cycle combustion turbines, engines, incinerators, process heaters, and any other stationary combustion devices as well as mobile rigs in oil industry.

In the SWRS the GSC window looks like that shown in Fig. 4.1.1 for single facility operation (Table 1 activity), and Fig. 4.1.2 for linear facilities operation (Table 2 activity).

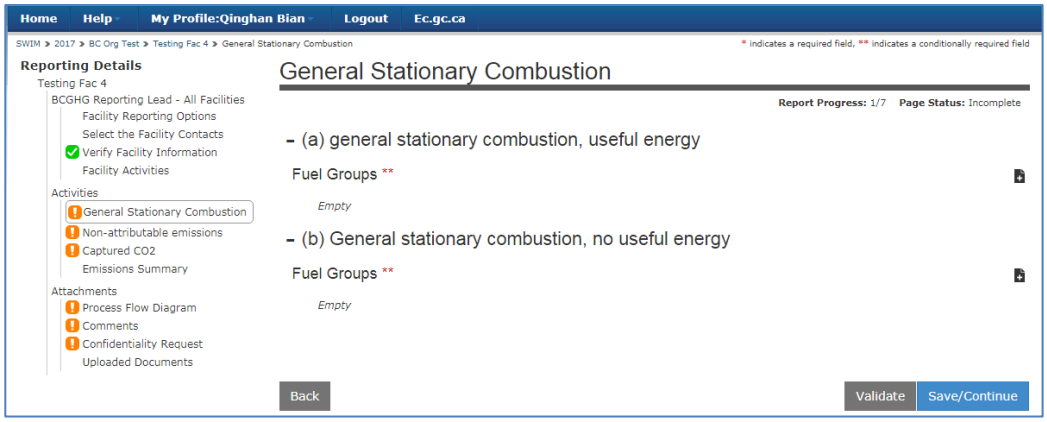


Fig. 4.1.1 General stationary combustion for SFO (Table 1)

Common GSC emission sources exist in both SFO and LFO facilities. They are: (a) general stationary combustion, useful energy and (b) General stationary combustion, no useful energy.

Additionally, a unique combustion emission source exists in linear facility operations that is the combustion of field gas or process vent gas i.e. the raw gas or semi-raw gas from the in-situ processes (i.e. in Fig. 4.1.2. the "(c) Combustion: Field gas or Process Vent Gas"). It is worth of noting that these fuels have their own characteristics, and therefore, their higher heating value (HHV) and carbon content etc. must be analysed through appropriate sampling procedures.

Unless specified expressly, the descriptions of GSC (a) and (b) below apply to both SFO and LFO.

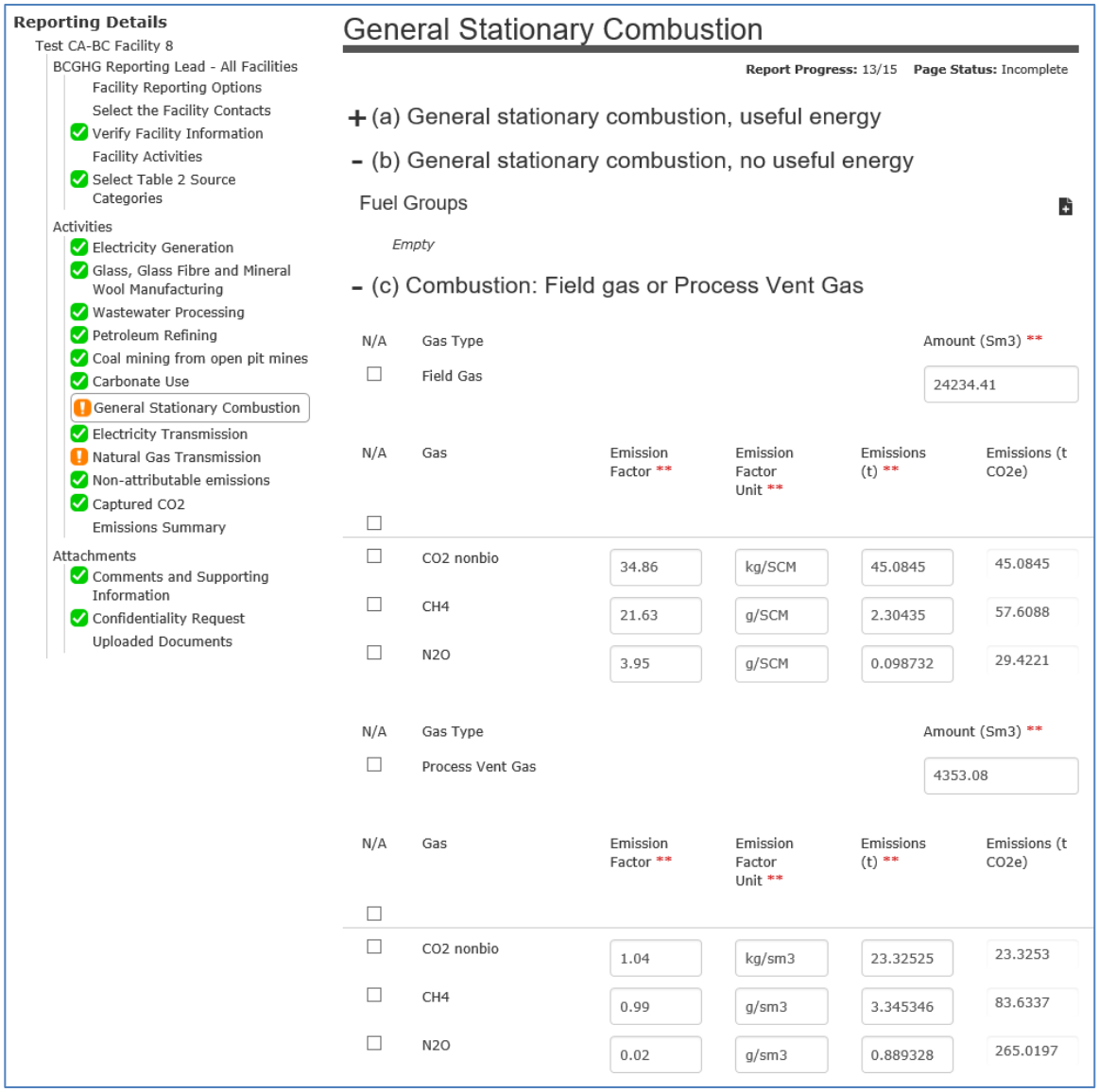


Fig. 4.1.2 General stationary combustion for linear facilities operation (Table 2)

1.1 General Stationary Combustion, Useful Energy

To start the reporting for useful energy production, click the "📄" opposite the "Fuel Groups" to open a Fuel Group child window like in Fig. 4.1.3. Enter the appropriate information in the fields for both the **GSC Unit Name** and **Description** and click "**Save**" button to continue.

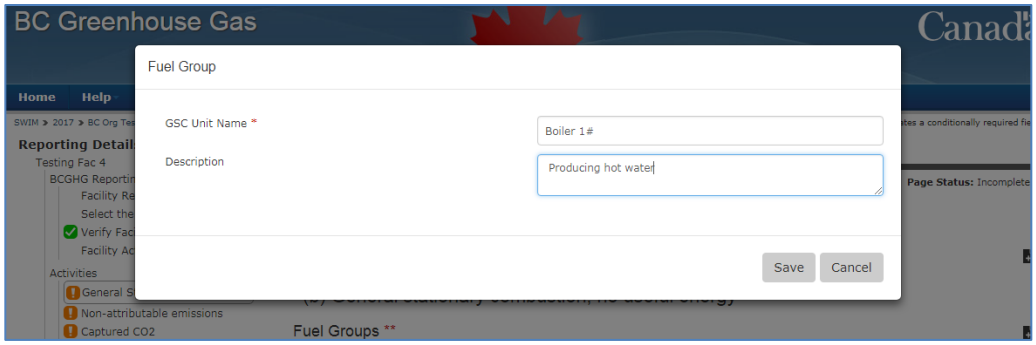


Fig. 4.1.3 Fuel group child window

Now the window looks like that shown in Fig. 4.1.4. Clicking the "📄+"at the right side opposite the "**Fuel Groups**" (as highlighted at point "A") will add another unit.

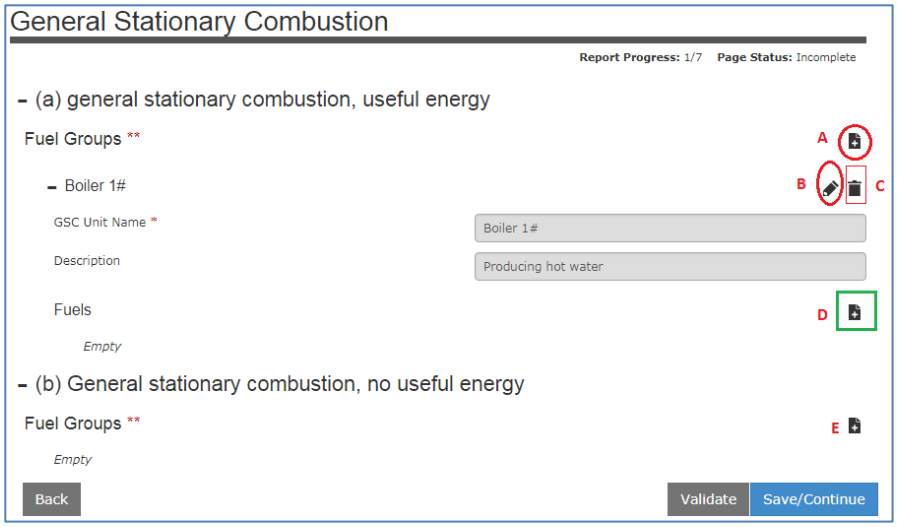


Fig. 4.1.4 GSC (a) useful energy production emission entry window

Icons "✎" and "🗑" at the right side opposite the unit name "Boiler #1" exist as shown by the points "B" and "C" in the above Fig. 4.1.4. Clicking "✎" enables edition of the information for an existing unit and clicking "🗑" will delete an existing unit.

Further, below the unit description and opposite the "**Fuels**" there is another "📄+" icon (point "D") at the right side. Clicking it will prompt a new window where fields for detailed information about fuel and emissions are presented for entries (Fig. 4.1.5).

Once a new window displays for a fuel, the name of the fuel can be picked up from the dropdown list, and its **Annual Fuel Amount** must be entered. Properly entering other relevant values is also required. For **HHV Measured/Default**, an option of either "**Measured**" or "**Default**" should be selected when applicable. "**CO_2 Measured/Default**", "**CH_4 Measured/Default**" and "**N_2O Measured/Default**" require selecting a specific option for the type of emission factor for each of these gases when

required. Select the appropriate one ("**Measured**" or "**Default**") from the dropdown list. Remember that the methodology and the parameter(s) required is interdependent*. Details on the methodology will be provided later in this section.

*[Note]:

Due to the limitations of resources and time, the rules for validating fuel combustion methodologies have not been completely functional yet, therefore, please enter all required parameters correctly according to the quantification methods used. On the other hand, some of the built-in validating rules may not work correctly. For example, when biomass fuel (BF) or municipal solid waste (MSW) is used and methodology for CO_2 is "Default HHV" or "Measured HHV", the system doesn't require the value entry, which is not right. Under this circumstance, please remember to enter the respective HHV value.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal places. Clicking the "**Save**" button will automatically convert the entered value to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

Click the "**Save**" button to save the information just entered. Click "**Cancel**" to delete this entry process.

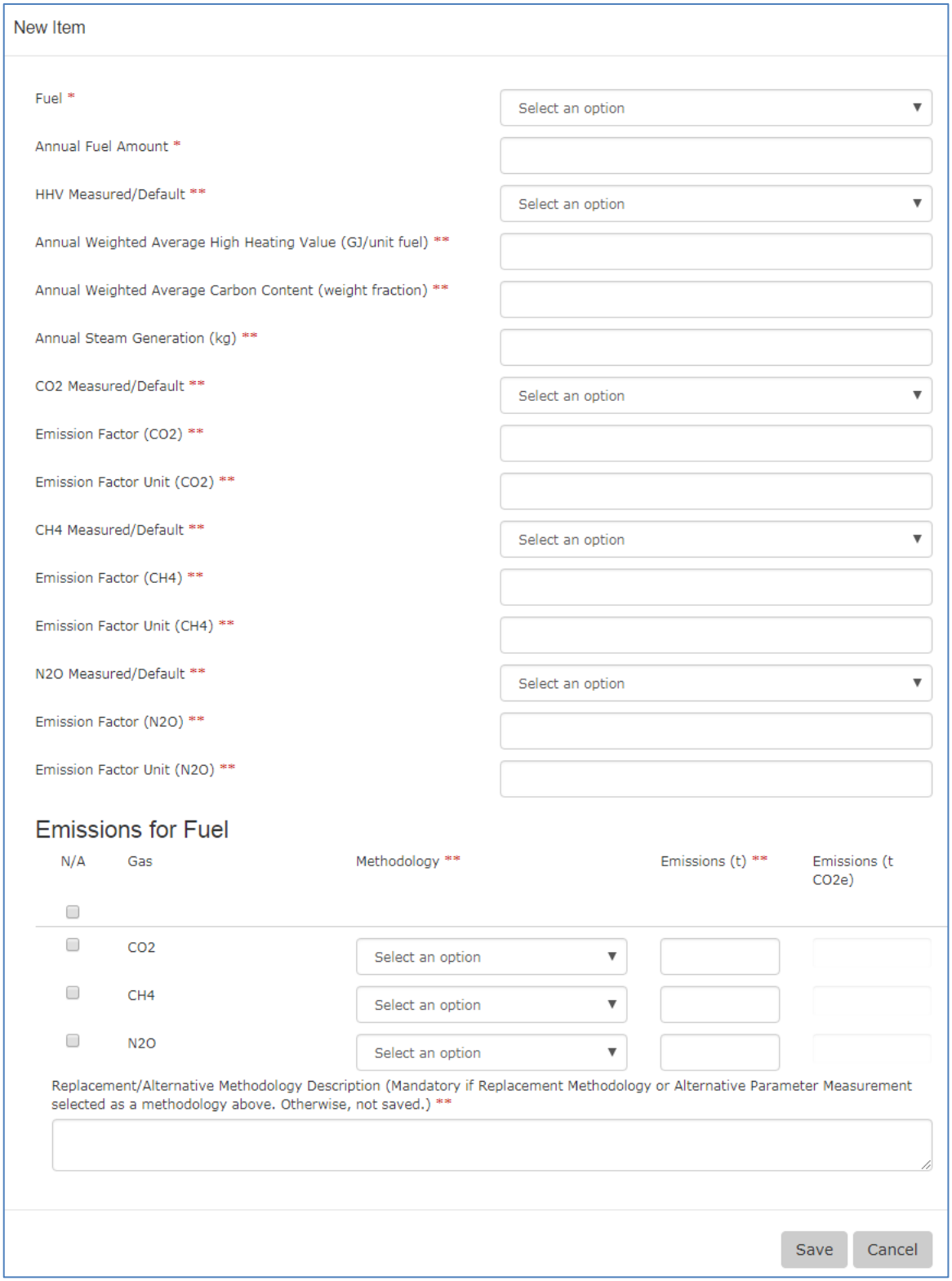


Fig. 4.1.5 Fuel and emission information entry window

After entering all these pieces of information, emissions from current fuel combusted in the current unit looks like that shown in Fig. 4.1.6. If anything entered is wrong or needs to be modified, click the icon "✎" (highlighted # 2) to edit it; if all the information needs to be removed, just click the icon "🗑" (highlighted # 3) to delete it.

If other fuels are also combusted by this unit, click the icon "🗎" as highlighted # 1 in Fig. 4.1.6 to repeat the same steps until the emissions for all these fuels are entered.

Point "E" in Fig. 4.1.4 is for GSC non useful energy production, for which entering information is similar to that described here for useful energy production, the details will be discussed in the next section **1.2 General stationary combustion, no useful energy**.

*[**Note**]:*

- *Depending on the methodology used for quantifying emission amount, fuel higher heating value (HHV), carbon content (CC) and annual steam amount may be required based on the current reporting rule settings in the SWRS.*
- *If the fuel combusted is a custom fuel, you need to enter this fuel information first as described earlier at the section* **1. Reporting Dashboard** *by following the instruction provided.*
- *The emission amount entered must be that gas' real emission amount, not multiplied by the corresponding GWP. This applies to all other activities to be reported.*

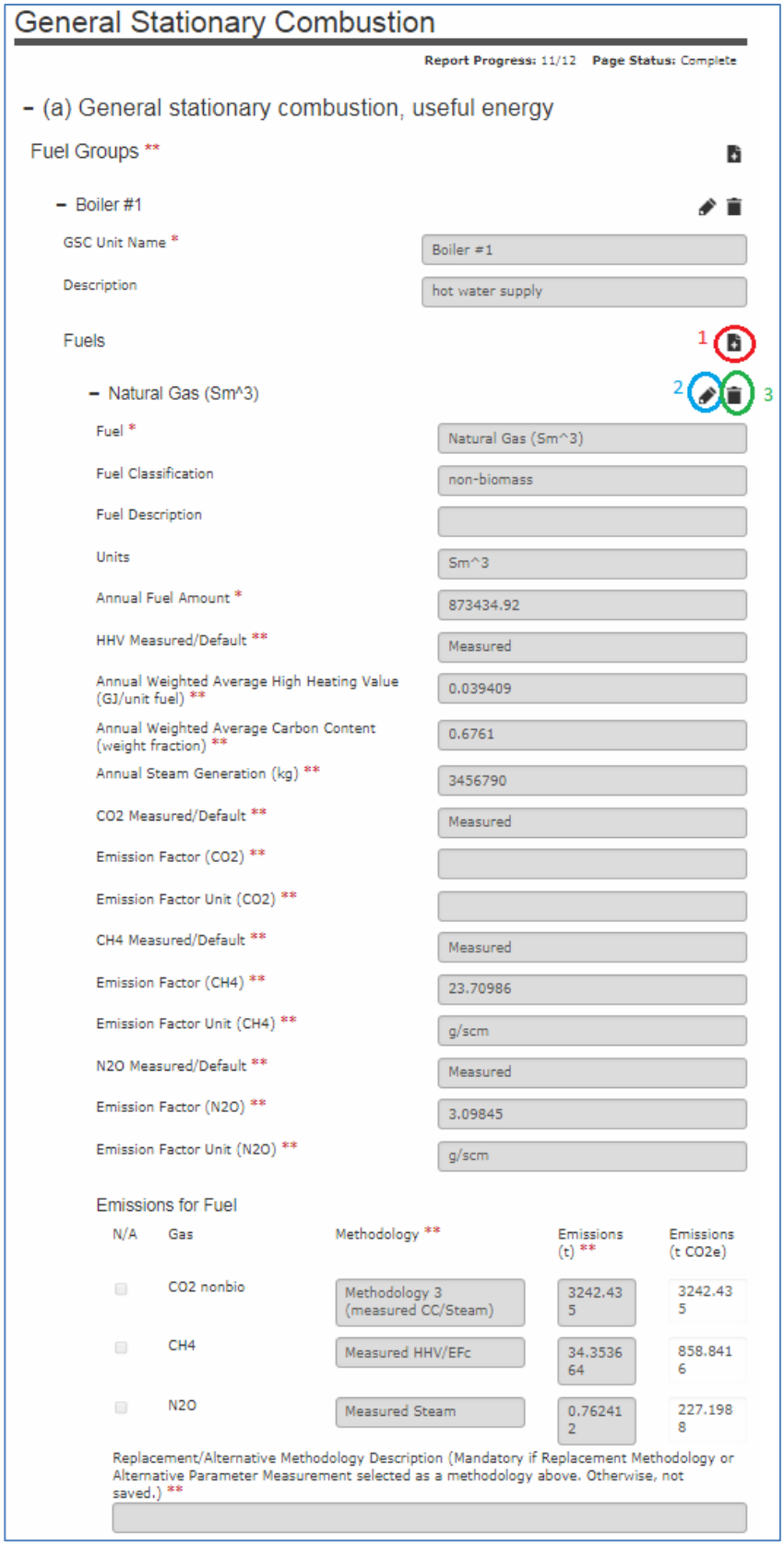


Fig. 4.1.6 GSC fuel and emission information window

Regarding the Methodology

When quantifying the emission of each individual gas, a methodology is required.

Clicking the dropdown arrow in the **Methodology** column at the right side of each gas shows the potential methods, pick the one that applies (Fig. 4.1.7 Red "□").

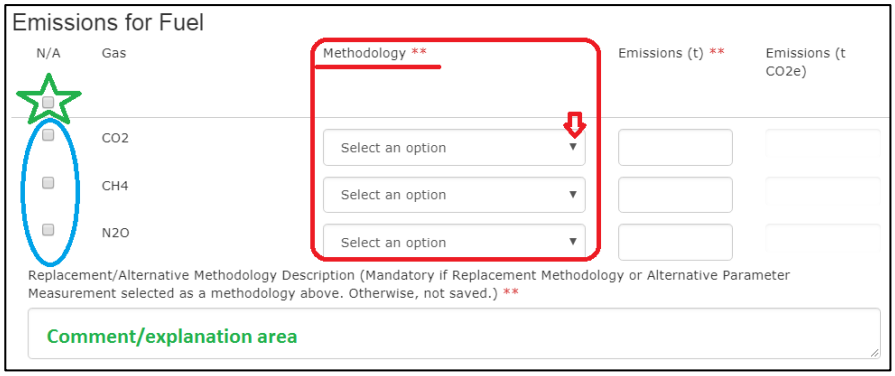


Fig. 4.1.7 GSC (a) and (b) options

For CO_2 there are usually 6 options available, including **Methodology 1 (default HHV)**, **Methodology 2 (measured HHV/Steam)**, **Methodology 3 (measured cc/Steam)**, **Methodology 4 (CEMS)**, and **Alternative Parameter Measurement** as well as **Replacement Methodology**;

For CH_4 and N_2O there are 5 options, including **Default HHV/EFc**, **Measured HHV/EFc**, **Measured Steam**, and **Alternative Parameter Measurement** as well as **Replacement Methodology**.

As for CO_2, depending on the type of fuel used, $CO_{2\ nonbio}$, $CO_{2\ bio\text{-}C}$ or $CO_{2\ bio\text{-}nc}$ may appear, however, this doesn't affect the methodology selection.

If a gas or item doesn't apply, tick off the N/A checkbox"☐" at the left side of the corresponding line (in the blue circle "0"); If all the gases do not apply, tick off the N/A checkbox"☐" indicated by the green star "★" (Fig. 4.1.7).

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Fig. 4.1.5) below the emission entry part.

[***Note***]:

> *General stationary combustion in linear facilities operation had slightly different reporting frames among the report types, i.e. LFO, IF_a, IF_b and L_c. While IF_a and L_c had the same frame as does SFO, IF_b and LFO – the entire organization's report – had simplified reporting structures where important information*

about fuel characteristics (such as fuel amount, HHV, CC etc.) and quantification methodologies had been omitted. LFO and IF_b reports only required emission values for each gas.

Therefore, for 2018 reporting cycle and onward GSC reporting frame in LFO, IF_a, IF_b and L_c reports are aligned with SFO in SWRS after the latest update. Please keep in mind that the steps described for SFO report must be followed to prepare these linear facilities operation reports.

[***Tips***]*:*

- *In the system every input for emission quantification can accept many decimal places, but the automatic calculation result can only retain up to four (4) decimal places, so don't round up input values when entering.*

[***Warning***]

- *Regarding the fuel HHV, currently a value range is set for each of the fuels listed in Table 20-1 in the WCI Methodology manual[1]. If the fuel combusted is somehow different from the default one (actually it is true in the real world), its characteristics or properties will be different from those listed, you will need to use the measured value. At this circumstance, the value may be beyond the pre-determined range, and a warning message will appear (Fig. 4.1.8). If that is the case, you need to reconfirm the value. If the value is indeed accurate, just keep going ahead.*
- *It is strongly recommended that the HHV, CC, and/or emission factor values be developed on site.*

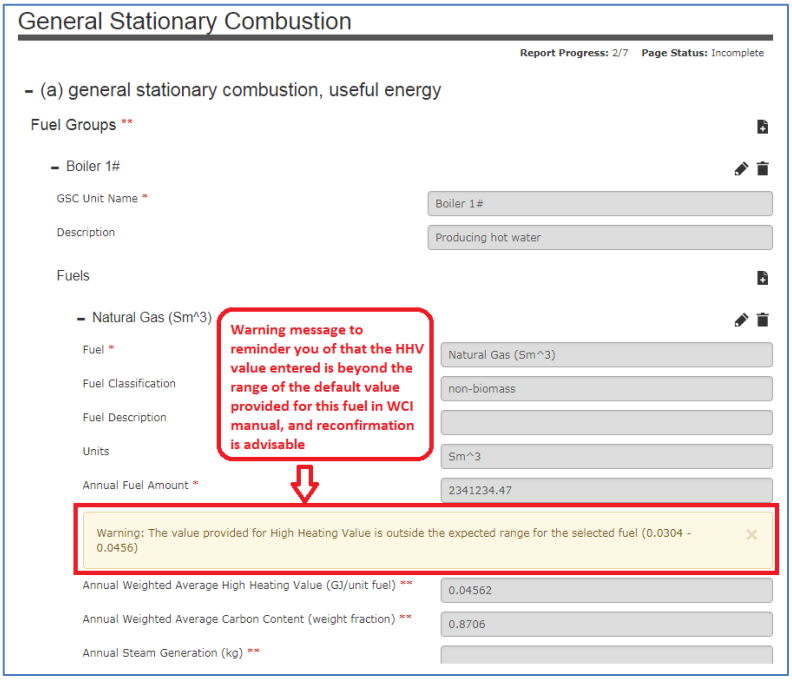


Fig. 4.1.8 Warning message about out-of-range HHV value entered for a fuel

If there are other combustion equipment or units, click the "📄" at the top right side opposite the "Fuel Groups" in Fig. 4.1.8, and repeat the procedures described above for each fuel combusted by each unit.

1.2 General stationary combustion, no useful energy

Note here that the "**no useful energy**" means the energy released from combustion is not used for any useful purpose such as providing hot air, hot water or generating electricity. Instead the produced energy is discharged into the atmosphere. For example, merely for reducing or eliminating waste volume incinerating garbage is a kind of "no useful energy production" combustion process because all the energy released from combustion is just wasted. In addition, if any conventional fuel(s) such as natural gas is used to start up this process, the emissions from burning it is counted towards the "no useful energy" category.

However, not all combustion of waste is a "no useful energy" production process. Waste-to-energy, for instance, a process carried out at the Metro Vancouver Regional District's Incinerator Facility (Fig. 4.1.9), is a process using the energy obtained from combusting waste to produce electricity and steam. Other wastes may also be combusted in other processes such as in cement kiln, which provides useful energy.

Fig. 4.1.9 Metro Vancouver's South Incinerator Facility

The same procedures apply to "(b) General stationary combustion, no useful energy" as described above for "(a) General stationary combustion, useful energy".

To start, just click the "📄"at right side opposite "**Fuel groups**" under the sub-title "-(b) General stationary combustion, no useful energy" (Fig. 4.1.10), and repeat the procedures described in section 1.1 for (a) above.

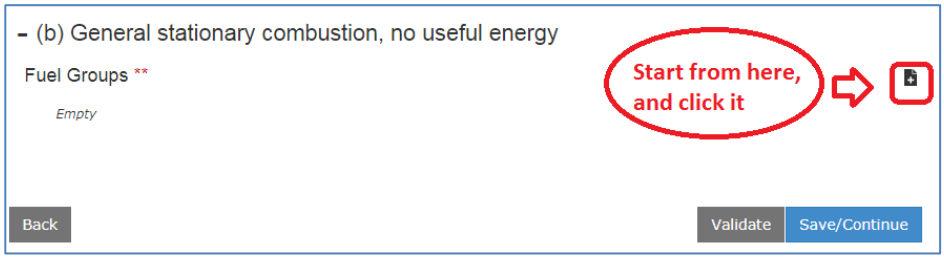


Fig. 4.1.10 No useful energy production GSC emission entry start-point

1.3 Combustion: Field gas or Process Vent Gas

As mentioned earlier, for oil and gas facilities, there is another combustion emission source, i.e. combusting field gas or process vent gases by various devices. Please bear in mind that **double**

counting should be avoided, meaning that this emission sources should not be included in either (a) or (b) simultaneously.

The latest updated section for **(c) Combustion: Field gas or Process Vent Gas** in SWRS is shown in Fig. 4.1.2 and below (Fig. 4.1.11) for 2018 and onward. Fuel amount and emission factors are required.

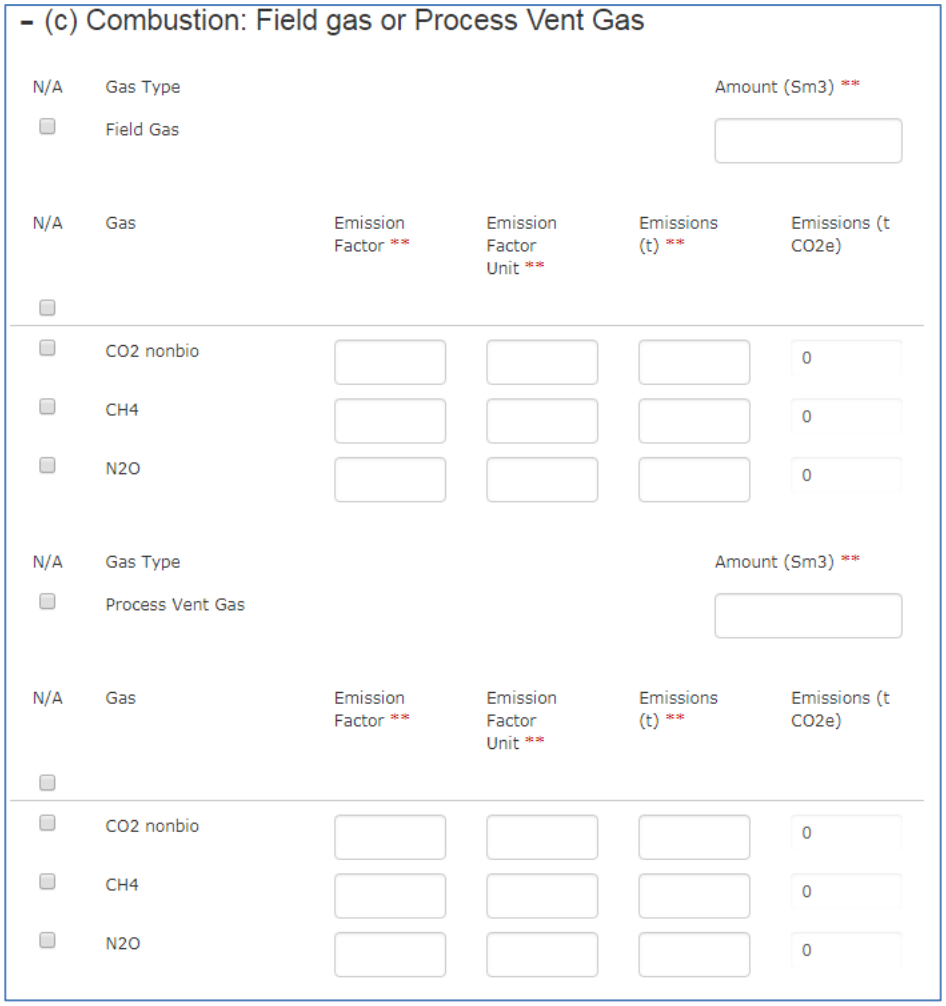


Fig. 4.1.11 Emission information for GSC (c) Combustion: Field Gas or Process Vent Gas

If there is any further information that will help understanding your emission reporting about this section, please document them in a file and attach it to the report at the **4. Comments on the Report** page. However, the file needs to meet the naming convention requirements as described in the **File Naming Convention**.

Furthermore, according to the requirements for linear facilities operation and the current SWRS reporting frame, additional information on the emissions from combustion of fuels by field equipment such as line heaters, compressors, generators, mobile drilling rigs and workover equipment must be reported as well (Fig. 4.1.12). These emissions are only for information

management and will not be counted toward the total emissions of your facility. Thus, make sure that double counting is avoided.

Similarly, if cement or/and lime manufacturing is carried out in a facility, providing additional reportable information on fuel combustions as required in Fig. 4.1.13 is also mandatory. These emissions should not be double counted.

Next step: After all information being entered, clicking the "**Validate**" button validates the entries. If there is any error or mistake, correct it by following the indications or clues, otherwise the system won't allow you to submit the report, and the corresponding activity (i.e. here the General Stationary Combustion) will have a "❗" as a prefix, indicating an error(s) exists and care is needed. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

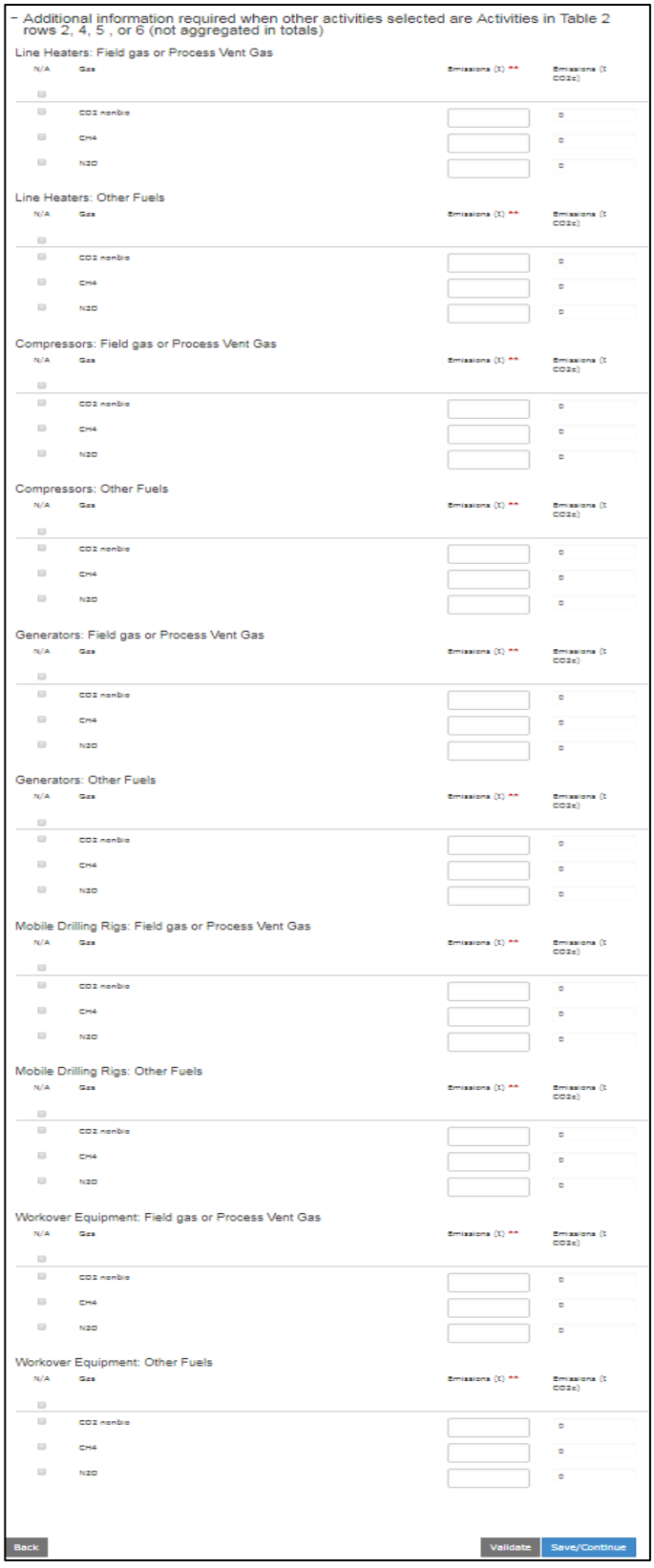


Fig. 4.1.12 Additional reportable information on fuel combustion in oil & gas industry

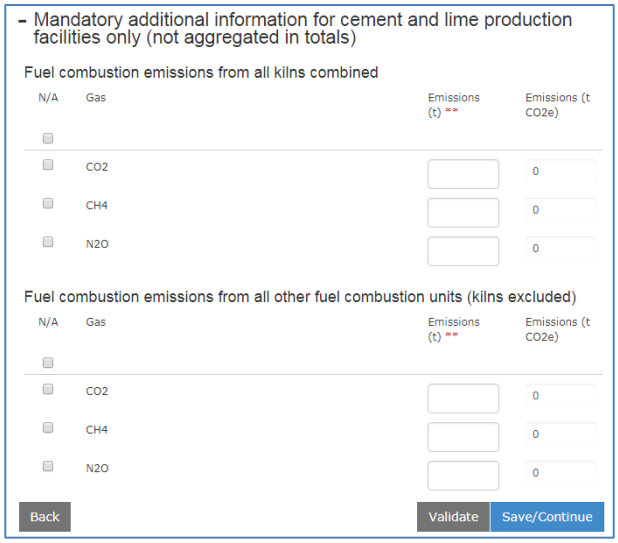


Fig. 4.1.13 Additional reportable information when cement/lime manufacturing is carried out

2. Coal Storage at Facilities that combust coal

According to the GGERR section 3(3) facilities that combust coal must report the emissions from coal storage at the facilities (Fig. 4.2.1).

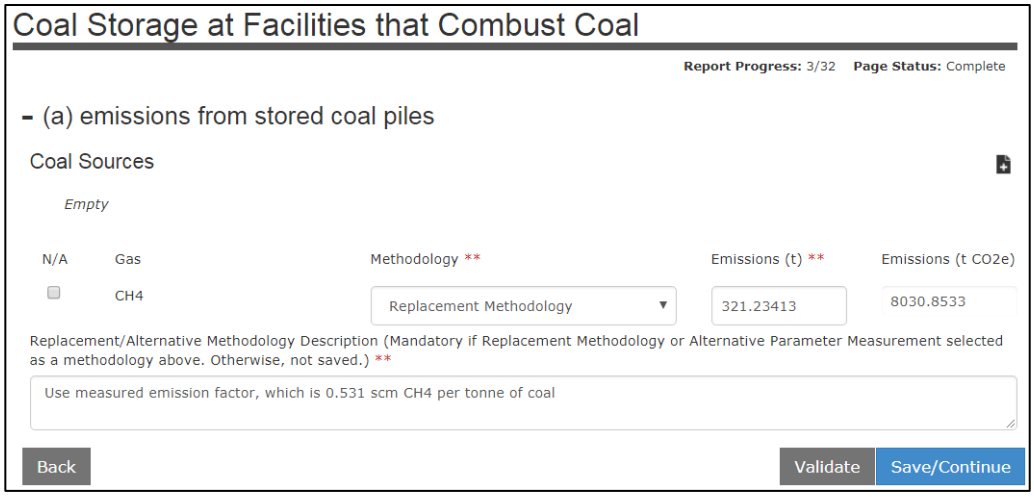


Fig. 4.2.1 Coal storage emission reporting window

For the quantification methodology, there are several options: **Default EF (metric)**, **Default EF (English)**, **Alternative Parameter Measurement** and **Replacement Methodology** (Fig. 4.2.2).

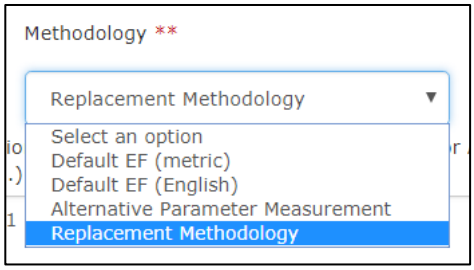


Fig. 4.2.2 Methodology selection option

Since the emission factors provided in the WCI Methodology manual[1] are outdated, it is recommended that actual measurement results be used, if possible.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4.2.1) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas (CH_4) before applying its global warming potential (GWP). The value accepts more than four (4) decimal places, which will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which can take up to four (4) decimal places.

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you back to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

3. Mobile Equipment Combustion

Under the current GGERR only single facility operations are required to report the on-site mobile combustion emissions. Thus, any emissions released from mobile equipment deployment at a single facility operation, are counted towards the reporting threshold, and must be reported accordingly.

Under the **Activities** in the **Reporting Details** at the left-hand pane, clicking the **Mobile Combustion** will display the Mobile Combustion window as shown in Fig. 4.3.1.

Fig. 4.3.1 Mobile combustion emission initial reporting window

Clicking the icon " " at right side opposite the **Fuel** at left side under the title "**Emissions from fuel combustion by mobile equipment that is part of the facility**" (Fig. 4.3.1) pops up a new child window (Fig. 4.3.2) called "**Fuel**", where you need to enter quarterly fuel consumption and the annual associated emissions information etc.

In Fig. 4.3.2 the circled fields must be properly selected or entered. Fuel consumptions are entered quarterly. The fields in blue rectangle do not require entries, but will show the results automatically when the information is saved. The highlighted area in green indicates an area where comments and explanation about Alternative Parameter Measurement or Replacement Methodology can be entered when applicable.

From 2018 reporting period and onward, if methodology "Site-Specific EF" for either CO_2, or CH_4 or N_2O or their combination, the respective emission factor(s) and the associated units must be into the area, respectively, as highlighted in the biggest circle.

Please note that the part at the bottom as highlighted in the orange square doesn't function yet, no need to use it for now.

After finishing one fuel, if there is any other fuels used as well, you need to repeat the steps described above by clicking the " " as shown in Fig. 4.3.1, until all completed.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which takes up to four (4) decimal places.

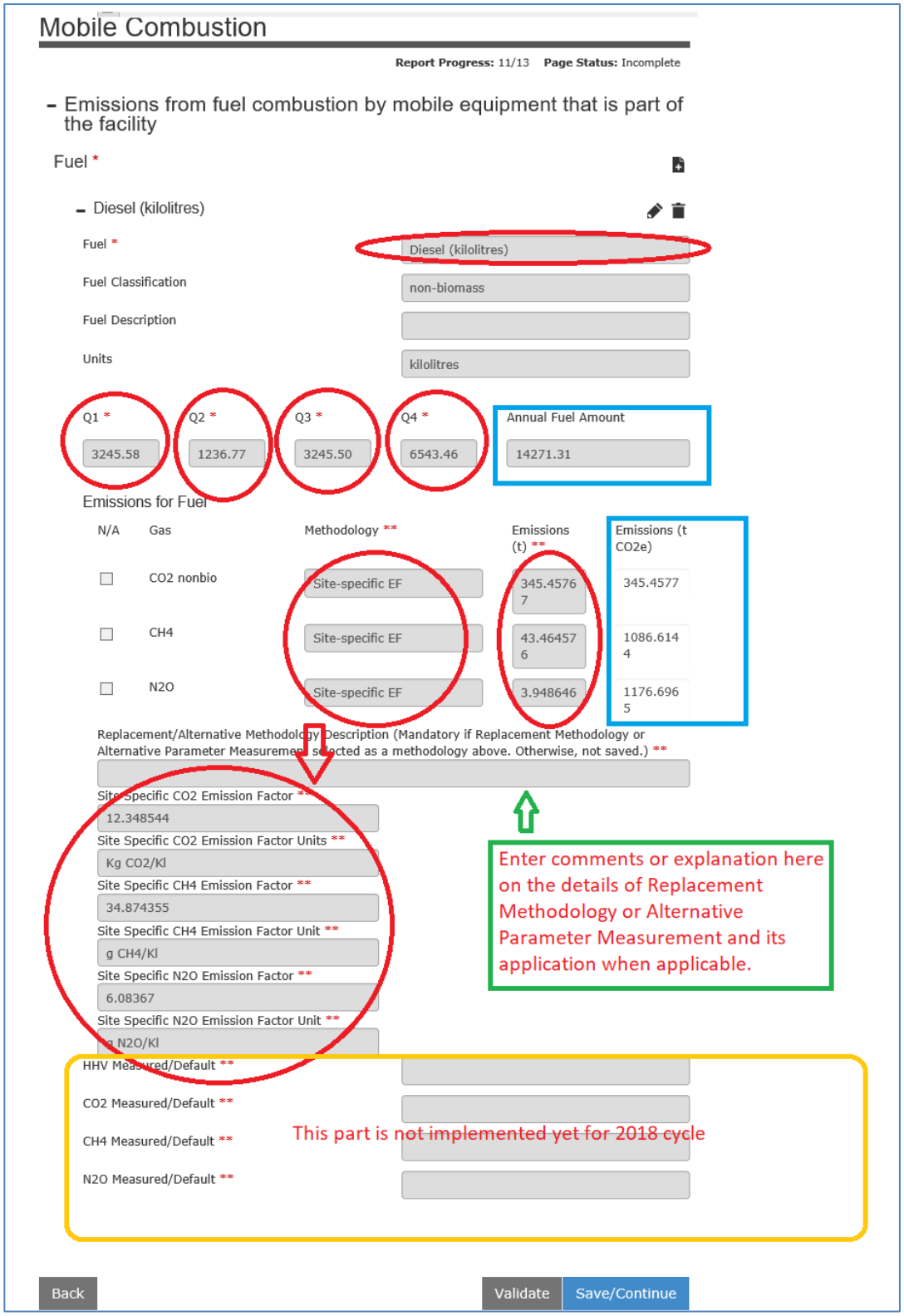


Fig. 4.3.2 Mobile combustion fuel and emission information entry window

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4.3.2) below the emission entry part.

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you back to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

*[**Note**]:*

*Under the column "**N/A**" if an item(s) doesn't apply, the checkbox " " can be ticked off.*

4. Aluminum or Alumina Production

Click the "**Aluminum or Alumina Production**" in the left pane to start the reporting of emissions from aluminum or alumina production activity as shown in Fig. 4.4.1.

During aluminum or alumina production, the emission sources are as shown in Fig. 4.4.1:

(a) anode consumption, anode/cathode baking, green coke calcination;
(b) anode effects;
(c) cover gas from electrolysis cells.

Methodology: In section "(a) **anode consumption, anode/cathode baking, green coke calcination**" there are three lines for CO_2 nonbio, each corresponds to an emission source category. For emissions from anode consumption, methodology options include **anode consumption**, **alternative parameter measurement** and **replacement methodology**; for emissions from anode/cathode baking, there are **anode/cathode baking**, **alternative parameter measurement** and **replacement methodology** and for emissions from green coke calcination there are **green coke baking**, **alternative parameter measurement** and **replacement methodology**.

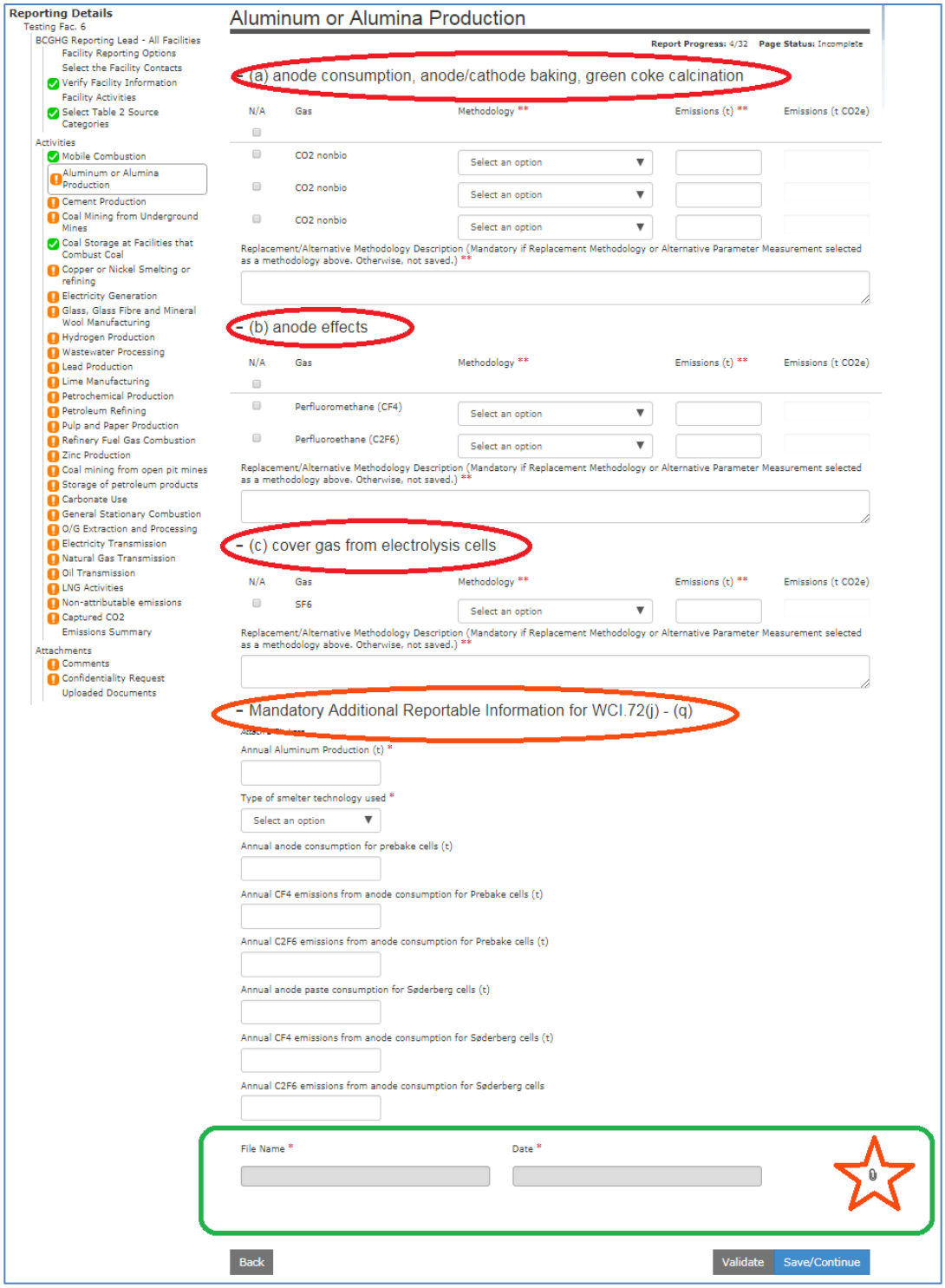


Fig. 4.4.1 Reporting emissions from aluminum or alumina production

In section **"(b) anode effects**" there are two lines, corresponding to "**Perfluoromethane (CF_4)**" and "**Perfluoroethane (C_2F_6)**", respectively. For CF_4, **Slope Method**, **Alternative Parameter Measurement** and **Replacement Methodology** serve as quantification methodology options; and **for C_2F_6,** the

methodology option includes **Anode Effects**, **Alternative Parameter Measurement** and **Replacement Methodology**.

In section "**(c) cover gas from electrolysis cells**" there are **Inventory**, **Input/Output**, **Alternative Parameter Measurement** and **Replacement Methodology** as methodology options for SF_6 quantification.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4.4.1) below the emission entry part.

The amount of "Emissions (t)" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO2 equivalent amount as shown in the column of "Emissions (t CO2e)", which take up to four (4) decimal places.

When an item or all in a section doesn't apply, check off the respective checkbox "☐" or the one under the "N/A" column to deactivate it or the all, so it won't affect the entire process.

Another important thing for aluminum or alumina production is the reporting of additional reportable information as required in the WCI manual. Beyond the contents listed at the section "**Mandatory Additional Reportable Information for WCI.72(j)-(q)**", other information not listed there must be contained in a file, which has to be attached to the report by uploading into the system as shown in the green rectangle by clicking the "📎" indicated by the red star in Fig. 4.4.1. For details about attaching a file or correcting a wrong file uploaded, refer to section **4.2 Comments Entry** described earlier. The file must also meet the

File Naming Convention.

*[**Note**]:*

> *Omitting to report the mandatory additional reportable information will constitute a non-compliance status. Entering "0" (zero), while actually a real value exists, will be considered to be misleading or misrepresenting.*

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "❗" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you back to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

*[**Tips**]*

> *You can always come back later to correct errors/mistakes before submission. Otherwise, they will prevent you from submitting the report. This applies to all the steps in the reporting.*
>
> *If an item(s) doesn't apply to your case, ticking off the checkbox "☐" will make the process smoothly.*

5. Cement Production

In cement production facilities emissions mainly come from three activities: fuel combustion in kilns (as general stationary combustion), mobile equipment combustion (these two have been described earlier already) and the decomposition of limestone in kiln during the sintering or calcination process, which is usually referred to as process emission and will be elaborated as shown in Fig. 4.5.1.

CEMS may be deployed in a cement production facility to monitor the emissions or discharges from both combustion and calcination in the manufacturing process. Depending on its availability, a reporter may elect to use CEMS as a reporting tool for emission measurement and quantification. For quality assurance, a CEMS must be RATA certified. The certificate must be available when requested.

Consequently, quantifying process emission in cement production facilities has two approaches: CEMS and the traditional mass balance. CEMS measurement of emission from calcination process by following the fine print instruction at the top of the reporting window (as shown in Fig. 4.5.1) is much easier and more convenient than the traditional approach.

If the CEMS has been RATA certified and is used to monitor the emissions and discharges from a kiln(s) at a stack(s), a reporter may select to complete the section "**Complete if CEMS was used (enter process emissions only, i.e. subtract the combustion component)**" and tick off the checkbox "☐" corresponding to the other two sections "**Complete if CEMS was not used: Calcination**" and "**Complete if CEMS was not used: Oxidation of organic carbon**" to deactivate them. Under this

circumstance the CO_2 emission from organic carbon oxidation is automatically included in the process emission.

On the other hand, if CEMS is not been installed, or the reporter elects to not use it but use the traditional approach, the reporter needs to tick off the checkbox "☐" for the section "**Complete if CEMS was used (enter process emissions only, i.e. subtract the combustion component)**". In such a circumstance, the traditional approach for quantifying emissions from both limestone decomposition and oxidation of organic carbon contained in raw materials must be followed. Entering the emission quantities for calcination (i.e. decomposition) and oxidation of organic carbon, respectively, is required.

Methodology: There are two methodology options available in the SWRS: CEMS was used or CEMS was not used. The latter will apply traditional approach.

Although Replacement Methodology and Alternative Parameter Measurement (APM) are listed together with the traditional approach, the latter (APM) won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4-5-1) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. Its value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which accepts up to four (4) decimal places.

In the example shown in Fig. 4.5.1, CEMS was used, i.e. the section "**Complete if CEMS was used …**" is selected, and thus the "**Complete if CEMS was not used: Calcination**" and "**Complete if CEMS was not used: Oxidation of organic carbon**" are checked off. Vice versa. **CEMS and non-CEMS options cannot be co-existing**.

At the top of Fig. 4.5.1 a warning message appears, indicating "Mandatory additional reportable information (95 errors)". This means that there are 95 errors within the "Mandatory additional reportable information" section, because no data has been entered this section. It is worth noting that each field is mandatory and must be reported.

Click the "+" sign in front of the title "Mandatory additional reportable information" to expand the section as shown in Fig. 4.5.2. There are two sub-sections: Monthly clinker production and quarterly cement kiln dust (CKD) information. Entries for monthly clinker production information are displayed in Fig. 4.5.2 as well. Clicking the "+"s will expand all other months' entry window.

Quarterly cement kiln dust (CKD) and other information are required as well (Fig. 4.5.3), where the quantity of CKD not recycled back to kiln and its emission factor (i.e. the emission factor when producing such a CKD) for each quarter must be entered.

Additionally, the annual quantity of raw materials consumed in the kiln(s) and their organic carbon content are also required. The organic carbon content can be preferentially determined at a laboratory. If this is not available, then the default value (of 0.2%) can be used[1].

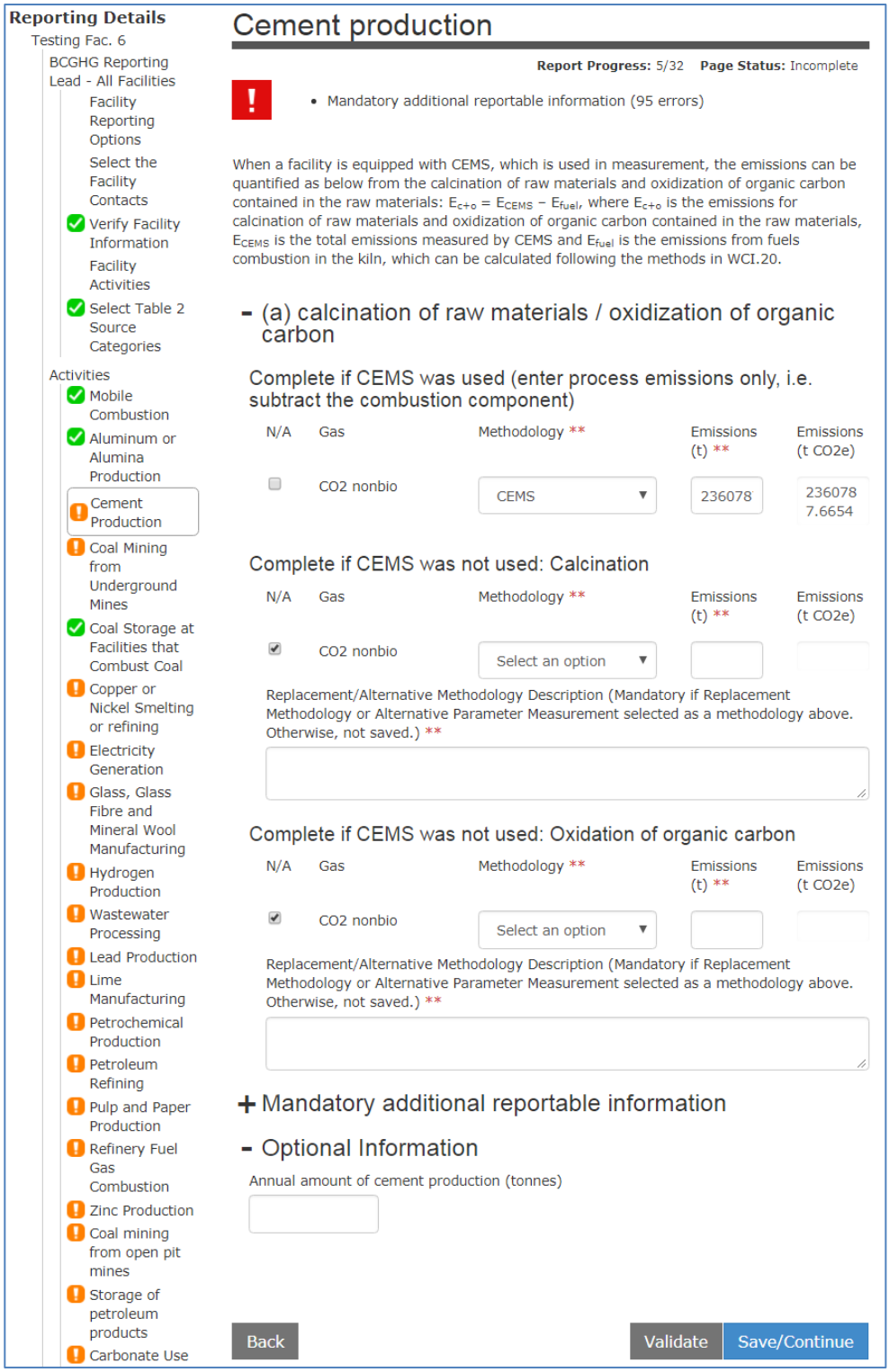


Fig. 4.5.1 Cement production emission reporting

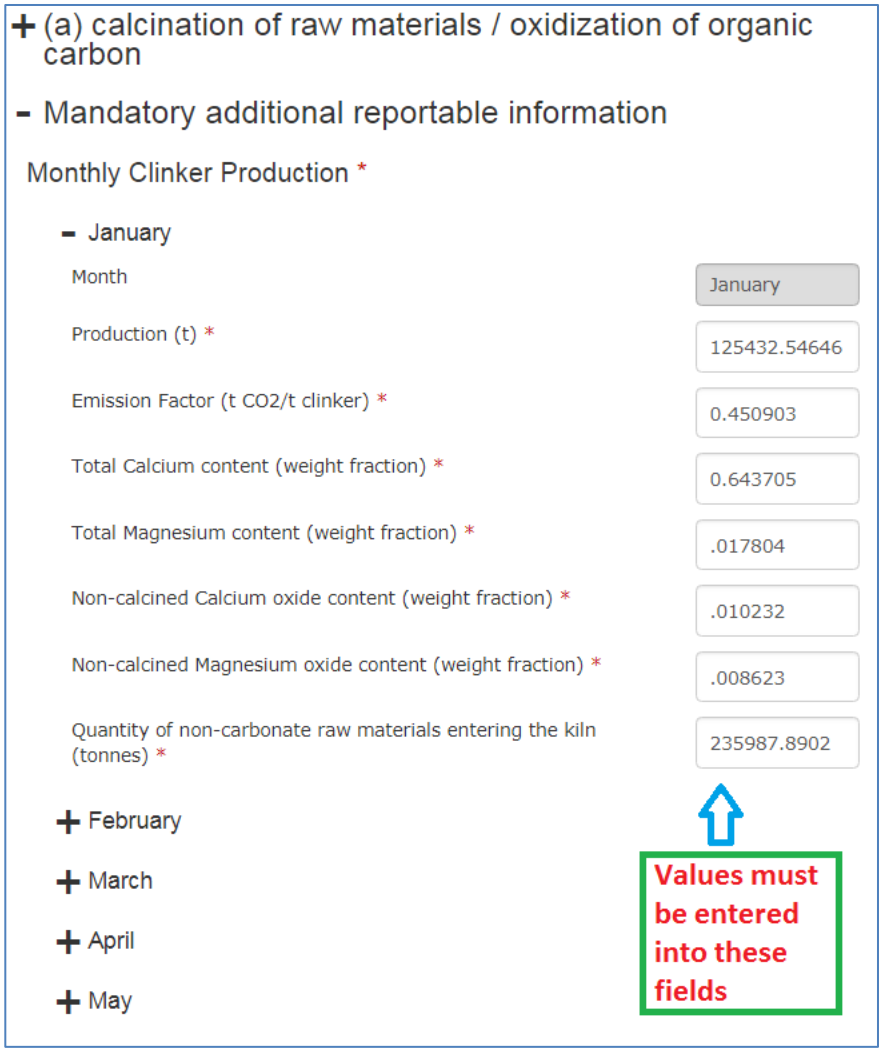


Fig. 4.5.2 Cement production mandatory clicker monthly information.

Regarding the “Information about missing data procedures”, you need to report the number of times that missing data procedures are followed. It is a mandatory item and zero (0) can be entered only when missing data procedures were followed.

As for annual cement production quantity, though it is marked as “Optional information” now in the system, it is strongly recommended that the value be entered. Cement production data along with others will be required for the Industrial Incentive Program, to which the documented information will be attached to the report at the **4. Comments on the Report** page.

Since the foresaid information is mandatory, and vital to various other programs such as the incentive program, every piece of information required must be entered properly. Simply entering “0” (zero), such as for clinker and kiln dust, is not allowed (unless otherwise specified) if the production was carried out. Failing to enter data correctly will constitute a non-compliance status.

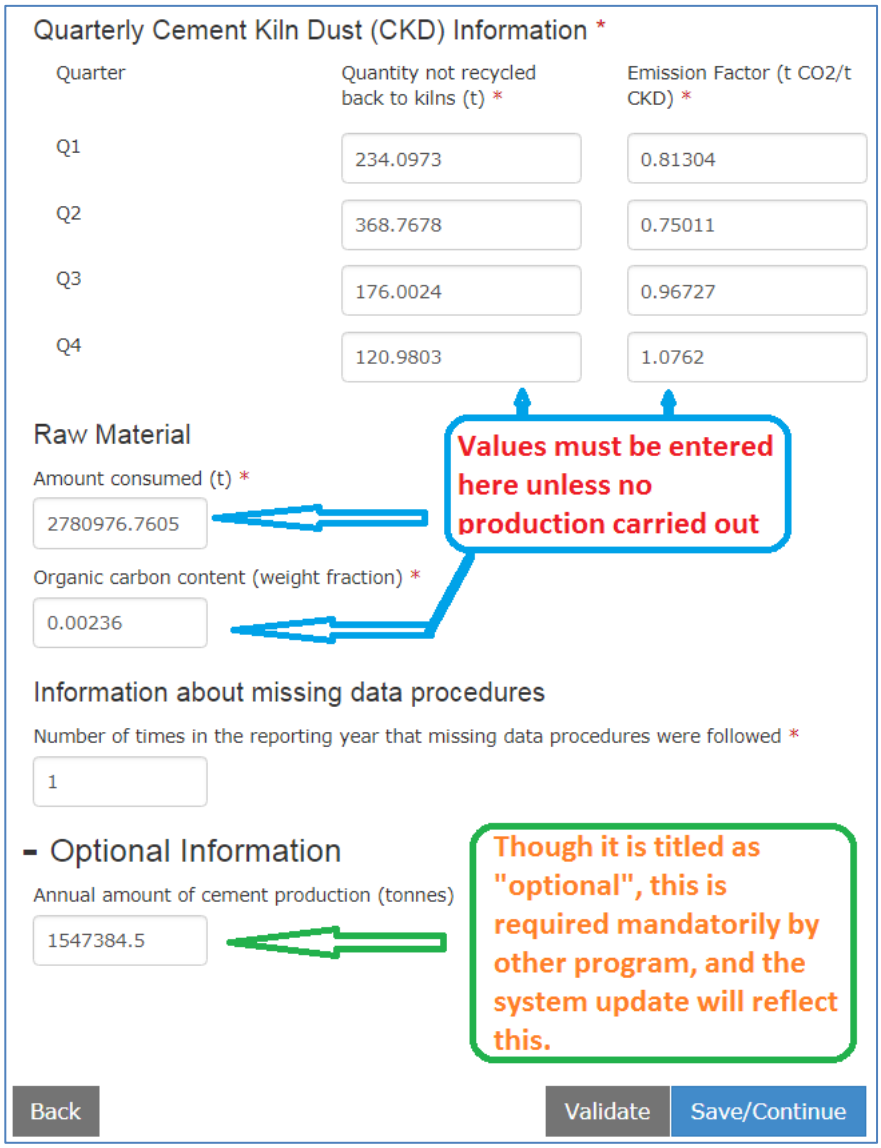


Fig. 4.5.3 Cement production mandatory CKD quarterly and other information

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "❗" in front of its name at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you back to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

*[**Warning**]*

Every piece of information must be entered properly. Failing to do so, such as missing a piece of data or entering data incorrectly, will prevent you from submitting the report.

Previously "0"s (zero) were entered into the monthly clinker and quarterly CKD information sections, led to non-compliance status. However, they are mandatorily required elements, and "0"s won't be accepted anymore under normal production condition (unless the related item doesn't apply).

*[**Tips**]*

WCI provides quantification methods. Refer it for details before you use the method for quantification.

If an item(s) doesn't apply to your case, ticking off N/A checkbox "☐" will make the process smoothly.

6. Coal Mining from Underground Mines

Coal mining from underground mines releases GHG emissions when coal is broken or exposed to the atmosphere during the mining process. Part of the released methane may be collected to conserve the resources. The safety measures such as ventilation, degasification and methane destruction are considered to be the main emission sources in the current reporting regime, while stock piling is another emission source, which is post-mining and not covered in this section.

The SWRS offers the following frame (Fig. 4.6.1) to report the emissions from these sources:

CH_4 Emissions from Ventilation, By Quarter: The system "catches" quarterly ventilation information, where the ventilated CH_4 must be reported along with the respective quantification method used for each quarter. If any quarter doesn't apply, just check off the N/A checkbox "☐" corresponding to that quarter, or click the "☐" under "N/A" to deactivate all quarters.

CH_4 Emissions from Degasification, By Quarter: If degasification is implemented on site, then CH_4 emissions from degasification process must also be reported along with the methodology used for each quarter. If any quarter doesn't apply, just check off the N/A checkbox "☐" corresponding to that quarter, or click the "☐" under "N/A" to deactivate all quarters.

CH_4 Destruction, By Quarter: In coal mining, for safety reason etc., some collected methane from ventilation and/or degasification may be destroyed by combusting (if used as fuel input for useful applications) or just flaring (if not used as fuel input for useful applications). The destroyed methane amount must also be reported here, in order to adjust the amount released into the atmosphere. If any quarter doesn't apply, just check off the N/A checkbox "☐" corresponding to that quarter, or click the "☐" under "N/A" to deactivate all quarters.

CO_2 Emissions from CH_4 Destruction on Site, By Quarter: The amount of associated CO_2 emission from CH_4 destruction must be entered the section "**CO_2 Emissions from CH_4 Destruction on site, by Quarter**". If any quarter doesn't apply, just check off the N/A checkbox "☐" corresponding to that quarter, or click the "☐" under "N/A" to deactivate all quarters.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4-6.1) below the emission entry part.

Note that the amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which takes up to four (4) decimal places.

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "  " in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you back to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

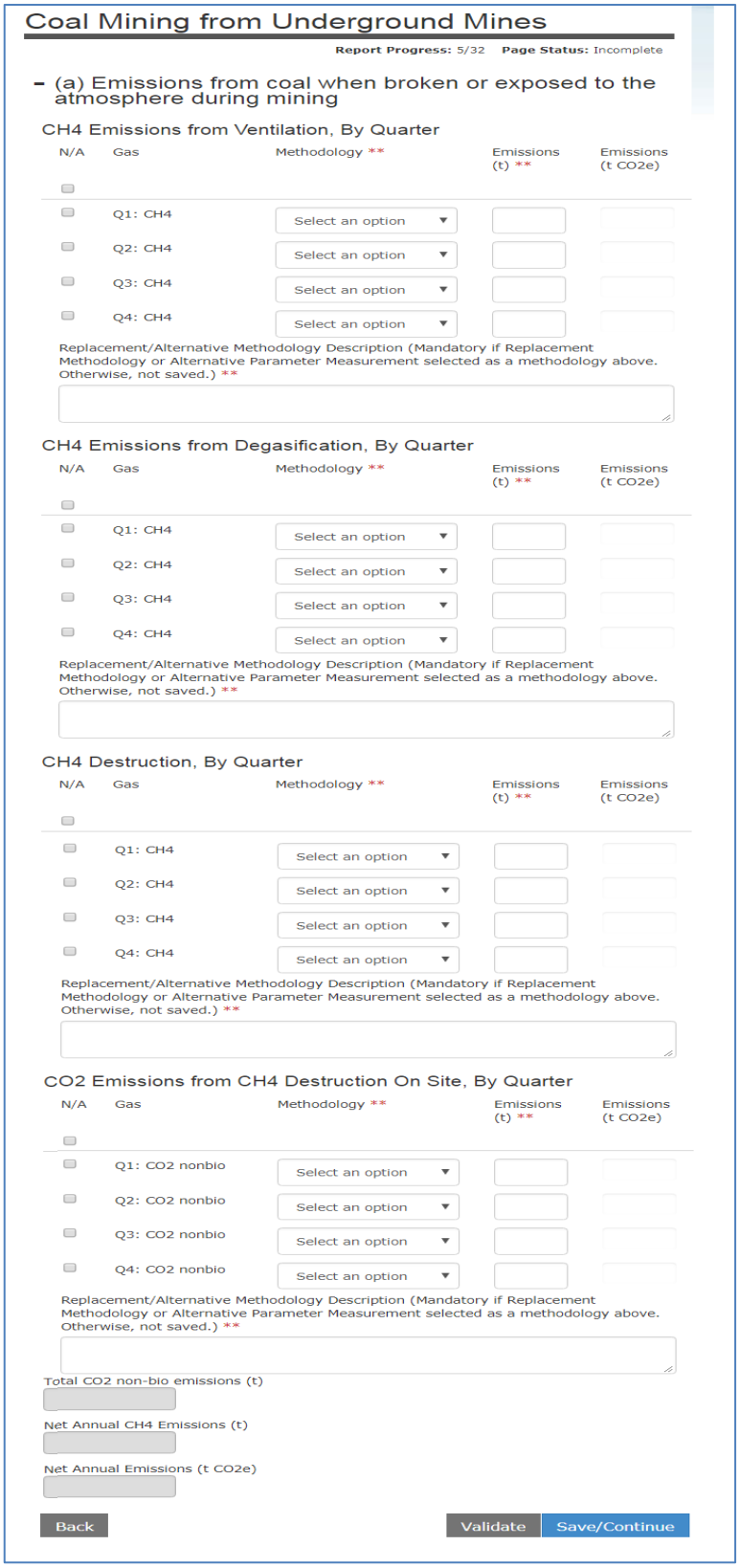


Fig. 4.6.1 Underground coal mining emission reporting

*[**Note**]*

The three greyed fields corresponding to "Total CO_2 non-bio emissions (t)", "Net Annual CH_4 Emissions (t)" and "Net Annual Emissions (t CO_2e)" are not fillable, instead they will be automatically filled through background calculation.

If any collected CH_4 is used for any other purposes rather than the combustion, this part of CH_4 only should be considered or subtracted here without contributing to the emissions.

If any of the collected CH_4 is used for fuel input for useful applications either on-site or off-site, then its amount must be adjusted here and emissions are reported under the "General Stationary Combustion".

Currently under the design of the SWRS and the GGERR, only CO_2 is considered emission from destruction of methane, although firing CH_4 will actually also result in formation of N_2O and CH_4 simultaneously.

*[**Tips**]*

The Total CO_2 non-bio emissions (t) is the sum of CO_2 from CH_4 destruction; the Net Annual CH_4 emissions (t) is the sum of ventilation and degasification minus the CH_4 destructed, and the "Net Annual Emissions (t CO_2e)" is the equivalent quantity of sum of CO_2 and CH_4 emissions from these two.

If an item(s) doesn't apply to your facility case, ticking off the " ☐ " will make the process smoothly.

WCI provides various quantification methods for different scenarios. Refer it for details before you use an appropriate method.

7. Copper or Nickel Smelting or Refining

There are mainly four processes that release emissions from copper or nickel production through smelting and then refining. Mining and beneficiation are excluded from this discussion, since they usually occurs at mine sites. The four processes are (1) purification from ore concentrates by using carbonate fluxes such as limestone and/or dolomite and (2) reduction of metals from their oxides by using reducing agents such as metallurgical coke, coal, natural gas etc. in smelters, (3) use of Solvent Extraction – Electrowinning (SX-EW) process and (4) cleaning by using slagging materials such as coke or using electrolytic purification by consuming carbon or graphite.

Fig. 4.7.1 provides the reporting frame for copper or nickel production. There are currently four lines (or sources) available for reporting CO_2 emissions under the title **"(a) removal of impurities, reducing agents, slag cleaning, electrode consumption**", respectively corresponding to using carbonate flux, using other reducing agents to reduce the metallic oxides to elemental metals during pyroprocess, release of emission from ore concentrates and the electrode consumption in electrolysis in the order of the arrangement. There is no dedicated line for the SX-EW process yet.

The emissions from SX-EW process, if any, can be combined into the fourth source (i.e. electrode consumption). If that is the case, select "Replacement Method" for the Methodology and then put

comments into the methodology comment area to explain what exactly the methodologies are and how much emissions are from each of the sources that are combined together.

Methodology: For each emission source a dropdown list of methodologies is provided from which the applicable can be picked.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4.7.1) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "Emissions (t CO2e)", which take up to four (4) decimal places.

Next step: After all information being entered, click the "**Validate**" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you back to the previous page.

Note that there is also a "**Mandatory additional reportable information**" section following the emission entries where the required information must be reported properly. For "**Reducing Agent or Slag Cleaning Material**", the information can be entered at the child window page (Fig. 4.7.2) by clicking the book mark "" at the right hand.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

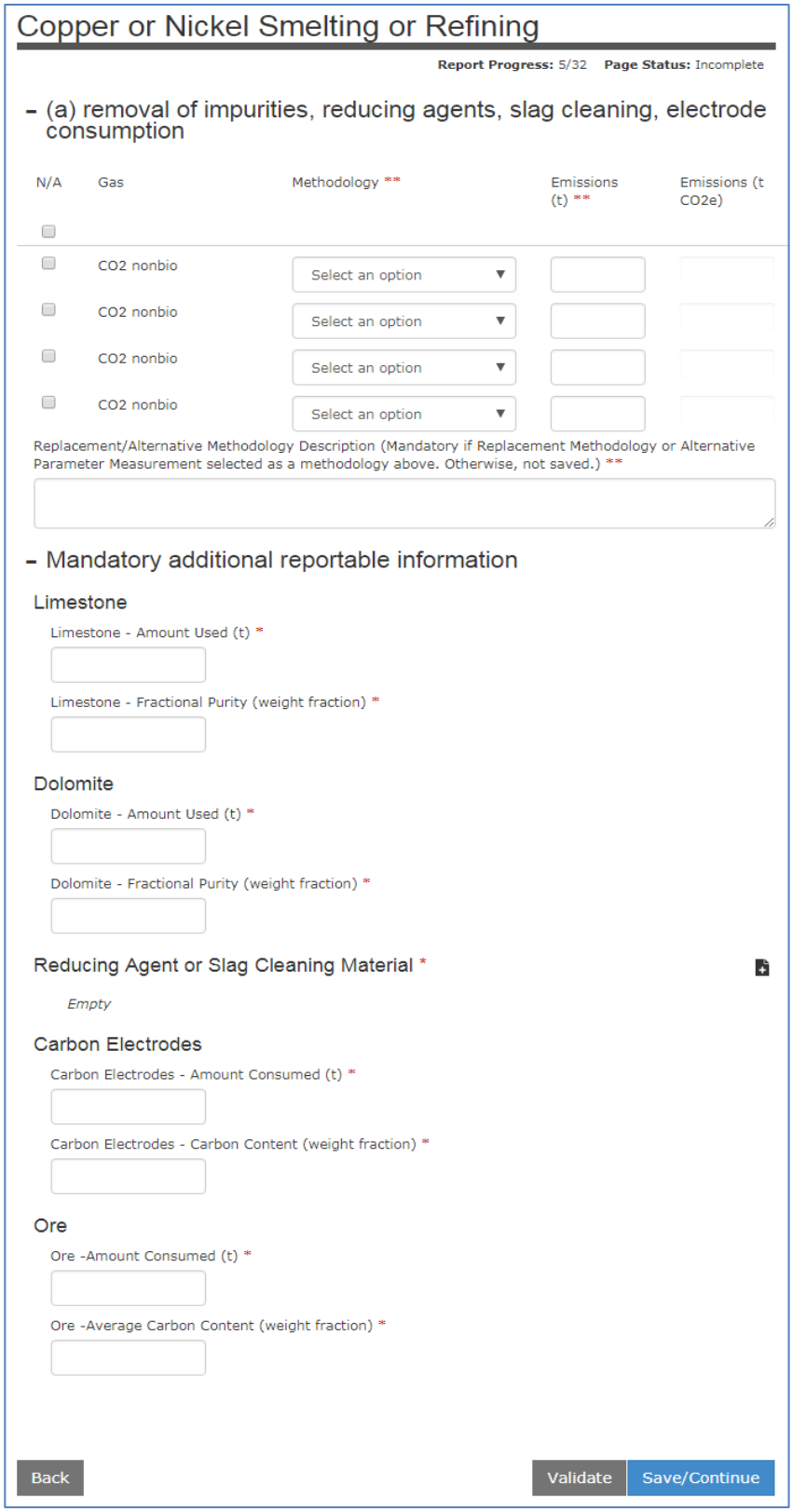


Fig. 4.7.1 Emissions reporting from copper or nickel production

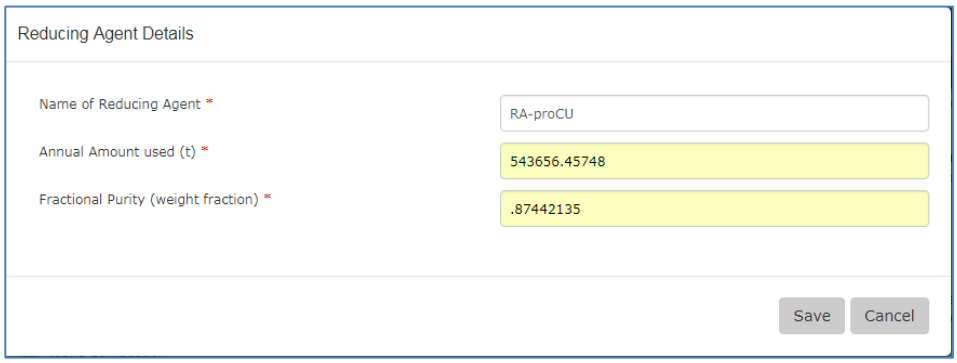


Fig. 4.7.2 Reducing agent details child entry window for copper or nickel production

*[**Tips**]*

- *Always remember to use and select the right methodology for each source's emission quantification.*
- *Bear in mind that all the required items for mandatory reportable information must be reported if the production is carried out and the item applies to in order to meet the compliance requirements. Omitting any of them will prevent you from submitting the report.*
- *Ensure that the reducing agent or slag cleaning material sub-section is made expandable. Clicking the "*  *" will pop up a new child window (Fig. 4.7.2) where the reducing agent's name, used amount and its purity should be entered. Clicking the "**Save**" button saves this information and returns you back to the main window; Clicking the "**Cancel**" button will cancel the reducing agent details entering child window and return you back to the main window (nothing changed).*
- *You can stop anywhere after saving the already entered data and leave the system. The data will not be lost, and you can re-log in to continue the process any time after. If "**Save/Continue**" button is not clicked before leaving the system, then the data entered will be lost. A warning message will appear whenyou leave the system to remind you of saving the entered data.*

8. Electricity Generation

Reporting frame for emissions from Electricity Generation is as shown in Fig. 4.8.1 where 5 sources are presented as:

(1) Fuel combustion;
(2) Acid gas removal or scrubbing;
(3) Units cooling;
(4) Geothermal geyser steam or fluids production and
(5) Installation, maintenance, operation and decommission of electrical equipment

8.1 Fuel Combustion

One or both of the two types of units: Cogen (i.e. co-generation) and Non-Cogen may be used for fuel combustion in electricity generation. Each is simply a combustion unit in which fuels are combusted and steam is produced to drive a turbine. Non-Cogen unit, acting as an independent electricity generator, doesn't produce any other useful energy with the residual heat wasted; whereas Cogen

unit produces electricity and heat energy for other purposes. A unit refers to equipment that is used to perform the activity required. There may be more than one unit for each of the types in a facility.

Unit description

Regardless a Cogen or Non-Cogen unit, when starting to report emissions, the unit information must be established first (Fig. 4.8.2a and 4.8.2b) where details about the unit must be entered.

You can reference the Instructions for **General Stationary Combustion** to determine emissions from fuel combustion in electricity generating unit. The reporting frame in both **General Stationary Combustion** and Electricity Generation has exactly the same structure and contents.

8.2 Emissions from Acid Gas Removal

When acid gas scrubbers or acid gas removing agents are used, and if the emission is not integrated into the exhaust stream towards the stack where monitoring is implemented, i.e. the emission from such sources is handled separately, then the emission must be reported under the section (b) as shown in Fig. 4.8.1, which can be quantified by selecting the appropriate method.

However, if the emission has been merged into the stream of exhaust flue gas where monitoring is implemented, then it is not necessary to quantify it here, and thus the N/A checkbox for section (b) can be checked off.

8.3 Emissions from Cooling Units

In electricity generating facilities cooling units are common, in which hydrofluorocarbons (HFCs) are widely used as cooling media. The emissions of such media from these units must be reported in section "**(c) Emissions from cooling units**" (Fig. 4.8.1). Again, appropriate methodology must be selected in the Methodology column. If an item(s) doesn't apply, check off its N/A checkbox.

8.4 Emissions from Geothermal Geyser Steam or Fluids

In geothermal electricity facilities, geothermal medium is used to generate electricity. In such a situation CO_2 associated with the geothermal geyser stream must be quantified and reported under section "**(d) Emissions from geothermal geyser steam or fluids**" (Fig. 4.8.1).

If a source specific emission factor is available for the geothermal geyser, it is strongly recommended that you communicate with the government and use this specific emission factor.

8.5 Emissions from installation, maintenance, operation and decommissioning of electrical equipment

Transformers are common equipment in electricity generating facilities, in which SF_6 is used as an insulation medium. If this is the case in your facility, then reporting the emission of SF_6 from these transformers and other SF6-containing equipment is a must under the section "**(e) Emissions from**

installation, maintenance, operation and decommissioning of electrical equipment". Meanwhile, the methodology used must also be reported properly.

Methodology: For each individual gas, when applicable for reporting, a quantification methodology is mandatory, which can be picked from the dropdown list.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4.8.1) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

Next step: After all information being entered, click the "**Validate**" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "❗" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

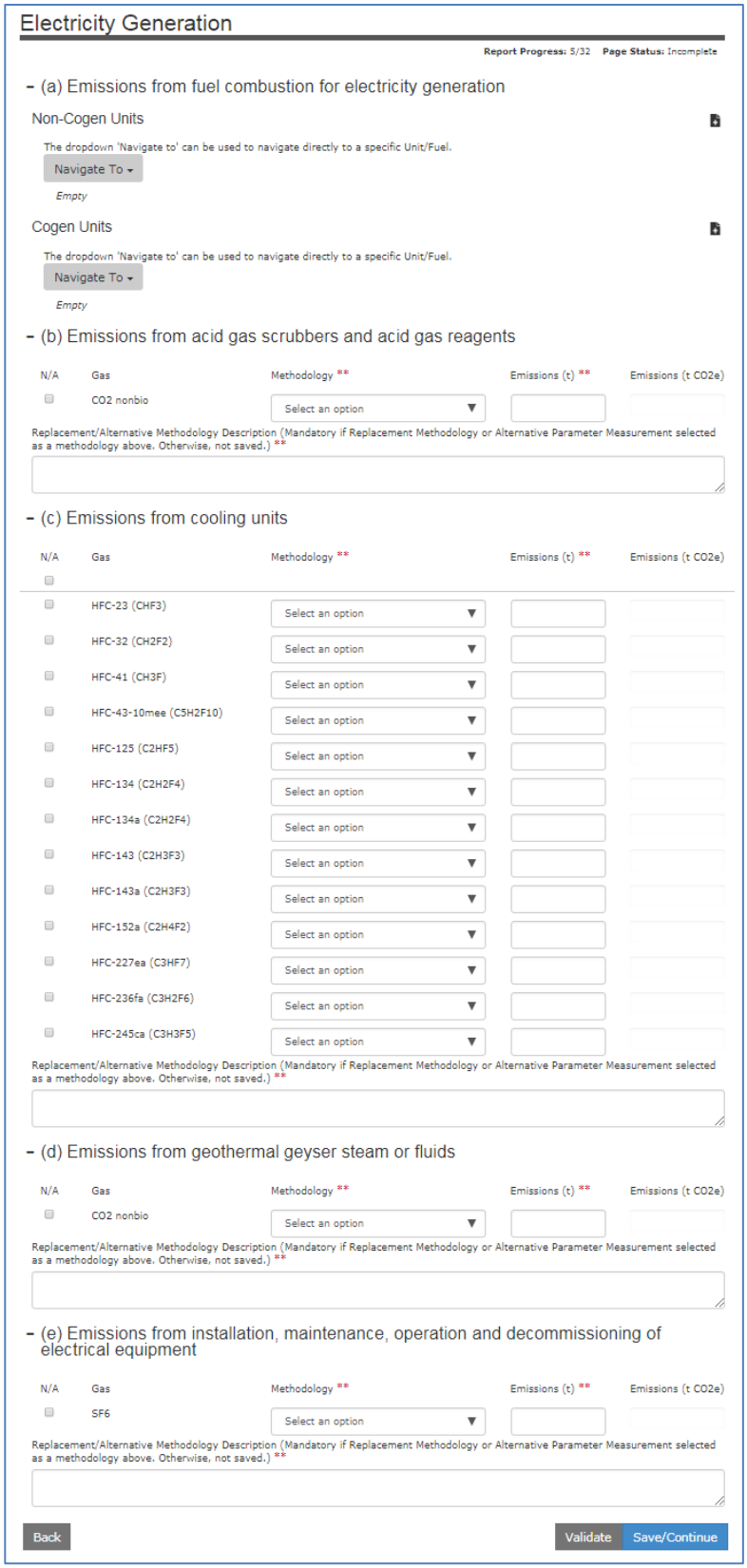


Fig. 4.8.1 Reporting emissions from Electricity generation

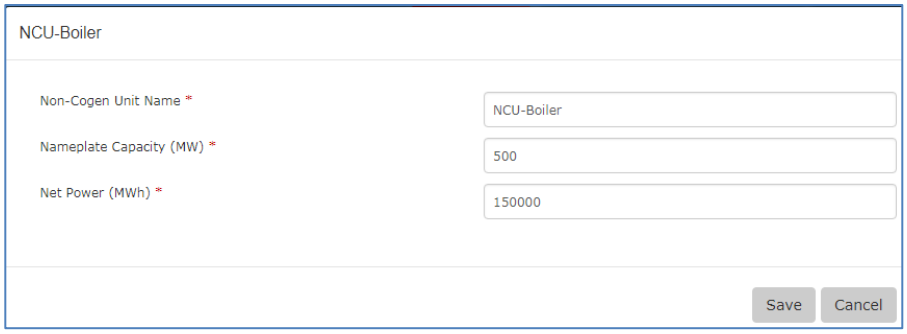


Fig. 4.8.2a Non-Cogen Unit information reporting child window

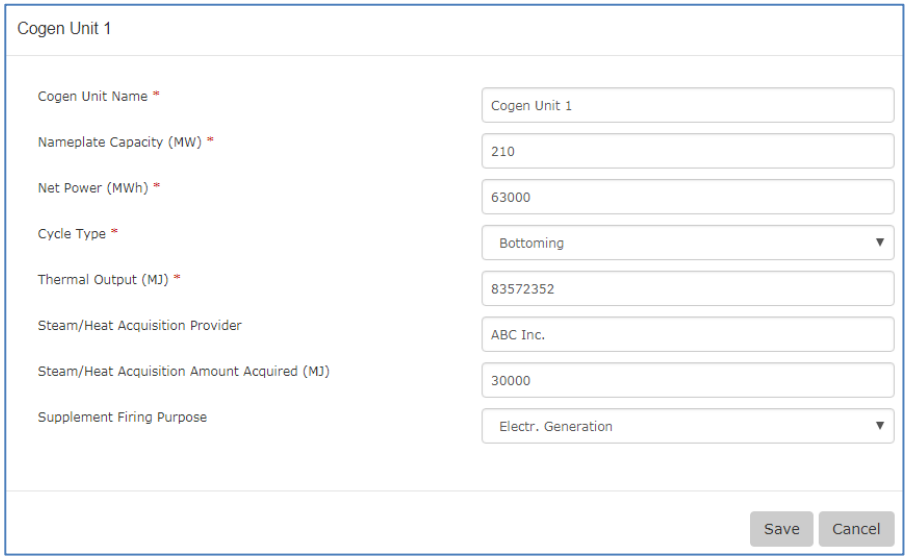


Fig. 4.8.2b Cogen Unit information reporting child window

9. Glass, Glass Fibre and Mineral Wood Manufacturing

This industrial sector, previously referred to as Glass Manufacturing, involves use of carbonaceous materials and silicates etc. as raw materials, which undergo a pyroprocess in a furnace or kiln from which carbon dioxide is released. Combustion of fuel and melting of materials are imperative for this process.

Unlike in cement manufacturing, the emission of CO_2 from organic carbon oxidation in raw materials for glass, glass fibre or mineral wool manufacturing is negligible, and therefore there is no requirement for reporting the organic carbon emission.

The emission reporting frame is shown in Fig. 4.9.1 for glass, glass fibre and mineral wool manufacturing. Like cement or lime manufacturing, CEMS may be installed to monitor emissions. If CEMS is used to quantify the emission, use the first option and check of the N/A checkbox for the second one. Vice versa, use the second option and check of the N/A checkbox for the first option.

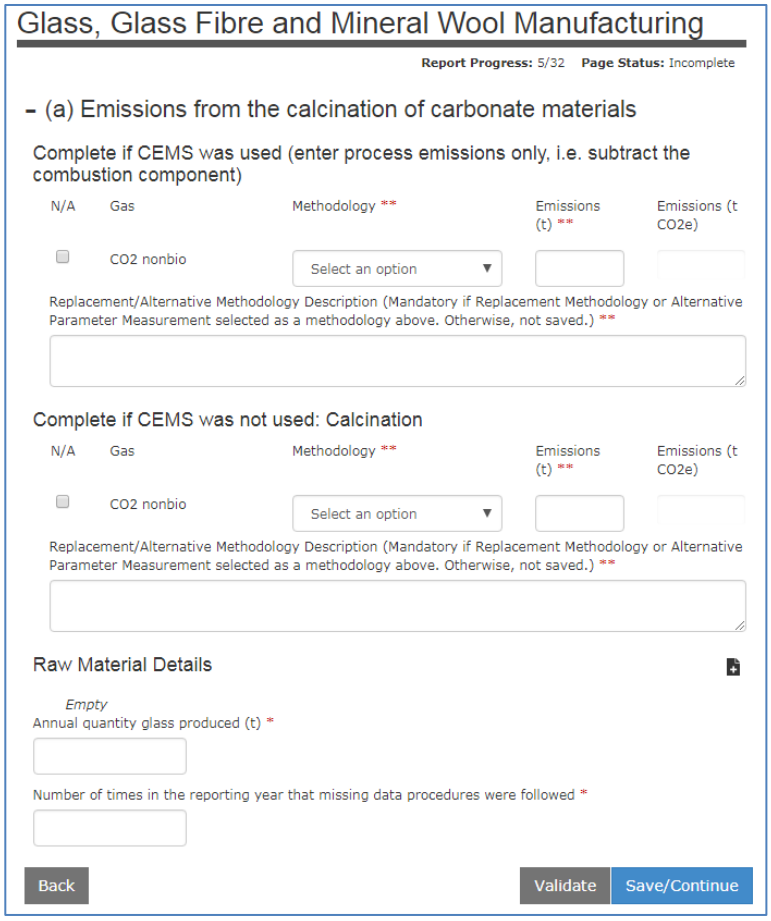


Fig. 4.9.1 Glass, glass fibre or mineral wool manufacturing reporting frame

Methodology: CEMS may be deployed in a glass, glass fibre or mineral wool manufacturing facility to monitor the emissions or discharges from both the combustion and the manufacturing process. Depending on its availability, a reporter may elect to use it as a reporting tool for the emission measurements. For quality assurance a CEMS must be RATA certified.

If a CEMS is installed and is RATA certified, a reporter may elect to complete the section "**Complete if CEMS was used (enter process emissions only, i.e. subtract the combustion component)**" and meanwhile check off the N/A checkbox "☐" for the other section, i.e. "**Complete if CEMS was not used: Calcination**" as shown in Fig. 4.9.1. The only methodology for CO_2 should be "CEMS" if clicking the dropdown arrow.

If CEMs is not installed, or the reporter elects to not use it but instead use the traditional way, tick off the N/A checkbox"☐" for the section "**Complete if CEMS was used (enter process emissions only, i.e. subtract the combustion component)**" and complete the other section, i.e. "**Complete if CEMS was not used: Calcination**". In this case the methodology options for CO_2 include "Feedstock material balance", "Replacement Methodology" and "Alternative Parameter Measurement".

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4.9.1) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

In addition to emission information, raw material use and production information are also required. Click the book mark " " at right side opposite "**Raw Materials Details**" to expand the child window for raw materials (Fig. 4.9.2).

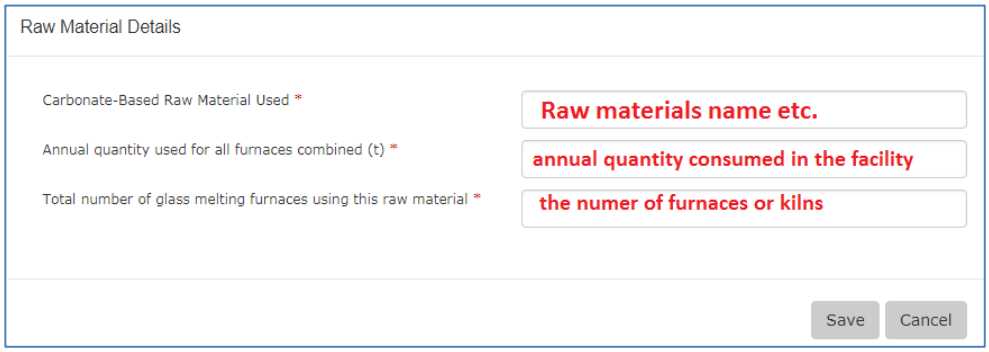


Fig. 4.9.2 Glass making raw material information window

In Fig. 4.9.1 glass (also including glass fibre and mineral wool) quantity produced during the reporting year and the times that missing data procedures were used are also required. Omission of either of them will prevent you from submitting the report.

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a " " in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

10. Hydrogen Production

There are many technologies used to produce hydrogen such as electrolysis, thermolysis and transformation or reformation of hydrocarbons. Most of the commercially available hydrogen on today's market is produced from transformation or reformation of hydrocarbons. Some is produced as a by-product from other chemical process such as chlor-alkali process.

While the electrolysis and thermolysis don't release CO_2 (note that their associated fuel combustion does release CO_2 that must be reported in the **General Stationary Combustion**, if existing on site), the hydrocarbon reformation and chlor-alkali process do emit CO_2. When hydrocarbon reformation or chlor-alkali process is carried out, then reporting of the emission is mandatory if the entire facility's emission reach the reporting threshold.

In the SWRS, clicking the activity – **Hydrogen Production** will promote the hydrogen production emissions reporting window as shown in Fig. 4.10.1. If the hydrogen production process doesn't emit any CO_2, check off the N/A checkbox "☐". Otherwise, select the quantification methodology deployed and enter the CO_2 emission value properly.

Reporting annual hydrogen production quantity is mandatory. Otherwise the system will not allow you to proceed further.

Furthermore, it is recommended that the section of "**Raw Material Details**" be filled out as well. To proceed, click the book mark "📄+", a child window as shown in Fig. 4.10.2 appears, where you can enter the values and information properly. Click the "**Save**" button to save the entries.

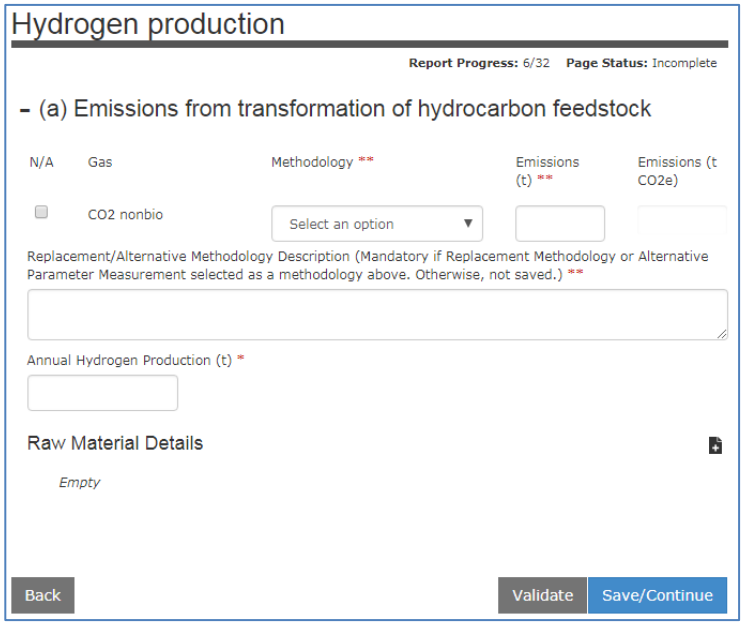


Fig. 4.10.1 Hydrogen production emission working window

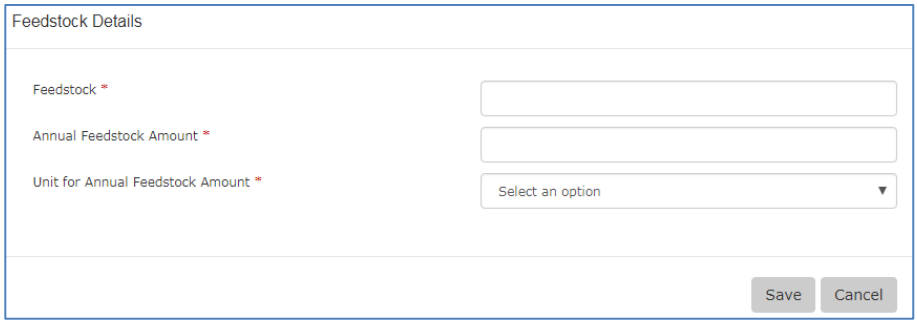


Fig. 4.10.2 Feedstock information for hydrogen production

Methodology: Feedstock material balance, Replacement Methodology and Alternative Parameter Measurement are on the list. Feedstock material balance is a mass balance method.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4-10-1) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

"**Annual Feedstock Amount**" in the "**Raw Material Details**" section accepts a two decimal value, while the "**Feedstock**" field accepts any alphanumeric value describing the feedstock. The unit for "**Annual Feedstock Amount**" can be selected by clicking the dropdown arrow "▾" (Fig. 4.10.2).

Next step: After all information being entered, click the "**Validate**" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "❗" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

11. Wastewater Processing

There are two places in the SWRS dealing with wastewater processing. The first one is an independent activity, which is shown in Fig. 4.11.1 (here called "independent" wastewater processing to differentiate the other one); the second one is included, as one of a series processes, in the **Petroleum Refining**.

Petroleum refineries should report their wastewater processing emissions by selecting the **Petroleum Refining** activity; all other industrial operations should report their wastewater processing emissions by selecting the "independent" Wastewater Processing activity. The contents of each of them are the same (from 2018 and onward).

Wastewater processing may consist of wastewater processing and/or oil-water separation.

Their reporting structures are shown in Figs. 4.11.1 and 2, respectively.

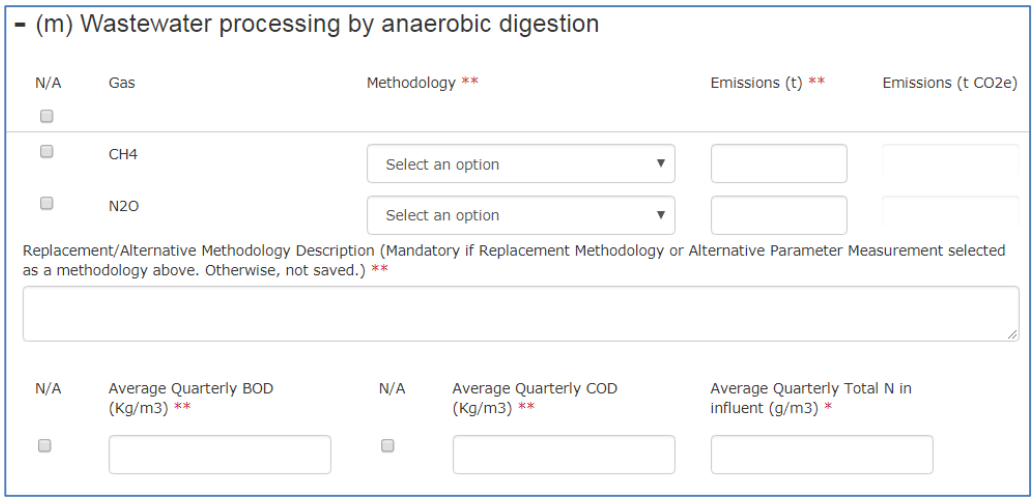


Fig. 4.11.1 Wastewater processing emission reporting structure for aerobic or anaerobic digestion in Petroleum Refinery

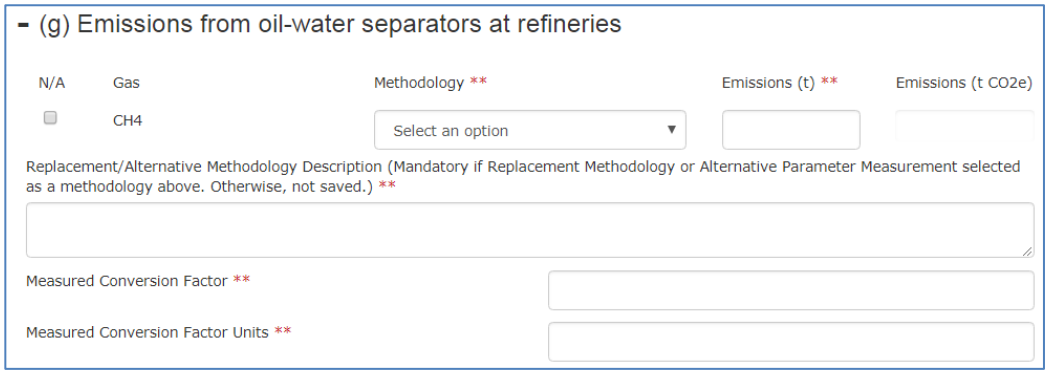


Fig. 4.11.2 Wastewater processing emission reporting structure for oil-water separators in Petroleum Refinery

Methodology: Fig. 4.11.1 shows the reporting structure for emissions from anaerobic (or aerobic) digestion process associated with wastewater processing for 2018 reporting cycle and onward. It features that Average Quarterly BOD (kg/m^3), COD (Kg/m^3) and Total N in influent (g/m^3) are mandatory when required by the methodologies used (remember to check off the N/A checkbox "☐" if not applicable). The methodology for CH_4 includes chemical oxygen demand (COD), biochemical oxygen demand (BOD), chemical and biochemical oxygen demand (CBOD), replacement methodology and alternative parameter measurement; for N_2O it includes WCI.203(g) and effluent Method, replacement methodology and alternative parameter measurement.

Fig. 4.11.2 shows the reporting structure for emission from oil-water separators. It features that Measured Conversion Factor and its associated unit are mandatory for entries when required by the methodology used.

The other methodologies, beside of Measured Conversion Factor, include Default Conversion Factor, Replacement Methodology and Alternative Parameter Measurement.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4.11.1, 2) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "❗" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

12. Lead Production

Lead production emission reporting is simple as shown in Fig. 4.12.1. CO_2 is released from the oxidation of impurities contained in the lead concentrate and/or added reducing agents during the complex sintering/smelting process or the recycling process of wasted lead batteries etc.

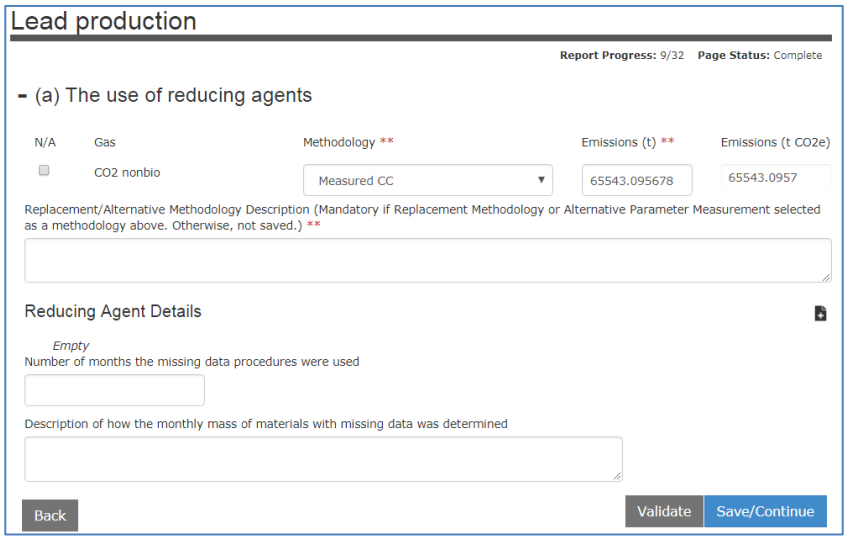


Fig. 4.12.1 Lead production emission reporting window

Methodology: The methodologies include Measured Carbon Content, Replacement Methodology and Alternative Parameter Measurement.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4.12.1) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

After entering the emission information, it is strongly recommended that you provide information about the reducing agent(s) used in the production process by clicking the "" at the right side opposite the title "**Reducing Agent Details**". A child window will pop up as shown in Fig. 4.12.2. The amount of used reducing agent can accept two (2) decimal places and the carbon content can accept four (4) decimal places while the emission factor can accept more. Clicking the "**Save**" button will

save the entered information on the reducing agent(s) and go back to the main window. Clicking the "**cancel**" button will cancel the entry process, going back to the main entry window.

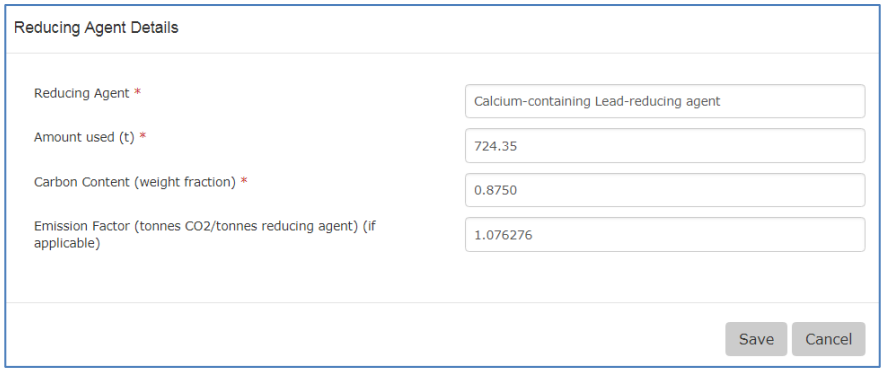


Fig. 4.12.2 Reducing Agent Details entry child window

Furthermore, the "**number of months the missing data procedures were used**" and the "**Description of how the monthly mass of materials with missing data was determined**" are required for reporting by WCI, though it is not indicated as "mandatory" here.

Next step: After all information being entered, click the "**Validate**" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

13. Lime Manufacturing

Lime (CaO) production is another pyroprocess with the involvement of fuel combustion. The latter must be reported properly under the **General Stationary Combustion** described earlier by following WCI.20.

CEMS may be deployed in a lime manufacturing facility to monitor the emissions or discharges from both combustion and calcination from the manufacturing process in kiln(s). Depending on its availability, a reporter may elect to use it as a reporting tool for the emission measurements. For quality assurance, a CEMS must be RATA certified.

When CEMS is used as a quantification methodology, the emission from calcination can be calculated by following the fine print instruction at the top of the reporting window (Fig. 4.13.1). Thus, using

CEMS is much easier and convenient for quantifying process CO_2 emission when it is available, compared to monitoring the raw materials' chemical compositions through the reporting period.

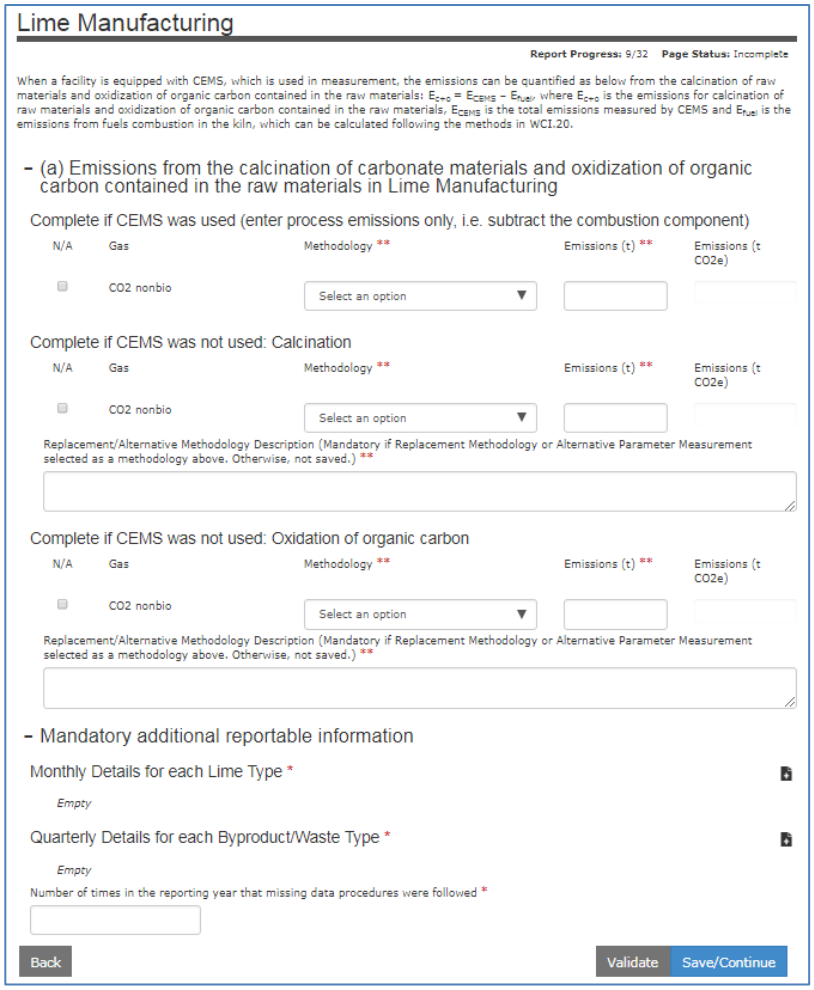


Fig. 4.13.1 Lime manufacturing emission reporting window

If a CEMS is installed and is also RATA certified, a reporter may elect to complete the section "**Complete if CEMS was used (enter process emissions only, i.e. subtract the combustion component)**" and tick off the N/A checkboxes "☐" for the other two sections, i.e. "**Complete if CEMS was not used: Calcination**" and "**Complete if CEMS was not used: Oxidation of organic carbon**" as shown in Fig. 4.13.1. The methodology for CO_2 will only be "CEMS".

If CEMs is not installed, or the reporter elects not to use the CEMS, but instead uses the traditional way, tick off the N/A checkbox "☐" for the section "**Complete if CEMS was used (enter process emissions only, i.e. subtract the combustion component)**" and complete the other two sections. When using the traditional approach, the methodology for CO_2 are Calculated EF, Replacement Methodology and Alternative Parameter Measurement.

Methodology: The available methodology can be selected by clicking the dropdown list. Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Fig. 4.13.1) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

Mandatory additional reportable information is required for lime manufacturing, which includes "**Monthly Details for each Lime Type**" (Fig. 4.13.2) and "**Quarterly Details for each Byproduct/Waste Type**" (Fig. 4.13.3), as well as the "**Number of times in the reporting year that missing data procedures were followed**", for which the "Number" must be an integer (0, 1, 2…).

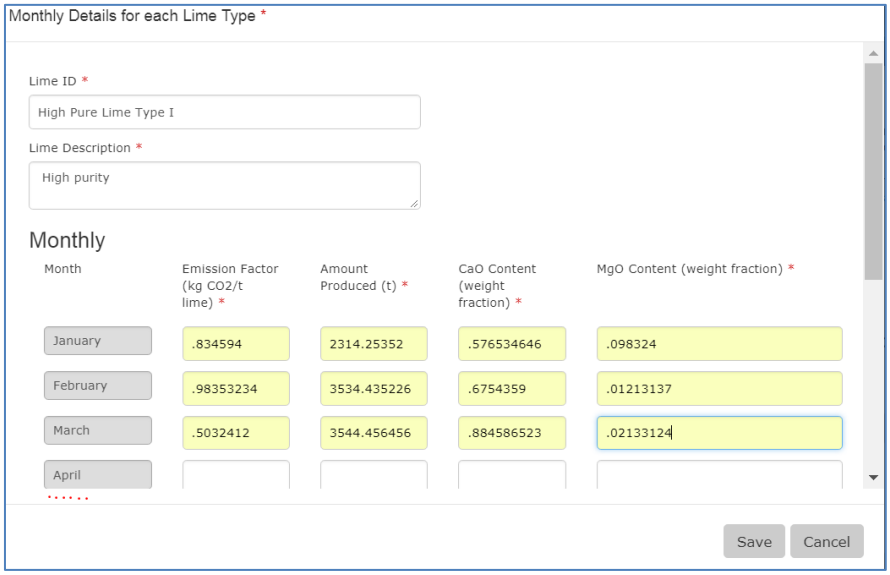


Fig. 4.13.2 Monthly details on mandatory information on each lime type

For monthly lime information, the "**Lime ID**" (can be its name or whatever is used to identify it), "**Lime Description**", and "**Emission Factor (kg CO_2/t lime)**", "**Amount Produced (t)**", "**CaO Content (weight fraction)**" and "**MgO Content (weight fraction)**" must be entered for each month, if applicable, as shown in Fig. 4.13.2. Otherwise, the system will prevent you from going further. CaO and MgO contents must not be over 1 as indicated. Clicking the "**Save**" button will first validate the entries and highlight any errors that exist. If no error exists, it will save the entries and go back to the main entry window.

Clicking the "**Cancel**" button will cancel the entry in this child window and go back to the main window.

Quarterly details for byproduct/waste type: similarly, for each byproduct/waste, the "**Byproduct/Waste ID**" (its name or whatever is used to identify it), "**Byproduct/Waste Description**", and "**Emission Factor (kg CO_2/t lime)**", "**Amount Produced (t)**", "**CaO Content (weight fraction)**" and "**MgO Content (weight fraction)**" must be entered for each quarter, if applicable (Fig. 4.13.3). Clicking the "**Save**" button will validate the entries and highlight any errors that exist. If no error exists, it will save the entries and go back to the main entry window.

If there is more than one product or byproduct, repeat these steps for each of them.

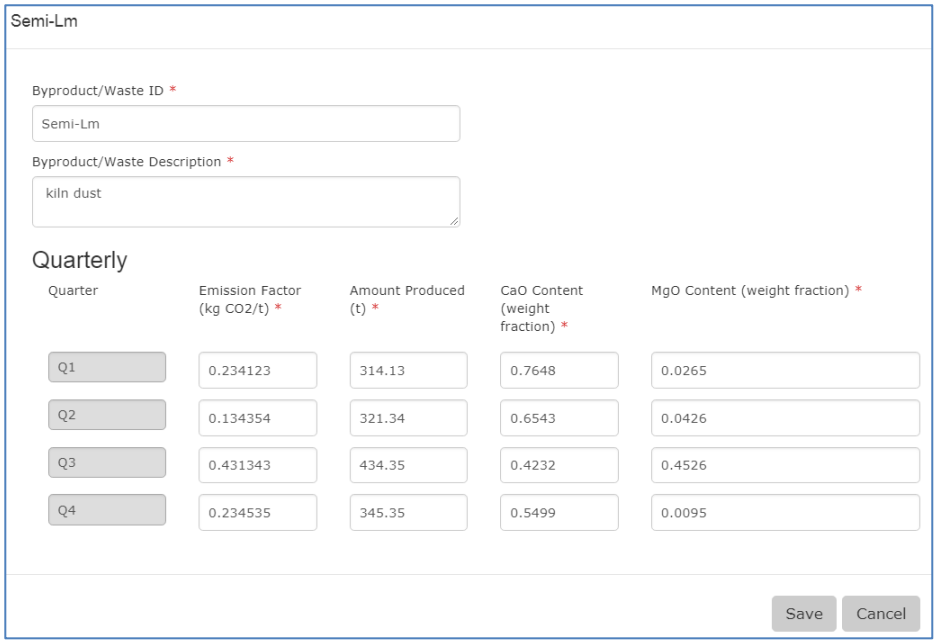


Fig. 4.13.3 Quarterly details for each byproduct/waste type

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

14. Petrochemical Production

There are five emission sources exist in petrochemical production, and their emissions can be categorized as (a) Petrochemical production related emissions from flares and oxidizers; (b) Petrochemical production related emissions from process vents; (c) Petrochemical production related emissions from equipment leaks; (d) Petrochemical production related process emissions from ethylene production and (e) Process emissions from petrochemical process units. For each of these sources there are potentially three (3) GHGs i.e. CO_2, CH_4 and N_2O. If any one of the emission sources and/or the GHGs is not applicable, just tick off the N/A checkbox "☐" corresponding to that item. Otherwise, enter the information required for them.

Methodology: There are many methodologies that will be used here. Click the dropdown list and select the right one corresponding to the gas to be quantified.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4.14.1) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

It is recommended that the feedstock information be provided though it is not a mandatory item yet. Clicking the "➕" at the bottom in Fig. 4.14.1 will open a new child window for the Feedstock (Fig. 4.14.2).

Enter properly the information required for feedstocks: the feedstock name, annual consumption amount and the associated units for the amount. The consumption amount can take up to two (2) decimal places. If there is more than one feedstock, repeat this step. The "**save**" button supports validation and saving functions. If anything is wrong/invalid, it will be highlighted. Otherwise, the entries will be saved and then the process goes back to the main window (Fig. 4.14.1).

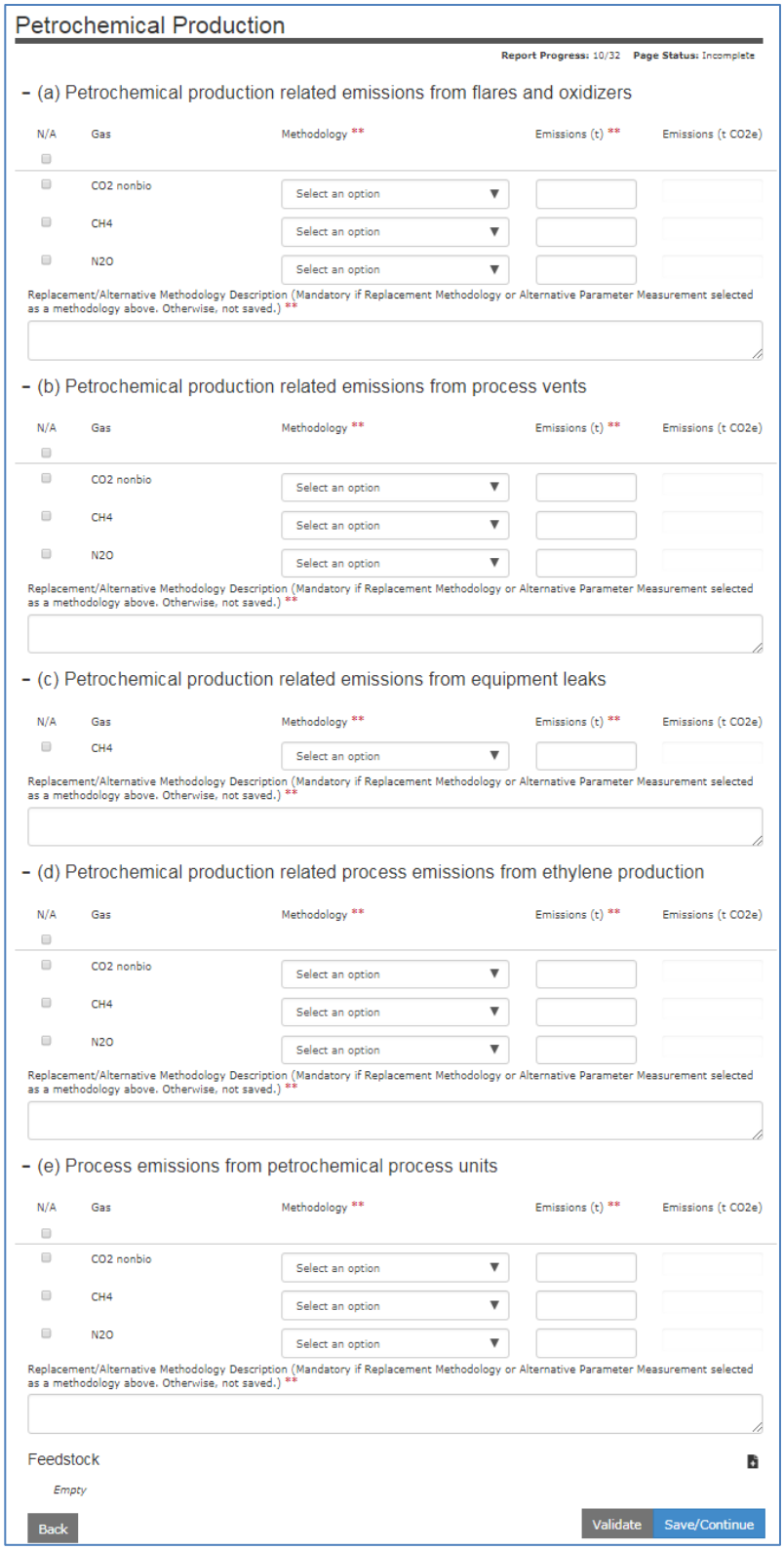


Fig. 4.14.1 Petrochemical production emission reporting window

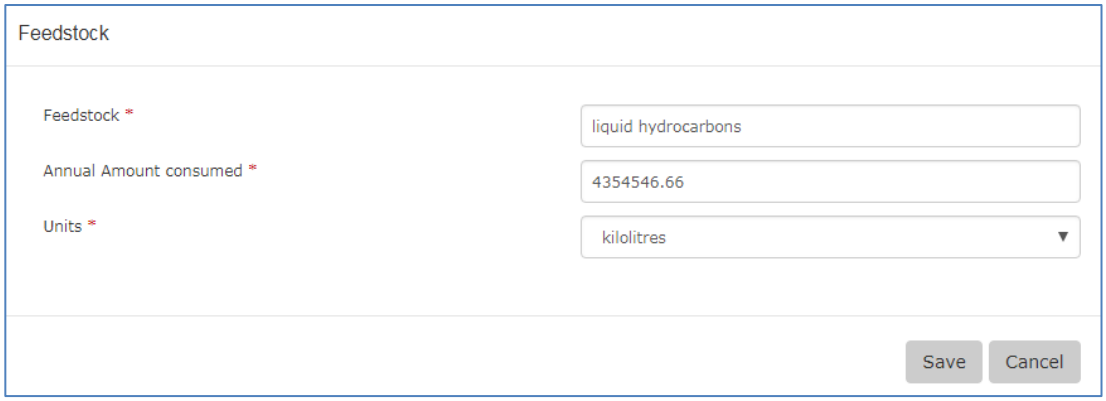


Fig. 4.14.2 Feedstock information for petrochemical production

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

15. Petroleum Refining

There are many emission sources involved in petroleum refining as shown in Fig. 4.15.1. As default all emission sources are displayed as for the source (a) in Fig. 4.15.1, but for the purpose of illustration the others are collapsed here. If it does happen when you open this window, remember to click the "+" sign in front of a title of emission source to expand the contents as shown under the first emission source "**(a) Petroleum refining related emissions from catalyst regeneration**", where you can determine whether an item is applicable, what is the quantification methodology and enter the emission quantity for a gas.

If an item (i.e. an emission source or a gas) doesn't apply, tick off the associated N/A checkbox "".

Methodology: Reporting the methodology used to quantify a gas emission is mandatory. The methodology can be selected from the dropdown list.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However,

if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4.15.1) following an emission entry.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

Be aware of that reporting feedstock information as shown in Fig. 4.15.2 is mandatory. Clicking the bookmark "  " at the bottom right corner in Fig. 4.15.1 will bring up a child window for the feedstock information. Inputs for feedstock name, annual consumption amount and the units of the amount are imperative. The consumption amount can take up to two (2) decimal places. If there is more than one feedstock, repeat this step.

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "  " in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

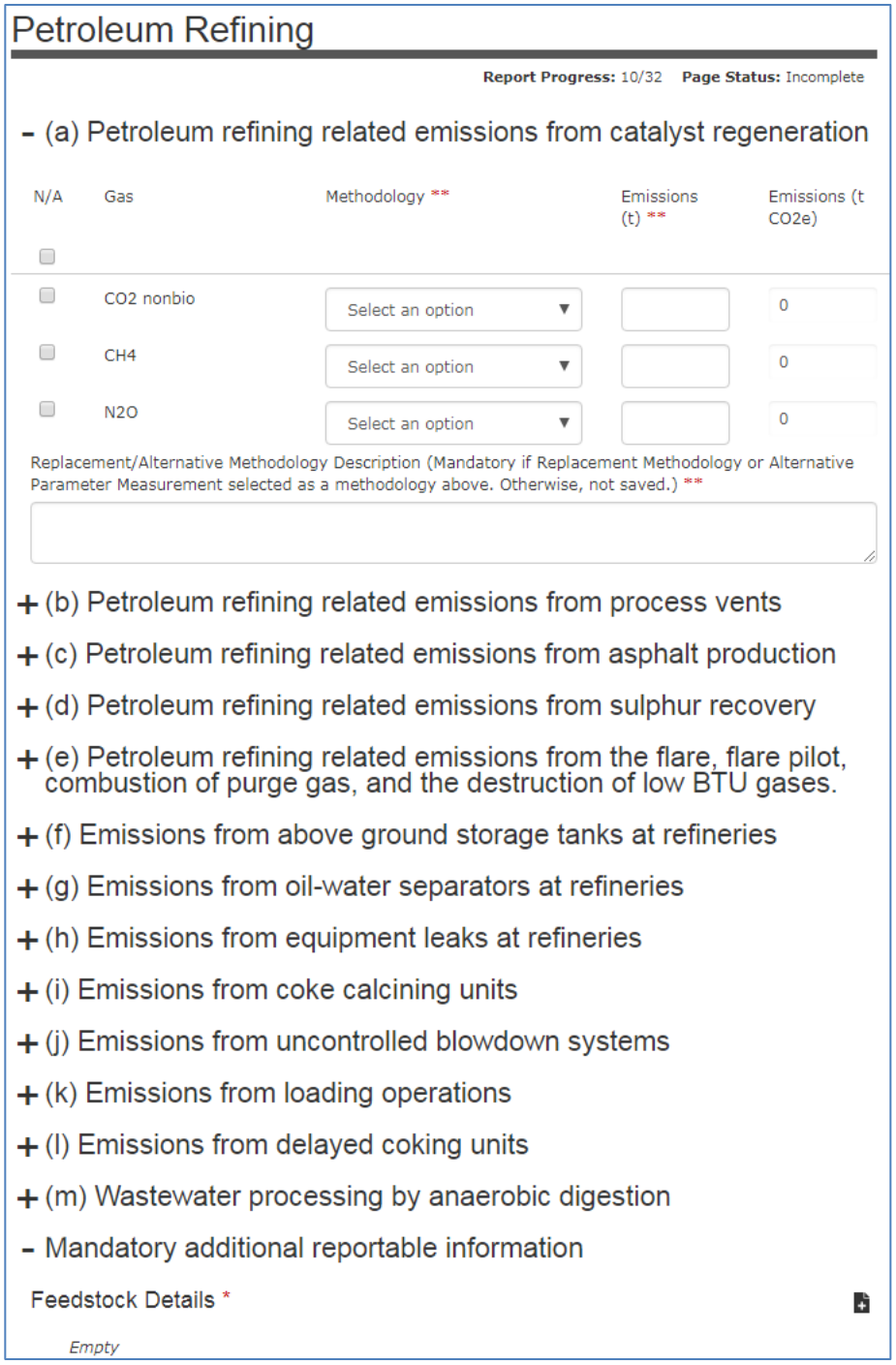


Fig. 4.15.1 Petroleum refining emissions reporting window

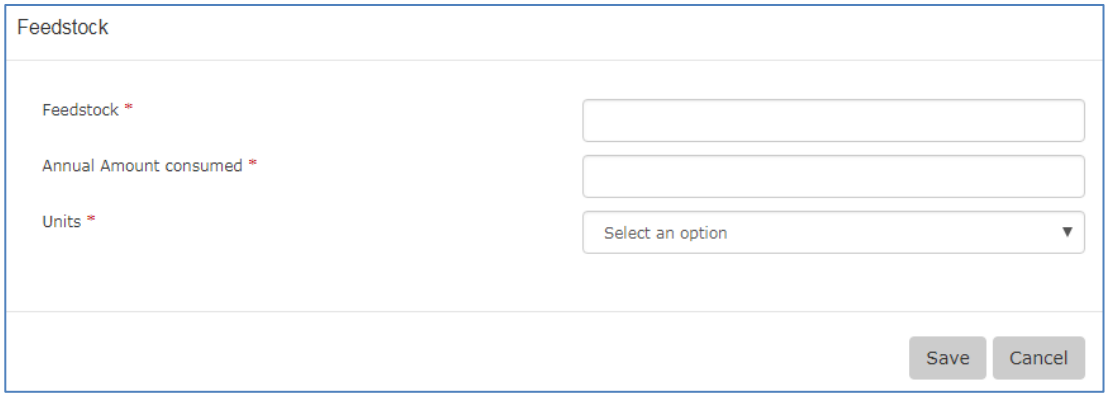


Fig. 4.15.2 Petroleum refining feedstock information entry child window

16. Pulp and Paper Production

Pulp and paper production releases GHG emissions from the pulping and chemical recovery processes as well as from **General Stationary Combustion** and **Mobile Equipment Combustion**. The latter two are reported separately as described earlier.

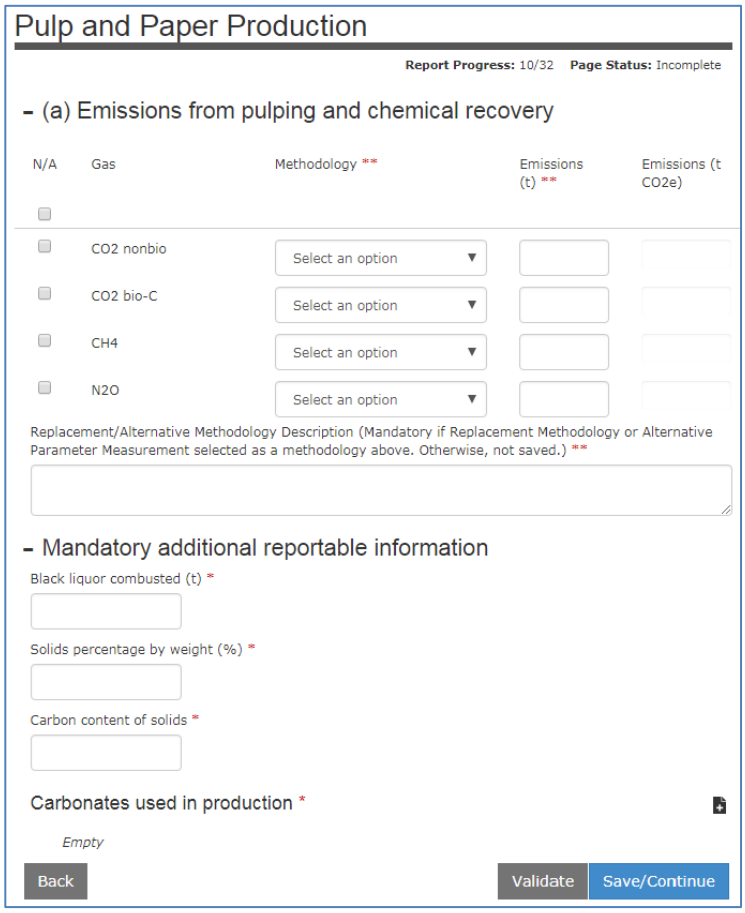


Fig. 4.16.1 Pulp & Paper production emission reporting window

Potentially there are four gases released from the pulping and recovery process: $CO_{2nonbio}$, $CO_{2bio\text{-}C}$ (i.e. CO_2 from biomass C), CH_4 and N_2O (Fig. 4.16.1). If any GHG doesn't apply, simply tick off the N/A checkbox "☐" at the left side opposite that gas.

Methodologies: For each gas the following methodologies are available for selection, beside of Replacement Methodology and Alternative Parameter Measurement:

$CO_{2nonbio}$: Make-up chemical method;

$CO_{2bio\text{-}C}$: solid HHV or solid CC method;

CH_4/N_2O: solid HHV.

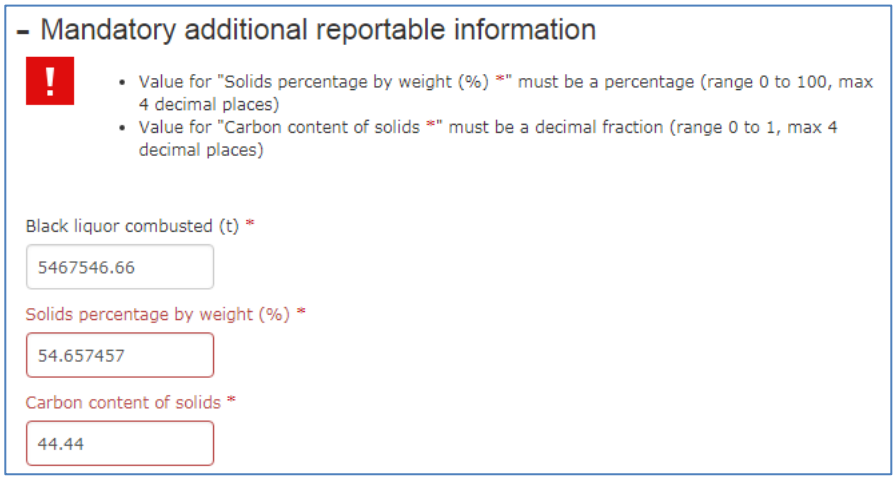


Fig. 4.16.2 Pulp & paper production mandatory additional information

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Fig. 4.16.1) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

Additional reportable information is mandatory for pulp and paper production as shown in Fig. 4.16.1. Fig. 4.16.2 shows examples of the entries for this additional information, where "**Black liquor**

combusted (t)" takes two (2) decimal places, "**Solids percentage by weight (%)**" takes normal percent value but without "**%**"and only accepts up to two (2) decimal places (for example, 38.86% should be entered as 38.86, rather than 0.3886). ***More than two decimal places will result in error***. "**Carbon content of solids**" only takes value of decimal fractions. Values entered don't meet these requirements will trigger errors, and the error messages will show up at the top of the window. Following the error messages to correct the errors.

For any carbonates used in production, you also need to report their information. Clicking the bookmark " " at the bottom right corner in Fig. 4.16.1 opposite the "**Carbonates used in production** *" will bring up a new child window as shown in Fig. 4.16.3. Properly enter the information as required. The "**Carbonate ID**" accepts any alphanumerical value, "**Annual Amount**" can take up to two (2) decimal places and the "**Purity of Carbonate**" can take up to four (4) decimal places.

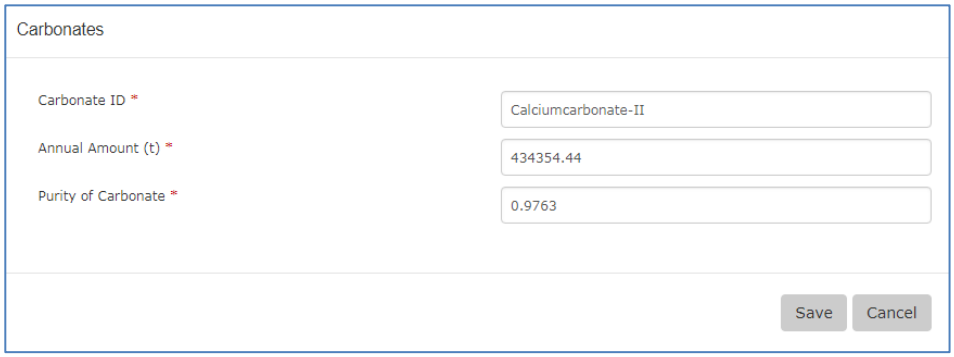


Fig. 4.16.3 Information for carbonates used in pulp & paper production.

If there is more than one type of carbonate used, repeat this step by clicking the bookmark " ".

Next step: After all information being entered, click the "**Validate**" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a " " in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

17. Refinery Fuel Gas Combustion

Refinery fuel gas (RFG) is a gaseous mixture of light hydrocarbons [1], hydrogen, and other miscellaneous species that is produced in the refining processes of crude oil and/or petrochemicals, as a by-product from various units like catalytic reforming, hydrotreating and hydrocracking, catalytic

[1] Light hydrocarbons refer to methane, ethane, propane, butane, pentane and hexane

cracking, and coking and that is separated out for use in boilers and process heaters throughout the refinery. Its compositions may vary largely depending on the feedstock to the refinery and the refinery processes.

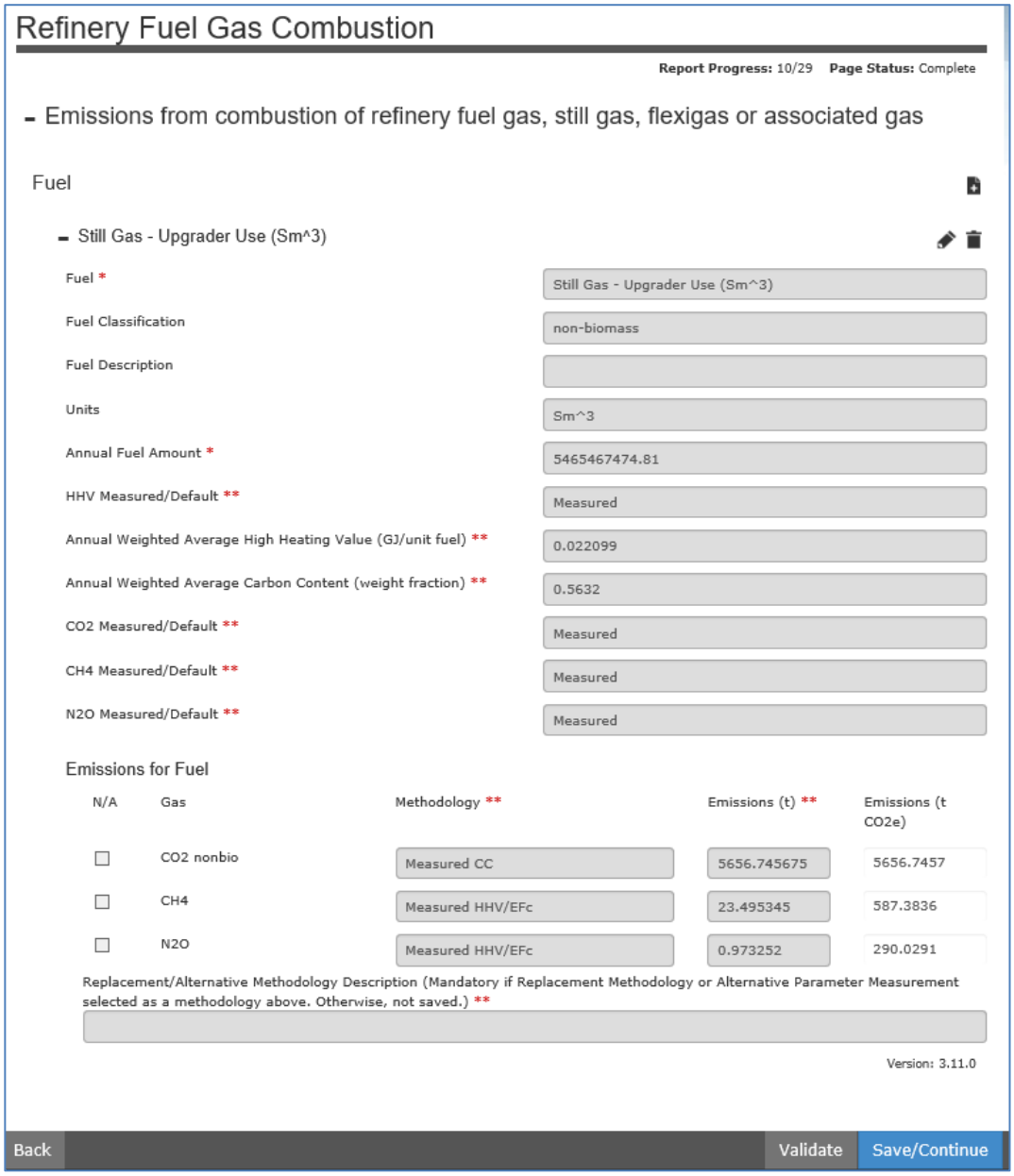


Fig. 4.17.1 Refinery fuel gas combustion emission reporting window

The reporting structure for refinery fuel gas combustion (Fig. 4.17.1) is similar to those used for fuel combustion in the **General Stationary Combustion** section.

To start, clicking the "📄" in Fig. 4.17.1 brings up a new child window as shown in Fig. 4.17.2, where **Fuel** name, **Annual Fuel Amount**, **Annual Weighted Average HHV Value** and/or **Annual Weighted**

Average Carbon Content (depending on the methodology used), methodologies and emission quantities must be entered. If there is more than one RFG, repeat this step.

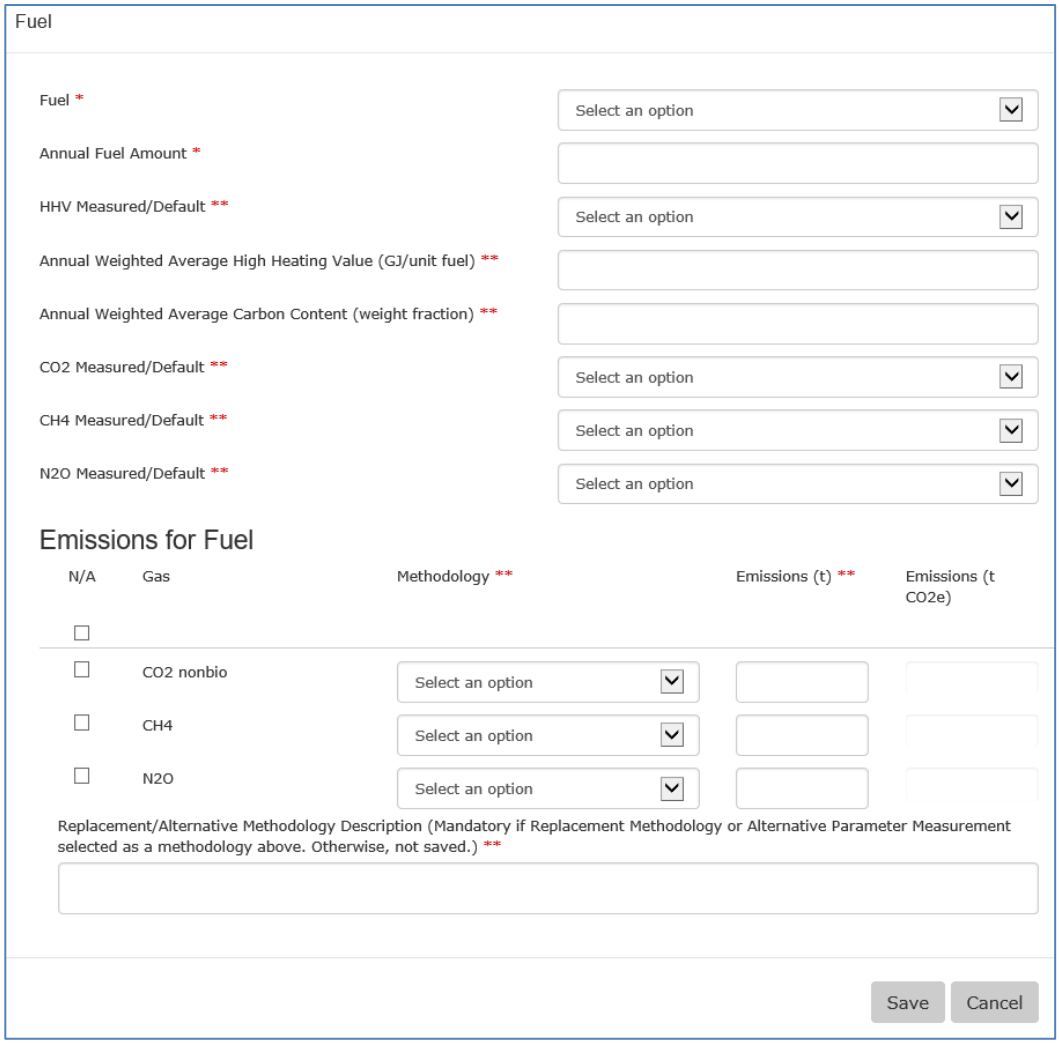


Fig. 4.17.2 RFG combustion emission entry child window

Methodology: Unlike for general stationary combustion, default methodology is not available for CO_2nonbio from RFG combustion (because the default values don't exist), instead "Measured CC" and "Measured HHV" as well as CEMS are all options. Both CH_4 and N_2O have default HHV/EFc, Replacement Methodology or Alternative Parameter Measurement as options. However, Alternative Parameter Measurement won't be an option unless the standard methodology (for example, WCI) has been changed or updated and a reporter cannot be able to reasonably adapt to it in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will

be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

Next Step: After all information being entered, click the "**Validate**" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "  " in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

18. Zinc Production

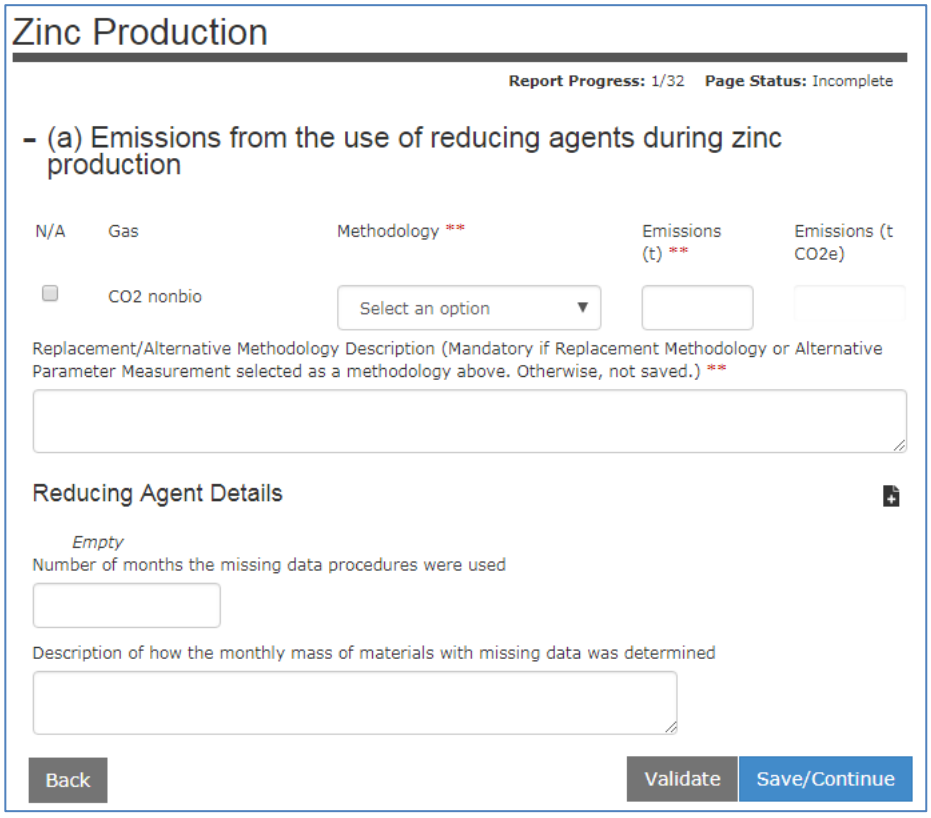


Fig. 4.18.1 Zinc production emission reporting window

Zinc production refers to the smelting of lime-containing zinc concentrates like zinc sulfide made from ores and/or recycled zinc. It is a complex process to make pure zinc. Depending on the technologies used, there are different types of processes, basically categorized as pyrometallurgical process and hydrometallurgical process consisting of four steps: sintering, smelting, refining, and casting. During

the process redux reactions take place and CO_2 is released through the reaction with reducing agent(s) and through consumption of electrode. The production of lead needs large amount of energy, some in the form of electricity and some in the form of fuels. Combustion is necessary for the process and the associated emissions from combustion must be reported under the **General Stationary Combustion** separately.

Process emissions from reducing agents and the consumption of electrodes can be reported under "**(a) Emissions from the use of reducing agents during zinc production**". Simply select the methodology that is used to quantify the emission and enter the emission amount of CO_2, which accepts up to four (4) decimal places.

Methodology: "**Measured CC**", "**CEMS**", Replacement Methodology and Alternative Parameter Measurement are options. The latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter cannot be able to adapt to it reasonably in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When the Replacement Methodology or Alternative Parameter Measurement is applied, a detailed description of the methodology and its application must be provided in the Comment area below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

Additionally, although it is not set as a mandatory requirement yet, it is recommended that the additional reportable information on "Reducing Agent Details" and the missing data procedure be provided as well. Clicking the "  " will pop up a child window for entering reducing agent information.

Fig. 4.18.2 provides an example of entering the reducing agent information. If there is more than one reducing agent used, repeat this step until all have been entered.

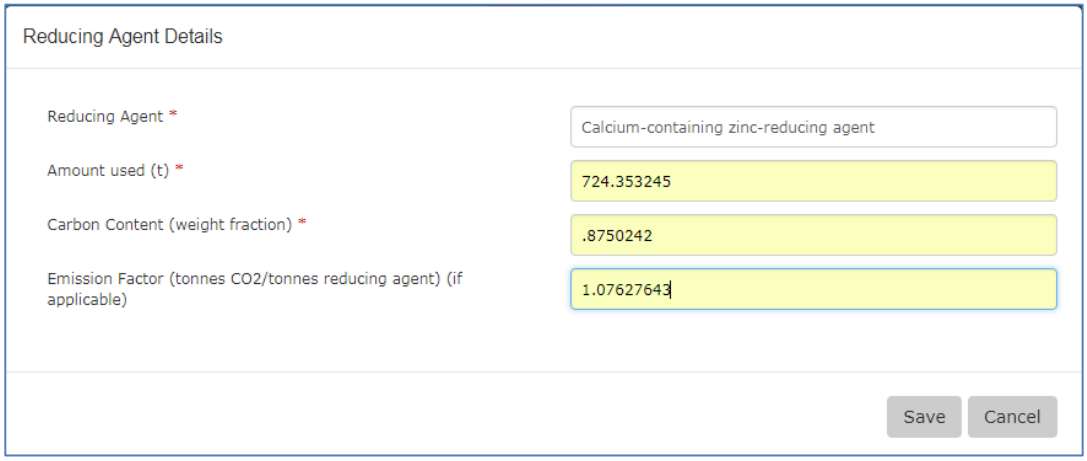


Fig. 4.18.2 Reducing agent information for zinc production.

As for the missing data procedure used, if there're any data missing during the reporting period, enter properly both the value of "number of months" the missing data procedure was applied and the description of how the monthly mass of materials with missing data was determined.

Next Step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

19. Coal mining from open pit mines

Open pit coal mining also refers to surface coal mining. Unlike the underground mining, open pit coal mining directly releases to atmosphere the methane both entrapped into the coal and as coalbed methane (or coal seam methane). The emission intensity of this methane liberation is closely related to the coal mine's geological conditions, which can be determined through surveys. Emissions from fuel combustions by general stationary combustion units and on-site transportation units (i.e. mobile equipment) must be reported under the **General Stationary Combustion** and **Mobile Equipment Combustion**, respectively.

Methodology: Currently there is no industry-consensus or standard methodology available for quantifying the emission associated with open pit mining, and thus reporters should provide their own methodology in detail as required since no methodology is specified in the reporting system except the "Describe below" followed by a comment area titled as "Methodology Description". However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us.

If open pit coal mining was indeed carried out, the N/A checkbox "☐"at the left side opposite "CH_4" cannot be ticked off.

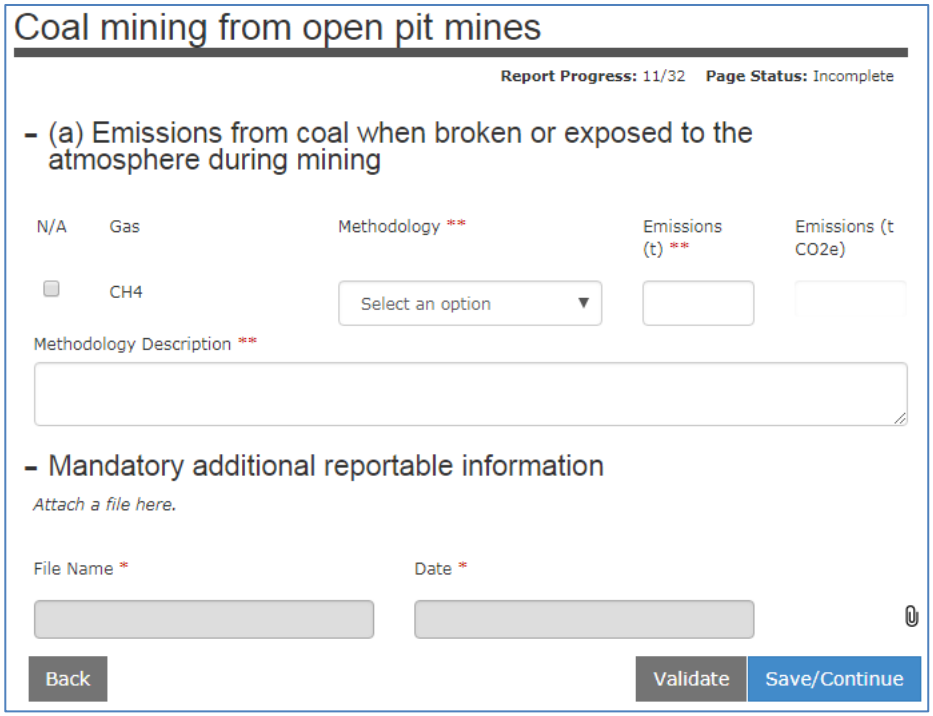


Fig. 4.19.1 Open pit coal mining emission reporting window

The amount of "**Emissions (t)**" is the actual emission quantity of methane before applying its global warming potential (GWP, here 25), accepting more than four (4) decimal place entry, the value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

Furthermore, mandatory additional reportable information is also required. Although detailed contents are not specified yet, the following should be included: mined volume (run-of-mine tonnes of coal, volume of merchantable coal and tailings, any information on geological survey, development and application of quantification methodology(s), input parameters etc.). These can be contained in a single file, which then can be attached to the report by clicking the "📎" as shown at the right bottom corner of the reporting window in Fig. 4.19.1. Please ensure that **File Naming Convention** is followed for attached files.

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "❗" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

20. Storage of petroleum products

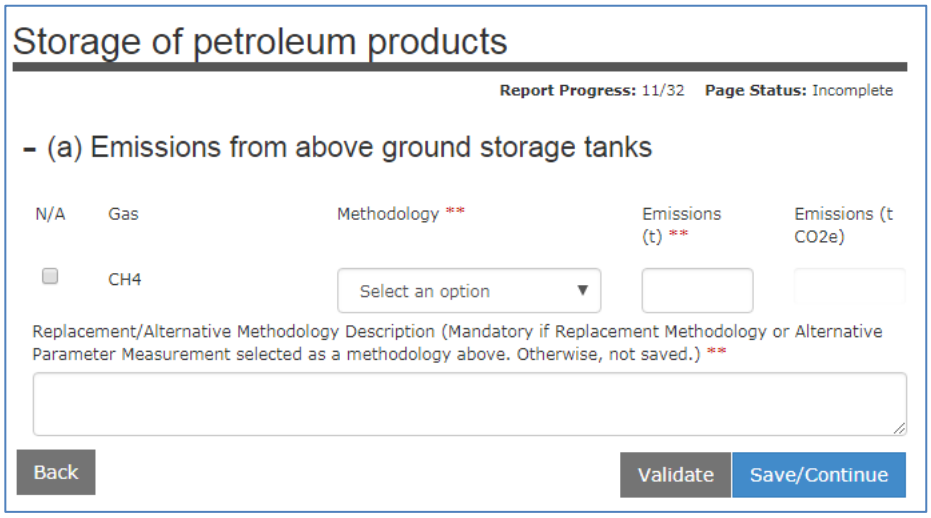


Fig. 4.20.1 Storing petroleum products emission reporting window

Petroleum product storage emission is mainly the liberation of associated or absorbed gas i.e. methane to atmosphere from storage tanks during the period of storage in a reporting year.

Methodology: The only methodology cited is "WCI.203(f)" except for Replacement Methodology or Alternative Parameter Measurement. However, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter cannot be able to adapt to it reasonably in the first year after the change. When Replacement Methodology or Alternative Parameter Measurement is applied, a detailed description of the methodology and its application must be provided in the Comment area below the emission entry part. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval.

If petroleum product storage was indeed carried out, then the N/A checkbox "☐" at the left side opposite "CH_4" (Fig. 4.20.1) cannot be ticked off.

The amount of "**Emissions (t)**" is the actual emission quantity of methane before applying its global warming potential (GWP, here 25), accepting more than four (4) decimal place entry, the value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "❗" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

21. Carbonate Use

Fig. 4.21.1 Carbonate use related emission reporting

CO_2 emission from carbonates used but not consumed in other activities set out in column 2 of Table 1 in the Regulation should be reported as a separate emission source as shown in Fig. 4.21.1.

The quantification is simple, and can be based on mass balance once purity or concentration is known (when 100% converted), which can be obtained from a provider or determined at a laboratory. Thus, no methodology is required. If you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval.

If carbonate use was indeed carried out, then the N/A checkbox "☐"at the left side opposite the "CO_2 nonbio" cannot be ticked off (Fig. 4.21.1).

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas (i.e. CO_2 here) before applying its global warming potential (GWP, being 1 here). It accepts more than four (4) decimal places. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "❗" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

22. Oil and Gas (O/G) Extraction and Processing

As shown in Fig. 4.22.1, oil and gas extraction and processing (OGEP) has a long list of emission sources categorized into three categories i.e. flaring, fugitive and venting. Clicking the "+" sign at the left of "(b) Venting" and "(c) Fugitive" in Fig. 4.22.1 will expand the details of the emission source lists, which are the default when opening this window, but used here for convenience.

[Note]:

1. *For linear facilities operation, there are LFO, IF_a, IF_b and L_c report types. Here the description will be based on an IF_a report. Other report types can reference the IF_a report.*
2. *Since 2014, data for "third-party line hits" has been categorized as Fugitive emissions. If you are using the Prepopulation feature to copy a report from a submitted pre-2014 report, you will need to click "**Validate**" first to reset the page and then manually enter "third-party line hits" data under the Fugitive section*.

[Trick]:

Clicking the "+" or "-" will expand or collapse the long list on the reporting window to make the data entries more manageable.

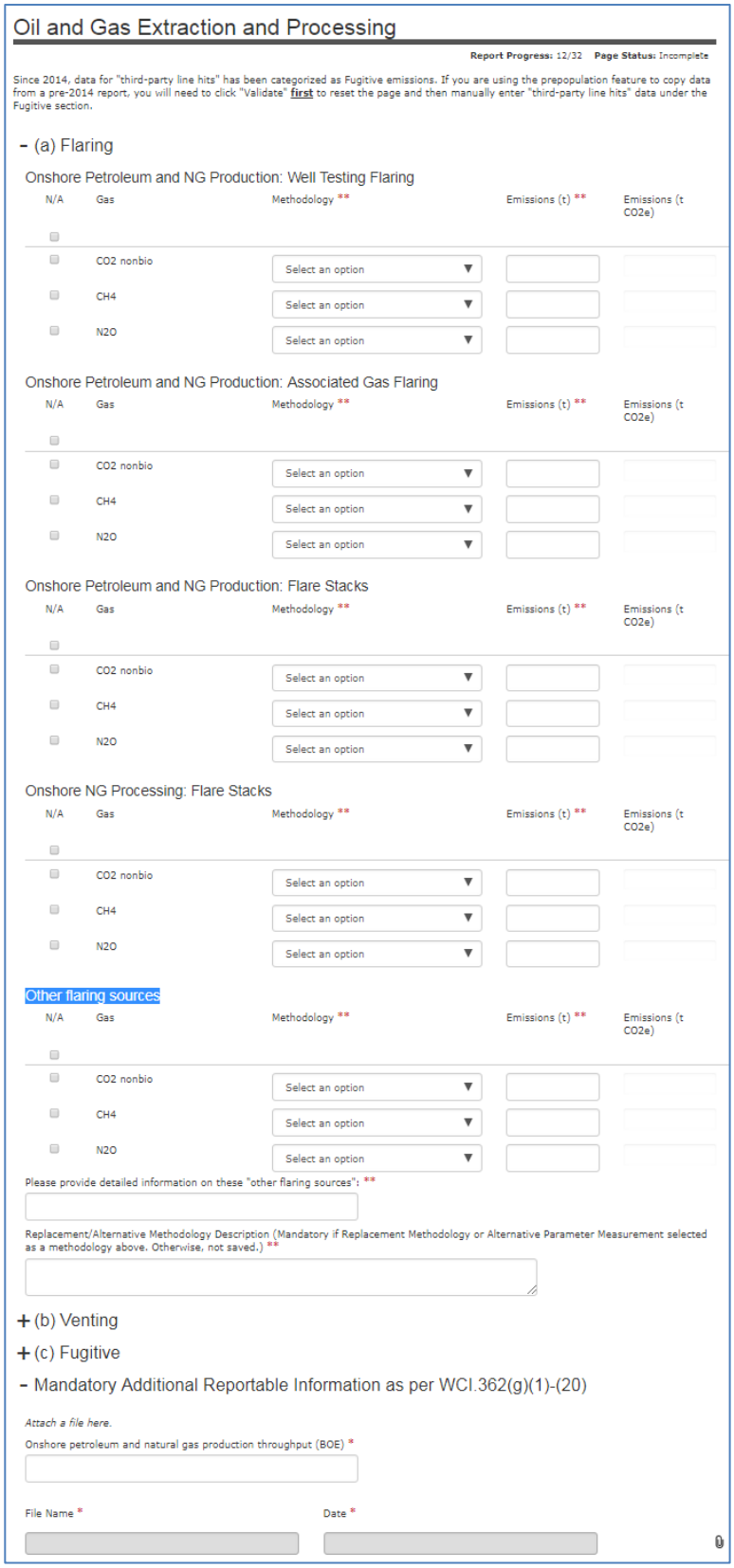


Fig. 4.22.1 Oil and gas extraction and processing emission reporting

If a specific gas doesn't apply to the specific emission source, tick off the N/A checkbox "☐" mark at the left side of the gas name (i.e. CO_2 nonbio, CH_4 or N_2O). If the entire emission source doesn't apply to your facility, tick off the N/A checkbox "☐" mark (as highlighted by the "Gas applicability check option") under the "N/A" as indicated by the "reporting component title line" in Fig. 4.22.2 under the source title. This checks off all the gases that don't apply as indicated by the blue ellipse in Fig.4.22.2. However, if any gas still applies, then you can uncheck that specific gas as necessary.

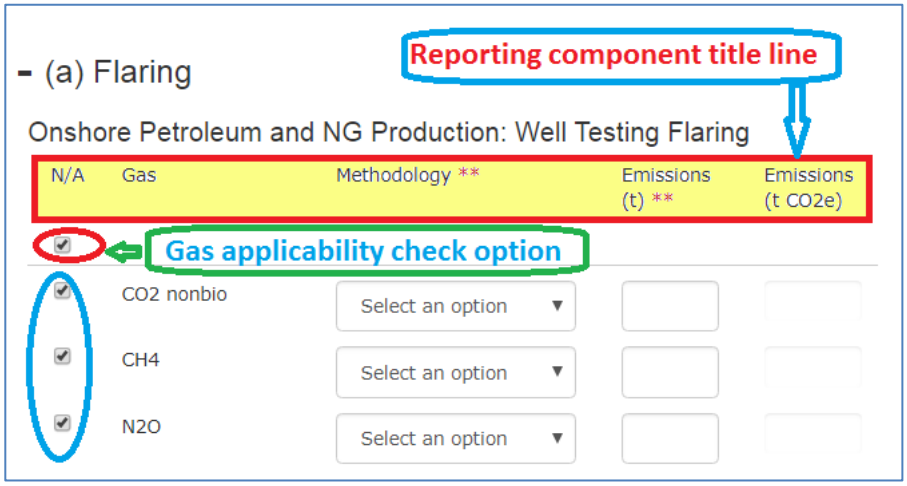


Fig. 4.22.2 Gas applicability check option

For flaring (also fugitive and venting), if any emission sources are unspecified in the reporting system, please contacting us. For these sources, report their emissions under "**Other flaring sources**" in Fig. 4.22.1, where these sources must be described in the specific comment area.

Methodology: Methodology is specifically required for each gas in each emission source. Click the dropdown list in the Methodology column for each gas to select the appropriate methodology that applies to your case.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying the correspondent global warming potential (GWP), accepting more than four (4) decimal places, which will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**".

After finishing all the entries in flaring category, continue to entre all related information for fugitive and venting categories by following the foresaid instructions for flaring, respectively.

For oil & gas extraction and processing, additional mandatory reportable information is required as per WCI.362(g)(1)~(21). WCI.362(g)(21) specifically requires the "onshore petroleum and natural gas production throughput" in barrel of oil equivalent (BOE), which accepts an whole number up to 15 digits (no decimal places will be allowed). The information required by WCI.362(g)(1)~(20) can be aggregated into a file and attached to the report by uploading it as shown in Figs. 4.22.3 and 4.22.4. From 2018 and onward, a facility list file must also be attached to the LFO Report (Fig. 4.22.4).

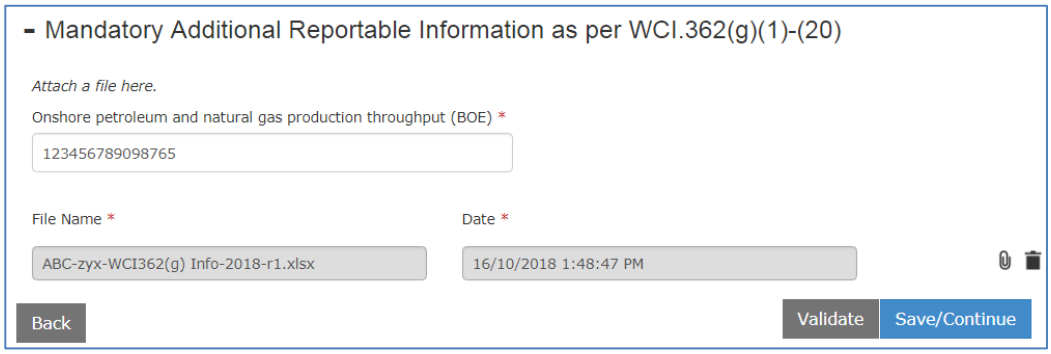


Fig. 4.22.3 WCI.362(g) requirements for oil & gas extraction and processing

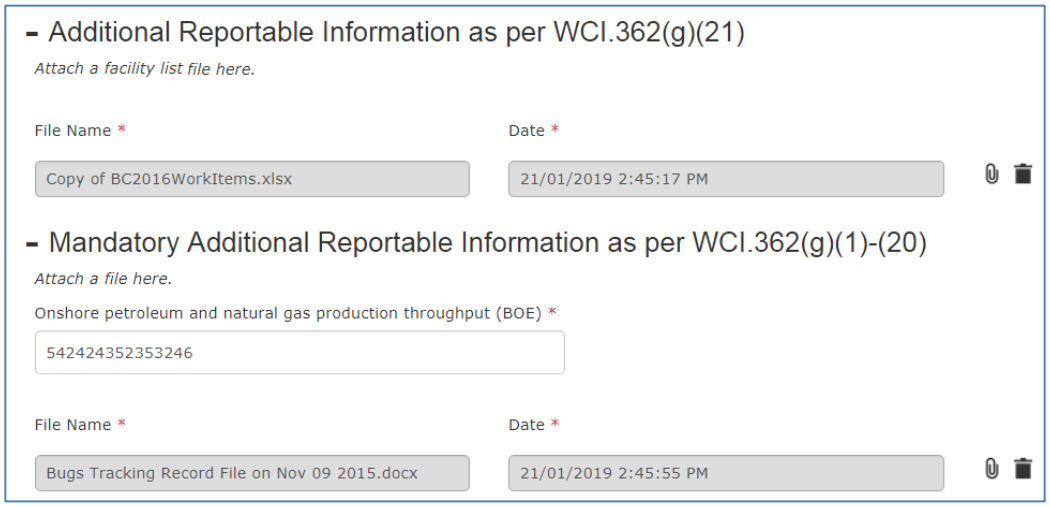


Fig. 4.22.4 Mandatory reportable information for OGEP LFO report

[Note]:

Ensure that the attached file's name follows the file naming convention.

Next step: After all information being entered, click the "Validate" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button

will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

23. Natural Gas Transmission, Distribution and Storage

The natural gas transmission, distribution and storage (NGTD) is classified as linear facilities operation activity.

[Note]:

1. *For linear facilities operation, there are LFO, IF_a, IF_b and L_c report types. Here the description will be based on an IF_a report. Other report types can reference the IF_a report.*
2. *Since 2014, data for "third-party line hits" has been categorized as Fugitive emissions. If you are using the Prepopulation feature to copy a report from a submitted pre-2014 report, you will need to click "**Validate**" first to reset the page and then manually enter "third-party line hits" data under the Fugitive section*.

As shown in Fig. 4.23.1, the natural gas transmission, distribution and/or storage has a much longer list of emission sources than the oil & gas extraction and processing (OGEP) activity, including three categories: flaring, fugitive and venting. Clicking the "+" sign at the left of "(b) Venting" and "(c) Fugitive" in Fig. 4.23.1 will expand the details of the emission source lists, which are the default when opening but collapsed here for convenience.

[Tips]:

> *Clicking the "+" or "-" will expand or collapse the list on the reporting window to make the data entry more manageable.*

If a specific gas doesn't apply to the specific emission source, tick off the N/A checkbox "☐" mark at the left side of the gas name (i.e. CO_2 nonbio, CH_4 or N_2O). If the entire emission source doesn't apply to your facility, tick off the N/A checkbox "☐" mark (as highlighted by the "Gas applicability check option") under the "N/A" as indicated by the "reporting component title line" in Fig. 4.23.2. Doing this will disable all the gases as indicated by the blue ellipse in Fig. 4.23.2. However, if any gas still applies, then you can uncheck that specific gas as necessary.

If any specific emission source for flaring, fugitive and venting is not specified in the reporting system yet, please contacting us, so that it can be added or included into the system in a later cycle. For these sources, report their emissions under "Onshore NG transmission and distribution: **Other flaring sources**" as exemplified in Fig. 4.23.3, where these unspecified flaring sources are described. Do the same thing for other fugitive and venting sources as well when applicable.

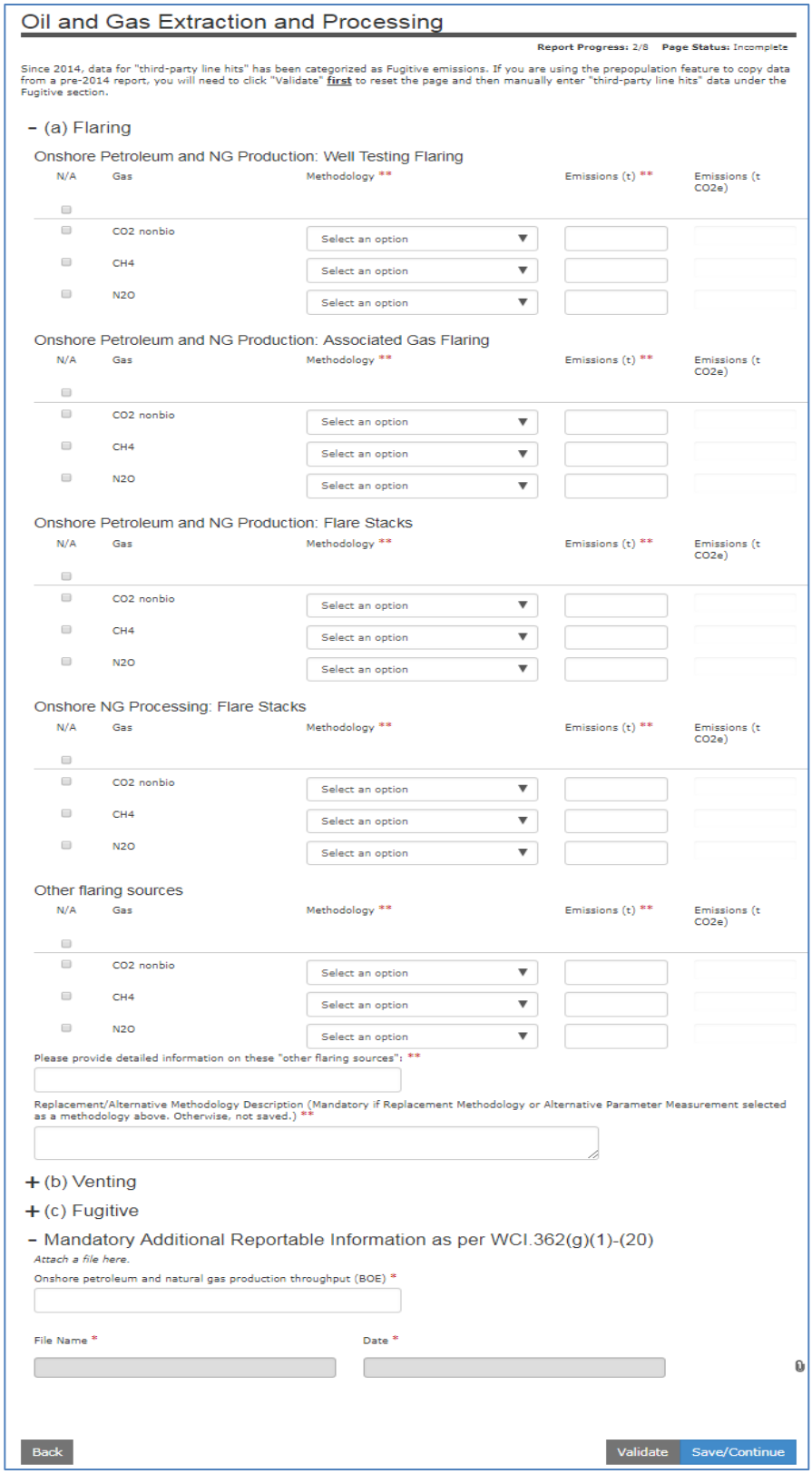


Fig. 4.23.1 NGTD emission reporting window

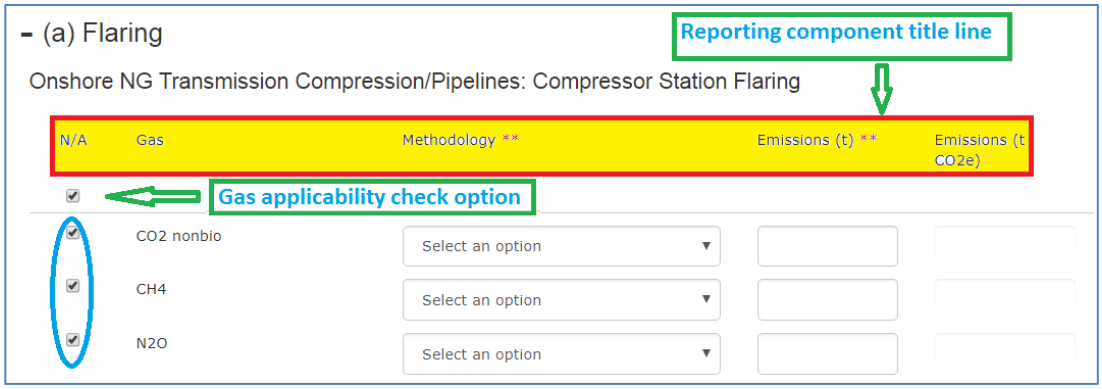


Fig. 4.23.2 Gas applicability check option

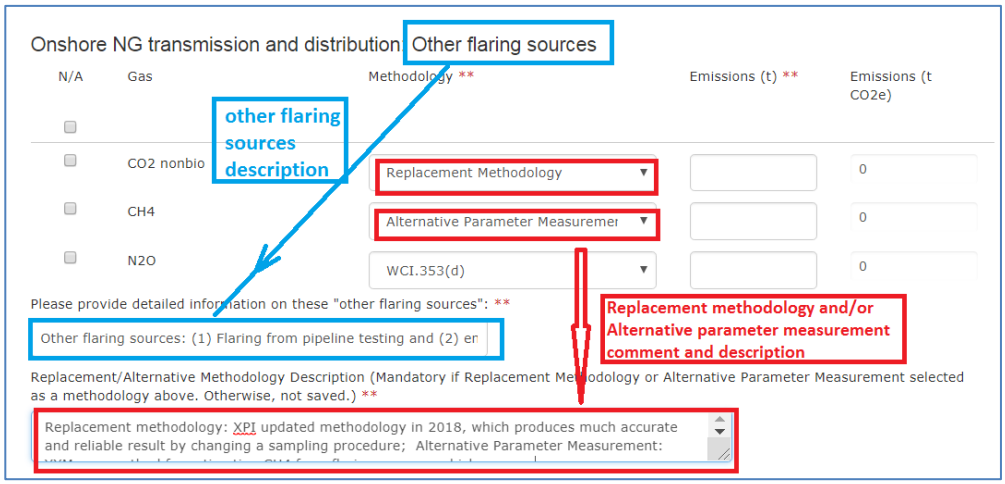


Fig. 4.23.3 Comment and description on other unspecified emission sources and the required methodology

Methodology: Methodology is specifically required for each gas in each emission source. Click the dropdown list in the Methodology column for each gas to select the appropriate methodology that applies to your case.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Fig. 4.23.3) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will

be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

After finishing all the entries in flaring category, continue to entre all related information for fugitive and venting categories by following the foresaid instructions for flaring, respectively.

For NGTD, providing "additional mandatory reportable information" is required as per WCI.352(1)(1) ~ (12) required (Fig. 4.23.4). "Volume of natural gas throughput (BOE)", in barrel of oil equivalent (BOE), is also required to support the industrial incentive program though it is not listed in the current WCI requirements. The system can accept a whole number up to 15 digits (but no decimal places will be allowed). The information required by WCI.352(g)(1)~(12) can be aggregated into a file and attached to the report by uploading it as shown in Fig. 4.23.4. It is recommended that the file's name adheres to the

File Naming Convention. From 2018 and onward, a facility list file must also be attached to LFO Report for the purpose of Industrial Incentive Program if your organization participates in it (Fig. 4.23.5).

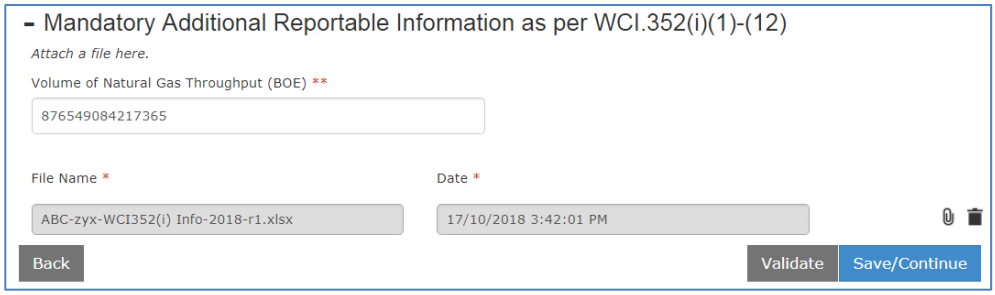


Fig. 4.23.4 Additional mandatory reportable information

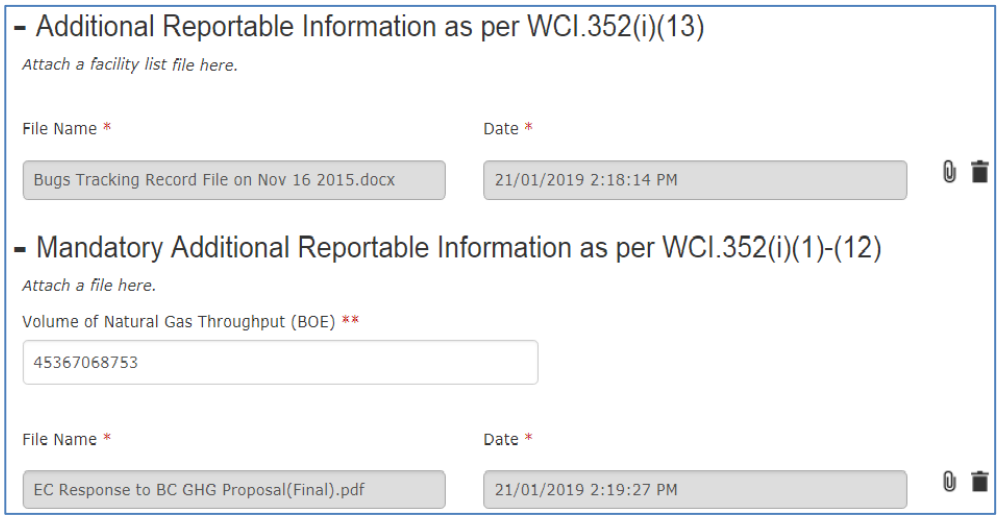


Fig. 4.23.5 Mandatory reportable information for NGTD LFO report

Next step: After all information being entered, click the "**Validate**" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "❗" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

24. LNG Activities

LNG activities, referring to LNG production activities, falls under the linear facilities operation type as stipulated in the Regulation. There are lots of emission sources or points as shown in Fig. 4.24.1, including flaring, fugitive and venting.

Clicking the "+" sign at the left of "(b) Venting" and "(c) Fugitive" in Fig. 4.24.1 will expand the details of the emission source lists, which are originally the default format when opening the window.

[Note]:

For linear facilities operation, currently LFO, IF_a, IF_b and L_c reports have different reporting frame structures. Herein we describe the reporting based on an IF_a report, similar procedures should be followed for other report types i.e. LFO, IF_b ad L_c.

[Trick]:

Clicking the "+" or "-" will expand or collapse the list on the reporting window to make the data entry more convenient.

If a specific gas doesn't apply to a specific emission source, tick off the N/A checkbox "☐" mark at the left side of the gas name i.e. CO_2 nonbio, CH_4 or N_2O. If the entire emission source doesn't apply to your facility, tick off the N/A checkbox "☐" mark under the "N/A" (gas applicability check option) at the left side of the "Gas" in the "reporting component title line" as highlighted in Fig. 4.24.2, as a quicker way. Doing this will disable all the gases as indicated by the blue ellipse in Fig. 4.24.2. However, if any gas still applies, then uncheck that specific is necessary.

For flaring (also fugitive and venting), if any emission sources are not specified yet in the reporting system, please contacting us in order to add them onto the list. For these sources, report their emissions under "LNG Production: **Other flaring sources**" as exemplified in Fig. 4.24.3, where these unspecified sources are described. For Fugitive and venting, do the same if any exists.

Methodology: Methodology is specifically required for each gas in each emission source. Click the dropdown list in the Methodology column for each gas to select the appropriate methodology that applies to your case.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Fig. 4.24.3) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

After finishing all the entries in flaring category, continue to entre all related information for fugitive and venting categories by following the foresaid instructions for flaring, respectively.

For LNG production, providing additional mandatory reportable information is mandatory. “Annual LNG production quantity (tonnes)” must be entered, for which the system can accept a value up to two (2) decimal places as shown in Fig. 4.24.4.

Next step: After all information being entered, click the “**Validate**” button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won’t allow you to submit the report, and the corresponding activity will have a “” in front of it at the left side pane, indicating an error exists and correction is required. Clicking the “**Save/Continue**” button will save the entries and continue with the next step. Clicking the “**Back**” button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, proceed to Chapter 6 section **1. Non-attributable Emissions Reporting**.

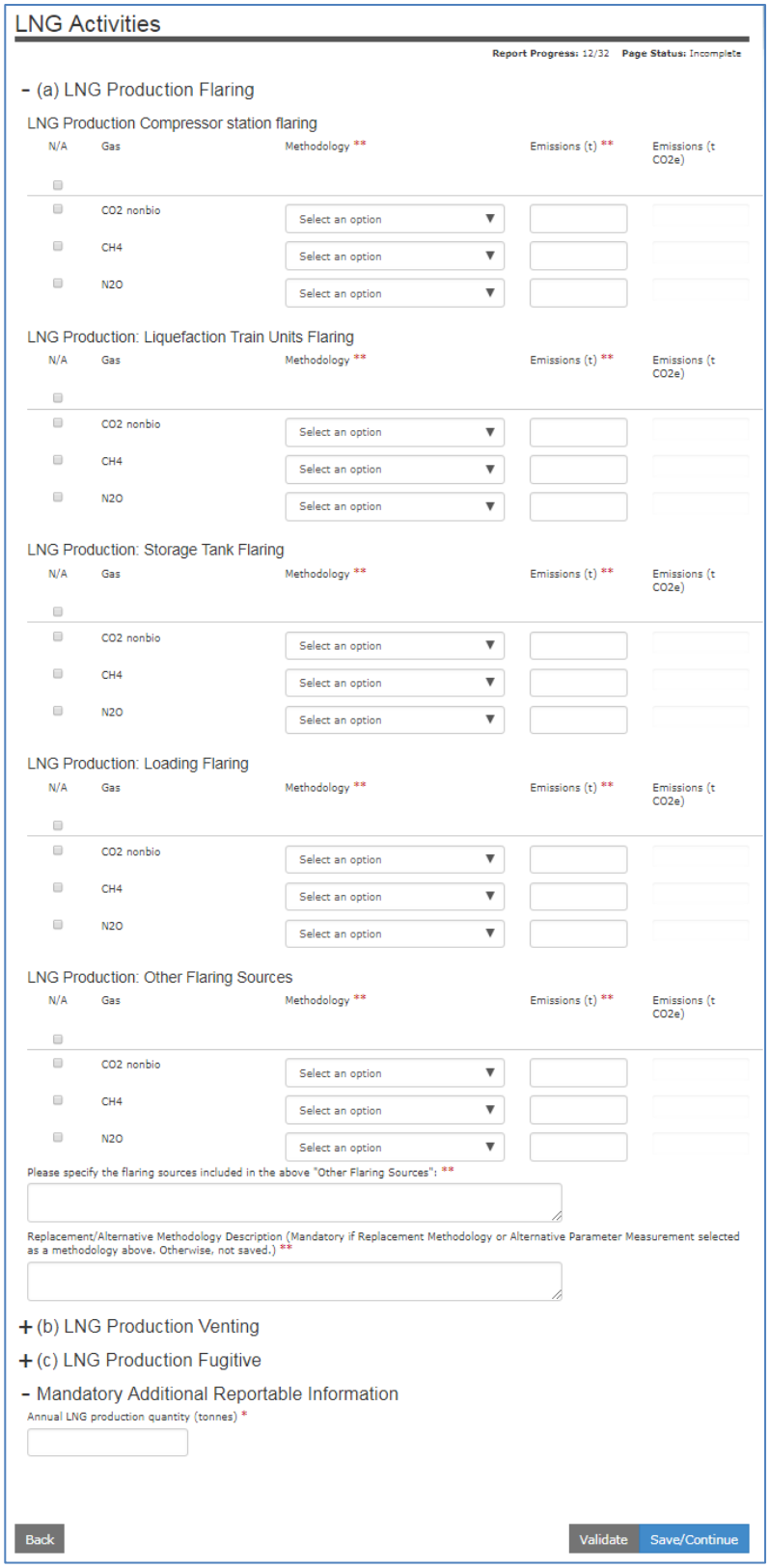


Fig. 4.24.1 LNG production emission reporting window

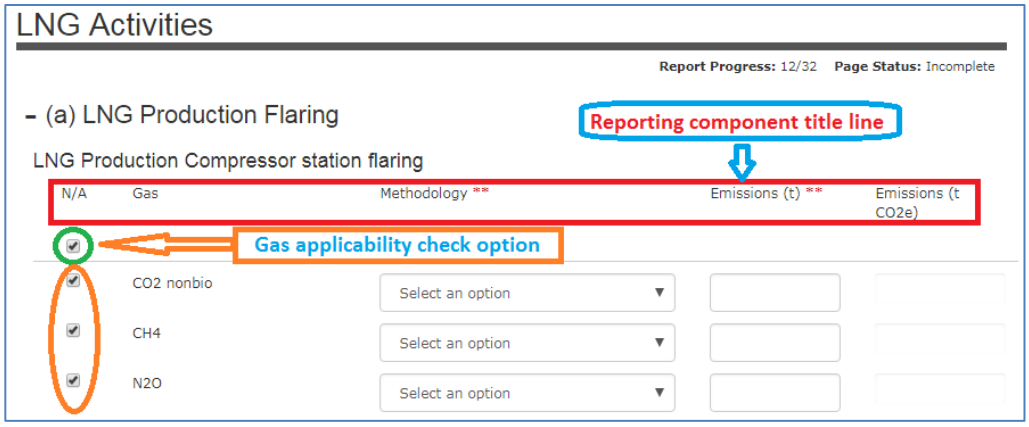


Fig. 4.24.2 Gas applicability check option

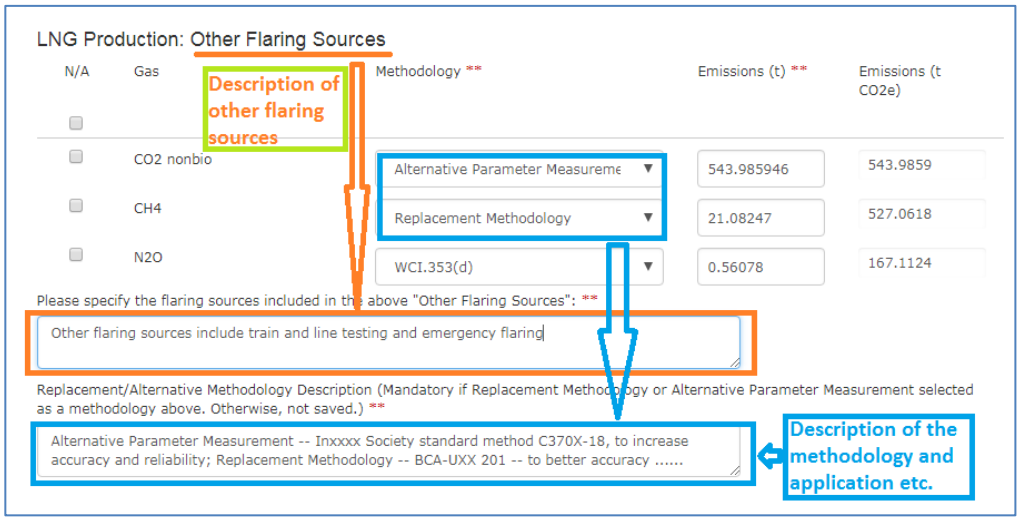


Fig. 4.24.3 Comments on other unspecified emission sources and methodology

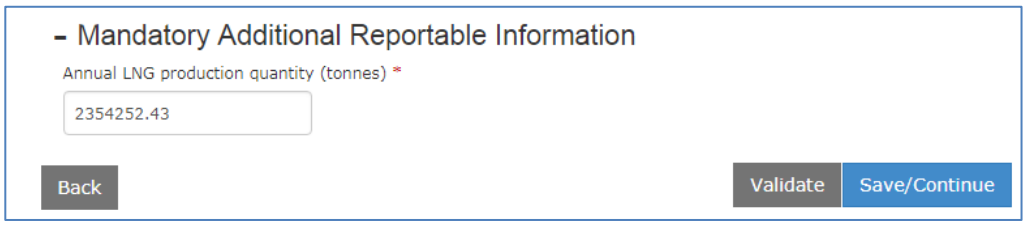


Fig. 4.24.4 Mandatorily required LNG production quantity

25. Oil Transmission

Oil transmission has been conducted in BC but their associated emissions sources or points are yet to be identified together with its emission scale, and thus this section is now reserved here, however its

reporting “infrastructure” has been established in the SWRS based on the structure for Oil & gas extraction and processing.

If the activity is carried out in your facility(s), please contact us with detailed information first and report the emissions by following the instructions from the province.

26. Electricity Transmission

The electricity transmission activity falls into the linear facilities operation category due to its operational characteristics.

Reporting emissions from electricity transmission is simple and the reporting frame is shown in Fig. 4.26.1, where only one fugitive emission source type, i.e. “Emissions from electrical equipment” exists.

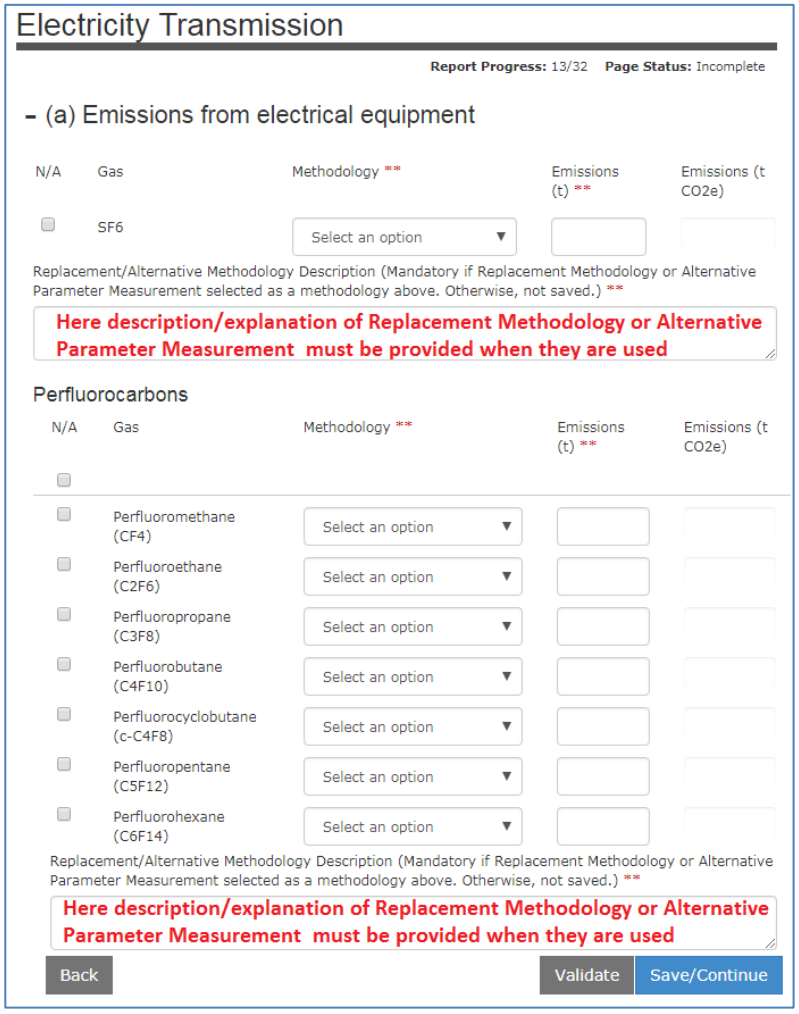


Fig. 4.26.1 Electricity transmission reporting window

The fugitive emissions include gaseous dielectric mediums (i.e. sulfur hexafluoride (SF_6) and perfluorocarbons (PFCs)) released from electric equipment installed in the electricity transmission and distribution systems.

If a specific gas doesn't apply to your facility, tick off the N/A checkbox "☐" mark at the left side of the gas name i.e. SF_6 or the respective PFCs. If the entire PFCs group doesn't apply to your facility, tick off the checkbox "☐" mark under the "N/A" ("Group gas applicability check option") at the left side of the "Gas" in the "reporting component title line" under the title "**Perfluorocarbons**" as highlighted in Fig. 4.26.2. Doing this will disable all the gases as indicated by the blue ellipse in Fig. 4.26.2. However, if any gas still applies, then uncheck the "☐" for that gas is necessary. This will make the work easier.

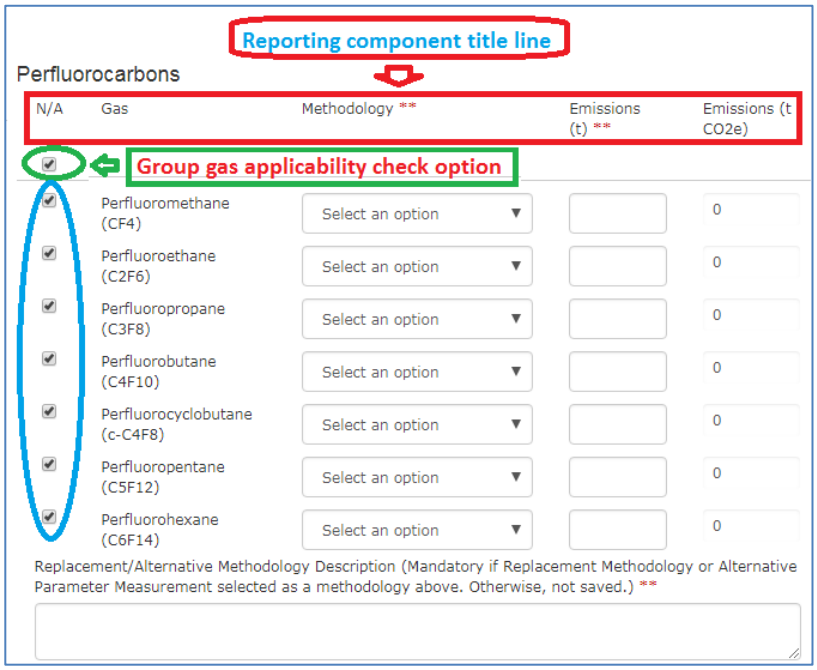


Fig. 4.26.2 Gas applicability check option

Methodology: Methodology is specifically required for each gas in each emission source. Click the dropdown list in the Methodology column for each gas to select the appropriate methodology that applies to your case.

Although Replacement Methodology and Alternative Parameter Measurement are listed, the latter won't be an option unless the standard methodology (for example, WCI) has been changed or updated and the reporter is unable to adopt it immediately in the first year after the change. However, if you do have a better methodology that can improve the quantification reliability and accuracy, you are strongly recommended to contact us for approval. When Replacement Methodology or Alternative Parameter Measurement is indeed applied, a detailed description of that methodology and its application must be provided in the Comment area (Figs. 4.26.1 & 2) below the emission entry part.

The amount of "**Emissions (t)**" is the actual emission quantity of a specific gas before applying its global warming potential (GWP), which accepts more than four (4) decimal place entry. The value will be automatically converted to the CO_2 equivalent amount as shown in the column of "**Emissions (t CO_2e)**", which take up to four (4) decimal places.

Next step: After all information being entered, click the "**Validate**" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "  " in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

If there is any other activity, for which emissions need to be reported, proceed with that activity and report its emissions; if there is no further activity to report its emissions, just go the Chapter 6 section **1. Non-attributable Emissions Reporting.**

Chapter 5 Electricity Import

Electricity import is a separate reporting category under the current reporting regime, though its emission is not covered in the provincial inventory. Any organization/facility engaged in importing electricity from other jurisdictions must report, under the report type of EIO, the GHG emissions that were produced out of the province associated with the electricity generation and transmission.

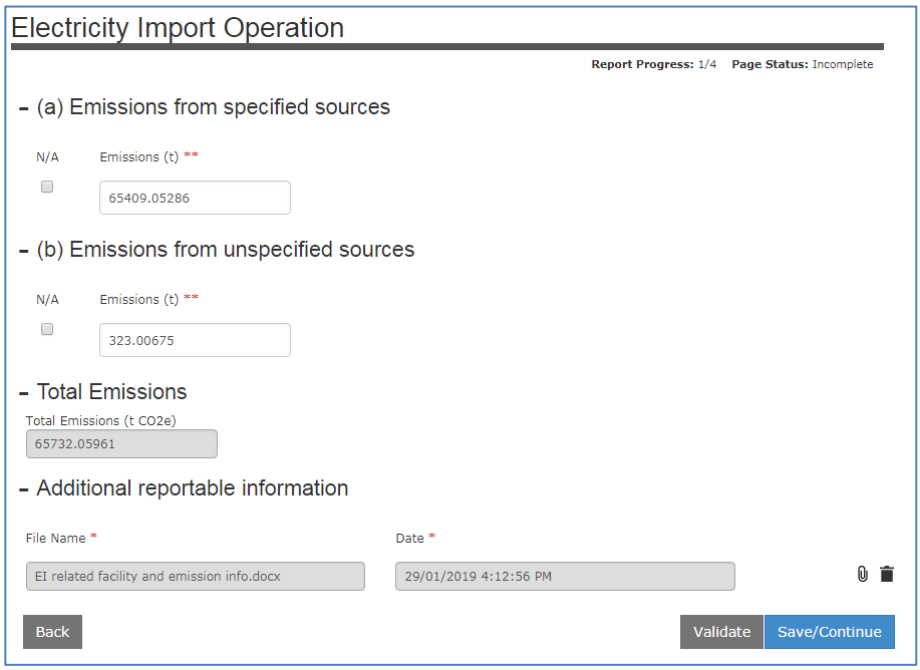


Fig. 5.1 EIO reporting frame

EIO reporting is simple, involving only two categorical emissions, i.e. emissions from specified sources and unspecified sources as shown in Fig. 5.1. Entering the respective value in the applicable field is required. If an item doesn't apply, just check off the N/A checkbox "☐" corresponding to that item.

It may be required to report additional reportable information such as the electricity generating facility(s), imported electricity amount, associated emission factor etc. that can be provided in an attached file as shown in Fig. 5.1.

After all information entered, click the "**Validate**" button to check if there is any error or mistake. "Click "**Save/Continue**" to save the entries and jump to next step – Chapter 6 **4. Comments on the Report**.

Chapter 6 Miscellaneous Reporting

1. Non-attributable Emissions Reporting

Non-attributable emissions refer to those GHGs that are released during industrial production but not from the activities as specified in either Table 1 or Table 2 of Schedule A in the Regulation. It is required that if the non-attributable emissions exceed 100 t CO_2e in the facility, the activity, source type, broad source category and the GHGs that apply be reported here.

Non-attributable emissions has a reporting window as shown in Fig. 6.1.1.

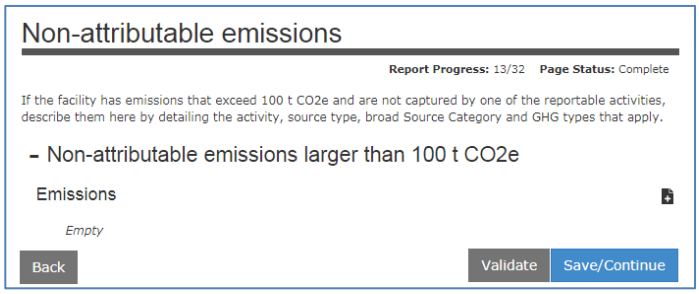


Fig. 6.1.1 Non-attributable emissions reporting window

Clicking the " " in Fig. 6.1.1 will pop up a child entry window (Fig. 6.1.2), where the Activity must be provided that is not set in the Regulation's Tables 1 and 2; The Source Type also needs to be described in order to understand the emission source's characteristics, while the Source Category classifies the emission into one of the categories: stationary fuel combustion, flaring, fugitive. Then select the gas(s) that applies to the case.

Repeat the above steps if there is more than one activity that release non-attributable emissions in the facility. The completed entry image is as shown in Fig. 6.1.3.

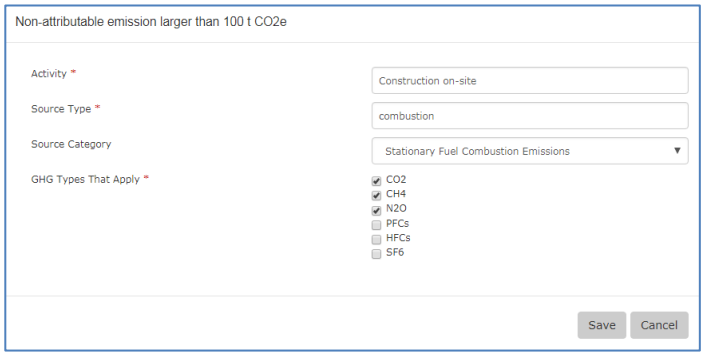


Fig. 6.1.2 Non-attributable emissions reporting child window

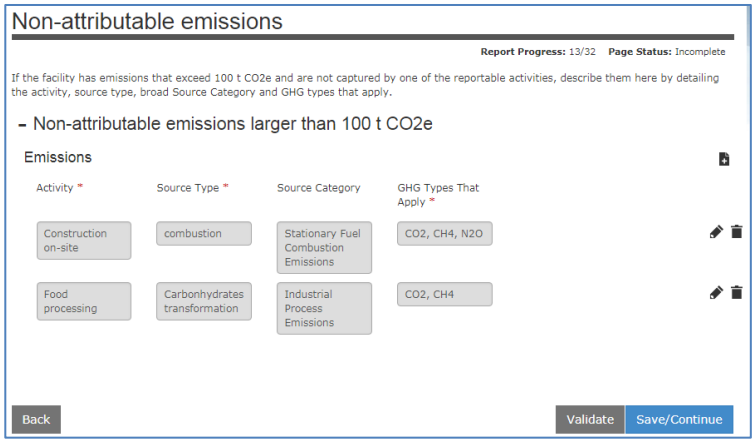


Fig.6.1.3 Completed non-attributable emission entry window

Next step: After finishing the entries, click the "**Validate**" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "❗" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

2. Captured CO_2

As an effective approach to offset the emissions from anthropogenic activities, carbon capture and sequestration has debuted and attracted the world's attention. Carbon capture is the first step for further sequestration and/or utilization of the emissions that otherwise would be released into the atmosphere.

[Note]

"Capture CO_2" means, through a proper industrial means, snatching or captivating CO_2 (or other gases) that would otherwise get into the atmosphere, for other applications such as sequestration, making dry ice, using as product component. Capturing CO_2 is opposite emitting CO_2. Knowing this basic concept will ensure your report's accuracy and relevance.

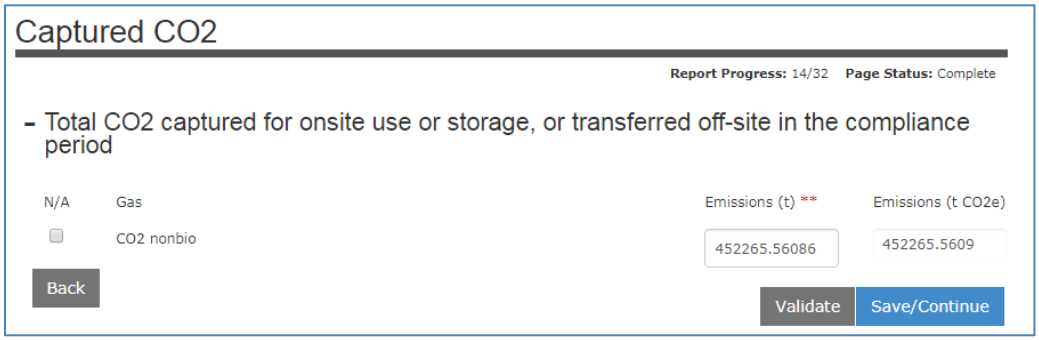


Fig. 6.2.1 Captured CO_2 reporting window

It is required that the quantity of any captured emission be reported as shown in Fig. 6.2.1 whether it is for storage/sequestration, on-site or off-site use. The entry can have more than four (4) decimal places, but the automatically calculated result can only show up to four (4) decimal places.

If no emission is captured during the reporting period, just tick off the N/A checkbox "☐" at the left side of "CO_2 nonbio" to deactivate this request.

Next step: After finishing the entry, click the "**Validate**" button to validate the entry. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "❗" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

3. Emission Summary

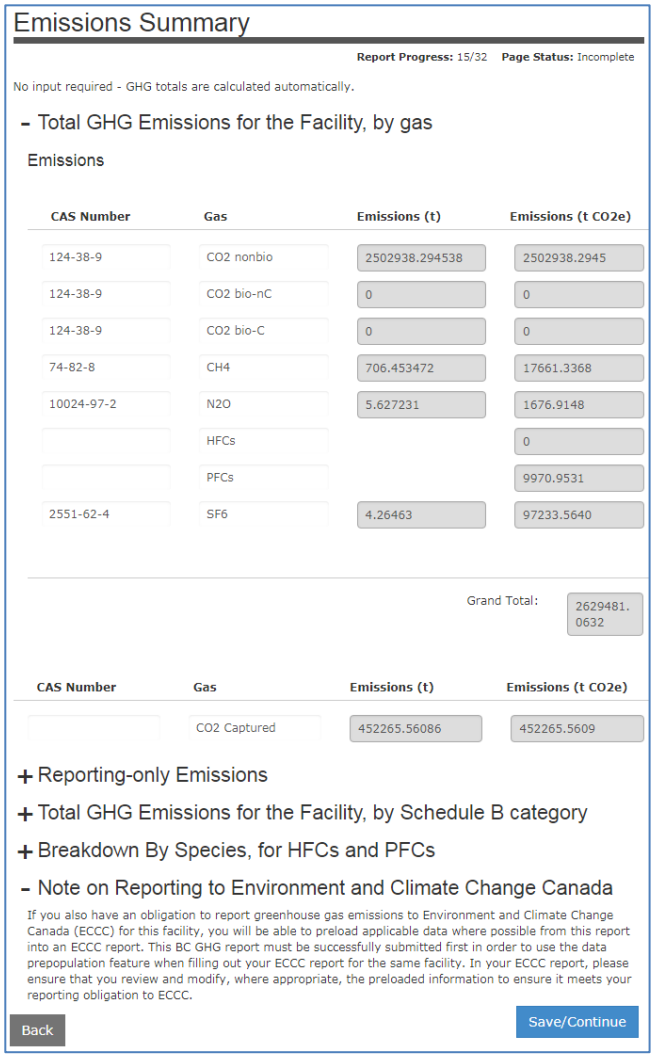


Fig. 6.3.1 Emissions summary window

When all the entry fields for a report are filled, the next step following the section of "**Captured CO_2**" is the "**Emissions Summary**" section, where all the emissions entered are summarized into different group categories with a grand total value at the bottom of each group (Fig. 6.3.1) based on the specification of the Regulation.

Clicking the "+" in front of a category title will expand the contents. As default the categories are in expanded format, but for convenience here they are collapsed. "+" and "-" make the work more flexible.

Review the values to check if all information has been included or if any missing or omission or error exists. If there is any, go back to that specific place(s) to correct it (them) or contact us if it is a system problem.

If everything is good, then click "**Save/Continue**" button to go to the next step. Click "**Back**" will go back to the previous step.

***[Note]**:*

> *For those facilities with reporting obligation to Environment and Climate Change Canada (ECCC), the data will be available after you submit the report online to the BC Government. Following ECCC's instruction after logging into their reporting module and using the preloading function will help you report to ECCC.*

4. Comments on the Report

This section has been updated for the 2018 reporting period. It contains one error: it has a section for an attachment for the "Industrial Incentive Program" (i.e. CleanBC Industrial Incentive Program). **Reporting for the CleanBC Industrial Incentive Program will not be done through the Single Window Reporting System.** Reporting for this program will be done through a separate application form (to be sent to all reporters). When filling out this section, the "n/a" box should be clicked for both boxes under the Industrial Incentive Program. Contact GHGRegulator@gov.bc.ca for information on specific CleanBC reporting requirements and necessary templates.

The Comments and Supporting Information page (Fig. 6.4.1) of the system provides a place for you to enter any comments that will be helpful in understanding your operation, and its associated emissions, which have not been entered elsewhere. You can also attach files with other information that cannot be directly entered into the system but is necessary and helpful for the programs.

The new Comments and Supporting Information page is as shown in Fig. 6.4.1. Ensure that all the files attached meet the

File Naming Convention and the titles clearly convey their contents.

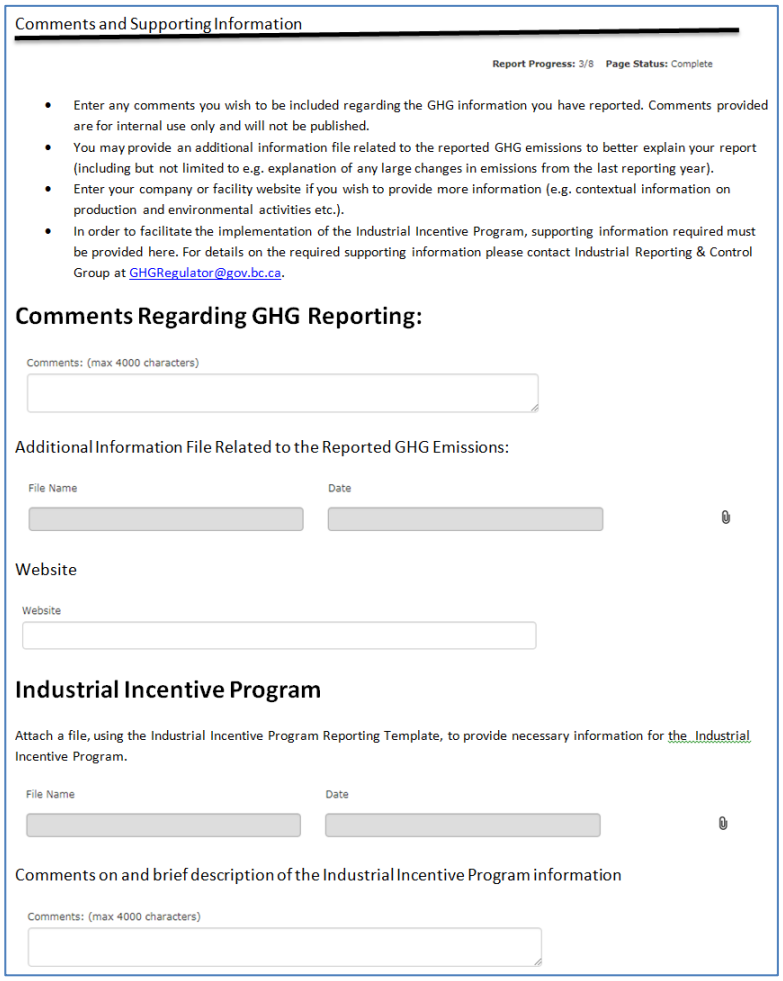


Fig. 6.4.1 New comment and supporting information reporting frame

Next step: After finishing the entries, click the "**Validate**" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity will have a "❗" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the "**Save/Continue**" button will save the entries and continue with the next step. Clicking the "**Back**" button will bring you to the previous page.

5. Confidentiality Request

According to the Freedom of Information and Protection of Privacy Act (FOIPPA) reporting operations are eligible to submit confidentiality request to protect their business confidential information, for which a confidentiality request letter, addressed to the Director, Industrial Control & Reporting, must

be attached to the report (only EIO, LFO and SFO reports) for approval. After analyzing the request and the business case, a notice on whether the request is approved or not will be issued.

Fig. 6.5.1 Confidentiality request

As Fig. 6.5.1 shows, "**Yes**" and "**No**" options are available by clicking the dropdown arrow. If it is unnecessary to request the confidentiality protection, then select "**No**" and no file attachment is required; however, if confidentiality protection is necessary, then select the "**Yes**" and upload the confidentiality request letter for approval by clicking the paper clipper "📎" as shown in Fig. 6.5.2. If uploaded a wrong file, simply clicking the "🗑" and re-uploading or directly re-uploading a right file. Further description on Confidentiality Request can be found at Chapter 3 section **4.3 Confidentiality Request** for Simple Report.

Fig. 6.5.2 Attaching confidentiality request letter

Next step: After finishing the entries, click the "**Validate**" button to validate the entries. If there is any error or mistake, correct it by following the indication. Otherwise the system won't allow you to submit the report, and the corresponding activity (here **Confidentiality Request**) will have a "❗" in front of it at the left side pane, indicating an error exists and correction is required. Clicking the

"**Save/Continue**" button will save the entries and bring the system back to the **1. Reporting Dashboard**.

6. Checking the Attached Files

During the course it is likely that several files have been attached to the report. They can all be checked and reviewed in one place for your convenience, which is the "**Uploaded Documents**" page situated at the end of the left pane as shown in Fig. 6.6.1.

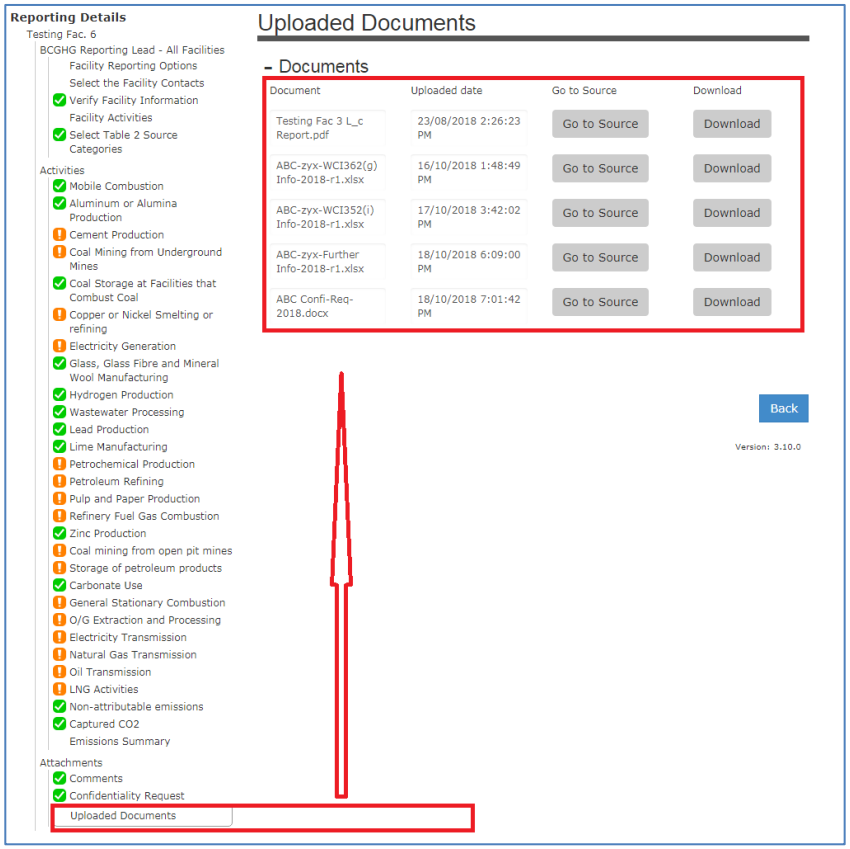


Fig. 6.6.1 Attached file list

The Uploaded Documents table has four columns:

- The first one "Document" shows the file name;
- The second one "Uploaded date" shows the uploaded date and time;
- The third one "Go to Source" shows the place or "Source" where it is uploaded and
- The fourth one "Download" gives you an opportunity to directly download the file for check, review or record if you haven't done so.

Clicking the "**Back**" button will bring you to the **1. Reporting Dashboard**, where clicking "" or clicking the dropdown arrow and selecting "**Submit**" will submit the report as described in **2.2 Report Submission**.

7. Other Tasks That Can Be Done with Standard Report

On the section **1. Reporting Dashboard**, there are other things you can do beyond those described above. As for **Report Verification**, refer to the elaboration in details in **Chapter 7 Report Verification**.

Before submitting a report, you can **Edit**, **Delete**, **Submit, Generate Report** and **Verify** the report (i.e. **Report Verification**)**;** you may also view the report **History** if it has been submitted and updated previously (Fig. 6.7.1).

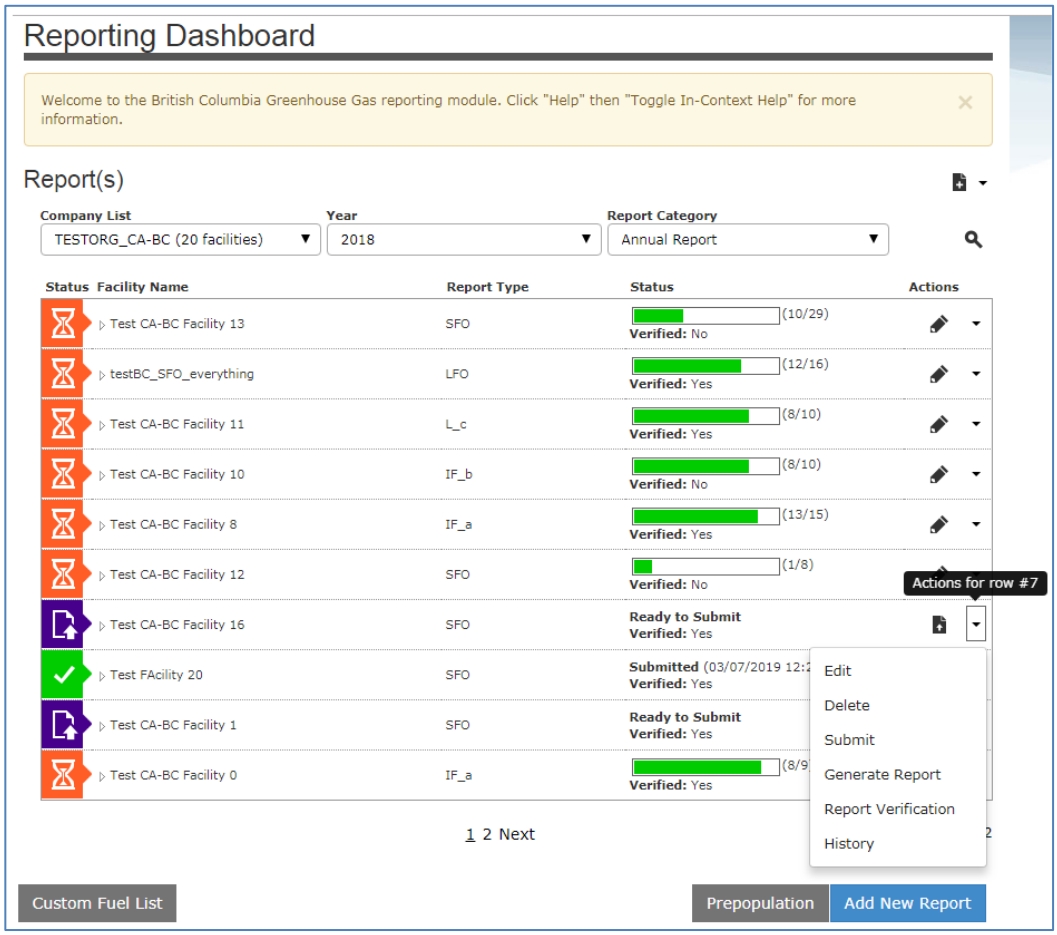


Fig. 6.7.1 Other tasks for Standard Report before submission

After submitting a report, you can **Update**, **Generate Report**, **Verify** the report (i.e. **Report Verification**) and view the report **History** (if it has been ever updated) (Fig. 6.7.2).

[***Note***]:

From 2018 and onward, the Reporting Dashboard has new features – Report Verification status – to clearly indicate whether a report is verified or not (i.e. if a report's verification statement is uploaded or not).

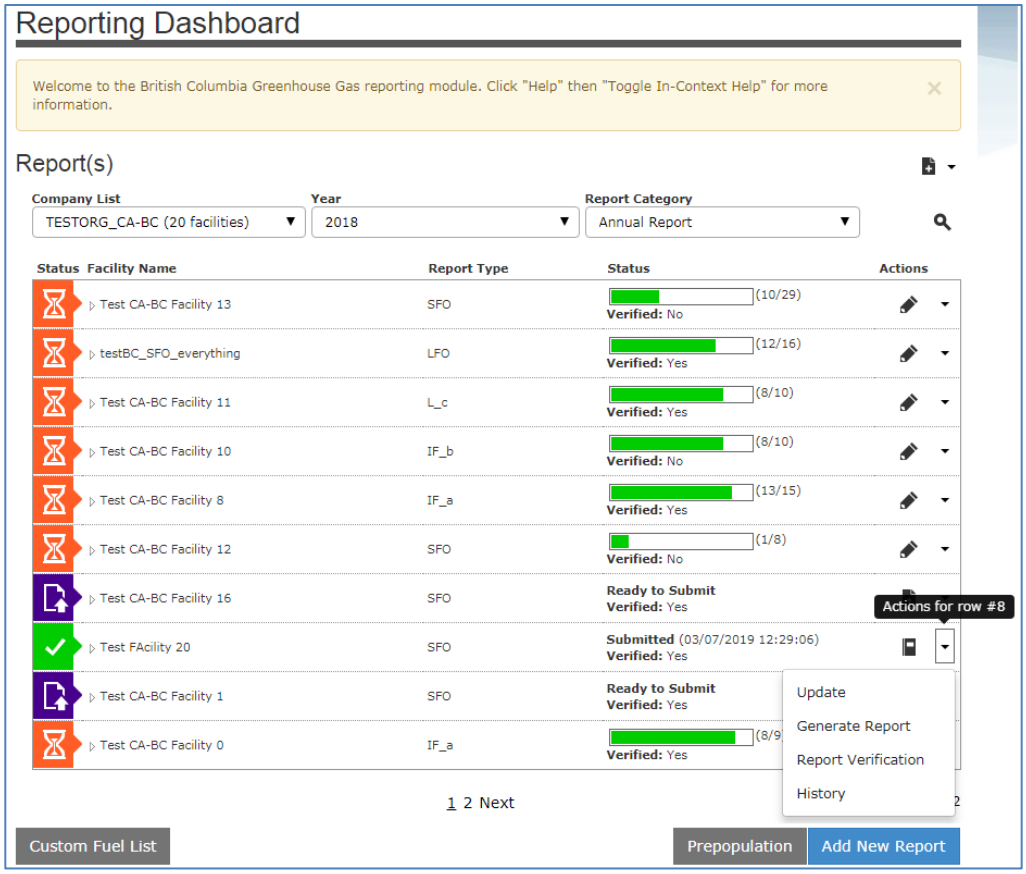


Fig. 6.7.2 Other tasks for Standard Report after submission

7.1 Editing Report

Starting to create a new report is the "**Edit**" function in the SWRS. However, even after a report has been completed (i.e. with a "**Ready to submit**" status), you can still edit it anytime before its submission. Click the dropdown arrow in the "**Actions**" column opposite the report's **Facility Name** and select "**Edit**". This will put the report in "**Edit**" status. You can directly go to the section that you want to edit most quickly by clicking on the area in the left pane - Component List.

After making any change(s) on each page or window, don't forget to click the "**Save/Continue**" button to save the changes, otherwise, the changes made will be lost.

7.2 Deleting Report

A report can only be deleted prior to submission. Once a report is submitted, it cannot be deleted or removed from the system anymore.

Deleting a report can be done by clicking the dropdown arrow in the "**Actions**" column opposite the report's **Facility Name** and selecting "**Delete**". A warning message window (Fig. 6.7.3) will show up to remind you of that all the data associated with this report will be lost if executing the deletion. Click "**Yes**" to delete the report and click "**No**" to cancel the deletion process.

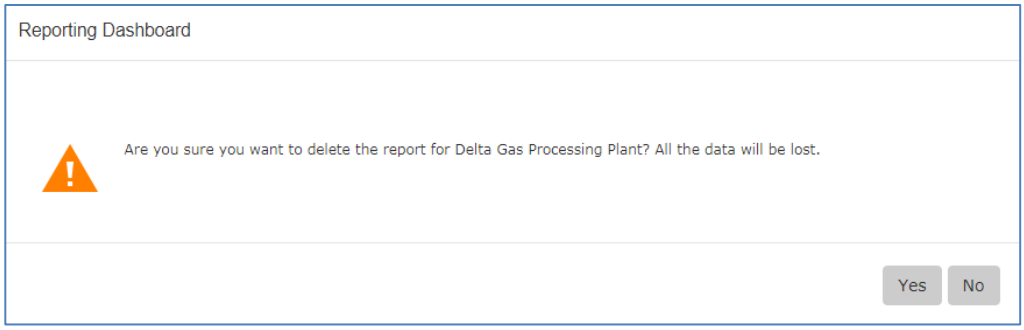


Fig. 6.7.3 Warning message on deleting a report

7.3 Updating Report

After submission, if a report needs to be modified to correct/update any data, you can do so by updating the report through "**Update**". Click the "**Update**" in the "**Actions**" column opposite the facility name will bring up a **Report Update Comments** window as shown in Fig. 6.7.4. Enter any comments on why you are updating the report. After entering the comments, clicking the "**Save/Continue**" button displays another Report Update Comments confirmation window (Fig. 6.7.5), saying "***Are you sure you want to update the report?***". Click "**Yes**" to proceed with the update, which leads you to the "**Edit**" process as described earlier in section **7.1 Editing Report** above. Click "**No**" to cancel the update process and the previously submitted report remains unchanged.

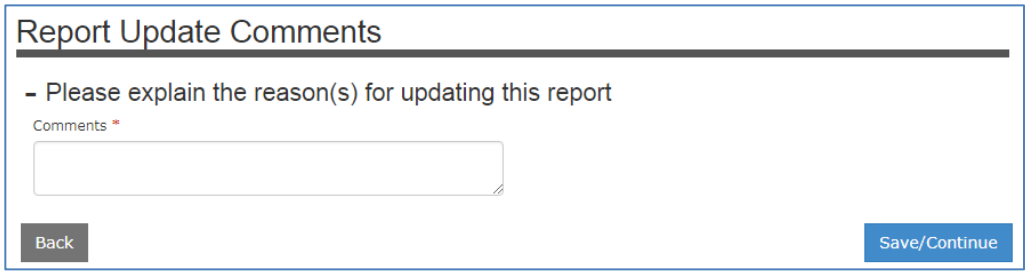


Fig. 6.7.4 Update comment window

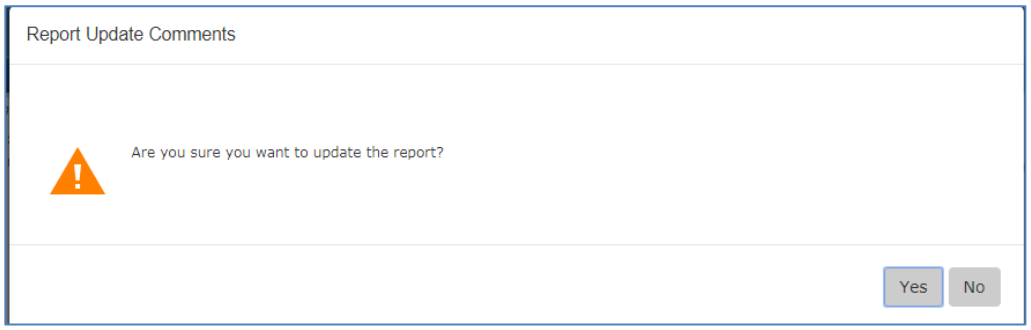


Fig. 6.7.5 Update confirming message window

7.4 Generating Report

You can produce a copy of a report for a facility for your records. This can be done by clicking "**Generate Report**" from the dropdown list in the "**Actions**" column either before the submission (Fig. 6.7.1) when the report is completed or after the submission (Fig. 6.7.2). Only a report generated after its submission can be served as an official record for an officially submitted report because it has an electronic approval certification and submission time stamp.

Once clicking the "**Generate Report**", a confirmation message window will appear to ask for your consent (Fig. 6.7.6).

Click "**Yes**" to generate a report and click "**No**" to cancel the generation of a report.

After clicking "**Yes**", the window becomes that as shown in Fig. 6.7.7, where all the report's information are displayed on this one page. You can again review/check the information for accuracy. If anything is wrong or need to be edited/updated, click the "**Back**" button to cancel the report generation. This will allow you to make any necessary modifications or correction by following the steps described in the section of **Editing Report** or **Updating Report**. Clicking the "**Export**" button will save the report in PDF format to a place you want (Fig. 6.7.8).

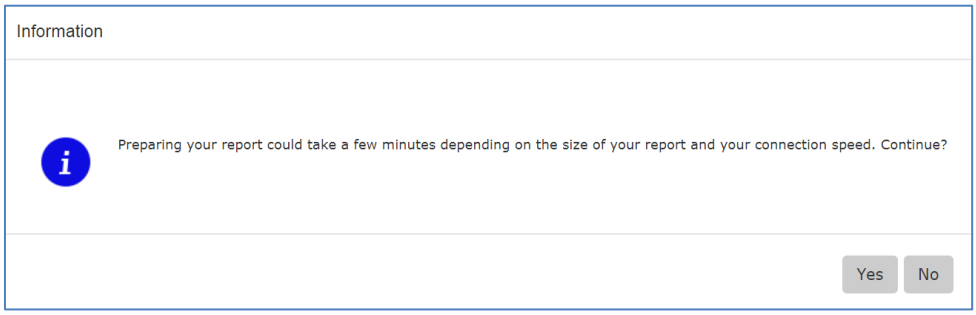


Fig. 6.7.6 Generate Report confirmation message

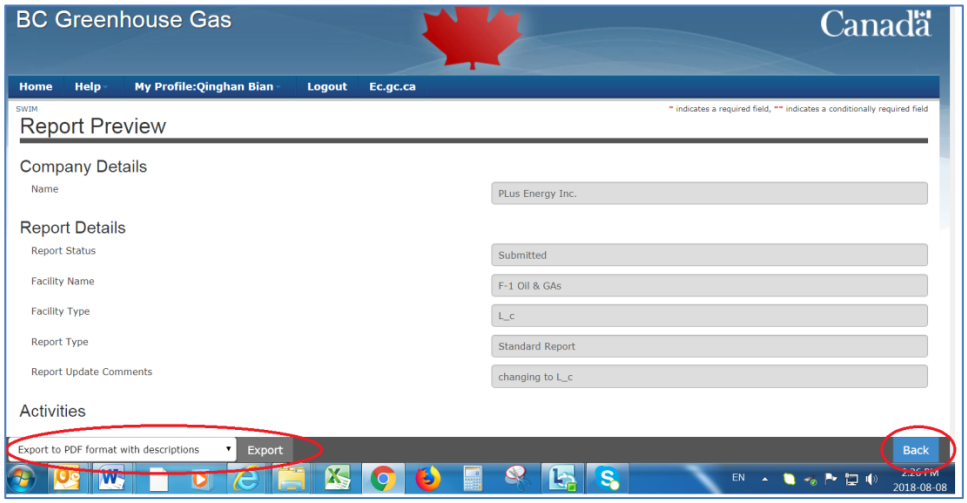


Fig. 6.7.7 Generate a PDF Report by clicking "Export"

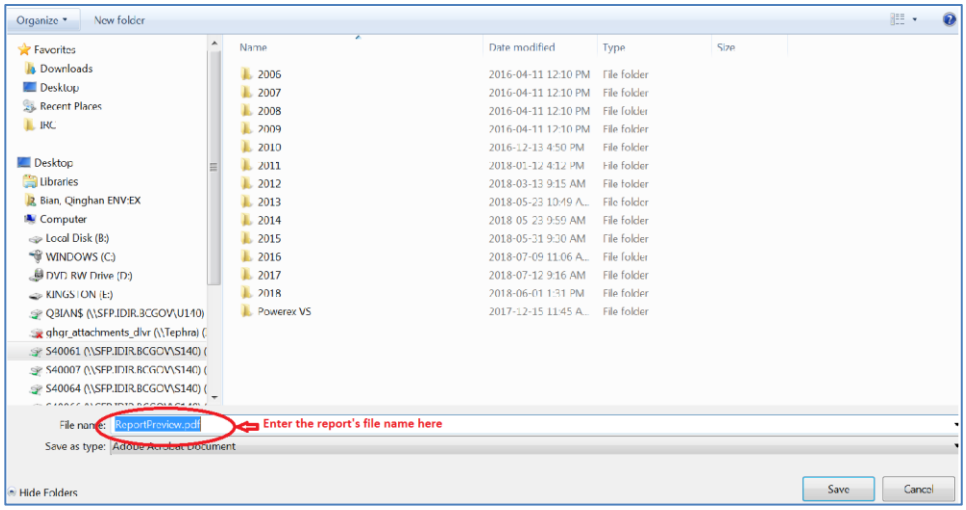


Fig. 6.7.8 Save the report in PDF format

[Note]

1. *Remember the place where you save the report and enter an appropriate file name for your report to replace the default file name of "**ReportPreview**" as shown in Fig. 6.7.8.*
2. *"**Generate Report**" can also be done before a report is completed. It is important to realize that the report at this stage is not completed yet.*

7.5 Viewing Report History

If a report has been updated, then you can view its history by clicking the "**History**" as shown in Figs. 6.7.9, 6.7.10 or 6.7.11. However, for a report that is still in the Edit stage or has just been submitted for the first time, there is no history available to view.

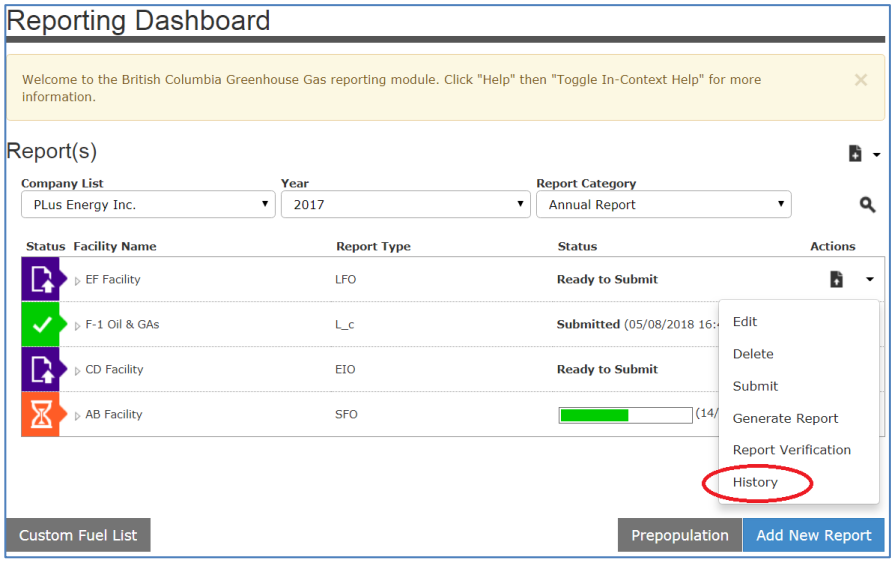


Fig. 6.7.9 To view the history of a completed (or Ready to Submit) report

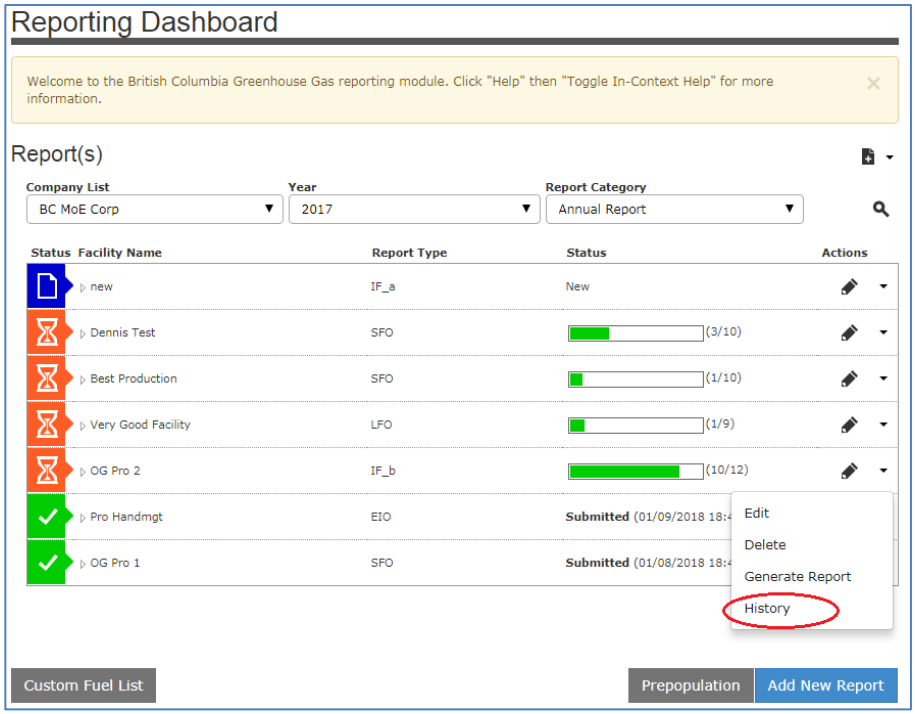


Fig. 6.7.10 To view the history of a report in Editing stage

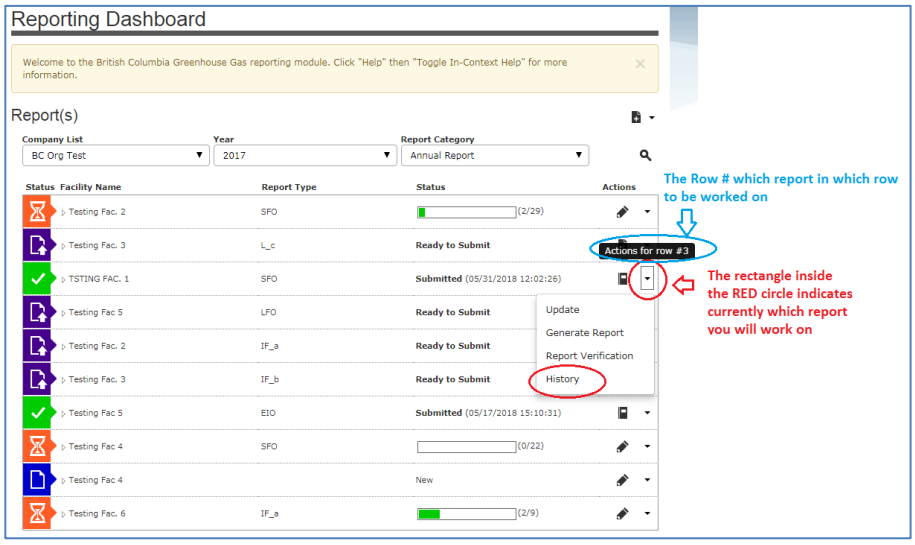


Fig. 6.7.11 To view the history of a submitted report

Clicking the "**History**" from the dropdown list in the "**Actions**" column opposite a report's facility name displays the report's history as shown in Fig. 6.7.12, showing a list of different versions of the report along with the update comments. Each version of the report can also be downloaded here by clicking the "**Generate Report**" button.

*[**Tips**]*

*On **1. Reporting Dashboard**, if you are uncertain which reports you are to be working on, there are some indicators for you:*

**1: Hover the mouse over the dropdown arrow "▾" at the utmost right side opposite the facility name as shown in Fig. 6.7.11, "Actions for row #X" in black background indicates the "#X" row (or report) from the top you will be working on; Further, on that row a rectangle "▯" compassing the dropdown arrow (i.e. "▾") also confirms the report to be worked on.*

**2: click either the following icons "✎", "📄", "💾", if applicable, "Edit row #X", "Submit row #X' or "Generate Report row #X" pops up to indicate you what action to which report will be executed.*

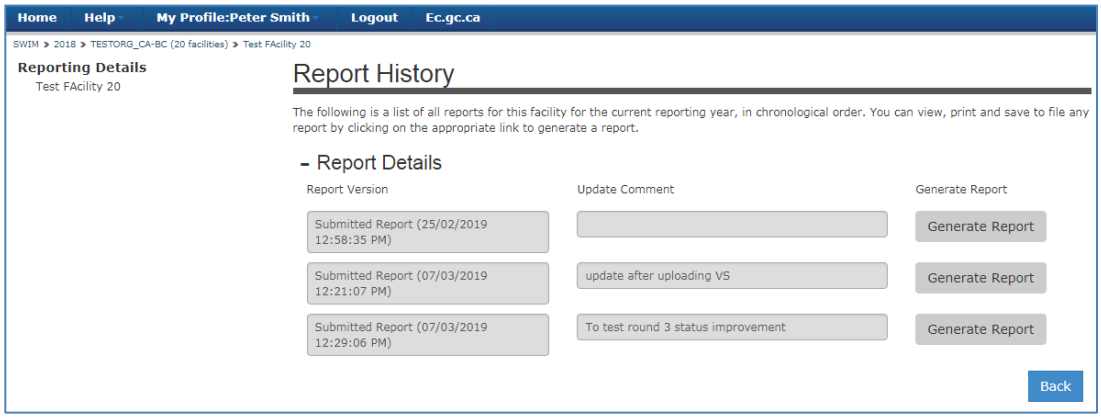


Fig. 6.7.12 Report history list

Chapter 7 Report Verification

It is mandatory that an emission report of a facility that has a verification obligation has a verification statement accompanied.

A facility's emission report verification obligation is determined by whether one of the following two factors is true:

(1) The verifiable emissions (not including Reporting-only emissions, for the calculation purpose only) not less than the 25,000 tCO_2e threshold for the current reporting year; or

(2) Even the verifiable emissions (not including Reporting-only emissions, for the calculation purpose only) less than the 25,000 tCO_2e threshold for the current reporting year, but the facility had had their emission reports verified in the last three reporting periods.

*[**Note**]:*

> *When conducting verification for an emission report, not only the total verifiable emissions need to be verified, but all the attributable emissions including the Reporting-Only emissions must be verified. The concept of verifiable emissions is only for the calculation purpose to compare with the verification threshold.*

Report Verification in the SWRS is only available after a GHG report is completed. **Report Verification** process can be accomplished by uploading an appropriate file as described below at two different stages: before or after submitting the emission report (Fig. 7.1.1). Through the **Report Verification**, a **Verification Statement** (VS) or **Delayed (Report) Verification Notice** (DVN) can be submitted.

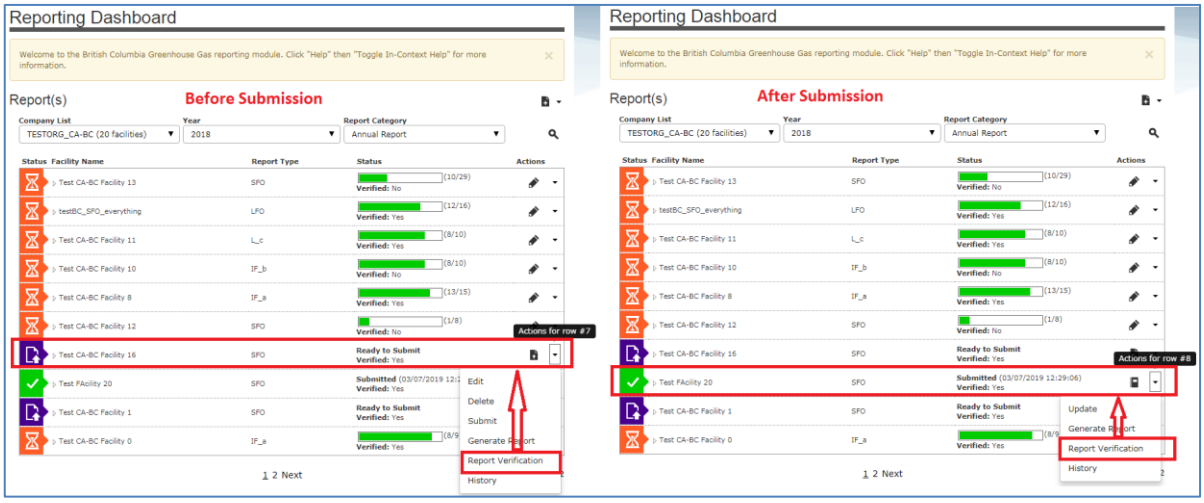


Fig. 7.1.1 Starting to submit VS or DVN. Left: before submitting an emission report; Right: after submitting an emission report

Once selecting the **Report Verification** from the dropdown list, the **Report Verification** window displays. From 2018 reporting cycle and onward, the new Report Verification window is as shown in Fig. 7.1.2.

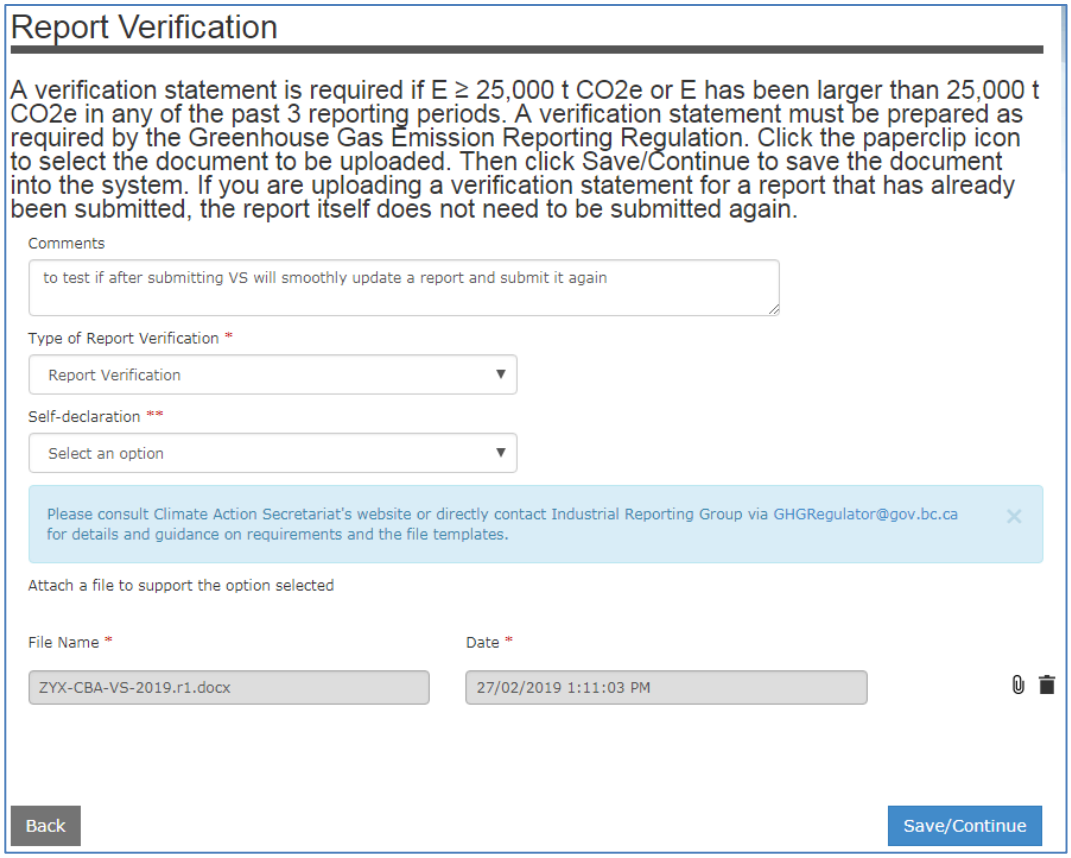


Fig. 7.1.2 New Report Verification window for 2018 and onward

A reporter has two options to select: **Report Verification** or **Delayed Report Verification Notice**, which can be selected by clicking the dropdown arrow under the "**Type of Report Verification**" based on your situation.

For **Delayed (Report) Verification Notice**, just upload the file of **Delayed Verification Notice** and no action is required for the field of "**Self-declaration**". However, for emission report verification, one of the verification conclusions (i.e. Positive, Positive with Qualifications, Adverse and No Opinion) from the dropdown list in the "**Self-declaration**" field is required to be selected.

Upload the appropriate file by clicking the paper clipper "📎" at the right bottom corner in Fig. 7.1.2 to complete the process. The file name must meet the requirements as set by the **File Naming Convention**.

Don't forget to enter a proper comment that can be helpful in understanding your report.

1. Before Emission Report Submission

If the VS or DVN is handy before an emission report is submitted, you can upload the file after completing the emission report. Selecting the "**Report Verification**" will prompt the Report

Verification window (Fig. 7.1.2), where you may also enter some comments beside of just uploading the VS or DVN to provide more information for explanation, clarity etc.

First, decide which option you want to proceed with from the dropdown list in the Type of Report Verification by clicking the dropdown arrow (Fig. 7.1.3a): Delayed Report Verification Notice or Report Verification.

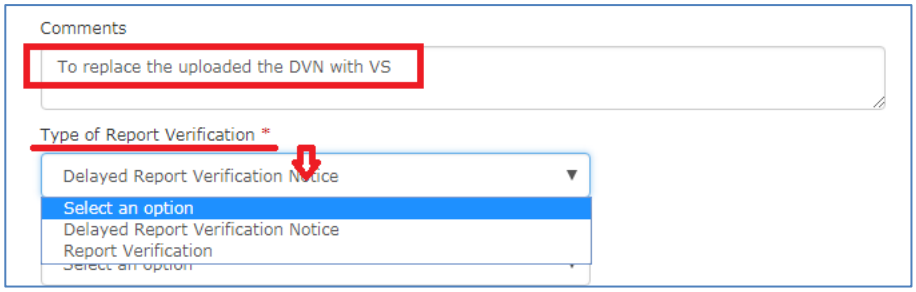


Fig. 7.1.3a Determine the Type of Report Verification

Then depending on Type of Report Verification you selected, determine whether action is required for Self-declaration. For Delayed Report Verification Notice, nothing is required for self-declaration. For Report Verification, select one of the four options according to your verification report (Fig. 7.1.3b).

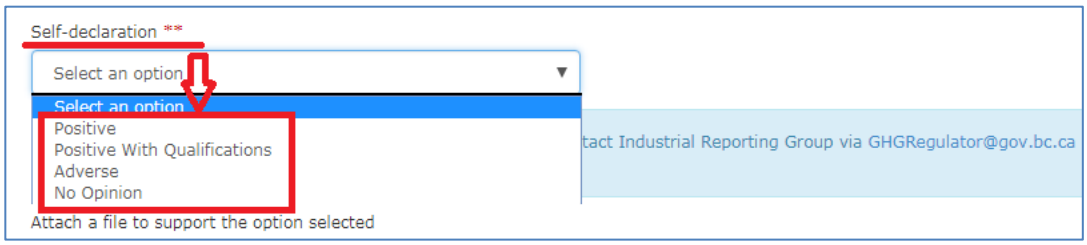


Fig. 7.1.3b Determine the self-declaration requirement

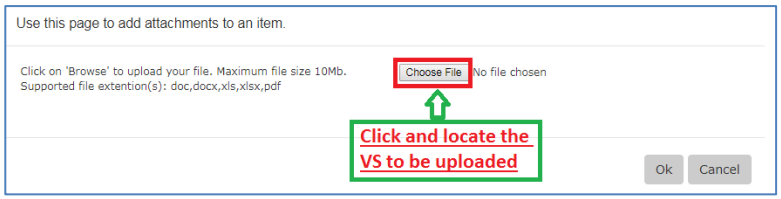


Fig. 7.1.4 Locating and uploading the verification statement (VS)

After that, click the paper clipper "📎" to bring up a file-uploading child window as shown in Fig. 7.1.4, where click the "**Choose File**" button to locate the VS (or DVN) file from the place it is saved. Once the file is located, select it and click the "**Open**" button, the window becomes as what shown in Fig. 7.1.5 where the VS (or DVN) file displays as highlighted. If it is wrong file, click the "**Choose File**" button again to relocate the file. If it is right one then click "**OK**" to upload the VS or DVN file, the window becomes what shown in Fig. 7.1.6. Further click the "**Save/Continue**" button, a notification

window (Fig. 7.1.7) appears, advising you that the VS or DVN has been successfully submitted. Further click the "**OK**" button in Fig. 7.1.7, the system goes back to the **1. Reporting Dashboard** page where the report's status will show "**Verified: Yes**".

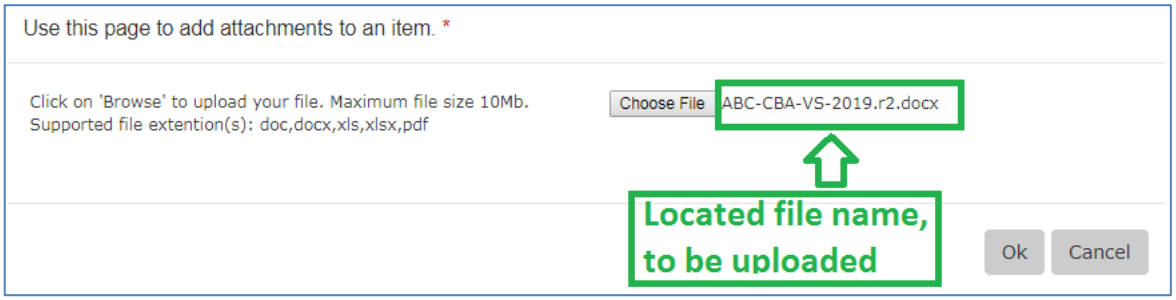


Fig. 7.1.5 VS (or DVN) file located

[Note]

Under the Delayed Verification program, when uploading the VS for the previous year's report (e.g. 2017), you need to access that previous year's report by selecting that year (e.g. 2017) in the Reporting Dashboard, and then go through the Report Verification process by uploading the VS for that specific year (e.g. 2017). Remember uploading two years' (i.e. previous and current year) VS files to the current year's report is not allowed.

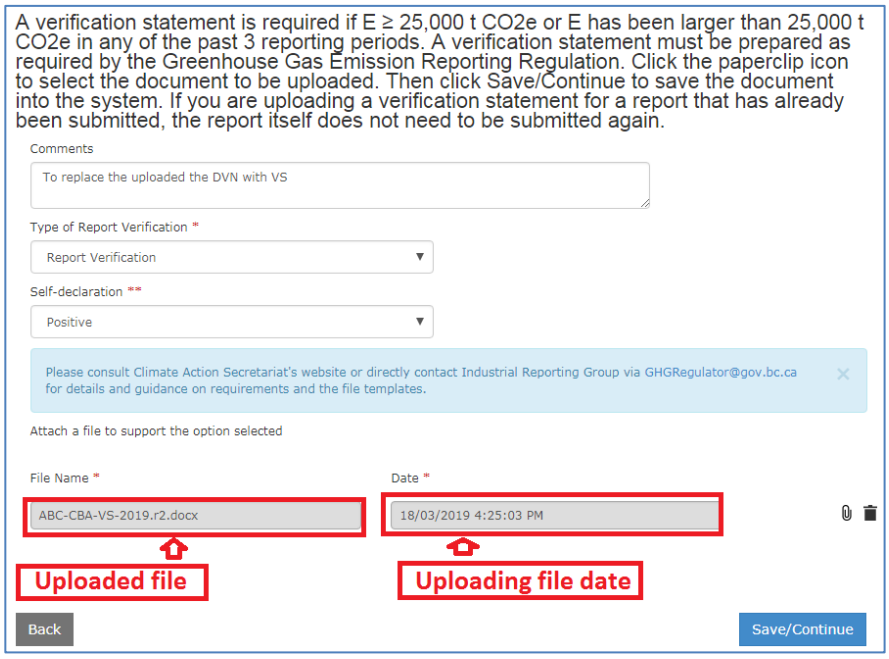


Fig. 7.1.6 Uploaded verification statement or Delayed Verification Notice file

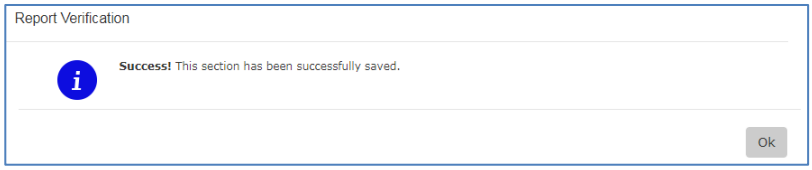


Fig. 7.1.7 Notification after successfully submitting VS or DVN

***[Note]**:*

After successfully submitting the VS or DVN, you won't expect to receive another automatic notification email under current configuration.

2. After Emission Report Submission

If the VS or DVN gets handy after submitting an emission report, you can upload and submit it through the same process as described above for "**1. Before Emission Report Submission**". Click the dropdown arrow at the right side and select the "**Report Verification**" as highlighted in Fig. 7.1.1, which prompts the Report Verification window (Fig. 7.1.2). Do the same to submit the VS or DVN accordingly.

To this point your emission report and verification have been successfully completed,

Congratulations!

Appendix

Appendix I. GWP Values of Common Greenhouse Gases

Intergovernmental Panel on Climate Change IPCC Global Warming Potentials - 100-Year Time Horizon			
Greenhouse Gas	Formula	Second Assessment Report[a]	Fourth Assessment Report[b]
Carbon dioxide	CO_2	1	1
Methane	CH_4	21	25
Nitrous oxide	N_2O	310	298
Sulphur hexafluoride	SF_6	23900	22800
Nitrogen trifluoride	NF_3	-	17200
HFC-23	CHF3	11700	14800
HFC-32	CH_2F_2	650	675
HFC-41	CH_3F	150	92
HFC-43-10mee	$CF_3CHFCHFCF_2CF_3$	1300	1640
HFC-125	CHF_2CF_3	2800	3500
HFC-134	CHF_2CHF_2	1000	1100
HFC-134a	CH_2FCF_3	1300	1430
HFC-143	CH_2FCHF_2	300	353
HFC-143a	CH_3CF_3	3800	4470
HFC-152	CH_2FCH_2F	-	53
HFC-152a	CH_3CHF_2	140	124
HFC-161	CH_3CH_2F	-	12
HFC-227ea	CF_3CHFCF_3	2900	3220
HFC-236cb	$CH_2FCF_2CF_3$	-	1340
HFC-236ea	CHF_2CHFCF_3	-	1370
HFC-236fa	$CF_3CH_2CF_3$	6300	9810
HFC-245ca	$CH_2FCF_2CHF_2$	560	693
HFC-245fa	$CHF_2CH_2CF_3$	-	1030
HFC-265mfc	$CH_3CF_2CH_2CF_3$	-	794
Perfluoromethane	CF_4	6500	7390
Perfluoroethane	C_2F_6	9200	12200
Perfluoropropane	C_3F_8	7000	8830
Perfluorobutane	C_4F_{10}	7000	8860
Perfluorocyclobutane	c-C_4F_8	8700	10300
Perfluoropentane	C_5F_{12}	7500	9160
Perfluorohexane	C_6F_{14}	7 400	9300
Perfluorodecalin	$C_{10}F_{18}$	-	7500
Perfluorocyclopropane	c-C_3F_6	-	17340

Note:

'-' indicates that a GWP for this GHG was not available in the IPCC Second Assessment Report.

a Data source: IPCC's Summary for Policymakers and Technical Summary of the Working Group I Report (IPCC 1995).

b Data source: IPCC's Fourth Assessment Report - Errata (IPCC 2012).

Training Resources

[Note]

It is advisable for a reporter ***not*** *to use the Single Window Reporting System (https://ec.ss.ec.gc.ca) to conduct any training exercises to avoid any impact to your report and the reported data and thus your compliance status.*

If you do want to conduct training for new staff, please contact the Industrial Reporting and Control team via GHGRegulator@gov.bc.ca for further options. Accesses to a testing website (https://ec.ssqc.ec.gc.ca) for training can be granted.

Reference Materials

1. WCI Methodology Manual, or officially referred to as "Final Essential Requirements of Mandatory Reporting": https://www2.gov.bc.ca/assets/gov/environment/climate-change/ind/quantification/wci-2011.pdf and https://www2.gov.bc.ca/assets/gov/environment/climate-change/ind/quantification/wci-2012.pdf and https://www2.gov.bc.ca/assets/gov/environment/climate-change/ind/quantification/wci-2013.pdf
2. Greenhouse Gas Emission Reporting Regulation: http://www.bclaws.ca/civix/document/id/lc/statreg/249_2015
3. Greenhouse Gas Industrial Reporting and Control Act: http://www.bclaws.ca/civix/document/id/complete/statreg/e3tlc14029
4. Greenhouse Gas Emission Control Regulation: http://www.bclaws.ca/civix/document/id/lc/statreg/250_2015
5. Greenhouse Gas Emission Administrative Penalties And Appeals Regulation: http://www.bclaws.ca/civix/document/id/lc/statreg/248_2015
6. Environment and Climate Change Canada's Single Window Reporting System User Guide: https://www.canada.ca/en/environment-climate-change/services/reporting-through-single-window/guidance.html
7. Cyber Authentication Frequently Asked Questions For Users: https://ec.ss.ec.gc.ca/en/cs/faq
8. US Energy Information Administration, "Glossary: Global warming Potential (GWP)", Retrieved, 2011-04-26.