Manual **027**

Alberta Energy Regulator

# Well Drilling and Completion Data Submission System Guidance

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**Alberta Energy Regulator**
Manual 027: Well Drilling and Completion Data Submission System Guidance

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# 1 Introduction

## 1.1 About this Manual

This manual is a submission guidance companion to the requirements in *Directive 059: Well Drilling and Completion Data Filing Requirements*. The Well Drilling Completion Data submission system is a web-based data capture system. It allows users to submit well drilling, completion, abandonment, and servicing data directly to the AER using one of several designated information submission systems. Submission processes are outlined in this manual. The processes in this document focus primarily on the Digital Data Submission (DDS) system, unless otherwise indicated.

Table 1 lists the systems designated to receive different submissions.

**Table 1. Systems designated to receive different well drilling and completion data**

| System | Data |
|---|---|
| Digital Data Submission (DDS) | Well Drilling |
| Digital Data Submission (DDS) | Well Completions |
| Digital Data Submission (DDS) | Well Abandonment (Downhole) |
| Digital Data Submission (DDS) | Well Servicing |
| Digital Data Submission (DDS) | Fracture Fluid Composition |
| Digital Data Submission (DDS) | Fracture Fluid Water Source |
| OneStop | Daily Reports of Operations |
| OneStop | Directional Surveys |
| OneStop | Surface Abandonment |

This manual focuses on the submission of three types of data:

- Well drilling and completion data
- Fracture fluid composition data
- Fracture fluid water source data

Data can be submitted in two ways:

- by using interactive web forms
- by submitting files that contain data organized in the AER-prescribed format. These files can be in either
  - XML (Extensible Markup Language)

- CSV (Comma Separated Values) (with the exception of well drilling and completion data)

Table 2 outlines the three different submission types and submission system nuances by the three different functionalities of validate, submit, and amend.

**Table 2. Submission types and submission functionalities**

| | Submission Type | | |
|---|---|---|---|
| **Functionality** | **Well Drilling and Completion** | **Fracture Fluid Composition Data** | **Fracture Fluid Water Source** |
| **Validate**<br>*system validates the data without submitting it* | Validates upon clicking **Submit** without submitting | Validates upon clicking **Validate** without submitting | Validates upon clicking **Validate** without submitting |
| **Submit**<br>*system validates the data and submits it* | Validates and submits upon clicking **Confirm** | Validates and submits upon clicking **Submit** | Validates and submits upon clicking **Submit** |
| **Amend**<br>*system validates the data and submits it (except well drilling and completion data)* | Manual request through the system. Amendments made by AER staff | Validates and amends upon clicking **Amend** | Validates and amends upon clicking **Amend** |

## 1.2 How to Use this Manual

Headings in this manual may be listed in a different order and worded differently than the menu items in the system. In these cases, the system menu item is given in square brackets and in `a different font`.

### 1.2.1 System Roles and Permissions

Before accessing DDS, users need to have the following:

- a DDS user ID and a password
- correct DDS roles (i.e., permissions)
  - Submit Well Drilling and Completion Data
  - Submit Fracturing Fluids
  - Amend Fracture Fluids

Note, to view the alerts for tour reports and directional surveys in OneStop, users also need the Search Assessment role.

If a user has not been assigned a user ID and password or does not have the required DDS roles, contact the corporate DDS administrator. Users may also consult the DDS User Guide by clicking the “DDS Help” link on the DDS homepage.

### 1.2.2 Accessing Well Drilling and Completion Data Submission System

Users can access the Well Drilling Completion Data submission system as follows:

1) Open the AER website http://www.aer.ca.

2) Click on Systems and Tools. Scroll down and click on Digital Data Submission (DDS).

3) Click on Access the Digital Data Submission (DDS) tool to open the DDS home page (figure 1).

4) In the User ID and Password fields, enter the user ID and password that was assigned by the corporate DDS administrator.

   *The menu items shown vary depending on the roles assigned by the corporate DDS administrator.*

5) Click on the + icon to expand AER > Submissions > Well Drilling Completion Data. Select the desired item from the Well Drilling Completion Data menu.

   *If a user does not see Well Drilling Completion, the required DDS roles are probably not assigned. See section 1.2.1 for details.*

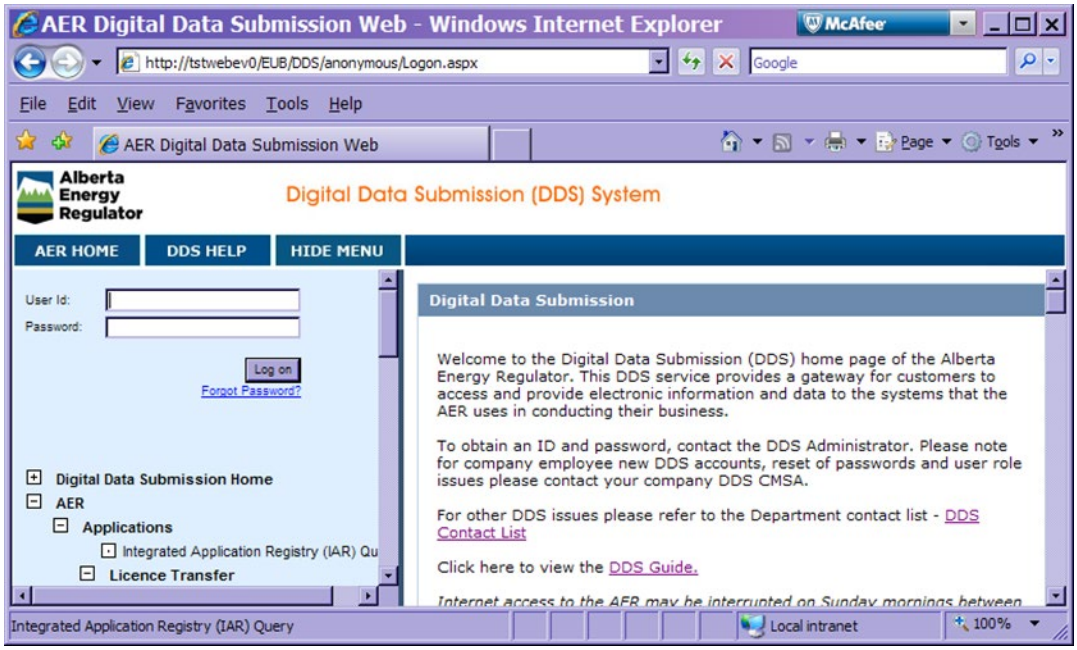



**Figure 1. DDS homepage**

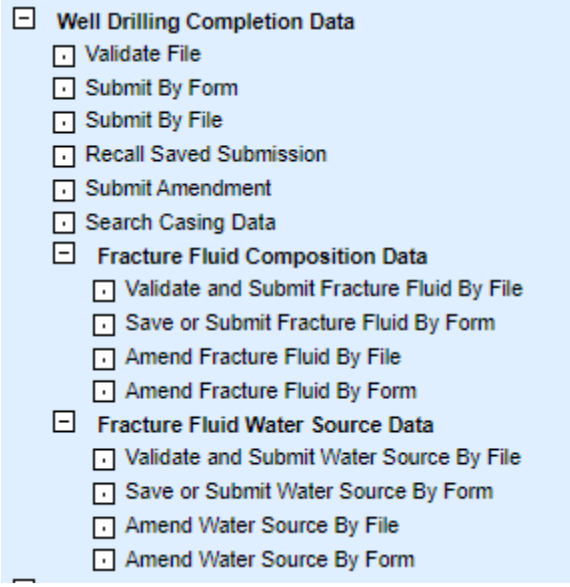



**Figure 2. DDS Well drilling and completion data menu**

Access to OneStop is via https://www.aer.ca/regulating-development/project-application/onestop. Enter username and password to log in.

### 1.2.3 Contacts

For company account set up, contact the DDS administrator at 403-297-8311 or by email to ddsadministrator@aer.ca. Individual accounts and roles should be referred to the user's company DDS administrator.

For submission issues where the answer is not in this manual, contact Well Data Services at 403-297-8952 (option 2) or by email to welldataservices@aer.ca.

For requirements clarifications and issues not answered by *Directive 059*, send an email to Directive059Help@aer.ca.

For submission of reports of daily operations, consult the OneStop Help page (https://www1.aer.ca/onestop/help.html) and the four guides listed under Guides for Daily Reports (Tours).

For submission of directional surveys, consult the OneStop Help page (https://www1.aer.ca/onestop/help.html) and the documents under Guides for Directional Survey submissions.

### 1.2.4 System Navigation

Table 3 describes the general functionality of the following commands when submitting via interactive web form.

**Table 3. System commands and actions**

| Commands | Submission type | | | System action |
|---|---|---|---|---|
| | Drilling & completion | Fracture fluid composition | Fracture fluid water source | |
| Add | x | | | Opens a data entry panel for the type of operation selected. |
| | | x | x | Enables selection of the drop-down menu items or data entry fields. |
| Add hyperlink | | x | | Opens the next tab so a new record can be added. |
| Add Perfs | | x | | Navigates user to the Add Perforation screen where fracture records can be added for wells with more than 9 event sequence. |
| Amend | | x | | On “Amend & Print” tab, this submits the amendment. |
| Amend hyperlink | | x | | Opens the next tab so data can be amended. |
| Browse | x | x | x | Allows user to browse computer to find the XML or CSV file to be validated or submitted. |
| Cancel | x | x | x | Cancels the current activity. Data on the screen is not saved. |
| Clear Diversion Authorization | | | x | Clears the Diversion Authorization Type and Diversion Authorization ID to enable the selection of another option. |
| Completions hyperlink | | x | | Opens the Completions tab so data can be amended. |
| Confirm | x | | | Sends the data in the current submission file from user’s web browser to the AER. |
| Delete | x | x | x | Deletes the selected record.<br>IMPORTANT: When the record is deleted, any associated data is also deleted. For example, deleting a casing will delete any cementing events that are associated to it. Deleting a fracture composition component will delete any associated ingredients. |
| Delete Submission | | x | x | Deletes entire fracture fluid composition or water source submission. Note: there is a dialog box to confirm this is desired. |
| Edit | x | | | Opens a data panel that displays saved data. When opened in this mode the saved data can be modified. |
| Edit hyperlink | | x | | Opens the next tab. Displays saved data for the selected record; once opened, the saved data can be modified. |
| File Open | x | | | Opens the Well Operation data panel that displays existing data for the selected Well Operation; when opened in this mode, users can select and edit. |
| OK | x | | | Validates the entered data and closes the data entry window. |
| OK & Add | x | | | Validates the entered data and leaves the window open for further data entry of another record of the same kind. System populates the data panel in the background. |

| Commands | Submission type | | | System action |
|---|---|---|---|---|
| | **Drilling & completion** | **Fracture fluid composition** | **Fracture fluid water source** | |
| Print | | x | x | Prints the submission to a destination printer. |
| Return | | x | | Navigates user back from the Add Perforation page to the Well tab when entering data for wells with more than 9 event sequence. |
| Return to Licence Operation | x | | | Brings back the Licence Operation page. IMPORTANT: Do not use the BACK button of the browser. |
| Save | x | x | x | Saves data entered so far for the current submission. |
| Search | | x | x | Searches for the licence number. |
| Submit | x | x | x | Validates, submits, and stores the data in the submission to the AER. |
| Update | | x | x | Enables the previously entered greyed out data to be edited (i.e., on saved data prior to submission or amending submitted data). |
| Validate Submission or Validate Amendment | | x | x | Validates data entered or amended while working on the active tab.<br>An error message will appear when the data submission has not fulfilled all the business rules for submissions.<br><br>A warning message will appear when the data entered may need to be reviewed prior to submission.<br><br> Error message icon – submission denied. (Form submission – composition & water source)<br><br> Warning message icon – submission allowed. (Form submission – composition & water source) |
| Validate | | x | x | Validates data for the entire submission.<br>An error message will appear when the data submission has not fulfilled all the business rules for submissions.<br><br>A warning message will appear when the data entered may need to be reviewed prior to submission.<br><br> Error message icon – submission denied. (Form submission – composition & water source)<br><br> Warning message icon – submission allowed. (Form submission – composition & water source) |

| Commands | Submission type | | | System action |
|---|---|---|---|---|
| | Drilling & completion | Fracture fluid composition | Fracture fluid water source | |
| Verify Lat/Lon | | | x | Validates surface latitude and longitude entered are within Alberta and returns its "DLS Location," "Major Basin," "Major Subwatershed" and "Name of Water Body" within 200 m radius of the lat/long. (if applicable). Coordinates outside Alberta will be displayed as "Out of Alberta." |
| Verify Facility | | | x | Validates the AER Facility ID entered. System returns the "Name of Facility," "AER Facility Licence" and "Name of Supplier" fields. |
| View (0) | x | | | Displays the Cementing operations associated with the selected Casing. |
| View | x | | | Opens a new window and displays the selected submission in report form. |
| View hyperlink | | x | | Opens the next tab. Displays data as submitted for the selected record; once opened, the saved data can be modified. |

### 1.2.5 Business Rules

There are three types of business rules:

- well drilling and completion data
- fracture fluid composition data
- fracture fluid water source data

Electronic submissions are not accepted until all data entry business rules are satisfied. These business rules ensure that all submitted data are correct and consistent. Whether submitting data using an interactive web form or a file, submission errors will be identified with messages specific to the error in question. If submitting data by uploading a file, users can validate the data prior to submission by using the validate function in the submission system. When a submission is accepted, a screen indicating this is displayed with a link to a report listing all data submitted. Print this screen for recordkeeping purposes or retrieve it later by accessing the submissions history through the Reports menu.

Previously submitted drilling and completion data can be amended by the licensee by request through the designated system (section 2.7). Fracture fluid composition and water source submissions can be amended directly by users in the system without request (sections 3.4, 3.6 and 4.7).

For a complete list of business rules and edits, refer to the DDS homepage for the respective data page. On the right-hand pane under Related Resources, click on Business Rules.

Draft submissions will be saved for 14 calendar days from when it was last saved. The clock restarts every time the submission is modified and saved. Any saved submission that remains unsubmitted

without being modified will be automatically deleted after 14 calendar days. For complex submissions, it is recommended to save frequently to prevent loss of inputted data as a result of a system issue.

# 2 Well Drilling and Completion Data [Well Drilling Completion Data]

## 2.1 Well Drilling and Completion Data Introduction

Guidance for submission of well drilling and completion data by file and form are found in sections 2.2 and 2.3, respectively. Additional details regarding submission of well drilling and completion operations of preset, drilling, deepening, and completion are outlined in section 2.4. There are seven additional types of data that may need to be entered depending upon the type of well drilling or completion activity, described in section 2.5.

## 2.2 Submit Well Drilling and Completion Data by File [Validate File & Submit by File]

This functionality allows the user to validate without submission or to validate and submit an XML file of well drilling and completion data. Use of a CSV file is not available for submission of well drilling and completion data.

**Process Steps**

Step 1. Download and use the XML schema from the DDS Well Drilling Completion Data submission system > Well Drilling Completion Data > Related Resources > select the appropriate link for the XML File Layout or XML Submission Schema (figure 3).The file the user creates needs to adhere to the format of the XML Schema and XML File Layout and to the file validation specifications.

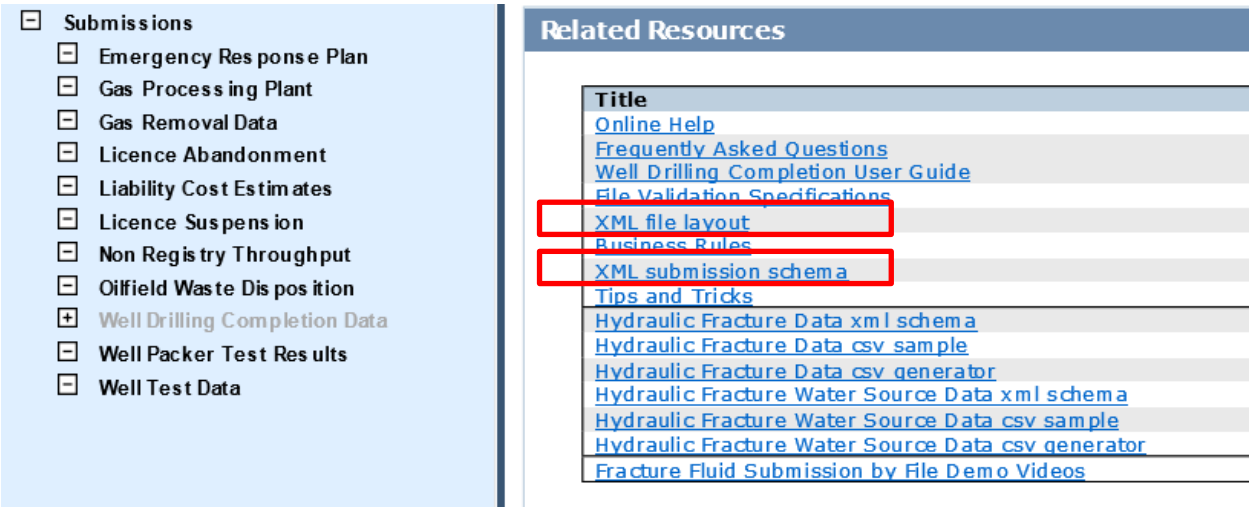



**Figure 3. Submit well drilling and completion data screen**

Step 2. On the Well Drilling Completion Data submission system menu, select **Validate File** or **Submit by File**.

Step 3. Using **Browse**, locate the XML file to be validated or submitted.

Step 4. Click **Validate** (figure 4) or **Submit** (figure 5). The system will validate the file structure as well as the data it contains to ensure that all requirements are met.

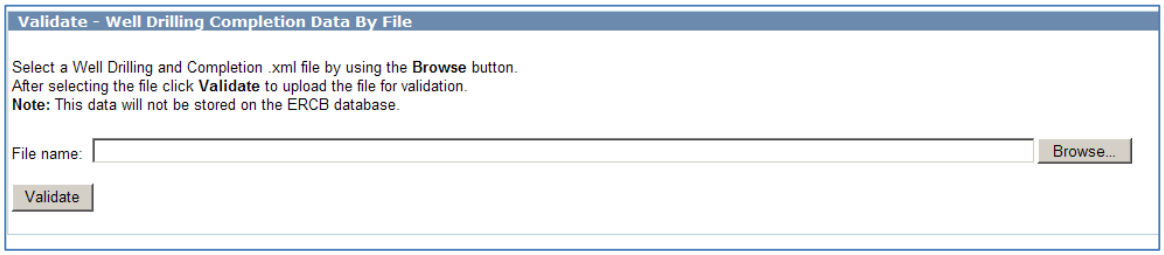



**Figure 4. Validate XML file screen**

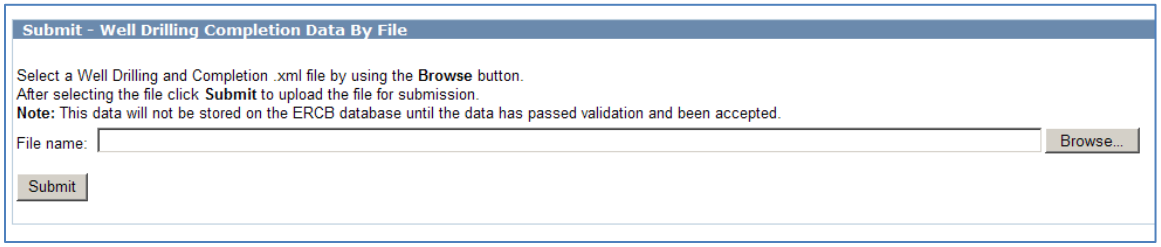



**Figure 5. Submit XML file screen**

*Error messages will be displayed in red. If error messages appear, change the file according to the error messages and validate again. A Validation Success Report will be displayed for error free files. This file is now ready to be submitted to the AER via the Submit by File option.*

*Both validation reports provide a link on the top right to Return to File Validate. This returns to the Validate File screen. For failed submissions use the Return to File Submission link to return to the Submit By File screen. Edit the file before retrying validation.*

Step 5. For a successful submission, a Submission Acknowledgement will be displayed. There will be hyperlinks to View Submission Report

## 2.3 Submit Well Drilling and Completion Data by Form [Submit by Form]

This functionality allows the user to create a new submission via an interactive web form and save the submission for 14 days or submit the well drilling and completion data.

**Process Steps**

Step 1. On the Well Drilling Completion Data submission system menu, select **Submit by Form**.

Step 2. On the Licence Operation screen (figure 6), click **Add** to display the Add Licence Operation screen (figure 7).

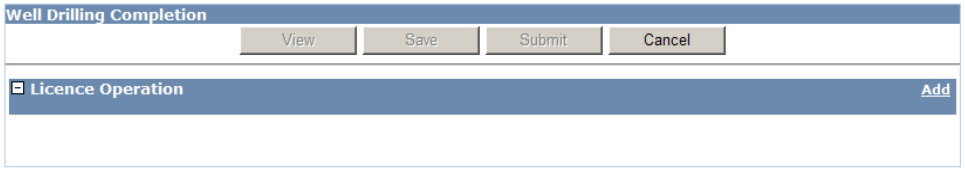



**Figure 6. Licence operation screen**

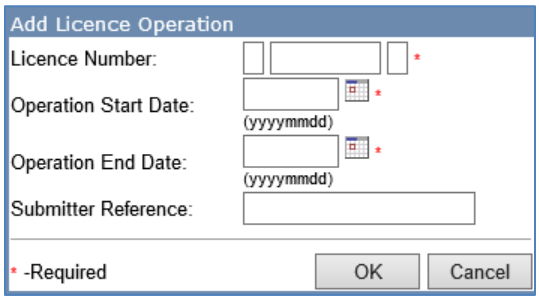



**Figure 7. Add licence operation screen**

Step 3. Enter a valid Licence Number in the centre box, including the leading zeroes. If applicable, enter the licence prefix and suffix in the left or right-hand boxes, respectively.

Step 4. Enter Operation Start and End dates and a Submitter Reference.

*The operation start date is the date the rig moves onto the site. If the operation uses more than one rig, then report the date the first rig moves on site.*

*The operation start date does not include setting conductor casing unless the same rig sets surface casing.*

*The operation end date is the date the rig moves off the site. If the operation uses more than one rig, then report the date the last rig leaves the site. If the operation does not require a rig, enter the dates the operation begins and ends on site.*

*Once the submission has been accepted, these dates cannot be changed.*

*The submitter reference is optional and is a reference chosen by the submitter for the licensee's recordkeeping. The field has a limit of 12 characters.*

Step 5. Click **OK**.

Step 6. When the Licence Operation screen (figure 8) is displayed, a new row appears for Well Operation. Click **Add** to display the Add Well Operation screen (figure 9).

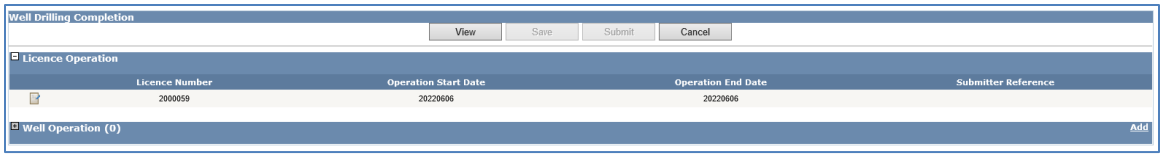



**Figure 8. Licence operation screen**

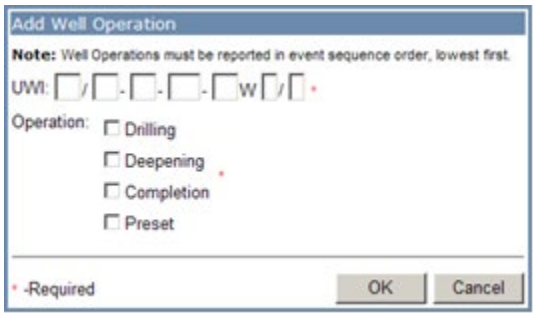



**Figure 9. Add well operation screen**

Step 7. Enter a valid UWI in the format LE/LS-Se-Tsp-RgWM/E where

a) LE is location exception,

b) LS is LSD,

c) Se is section,

d) Tsp is township,

e) Rg is range,

f) M is meridian, and

g) E is event sequence.

Step 8. Check at least one of the boxes for the applicable operation.

*The following well operation combinations are acceptable as a single submission:*

- *Drilling and Completion*
- *Deepening and Completion*

Step 9. Click **OK**.

*The following rules apply to UWI creation during a submission:*

- *If the UWI has already been created by the AER (during licensing approvals), enter the UWI as it is assigned on the well licence.*
- *Subsequent UWIs can be "created" by the licensee during a "Completion" submission to represent new open intervals for new pools.*

*Subsequent UWIs can be "created" by the licensee during a "Drilling" submission to represent new drilling legs. Submit all the legs drilled in one operation together for the UWIs to be "created," otherwise a request for a manual amendment will need to be made (Section 2.7).*

Step 10. The Licence Operation screen (figure 10) now displays the UWI and the type of well operation selected for submission.

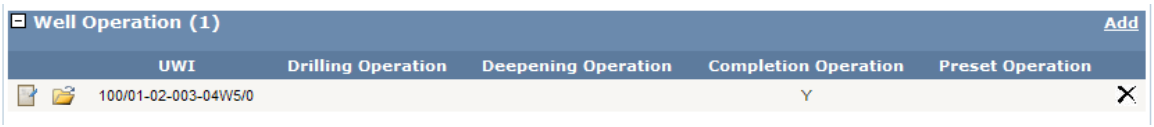



**Figure 10. Well operation screen**

*There are two icons:* *. The notepad navigates to the Edit Well Operation where the UWI and operation being reported can be edited. The folder navigates to the list of folders through which one can access the interactive web forms to enter data for the submission.*

Step 11. Click on the folder icon then click **Add** (figure 11) on a blue folder to access the data entry screen for that category. Refer to sections 2.4 and 2.5 inclusive to enter the necessary information. If there are additional UWIs click on **Return to Licence Operation** and go back to step 6 to repeat the process.

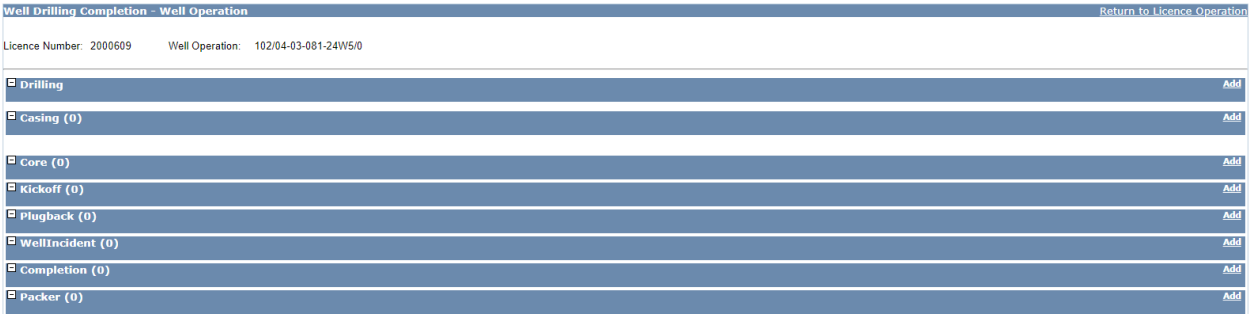



**Figure 11. Well drilling completion – Well operation screen**

Step 12. Once data entry is complete, click **Return to Licence Operation** to return to the Licence Operation screen for the following options:

a) Click **View** to review the submission report. The Submission Status will show "In Progress."

b) Click **Save** to save the submission as a work in progress.

c) Click **Submit** to validate the data.

Step 13. Upon clicking **Submit**, any of the following can occur:

a) Submission Passes Validation, three options appear:

i) Click **Confirm** to send the data to the AER.

ii) Click **Cancel** to make changes to the submission.

iii) Click **Save** for later retrieval.

*A Submission Acknowledgement will be displayed when a submission is successful. There will be a link to View Submission Report*

b) Submission Fails Validation and an error message will be displayed directly under the data that failed the validation. Click the + icon on the left side of each folder if the folder contents cannot be seen.

i) Click **Cancel** to make changes to the submission.

ii) Click **Save** for later retrieval.

*The submission must be saved again or submitted to include any changes.*

## 2.4 Submit Well Operation Data

There are four types of well operations for which data can be submitted:

- Preset
- Drilling
- Deepening
- Completion

### 2.4.1 Submit Well Operation "Preset"

This enables the user to enter data related to wells which have been preset as part of an initial operation when the well has not been drilled to licensed total depth.

No submission is required if only the conductor has been set unless it runs to a depth of 30 metres or greater. If surface or intermediate casing has been set and the rig has left the site, the well is preset.

If drilling to licensed total depth commences less than 30 calendar days from presetting surface or intermediate casing, it is considered as one operation for the purpose of *Directive 059* and licensees are not required to submit electronic drilling data separately for the preset operation.

For batch drilling on a pad where multiple wells will have surface casing preset in turn then intermediate casing in turn and finally drilled to licensed depth in turn and the period between presetting and drilling to licensed depth is more than 30 days the licensee can request the preset drilling submission requirement within 30 days be waived. Licensees may email WellDataServices@aer.ca,indicating the UWI, licence number and estimated rig release date for all wells for which they are requesting the requirement be waived. The AER will reply and if the variance is granted will indicate the conditions of the variance.

## Process Steps

Step 1. Having checked **Preset** under **Add Well Operation** (figure 12), starting from Step 11 of section 2.3 click **Add** on the right of the Preset folder (figure 13).

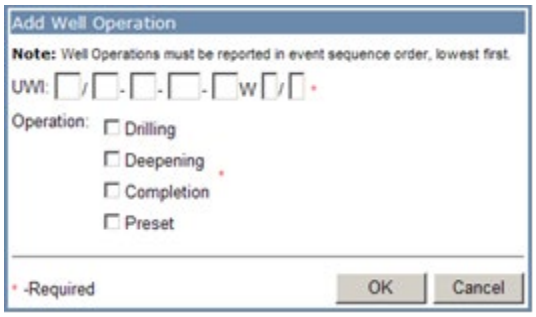



**Figure 12. Add well operation screen**

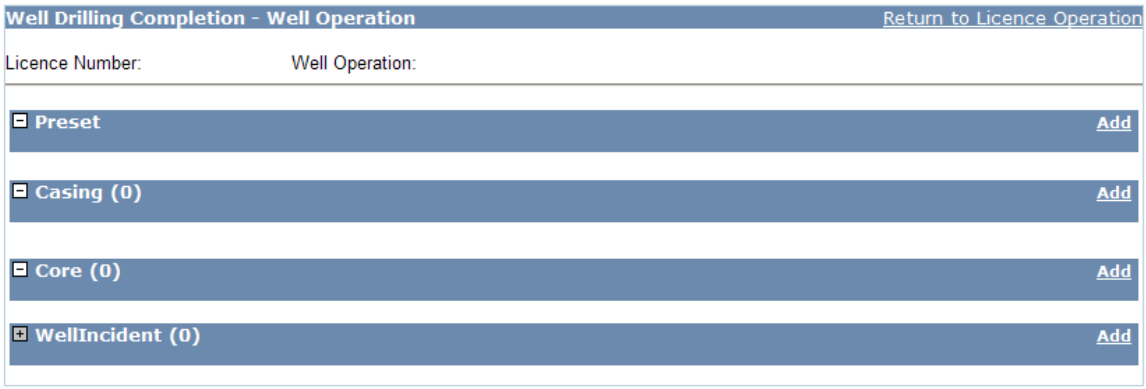



**Figure 13. Well drilling completion – Well operation screen**

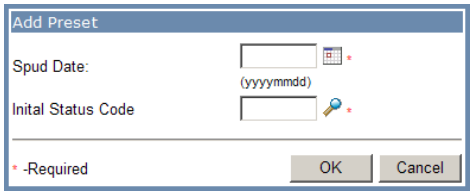



**Figure 14. Add preset screen**

Step 2. Enter the Spud Date (figure 14).

*Spud date for an undrilled well is the date the bit hit the ground to begin drilling. For a re-entered abandoned well it is moment the cap used for surface abandonment is cut. Spud date is different to the well drilling activity notification. Spud date is the day the bit hits the ground or when an existing well is re-entered. A well drilling activity notification is submitted within 12 hours of starting to drill to set surface casing, starting to drill to licensed depth, or resuming drilling of a non-abandoned well.*

Step 3. For “PRESET,” enter 6 for the Initial Status Code.

Step 4. Click **OK**.

Step 5. Enter Casing and Cementing data (see sections 2.5.1 and 2.5.2).

Step 6. Enter Core data, if applicable. Refer to section 2.5.3.

Step 7. Enter Well Incident data. Refer to section 2.5.6.

*After all mandatory and optional data have been entered, go back to Step 12 in section 2.3.*

### 2.4.2 Submit Well Operation "Drilling"

This enables the user to enter the data related to a drilling operation for a particular UWI. This includes

- new drilling,
- drilling to total depth of a preset well (when occurring more than 30 days from the presetting),
- resumption operation where a new event sequence has been assigned by the AER, and
- re-entry operations.

Under the following scenarios, DDS will not allow a submission unless a resumption or a re-entry application has been obtained under *Directive 056: Energy Development Applications and Schedules*:

- when the licence status is abandoned, rec-certified, or rec-exempt
- when the new spud date is more than 6 months from rig release date of the previous drilling event. The only exception here is a well that has been preset and is now being re-entered to drill to licensed depth

**Process Steps**

Step 1. Having checked **Drilling** under **Add Well Operation** (figure 15) starting from Step 11 of section 2.3, click **Add** on the right of the Drilling folder (figure 16).

*This process applies to the data for all drilling legs to be reported.*

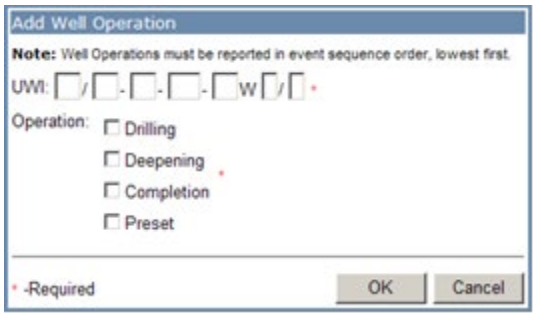



**Figure 15. Add well operation screen**

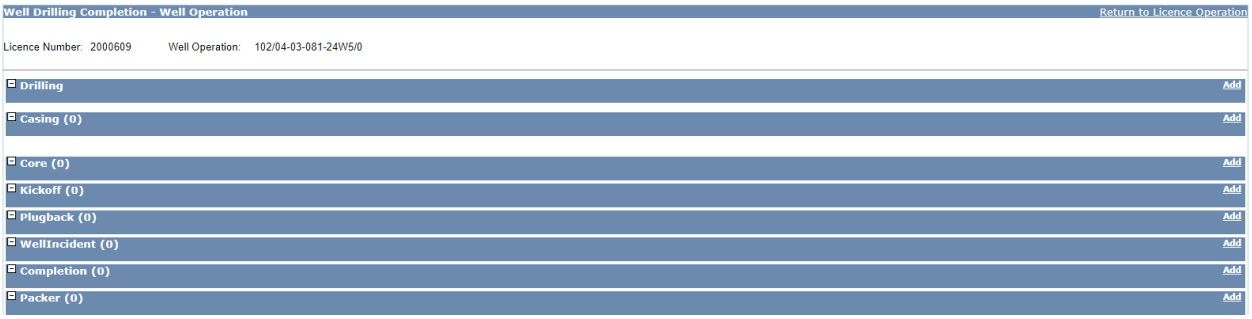



**Figure 16. Well Drilling Completion – Well Operation screen**

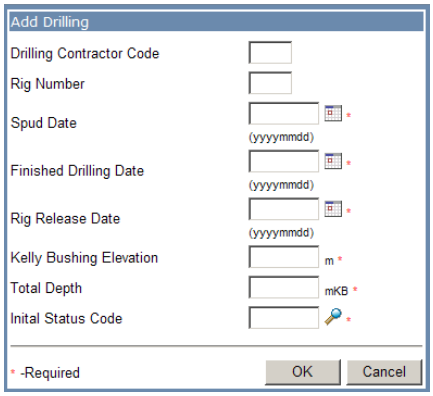



**Figure 17. Add Drilling screen**

Step 2. Enter the Drilling Contractor Code which is a 4-digit Business Associate (BA) code (figure 17).

Step 3. Enter the Rig Number assigned by the contractor.

Step 4. Enter the Spud Date. Only leave blank if a spud date has already been previously submitted (i.e., presetting operation). See Step 2 of section 2.4.1 for a definition of spud date.

*Setting conductor pipe is not considered the spud of a well unless conducted by the same drilling rig that continues drilling the remainder of the well or if there is to be no surface casing.*

*For re-entries and resumptions, enter the date operations begin.*

Step 5. Enter a Finished Drilling Date which should be on or after the Spud Date.

*Enter the date on which the total depth for the drilling leg is reached. In a multileg well this may be different for each leg.*

*For re-entries or resumptions under a resumption or re-entry well licence, it would be the date the operation was completed or the drilling through of any isolation devices within the wellbore or finished additional drilling of the same wellbore into a new pool. If a window is milled in the casing and a new hole is drilled, this would be a new leg and would require its own information to be added on the next available event sequence.*

Step 6. Enter a Rig Release Date which should be on or after the Finished Drilling Date.

*Enter the date on which all operations were completed and the contractor is released from the well site. For re-entries and resumptions, enter the date the contractor is released from site.*

Step 7. Enter Kelly Bushing Elevation as built ground elevation plus height of kelly bushing aboveground in metres.

*The kelly bushing elevation should be greater than the Ground Elevation submitted during licensing but not more than (Ground Elevation + 12 metres). If the as drilled ground elevation has changed during construction a well licence amendment is probably required, contact Directive56.Help@aer.ca for assistance.*

Step 8. Enter Total Depth. Total depth is measured depth (MD) in metres below kelly bushing (mKB).

Step 9. Enter an Initial Status Code between 1 and 5.

*Enter the code for the initial status of the reported event sequence applicable at the end of the operation. This status indicates the state of the wellbore after presetting, drilling, resumption, re-entry, or deepening operations have finished. See table 1 in Directive 059 for details. If none of the initial statuses in table 1 of* Directive 059 *are applicable (e.g., for uncased oil sands evaluation wells), enter the code for "Drilled and cased" and submit a request to WellDataServices@aer.ca to change the well status data in Petrinex, indicating the appropriate status. (For additional detail regarding Petrinex, see the definition in appendix 1 of* Directive 059*). See below for initial status code rules.*

- *Code 1 (Drilled & cased) - Multiple UWIs on the same submission having code 1 is not allowed.*
- *Code 2 (Abandoned) - Multiple UWIs on the same submission having code 2 is not allowed.*
- *Code 3 (Abandoned & whipstocked) - the submission should have another UWI (i.e., the subsequent drill leg).*
- *Code 4 (Junked & abandoned) - Multiple UWIs on the same submission having code 4 is not allowed.*
- *Code 5 (Drain) - another UWI on the same submission should have a code 1.*
- *Code 6 (Preset) will not be allowed on a drilling submission.*

Step 10. Click **OK**.

Step 11. Enter Casing and Cementing data (see sections 2.5.1 and 2.5.2).

Step 12. Enter Core data, if applicable. Refer to section 2.5.3.

Step 13. Enter Directional Drill Event (DDE) (kickoff) data, if applicable (see section 2.5.4).

Step 14. Enter Plugback data, if applicable (see section 2.5.5).

Step 15. Enter Well Incident data (see section 2.5.6).

*The Completion and Packer folders appear but data can only be added if this submission is a combined "Drilling" and "Completion" submission.*

*After all mandatory and optional data have been entered, go back to Step 12 in section 2.3.*

### 2.4.3 Submit Well Operation "Deepening"

This enables the user to enter the data related to a deepening operation of a particular UWI after a previous drilling operation has been completed, the previous rig has been released and the data submitted. Directive 059 considers deepening as any additional drilling where the new total depth terminates in the same original pool. No new unique well identifier (UWI) is created. Lengthening a wellbore within the same pool is also considered deepening.

DDS does not allow a "Deepening" submission when the licence status is abandoned, rec-certified, or rec-exempt.

A deepening cannot be submitted when packer data still exists. Any existing packer must be pulled first before the submission.

**Process Steps**

Step 1. Having checked **Deepening** under **Add Well Operation** (figure 18) from Step 11 of section 2.3, click **Add** on the right of the Deepening folder (figure 19).

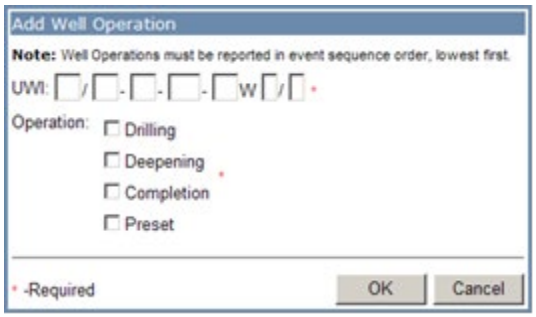



**Figure 18. Add well operation screen**

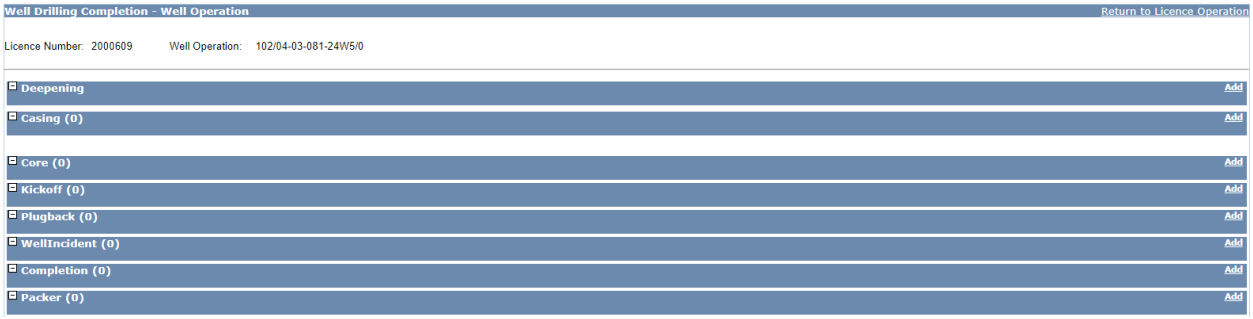



**Figure 19. Well Drilling Completion – Well Operation screen**

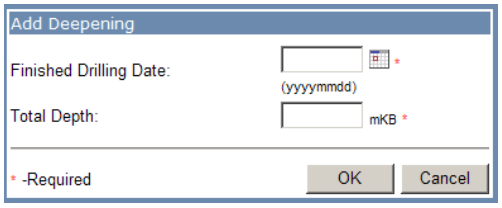



**Figure 20. Add Deepening screen**

Step 2. Enter the new Finished Drilling Date (figure 20). It is the date when additional drilling of the same wellbore was completed. The date should be a date after the old Finished Drilling Date.

Step 3. Enter a deeper Total Depth. Total depth is measured depth (MD) in metres below kelly bushing (mKB) and in this case should be greater than the old total depth.

Step 4. Click **OK** once done.

Step 5. Enter Casing and Cementing data, if applicable (see sections 2.5.1 and 2.5.2).

Step 6. Enter Core data, if applicable (see section 2.5.3).

Step 7. Enter Directional Drill Event (DDE) (kickoff) data, if applicable (see section 2.5.4).

Step 8. Enter Plugback data, if applicable (see section 2.5.5).

Step 9. Enter Well Incident data (see section 2.5.6).

*The Completion and Packer folders appear but data can only be added if this submission is a combined "Drilling" and "Completion" submission.*

*After all data has been entered, go back to Step 12 in section 2.3.*

### 2.4.4 Submit Well Operation "Completion"

This enables the user to enter the data related to a completion operation. This includes initial completion of a well, a workover or recompletion operation, downhole abandonment, or the setting or pulling of packers.

Submit data for completion operations for each event sequence which has completions performed.

Completion can be combined with a drilling or a deepening submission.

**Process Steps**

Step 1. Having checked **Completion** under **Add Well Operation** (figure 21) from Step 11 of section 2.3, click the Completion folder and click **Add** on the right-hand side (figure 22 and figure 23).

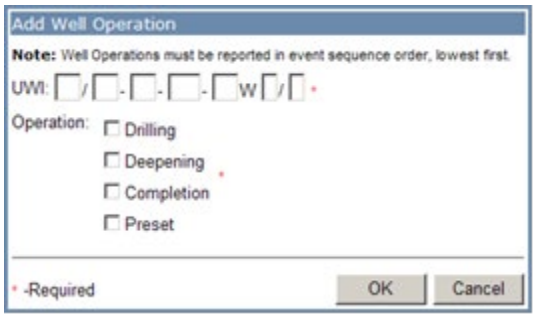



**Figure 21. Add Well Operation screen**

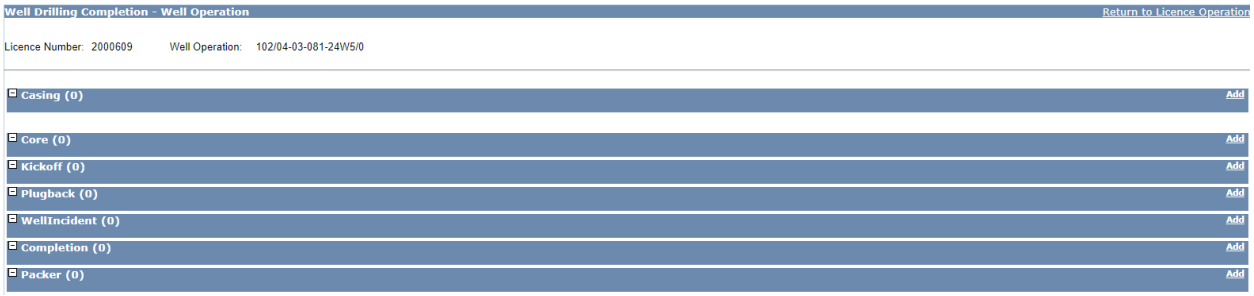



**Figure 22. Well Drilling Completion – Well Operation screen**

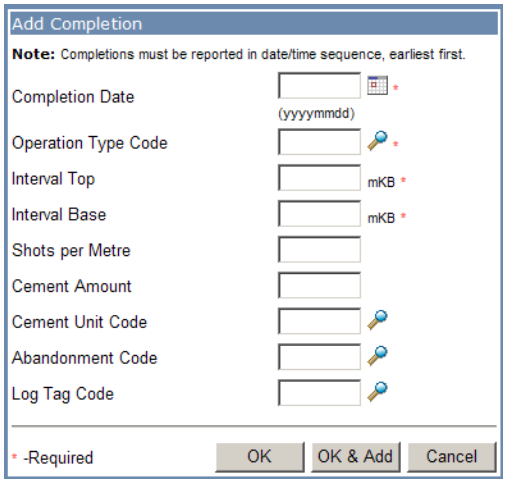



**Figure 23. Add Completion screen**

Step 2. Enter the Completion Date, it is the date each completion was performed (figure 23).

*Enter completions in chronological order.*

Step 3. Enter the Operation type code (table 4).

**Table 4. List of Completion types and associated operation type codes**

| Operation type code | Completion type | Notes |
|---|---|---|
| 2 | Perforation | Enter perforated intervals. Enter shots per metre. For standard perforations. Can also be for radially drilled slots. |
| 5 | Hydrajet perforation | Enter cut intervals. For sand notching or water-jetted slots. Shots per metre not required. |
| 7 | Slotted liner | Enter interval from the shoe of the previous casing to the shoe of the liner.<br>If recording a liner that is part of a casing string, from the top of the slotted interval to the shoe of the liner.<br>Also enter a liner casing record and an uncemented slotted liner cementing record. |
| 8 | Open-hole/barefoot completion | Enter interval from the shoe of the previous casing or liner to the total depth.<br>If recording a milled-out section of casing, from the top of the interval to the base of the interval.<br>If a portion of the open hole has a liner, only record intervals that remain open.<br>Any uncemented gap between the last casing or liner shoe and total depth is a reportable open-hole section. |
| 9 | Casing vent production | Enter vent flow intervals. |
| 12 | Acid treatment | Enter completion intervals treated. |
| 23 | Chemical squeeze | Enter completion intervals treated. |
| 24 | Alcohol squeeze | Enter completion intervals treated. |
| 41 | Fracture | Enter completion intervals treated. For every code 41 fractured interval submit fracture fluid data. See section 3. |
| 42 | Multistage fracture | Enter From the top of the interval to the base of the interval (for each individual open port that has been fractured).<br>If there is only one depth for the port, use this as the interval top and add 0.1 metres to obtain the interval base for the port (e.g., top = 1500; base = 1500.1).<br>For every code 42 fractured interval submit fracture fluid data. See section 3. |
| 43 | Multistage fracture – port closed | For each closed code 42, submit a code 43. Align the interval for the code 43 with the code 42 that has been closed.<br>For a previously open fracture port or blast port that is now closed. |
| 51 | Cement plug | Enter interval of cement plug. Use for cement, bentonite, or grout plugs. |
| 52 | Cement squeeze<br>(only record if successful) | Enter completion intervals cemented. |
| 53 | Packing device (cement retainer, bridge plug) capped with cement | Enter interval from the top of the cement to the top of the packing device. |
| 54 | Casing patch | Enter completion interval covered by patch. Only record if it covers a completion interval. Do not use to record casing repairs. |
| 55 | Packing device (cement retainer, bridge plug, whipstock packer) with no cement | Enter interval from the top of the packing device to the bottom of the packing device.<br>Packing device with no cement used for zonal abandonment. Requires AER approval. |

| Operation type code | Completion type | Notes |
|---|---|---|
| 56 | Remedial casing cementing (only record if successful) | Enter completion intervals cemented.<br>For cements squeezed through perforations to get behind the casing to fix a casing leak, failure, or an inadequate casing cement job.<br>Do not record if the cement is squeezed through a casing tear. |
| 57 | Packing device (i.e., cement retainer, bridge plug, whipstock packer) capped with resin-gypsum cement | Enter interval from the top of the cement to the top of the packing device. |

Step 4. Enter Interval top in metres below kelly bushing (mKB).

Step 5. Enter Interval base in metres below kelly bushing (mKB).

Step 6. Enter Shots per metre if submitting a code 2 (table 4).

Step 7. Enter cement amount if submitting for a completion operation type code 51, 52, 53 or 57 (table 4).

Step 8. Enter Cement Unit Code (table 8) if submitting for a completion Operation Type Code 51, 52, 53 or 57 (table 4).

Step 9. Enter abandonment code if applicable. Abandonment code can only be submitted for completion operation type codes 51, 52, 53, and 57 (table 5).

*If the cementing operation was to suspend a pool, leave this field blank.*

**Table 5. Abandonment code**

| Value | Description |
|---|---|
| 1 | Abandon |
| 2 | Abandon zone |
| 4 | Plugback and whipstock |

Step 10. Enter log tag code if abandonment code is submitted (table 12).

Step 11. Click OK when entering only one completion record. Otherwise, keep on clicking OK & Add to enter additional completion records.

Step 12. Enter Casing and Cementing data, if applicable (see sections 2.5.1 and 2.5.2).

Step 13. Enter Plugback data, if applicable (see section 2.5.5).

Step 14. Enter Packer data, if applicable (see section 2.5.7).

Step 15. Enter Well Incident data, if applicable (see section 2.5.6).

*Any completion submission requires the submission of well incident data except if the submission is for a Packer "Modify." The Core and Kickoff folders appear but data can only be added if this submission is a combined "Drilling" and "Completion" submission.*

*After all mandatory and optional data have been entered, go back to Step 12 in section 2.3.*

### Jetted or Radial Drilling Completions

A jet completion is reported as code 5. Shots per metre are not required. Radial drilling is currently also being reported as a code 5.

### Fracture Fluid Composition

If a fracture port is opened but no fluid is pumped report it as a code 5 (Hydrajet perforation). If a code 42 has already been reported, request an amendment via DDS to have the code 42 changed to a code 5. This will remove the interval from noncompliance reports where a fracture fluid composition submission is expected because the code 42 exists.

An incorrectly submitted fracture interval can be deleted by requesting an amendment through DDS under AER > Submissions > Well Drilling Completion Data > Submit Amendment. When the fracture interval is deleted, the attached fracture fluid composition and water source submission will also be deleted and will have to be resubmitted.

### Isolation Devices (Cement Plugs, Packing Devices Capped With Cement and Packing Devices)

Codes 51, 52, 53, 55, and 57 in table 4, indicate partial or full abandonment.

If the purpose of the operation is to abandon a pool, submit the appropriate packing device, plug, or cement squeeze record and enter the abandonment code from table 4 and the log tag code from table 12.

As per *Directive 059* requirements to submit downhole abandonment details in DDS, for zonal abandonment on a specific event sequence, include the event sequence being abandoned, the type of device used (e.g., cement plug, cement squeeze, packing device capped with cement, packing device with no cement, and packing device capped with resin-gypsum cement), the date, interval top, interval base, abandonment code, cement amount, cement unit code, and the log tag code.

If the same device abandons another event sequence, send an amendment request providing the downhole abandonment details via DDS for each event sequence. If an isolation device is drilled out causing completions below which had been isolated by the device to be open for production, report the completions again. Report the completions as before but use the date the isolation device was drilled out. The isolation device will not be removed to keep the historical data of the well.

Submit the abandonment device (packing device, bridge plugs) together with the abandonment code and the log tag code. Once received, the AER will update the status of the well event to “Abandoned zone.”

For a well that has been drilled and subsequently had downhole and surface abandonment completed. When the well is abandoned, submit both downhole and surface abandonment details. When both records are received, the AER will update the status of the well event to “Abandoned.”

**Packing Device with no Cement (Code 55)**

A packing device capped with no cement (code 55) is used for nonroutine abandonment where there is not enough room between perforated intervals to place a packing device capped with eight (8) metres of cement (code 53), or a packing device capped with 3 metres of resin-based gypsum cement (code 57). Obtain approval from the AER by contacting WellOperations@aer.ca.

A code 55 may also be used for segregation, and in this case would be reported under the Packer Data section as a packer code 2 (bridge plug). No AER approval is required for this.

**Other**

Viewing current completions – Petrinex has an option to query wells. This option displays the well information for completions, packers, and abandonment devices (e.g., cement plug)

Gross Completion Interval (GCI) for an open-hole completion – the GCI is reported from the shoe of the previous casing or liner to the end of the open-hole section.

## 2.5 Data Entry for Well Operation

There are seven additional types of data that may need to be entered depending upon the type of well drilling or completion activity:

- casing data
- casing cement data
- core data
- directional drill event (DDE) (formerly kickoff)
- plugback data
- well incident data
- packer data

### 2.5.1 Enter Casing Data

Submit casing data for preset and drilling submissions; it is optional for a deepening submission. Exceptions to drilling submissions are oilsands evaluation wells and drilling operation submissions for a previously submitted preset well.

**Process Steps**

Step 1. Click **Add** on the right of the Casing folder to enter Casing data (figure 24).

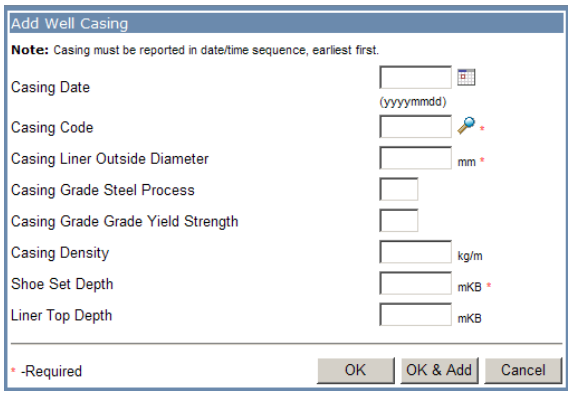



**Figure 24. Add Well Casing screen**

Step 2. Enter Casing Date.

*Enter the dates the casings or liners (i.e., cemented or landed, if uncemented) were set, in chronological order. Casing Date is optional when submitting common casings, historical casings, or mixed casing grades. When Casing Date is not submitted, the system will not require a cementing record.*

*Casing Date can be before spud date for casing type 1.*

Step 3. For a deepening submission, casing date should be on or after the new finished drilling date.

Step 4. Enter Casing Code.

*Enter the casing code that corresponds to the type of casing being reported (see table 6). Mixed casings can be submitted for codes 3, 4, and 5 but not for casing codes 1 and 2.*

*When submitting casing code 1, an accompanying casing code 2 or 3 should be in the same submission.*

*Only casing codes 1, 2, and 3 can be submitted for a preset operation.*

*Only casing codes 3, 4, or 5 can be submitted for a deepening operation.*

**Table 6. Casing type codes**

| Code | Casing type |
|---|---|
| 1 | Conductor |
| 2 | Surface |
| 3 | Intermediate |
| 4 | Production |
| 5 | Liner |

Step 5. Enter Casing Liner Outside Diameter in millimetres

*The value should be between 0 and 999 mm.*

Step 6. Enter Casing Grade Steel Process.

*Enter an alpha character. Casing grade steel process is optional when submitting common and historical casings.*

*Casing Grade Steel Process should be submitted when Casing Grade Yield Strength is present.*

Step 7. Enter Casing Grade Yield Strength.

*Enter a numeric value between 0 and 999. Casing grade yield strength is optional when submitting common and historical casings.*

*Casing Grade Yield Strength should be submitted when Casing Grade Steel Process is present.*

Step 8. Enter Casing Density in kg/m.

*Enter a numeric value between 1.0 and 999.9.*

*Casing Density is optional when submitting common and historical casings.*

Step 9. Enter Shoe Set Depth in metres below kelly bushing (mKB).

Step 10. Enter the casing depth. The depth can be up to the total depth of the well.

*For mixed casings, enter the point where the casing changes, if known, or the midpoint of the casing string as the shoe depth for the 1st casing record and the actual shoe for the 2nd casing record.*

Step 11. Enter Liner Top Depth in metres in metres below kelly bushing (mKB).

*Submitted only for casing code 5. Liner Top Depth should be greater than (Kelly Bushing Elevation – Ground Elevation).*

Step 12. Click **OK**. Otherwise, keep clicking **OK** & **Add** to enter additional casing records.

Slotted Liner: uncemented slotted liner is recorded in two areas. It is recorded in the Casings section as a liner, and in the Completions section as code 7. When reporting in the Casings section, the cement interval is to be recorded as code 91 (uncemented slotted liner) with an interval from the liner top to the liner base. The interval reported in Completions is from the shoe of the last casing to the shoe of the liner. This operation may be followed by an open-hole completion.

After casing a leg, if a subsequent leg is drilled and sidetracks above the previous casing shoe (e.g., through a window in the casing) and the sidetrack leg is uncased (i.e., open hole), indicate the shoe of the casing for the sidetrack leg as the start of the sidetrack. Do not indicate the shoe of the previous casing as it is not applicable to the sidetrack leg (see appendix 2).

If a mixed (i.e., more than one casing grade steel process, grade yield strength, density, or diameter) casing string is run, enter two casing records to represent the extremes of the diameters, densities, and grades. See appendix 2 for examples and further details.

### 2.5.2 Enter Casing Cement Data

Record cements in the order they are pumped into the well. For each casing run, there may be several cementing records.

Cementing data is not required to be submitted in common and historical casings.

For mixed casing strings, cementing is not required for the first casing record. Instead, cementing data for the entire casing string is submitted on the second casing record.

Users cannot submit more than 9 cementing records per casing record.

**Process Steps**

Step 1. After entering casing data, select **View** next to the appropriate casing record in the panel and click **Add** next to the Cementing (figure 25).

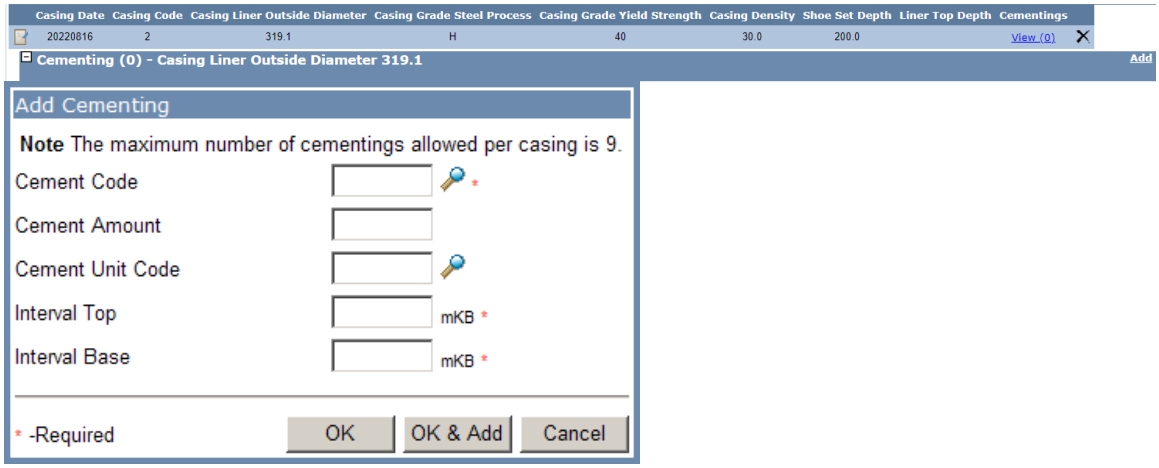



**Figure 25. Add Cementing screen**

Step 2. Enter Cement Code for the type of cement used (see table 7).

*Codes 1 – 42 indicate the principal component of the cement and do not include additives (e.g., accelerators). Codes 91 and 92 indicate that the casing or liner is not cemented.*

*If submitting a code 91 for a slotted liner, a completion operation type code 7 should also be submitted under Completions. See section 2.4.4 above.*

**Table 7. Casing cement type codes**

| Code | Cement type | Code | Cement type |
|---|---|---|---|
| 1 | Class A | 31 | Thixotropic |
| 3 | Class C | 36 | Foamed |
| 4 | Class G | 40 | Cap cement (capping foamed cement) |
| 6 | 1:1:2 | 42 | Lightweight |
| 7 | 1:1:4 | 91 | Uncemented slotted liner |
| 30 | Thermal | 92 | Uncemented casing |

Step 3. Enter Cement Amount (i.e., amount of cement used).

*Do not submit Cement Amount when the cement code is either 91 or 92.*

Step 4. Enter Cement Unit Code (see table 8)

*Enter the unit of measurement used for the cement.*

*Do not submit Cement Unit Code when the cement code is either 91 or 92.*

**Table 8. Cement unit codes**

| Code | Unit |
|---|---|
| 1 | Cubic metres |
| 2 | Tonnes |
| 3 | Sacks |
| 4 | Litres |
| 5 | Metres |

Step 5. Enter Interval Top

*Enter either the estimated or actual top of the interval in the wellbore that is cemented in metres below kelly bushing (mKB). Enter 0 when the casing is cemented to ground surface.*

Step 6. Enter Interval Base

*Enter either the estimated or actual base of the interval in the wellbore that is cemented in metres below kelly bushing (mKB). Interval Base should not be deeper than the casing shoe.*

Step 7. Click **OK**. Otherwise, keep clicking **OK** & **Add** to enter additional cementing records for the specific casing.

### 2.5.3 Enter Core Data

Core data can only be submitted when well operation is Preset, Drilling, or Deepening.

Enter core data in the order the cores were cored.

Cores from oil sands areas are usually cut in shorter multiple runs over the entire cored interval. For cores cut in oil sands areas, record the entire continuously cored interval as one core interval, indicating the top and base of the bulk interval.

Enter core data when the well is cored whether the core is submitted to the Core Research Centre (CRC) or not.

Report cores cut in the common portion of a multileg well only in the first applicable well event sequence. For example, if a core is cut on a section of the wellbore that is common to drilling legs 2, 3, and 4, licensees must only record the core on leg 2.

**Process Steps**

Step 1. Click **Add** on the right of the Core folder to enter core data, if applicable (figure 26).

*Enter the Core Number in chronological order*

*Start Core Number from 1 and increment by 1 when submitting 'Drilling' operation.*

*If additional cores are cut on a new leg (event), begin the numbering at 1.*

*On a 'Deepening' operation, Core Number should start 1 more than the last core observation in the database.*

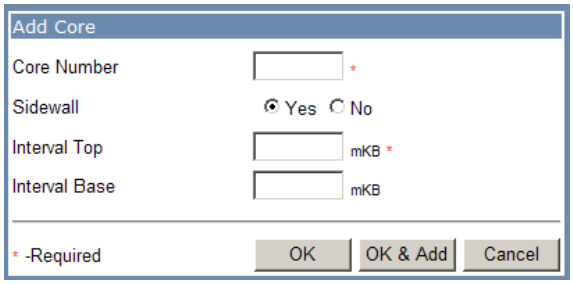



**Figure 26. Add Core screen**

Step 2. Indicate whether the core is a sidewall core.

Step 3. Enter the Interval Top in metres below kelly bushing (mKB).

*Enter the top of the interval of the wellbore that was cored. For sidewall cores, only the Interval Top is required.*

Step 4. Enter Interval Base in metres below kelly bushing (mKB).

*Enter the base of the interval of the wellbore that was cored. For sidewall cores, do not submit an Interval Base.*

Step 5. Click **OK**. Otherwise, keep clicking **OK** & **Add** to enter additional core observations.

### 2.5.4 Enter Directional Drill Event (DDE; Formerly Kickoff) Data

Kickoff is now referred to as a directional drill event (DDE) in *Directive 059*, but the submission system still refers to this data as "Kickoff." Also see information in *Directive 059*, section 3.2.1.9.

DDE is data that can only be submitted for Drilling or Deepening operations.

Good references for determining kickoff data are the drilling tour and directional survey reports.

All inclination angles are measured from vertical (0° = vertical).

Enter the dates that DDEs occurred in chronological order.

When reporting a common DDE, submit the original date the DDE was drilled. For re-entries or resumptions, enter the spud date of the re-entry or resumption.

**Process Steps**

Step 1. Click **Add** on the right of the Kickoff folder to enter DDE data, if applicable (figure 27).

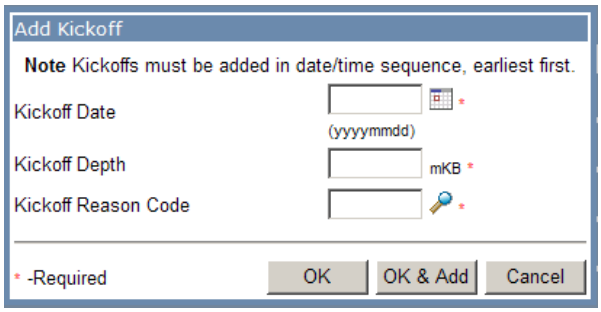



**Figure 27. Add Kickoff screen**

Step 2. Enter the DDE Date.

Step 3. Enter DDE Depth. Enter the depth of the DDE in metres below kelly bushing (mKB).

*DDE Depth should be greater than (Kelly Bushing Elevation – Ground Elevation), except when the well is being drilled by a slant rig (i.e., the drill mast is not vertical but is slanted at five degrees or more from vertical). In this case it can be 0 mKB.*

Step 4. Enter DDE reason code (see table 9).

a) DDE reason code is 1 when the well first reaches an inclination of 5°.

b) DDE reason code is 2 when a fish has been lost and the wellbore is sidetracked into a new wellbore. This kickoff is applied to the new wellbore.

c) DDE reason code is 4 when the well first reaches an inclination of ≥80°.

*See* Directive 059 *for more information.*

**Table 9. Directional drill event reason codes**

| Code | Reason |
|---|---|
| 1 | Deviate (≥5° and <80°) |
| 2 | Sidetrack fish |
| 4 | Horizontal (≥80°) |

Step 5. Click **OK**. Otherwise, keep clicking **OK** & **Add** to enter additional DDE data.

### 2.5.5 Enter Plugback Data

If a wellbore is plugged back during a drilling or deepening operation submit the data as plugback data. However, if a wellbore is plugged back during a completion operation submit the data as completion data.

Enter plugback data when the Initial Status Code is 2, 3, or 4 on a "Drilling" submission.

Plugback data can be submitted on well operation types "Drilling" or "Deepening."

Plugbacks should be recorded in the order they were run.

The licensee may use a three metre high-density cement plug (e.g., resin-based low permeability gypsum cement) if the plug length is an operational issue. Obtain preapproval from the AER for plugs less than three metres (see *Directive 020: Well Abandonment*).

If a wellbore is plugged back to whipstock, whether a fish was lost or not, enter the well status of the plugged back wellbore as Abandoned and Whipstocked and enter the purpose for the plugback as Plugback and Whipstock or an error will be generated when the data is submitted or validated.

**Process Steps**

Step 1. Click **Add** directly on the right of the Plugback folder to enter Plugback data, if applicable (Figure 28).

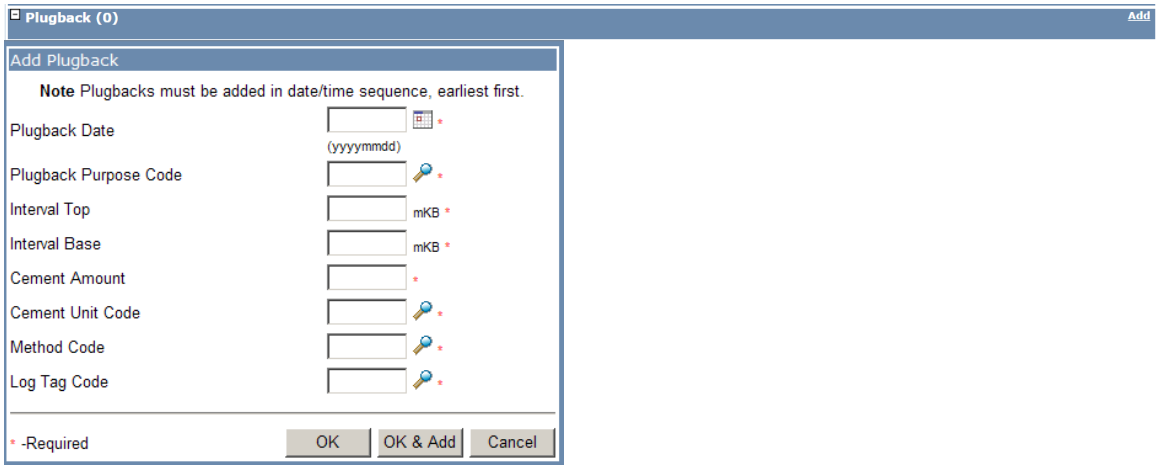



**Figure 28. Add Plugback screen**

Step 2. Enter the Plugback Date.

*Date should be on or after Finished Drilling Date. Should also be in chronological order of when the plugback devices were run when submitting multiple plugback records.*

Step 3. Enter the Plugback Purpose Code (table 10).

*If the initial status code is either 2 or 4, the Plugback Purpose Code should be 1.*

*If the initial status code is 3, the Plugback Purpose Code should be 4.*

*Plugback Purpose Code cannot be a 1 when another Plugback has a Purpose Code of 3.*

**Table 10. Plugback purpose codes**

| Code | Purpose |
|---|---|
| 1 | Abandon |
| 3 | Plugback and case |
| 4 | Plugback and whipstock |
| 5 | Plugback and sidetrack (fish) |
| 6 | Plugback and straighten |
| 7 | Lost circulation plug (not drilled out) |

Step 4. Enter the Interval Top. Enter the top felt depth or drilled-out depth of the cement plug in the wellbore in metres below kelly bushing (mKB). If the plug is not felt, enter the estimated interval top.

Step 5. Enter the Interval Base. Enter the base of the cement plug or packing device if applicable in metres below kelly bushing (mKB).

*Interval Base cannot overlap with another Plugback for the same UWI unless the method code is 3.*

Step 6. Enter the Cement Amount.

Step 7. Enter the Cement Unit Code (table 8).

Step 8. Enter the Method Code Enter the code for the method used for the abandonment or plugback (table 11).

*Method Code 3 can only be submitted when Plugback Purpose Code is 1.*

**Table 11. Method codes**

| Code | Method |
|---|---|
| 3 | Rerun plug |
| 51 | Cement plug |
| 53 | Packing device capped with cement |
| 57 | Packing device capped with resin/gypsum cement |

Step 9. Enter the Log Tag Code (table 12).

**Table 12. Log tag codes**

| Code | Method | Notes |
|---|---|---|
| 1 | Log | Logged immediately after plug is run |
| 2 | Tag | Tagged after cement plug has set |
| 3 | Not felt | Not logged or tagged |

Step 10. Click **OK**. Otherwise, keep clicking **OK** & **Add** to enter additional plugback data.

### 2.5.6 Enter Well Incident Data

Enter Well Incident data for all submissions except when submitting well operation type Completion for a Packer Modify. For any Packer Modify submission that includes other completion data, submit a well incident record.

Water flows or artesian flows are considered blowouts, except in cases where a blowout preventer (BOP) is present. Submit the water flow as a Kick if encountered with a BOP on the well. Submit it as a Blowout in the absence of a BOP.

In accordance with *Directive 059*, lost circulation is to be reported. For the purposes of this reporting, in alignment with appendix A of *Directive 008*, it must be reported if the cumulative volume is ≥75 $m^3$ or if the lost circulation takes longer than 48 hours to control (regardless of volume and drilling phase (surface, intermediate, production or lateral).

For example: if a well has losses of 20 $m^3$ each day over four or five days, count the incident as starting on the first day and ending when it is controlled. If losses start again on the seventh day, it would be considered a new incident if the volume exceeded 75 $m^3$ or could not be controlled within 48 hours.

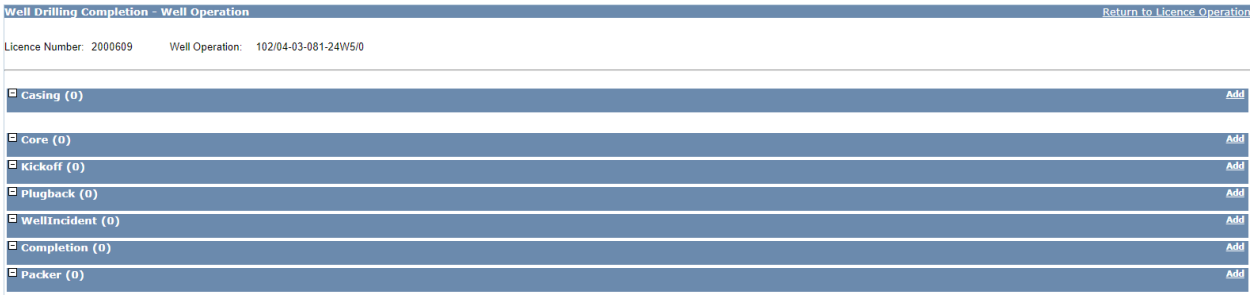



**Figure 29. Well drilling completion – Well operation screen**

**Process Steps**

Step 1. Click the **Add** link directly on the right of the Well Incident folder (figure 29) to enter Well Incident data (figure 30).

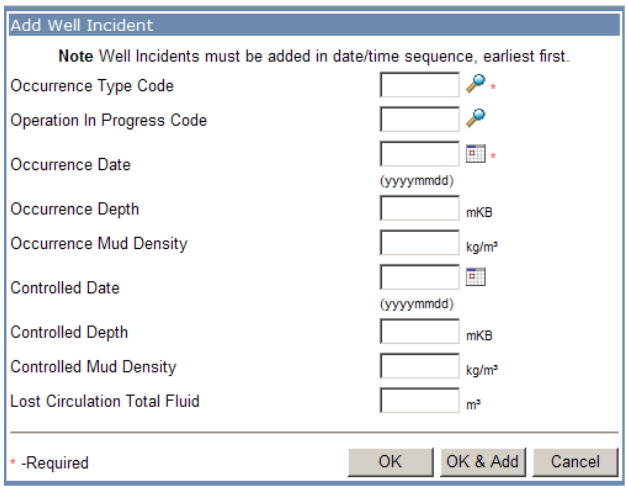



**Figure 30. Add Well Incident screen**

Step 2. Enter the Occurrence Type Code (table 13).

*Occurrence Type Codes 10, 30, and 40 complete all fields.*

*Code 99 only complete Occurrence Date.*

**Table 13. Occurrence type codes**

| Code | Occurrence |
|---|---|
| 10 | Kick |
| 30 | Blowout |
| 40 | Lost circulation |
| 99 | No incident encountered |

Step 3. Enter the Operation-in-Progress Code (table 14).

**Table 14. Operation-in-progress codes**

| Code | Operation | Code | Operation |
|---|---|---|---|
| 1 | Drilling | 5 | Tripping in |
| 2 | Circulating | 6 | Tripping out |
| 3 | Coring | 7 | Running casing |
| 4 | Logging | 8 | Testing |

Step 4. Enter the Occurrence Date. Enter the date the incident began. If no incidents were encountered, enter the Finished Drilling Date or the date work was completed.

*Date should be in sequential order when submitting multiple well incident records.*

Step 5. Enter the Occurrence Depth. Enter the total depth the well was at when the incident began in metres below kelly bushing (mKB).

Step 6. Enter the Occurrence Mud Density. Enter the density of fluid in the wellbore when the incident began in kilograms per cubic metre ($kg/m^3$). If there was no fluid in the wellbore at the time of the incident, enter 800.0 kilograms per cubic metre ($kg/m^3$).

*Enter a value between and including 800 to 2500.*

Step 7. Enter the Controlled Date—the date the incident was controlled.

Step 8. Enter the Controlled Depth. Enter the total depth the well was at when the incident was controlled in metres below kelly bushing (mKB).

*Controlled Depth should be equal or deeper than Occurrence Depth.*

Step 9. Enter the Controlled Mud Density. Enter the density of the fluid in the wellbore when the incident was controlled in kilograms per cubic metre ($kg/m^3$).

*Enter a value between and including 800 to 2500.*

*If a cement plug was used to control the incident, enter 2499. If casing was used, enter 2500.*

Step 10. Enter the Lost Circulation Total Fluid ($m^3$). If recording a lost circulation, enter an estimate of the volume of fluid lost during the incident in cubic metres ($m^3$).

Step 11. Click **OK**. Otherwise, keep clicking **OK** & **Add** to enter additional well incident records.

### 2.5.7 Enter Packer Data

Packer data can only be submitted for a Completion operation and is always submitted on the associated drilling event sequence (i.e., wellbore) not on a producing event. Packer data is used to indicate segregation or isolation of a pool not for the abandonment of a pool. Packers are to be set from deepest depth to shallowest depth and pulled from shallowest depth to deepest depth. If data is out of date or depth order, an amendment may be required or the Packer Modify process may be used. Please contact WellDataServices@aer.ca to request an amendment.

Packer data can be modified through a submission without sending an amendment under the following scenarios:

- Change an existing packer type code of any packer observation.
- Change an existing packer date if the new packer date is on or between the next shallowest and the next deepest packers where applicable.
- Change an existing packer depth if the new packer depth is between the next shallowest and the next deepest packers where applicable.
- Changes can include packer type code, date, and depth or any combination.
- Only report the packers that are set in the wellbore and remain at the end of the operation.
- Record any previously set packers that are pulled or pushed downhole in this operation as “Pulled.”
- Submit changes under the packer type “Historical Packer” as an amendment.

- When the new packer depth or date changes the sequencing of the packer observations, a Packer Operation ‘M’ should not be submitted. In this case, submit a Packer Operation ‘P’ (Pull) and ‘S’ (Set) instead.
- Do not record anything in packer data that has also been recorded in the completion record (e.g., packing devices capped with cement).

### 2.5.7.1 Enter Packer Data

**Process Steps**

Step 1. Click **Add** on the right of the Packer folder to enter Packer data (figure 31).

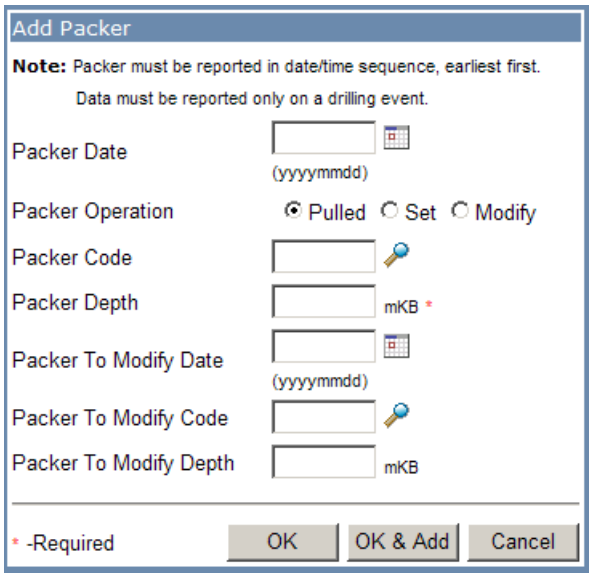



**Figure 31. Add Packer screen**

Step 2. Enter the Packer Date. Enter the dates the device was set or pulled in the well in chronological order.

Step 3. Select the Packer Operation.

Step 4. Click “Pulled” (for submission by file, enter code “P”) if a previously set device is removed from the well during this operation.

Step 5. Click “Set” (for submission by file, enter code “S”) if a device is set during this operation and remains at the end of the operation.

Step 6. For Packer “Modify” submissions see section 2.5.7.2.

Step 7. Enter the Packer Code (table 15).

*Do not enter a packer code when submitting a Packer Operation Pull.*

**Table 15. Packer codes**

| Code | Packer type | Notes |
|---|---|---|
| 1 | Packer | For retrievable or permanent packers |
| 2 | Bridge plug or whipstock packer | |
| 3 | Cement retainer | |
| 4 | Through-tubing packer | |
| 5 | Through-tubing bridge plug | |

Step 8. Enter the Packer Depth.

Step 9. When Packer Operation is Pull, enter the Packer Depth from shallowest to the deepest when pulling multiple packers.

Step 10. When Packer Operation is Set, enter the Packer Depth from deepest to shallowest when setting multiple packers.

If Packer Operation is Modify, see section 2.5.7.2.

Step 11. Click **OK**. Otherwise, keep clicking **OK** & **Add** to enter additional packer data.

### 2.5.7.2 Modify Packer Data

For submission to modify packer data by file, enter code “M” if the data for a device is to be modified. An operation incident record is not required for a “Modify” submission.

For submission to modify packer data by form:

**Process Steps**

Step 1. Select **Modify** as the Packer Operation

Step 2. Enter the Packer to Modify Date.

*Should be blank for Packer Operations Set and Pull.*

Step 3. Enter the Packer to Modify Code.

*Should be blank for Packer Operations Set and Pull.*

Step 4. Enter the Packer to Modify Depth.

*Should be blank for Packer Operations Set and Pull.*

Step 5. Click **OK**. Otherwise, keep clicking **OK** & **Add** to enter additional packer data.

## 2.6 Recall Well Drilling Completion Data Saved Submission [Recall Saved Submission]

This functionality allows the user to retrieve previously saved submissions of well drilling and completion data.

**Process Steps**

Step 1. On the Well Drilling Completion Data submission system, select **Recall Saved Submission**.

Step 2. The Well Drilling Completion – Saved Submissions panel is displayed with all saved submissions that have not expired (figure 32).

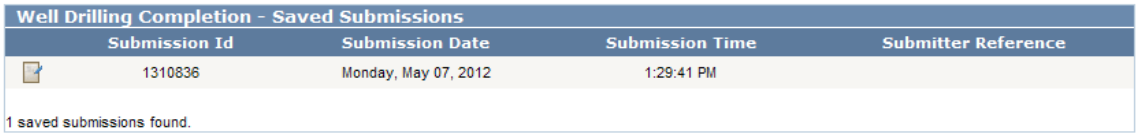



**Figure 32. Well Drilling Completion – Saved Submissions screen**

Step 3. Click on the Edit icon ( ) to access the data entry panel of the submission.

Step 4. Modify as needed. Users can refer to the section "Submit Well Drilling and Completion Data by Form" section 2.3 for guidance on how to enter data into the interactive web form.

Step 5. Once all the changes have been done, the following options are available:

a) View

*If selected, a new window will display the Submission Report.*

b) Save

*If selected, the updated submission will be saved with a new Submission ID. The Submission Date and Submission Time will be updated with the date and time when the submission was modified.*

c) Submit

*If selected, the system will validate, and if no errors occur, click **Confirm** to confirm the submission and send the data to the AER. Click **Cancel** in order to make changes on the submission or **Save** if saving report for later retrieval. A submission acknowledgement will be displayed with a hyperlink to view the submission. A new submission ID will be generated.*

d) Cancel

*The system will treat the submission as not having been accessed. The submission ID, date, and time will be unchanged.*

## 2.7 Amend Well Drilling Completion Data [Submit Amendment]

This functionality allows the user to submit an amendment request to the AER for the following well drilling and completion data:

- correction of previously submitted data
- data entry of a submission that cannot be successfully submitted due to existing business rules
- adding new items to the fracture fluid composition and water source reference tables (see section 8)

**Process Steps**

Step 1. On the Well Drilling Completion Data submission system, select **Submit Amendment**.

Step 2. The Confidentiality Disclaimer page will appear. Read and click **I Agree** to continue with the amendment request. If **I Disagree** is clicked, the system returns to the menu and the user will not be able to continue with the amendment request.

Step 3. The Submit Amendment to Well Drilling Completion Data screen is displayed (figure 33).

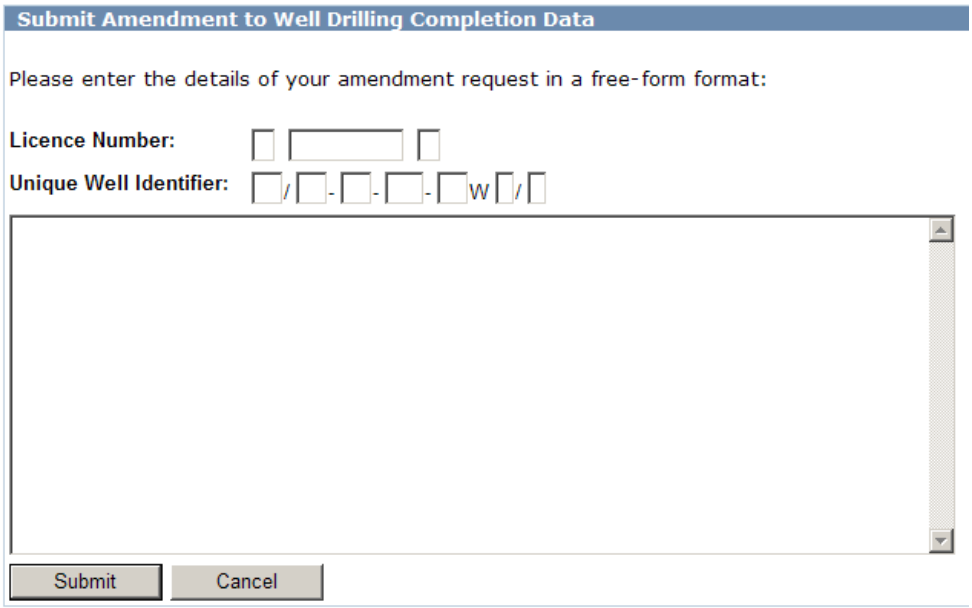



**Figure 33. Submit Amendment to Well Drilling Completion Data screen**

Step 4. Enter a valid Licence Number; seven digits in the centre box with prefix in the left box and suffix in the right box if applicable. Enter a Unique Well Identifier in the input boxes (99/99-99-999-99W9/9). If the amendment is for more than one UWI, enter the UWI with the lowest event sequence (typically /0).

Step 5. Describe the amendment request in the free form text box in as much detail as possible. Identify if the amendment is to ADD, DELETE, or CHANGE and include from/to codes

and values. Ensure to indicate which amendments apply to which UWI when submitting a request for multiple UWIs.

Step 6. Click **Submit**.

If the licence number and UWI combination is not correct, an error message will be displayed.

If the well for which the licence number and UWI are entered does not belong to the user's company, an error message will be displayed.

The system will display the details of the amendment request to be kept for the submitter's internal records.

## 2.8 Search Casing Data [Search Casing Data]

This functionality allows the user to display the casing and cementing data per UWI for a searched licence number. The user may search by any business associate (BA) their DDS profile permissions allow. The available BAs will be listed in the drop-down list to the right of BA.

**Figure 34. Search Casing and Cementing Data screen**

**Process Steps**

Step 1. Select **BA name** from drop-down list.

Step 2. Enter Licence Number including leading zeroes with prefix and suffix as applicable.

Step 3. Click **Search UWIs**. This will populate the UWIs for the licence in the UWI drop-down box.

Step 4. Select the desired UWI for which to display the casing and cementing data and click **Search**.

Step 5. If the selected Licence Number and UWI have casing and cementing data, it will be displayed (figure 35).

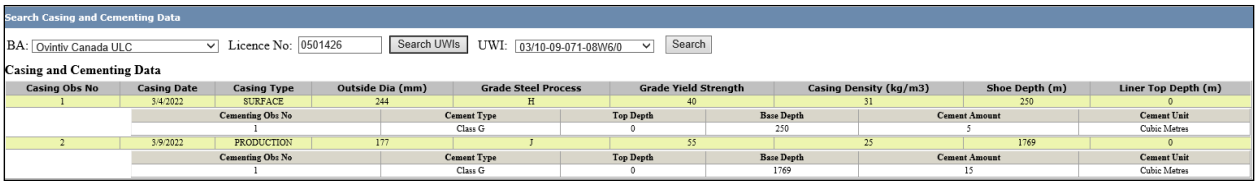



**Figure 35. Search Result screen**

Step 6. To clear the search, press backspace to clear the UWIs. Click in the Licence No. box and either click on the X to clear the licence number or use backspace.

## 2.9 Review Submitted Well Drilling and Completion Data

To review submitted drilling and completion data by submission ID in DDS.

**Process Steps**

Step 1. Navigate to the Reports menu and select **Submission History**.

Step 2. Click Query Submissions to open the list. From the list the user can search by Submission ID, Date, Submitter Reference, Submission Type and Keyword.

Step 3. Click **View** in the Detail column for that submission to open the desired submission

Step 4. In the new window, click **Click to View** to open the report.

*Drilling and completion submissions are labelled as WRS under Submission Type.*

*Only submissions submitted under the user account being used to view submissions are visible. To view other account submissions the user must be logged in under the associated account.*

*Submissions for Fracture Fluid Composition Data and Water Source data are also listed. See sections 3.7 and 4.8, respectively, to view those submission types.*

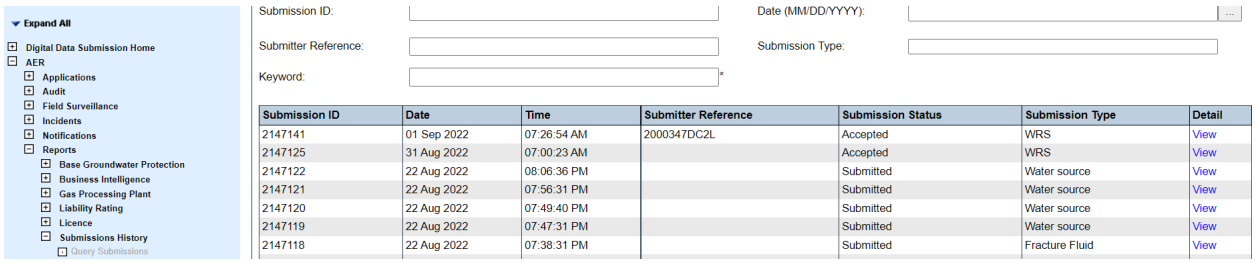



**Figure 36. Submission History screen**

# 3 Fracture Fluid Composition Data [Fracture Fluid Composition Data]

## 3.1 Fracture Fluid Composition Data Introduction

For nine or fewer well event sequences, these data may be submitted either through one of the system's interactive web forms or in a file that contains the data organized into an AER-prescribed format.

For nine or fewer drilling well event sequences, most data submitted through the Fracture Fluid Composition Data forms can be amended by selecting "Amend Fracture Fluid By File" or "Amend Fracture Fluid By Form." The exceptions are treatment type, top depth, base depth, and perforation date.

These data can be changed through DDS by selecting "Submit Amendment" in the Well Drilling Completion Data section as per section 2.7 in this manual.

For well event sequences greater than nine, these data may only be submitted through forms on DDS and not in a file.

For drilling well event sequences greater than nine, all data submitted through the Fracture Fluid Composition Data forms can be amended, including well name, treatment type, top depth, base depth, perforation date, and UWI.

Electronic submissions are not accepted until all data entry rules are satisfied. If submitting data using an interactive web form, submission errors will be identified with messages specific to the error in question. If submitting fracture fluid composition data by uploading a file, users may validate the data prior to submission by using the "Validate and Submit Fracture Fluid by File" function in DDS. Once a submission is accepted, a page indicating this is displayed that lists all the data submitted. Print this page for recordkeeping purposes.

Submission of data for fracture injectivity tests is not required under *Directive 059*.

Fracture Fluid reports using AER data are produced by a third party and are available at www.fracfocus.ca.

## 3.2 Validation Rules for Fracture Fluid Composition Data File and Form Submissions

Each XML and CSV file submission of fracture fluid composition is governed by the following constraints:

- Data for one licence number and UWI can be submitted at a time
- One XML/CSV file for each UWI
- Up to nine UWIs for each well licence
- Up to 50 drilling UWIs (i.e., wellbores) per well licence
- Up to 100 fracture intervals or stages for each UWI
- Up to 100 fracture components for each fracture interval or stage
- Up to 100 ingredients for each fracture component

Some data values must be exactly the same as seen on the CSV generator file (e.g., uppercase "Fracture" will be accepted but lowercase "fracture" will not). Check the lists on the CSV generator file or use the generator file and the drop-down lists to create a CSV file with the AER-prescribed values.

Use table 16 as a guide for data entry. The table lists out descriptions, acceptable formats and validation rules for each data element used for file submissions and its corresponding field names for form submissions.

**Table 16. Fracture fluid composition data schema, including field names and required contents**

| Data Element/Field Name | Data Description | Data/Schema Validation |
|---|---|---|
| **Licence** | | |
| licencePrefix | The alpha character at the beginning of the numeric licence number, if applicable, as assigned by the AER.<br>Only exists for older licences. | String, 1 character.<br>Value must be from A to Z except the following: E to H, T to W. |
| licenceBody/Well Licence | A 7 digit number assigned by the AER for an approved well application. | Integer, 7 digits.<br>Include leading 0's |
| licenceSuffix | The alpha character at the end of the numeric licence number, if applicable, as assigned by the AER.<br>Only exists for older licences. | String, 1 character.<br>Value must be from A to Z. |
| **Unique Well Identifier (UWI)**<br>**Note: UWI has completion data of 'Fracture' or 'Multi-stage Fracture' in AER database.** | | |
| SS | Survey system portion of the Unique Well Identifier (UWI). Alberta uses the Dominion Land Survey (DLS), assigned an SS value of 1. | Value must be 1. |
| LE | Location Exception code of the UWI. | String value, 2 characters<br>If string, value must be from AA to HZ except I or O.<br>If numeric, value must be from 00 to 99 except for 01.<br>Can also accept F, O, S, or W as the first character. Second character is numeric 0 to 9 except 1. |
| LSD | Legal Subdivision portion of the UWI. | Integer, 2 digits.<br>Value must be from 01 to 16. |
| SEC | Section portion of the UWI. | Integer, 2 digits.<br>Value must be from 01 to 36. |
| TWP | Township portion of the UWI. | Integer, 3 digits.<br>Value must be from 001 to 126. |
| RGE | Range portion of the UWI. | Integer, 2 digits.<br>Value must be from 01 to 30. |
| EW | W is a fixed character of the UWI denoting location is to the West of a particular longitudinal meridian. | Value must be W or w. |
| M | Meridian portion of the UWI. | Integer, 1 digit.<br>Value must be 4, 5, or 6. |
| ES | Event sequence portion of the UWI. | Integer, 1 digit.<br>Value must be 0 to 9 except 1. |
| **Fracture Interval Data** | | |
| perfTreatmentType/<br>Treatment Type | A fracture type previously submitted through DDS completion submission. | String enumeration.<br>Value must exist in the CSV Generator file on the lists tab.<br>FractureFluidsGenerateCSV |

| Data Element/Field Name | Data Description | Data/Schema Validation |
|---|---|---|
| topDepth/<br>Top Depth | The top of the fracture interval as previously submitted in DDS. | Decimal format 9999.99 |
| baseDepth/<br>Base Depth | The bottom of the fracture interval as previously submitted in DDS. | Decimal format 9999.99 |
| perfDate/<br>Treatment Date | The fracture date as previously submitted in DDS. | Acceptable date format for XML<br>YYYY-MM-DD.<br>Acceptable date format for CSV<br>2008-03-01<br>1-MAR-2008<br>MAR 1 2008<br>1 MAR 2008<br>03/01/2008<br>2008/03/01 |
| serviceProvider/<br>Service Provider | Company that conducted the hydraulic fracture operation on behalf of the licensee. Select from list. | String enumeration.<br>Value must exist in the CSV Generator file on the lists tab.<br>FractureFluidsGenerateCSV |
| fractureScenario/<br>Fracture Scenario | Wellbore configuration in the location of the fracture operation. Select from list. | String enumeration.<br>Value must exist in the CSV Generator file on the lists tab.<br>FractureFluidsGenerateCSV. |
| **Components** | | |
| componentType/<br>Component Type | Carrier fluid – main fracture fluid component.<br>Proppant – used to keep fractures open.<br>Additive – used to facilitate fracturing. | String enumeration.<br>Value must exist in the CSV Generator file on the lists tab.<br>FractureFluidsGenerateCSV. |
| proppantType/<br>Proppant Type | Proppant type. Select from list. | Enter for Proppant, NULL for Carrier Fluid and Additive.<br>String enumeration.<br>Value must exist in the CSV Generator file on the lists tab.<br>FractureFluidsGenerateCSV. |
| tradeName/<br>Trade Name | Name of proppant or additive as used by the supplier | Enter for Additive, optional for Proppant if known and NULL (not required) for Carrier Fluid.<br>String, 60 characters maximum |
| Supplier/<br>Supplier | Supplier of proppant or additive | Enter for Proppant and Additive, NULL (not required) for Carrier Fluid.<br>String, 60 characters maximum |
| Purpose/<br>Additive Purpose | Purpose of additive. Select from list. | Enter for Additive, NULL for Carrier Fluid and Proppant.<br>String enumeration.<br>Value must exist in the CSV Generator file on the lists tab.<br>FractureFluidsGenerateCSV. |
| carrierFluidType/<br>Fluid Type | Type of carrier fluid used. Select from list. | Enter for Carrier Fluid, NULL for Proppant and Additive.<br>String enumeration.<br>Value must exist in the CSV Generator file on the lists tab.<br>FractureFluidsGenerateCSV. |

| Data Element/Field Name | Data Description | Data/Schema Validation |
|---|---|---|
| Size/<br>Proppant Size | Proppant Size. Select from list. | Enter for Proppant, NULL for Carrier Fluid and Additive.<br>String enumeration.<br>Value must exist in the CSV Generator file on the lists tab.<br>FractureFluidsGenerateCSV. |
| unitOfMeasure/<br>Unit of Measure | Unit of measure or concentration of an additive. Select from list. | Enter for Additive,<br>String enumeration.<br>Value must exist in the CSV Generator file on the lists tab.<br>FractureFluidsGenerateCSV. |
| volumeWeight/<br>Volume/Weight | Weight in metric tonnes for Proppant.<br>Volume in cubic metres for Carrier Fluid. | Decimal format 99999999.999<br>Value must be from 0.001 to 9999999.999. |
| **Ingredients** | | |
| casNumber/<br>CAS Number<br>HMIRC # | Chemical Abstract Number assigned to an ingredient, if available.<br>"Not Available" when CAS # is not available.<br>HMIRC Approval number if ingredient is hazardous and a trade secret.<br>"Trade Secret" if ingredient is a trade secret. | If Trade Secret is "Yy," casNumber must be HMIRC # or "Trade Secret"<br><br>If Trade Secret is "Nn," casNumber must be up to 10 numeric digits or "Not Available." |
| ingredientName/<br>Ingredient/Family Name | Name of ingredient or chemical family | String, 120 characters maximum |
| maxConcinComp/<br>Maximum Concentration in Component (% by mass) | Maximum concentration of an ingredient in a carrier fluid, proppant, or additive | Decimal format 999.999999<br>Value must be from 0 to 999 |
| maxConcinHydraulicFluid/<br>Maximum Concentration in Fluid (% by mass) | Maximum concentration of an ingredient in the total hydraulic fracturing fluid | Decimal format 999.999999<br>Value must be from 0 to 999 |
| tradeSecret/<br>Trade Secret | Whether an ingredient is a trade secret or not | Value must be Y, y, N, or n |

If the value to be submitted is not in the values listed in the XML schema or CSV generator file (figure 37), send a request to WellDataServices@aer.ca to have the item added to the AER's reference table (see section 8).

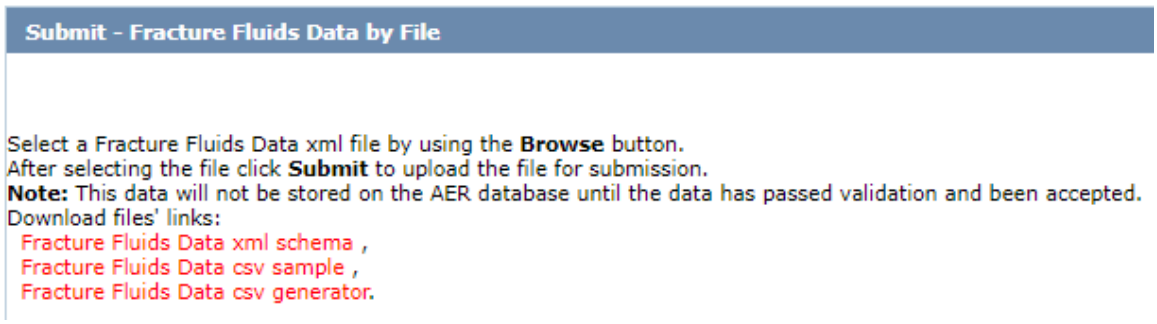



**Figure 37. Links to XML schema and CSV generator**

## 3.3 Submit Fracture Fluid Composition Data by File [`Validate and Submit Fracture Fluid by File`]

This functionality allows the user to validate without submission or to validate and submit a CSV or XML file of fracture fluid composition data.

DDS can accept data prepared in an AER-prescribed XML file format. Under the Validate and Submit Fracture Fluid By File menu item the **Fracture Fluids Data xml schema** link brings up the XML schema. Ensure the data is consistent with the constraints and the lookup lists shown on the schema.

DDS can only accept data created within a spreadsheet if the file is in CSV file format. The **Fracture Fluids Data csv generator** link brings up the CSV template. This template contains a data sample as well as lookup lists. Create CSV files in accordance with the AER-prescribed format found in the CSV generator. The CSV generator works best with Excel 2010. Users use the CSV generator at their own risk.

Data entered into the CSV generator and saved as a CSV file may be subject to Excel-specific formatting that will render the file unacceptable for the file validation process. Examples include the following:

- removal of leading zeroes from well licence numbers
- a single 0 in the “le” column (there needs to be a leading zero; e.g., 00, 02, etc.)
- removal of trailing zeroes on data that requires a specific number of decimal places (e.g., volume weight [3 decimal places] and maximum concentration columns [6 decimal places each])

Through experience, it has been found that the file is rendered unacceptable if a CSV file is saved, closed, and then reopened in Excel. To avoid this, it is recommended to validate or submit the file while it is still open or to submit from a saved and closed state.

Fracture fluid data cannot be submitted if fracture interval data has not already been submitted through DDS. Fracture Fluid Submission by file demo videos are available at https://www.youtube.com/playlist?list=PLKpki4HwQKNQeO7-zaq9m7MSjxirTtRpd.

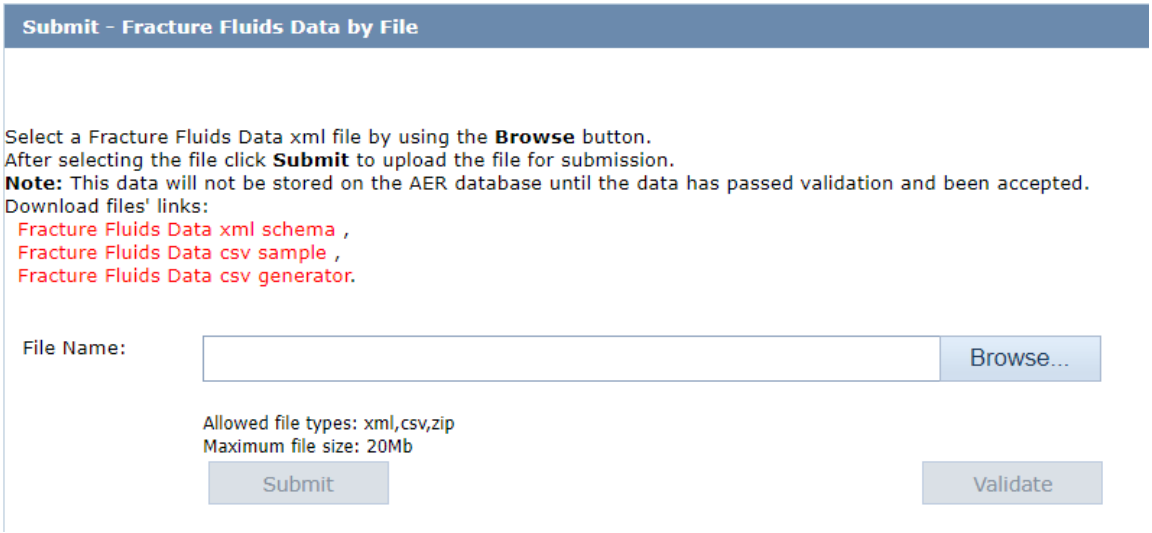



**Figure 38. Validate and Submit Fracture Fluids Data by File screen**

### Process Steps for XML File Preparation and Submission

Step 1. Download and use the XML schema from the DDS Well Drilling Completion > Data submission system > Fracture Fluid Composition Data > Validate and Submit Fracture Fluid by File (figure 38). The file the user creates needs to adhere to the format of the XML Schema

*Only one well licence may be included per XML submission.*

Step 2. After all data have been entered, save the file with an XML file extension.

*The XML file can also be prepared as a zip file for later submission. Zip files can only contain one file.*

Step 3. Using **Browse**, locate and select the XML file to be validated or submitted (figure 38).

Step 4. If only validation of the file is desired, click **Validate**. To submit the file, click **Submit**.

*Error messages will be displayed in red. If error messages appear, change the file according to the error messages and validate again.*

*Most common errors include the following:*

- *Non-alignment of licence number, UWI (drilling events only), fracture date, type, interval top, and interval base with interval data on AER system.*
- *Failure to include all leading zeroes on the well licence number.*
- *A single 0 in the "le" column (there needs to be a leading zero; e.g., 00, 02, etc.).*
- *Failure to exclude leading zeroes on LSD, section, township, range, or meridian.*

- *Failure to include all trailing zeroes on data that requires a specific number of decimal places (e.g., volumeWeight (3 decimal places), maximum concentration columns (6 decimal places)).*

Step 5. After a successful submission of all composition data for a fracture operation, log in to OneStop. Submit a PDF copy of the service company fracture job report using the alert generated by the fracture fluid composition data submission. Include all the data required for fracture operations listed in *Directive 059*, section 7.4. Refer to the quick reference guides on the OneStop Help page on the AER website under Guides for Daily Reports (Tours) (https://www.aer.ca/regulating-development/project-application/onestop/onestop-help).

*There is no requirement to print the AER submission report and send to the AER Core Research Centre.*

**Process Steps for CSV File Preparation and Submission**

Step 1. Download and use the CSV template from the DDS Well Drilling Completion Data submission system > Fracture Fluid Composition Data > Validate and Submit Fracture Fluid (figure 38) and use it with the following caveats:

a) The column sizes can be adjusted.

b) Additional columns cannot be inserted or added.

c) The order of the columns cannot be changed.

d) There are restrictions on number of UWIs, stages, etc.

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | #AER-FracFluid Composition Data CSV.v1.0 | | | | | | Copy New Row | | | | | | Save As CSV | | Reset |
| 2 | licencePrefix | licenceBody | licenceSuffix | ss | le | lsd | sec | twp | rge | ew | m | es | perfTreatmentType | topDepth | baseDepth |
| 3 | | 20970 | | 1 | 00 | 1 | 1 | 1 | 6 | W | 4 | 0 | Fracture | 777.00 | 1395.10 |
| 4 | | | | | | | | | | | | | | | |
| 5 | | | | | | | | | | | | | | | |

**Figure 39. CSV generator**

Step 2. Enter the data in the row immediately after the data headers starting with row 3 (figure 39). Duplicate the row up to the point where the data changes. For example, the licence, UWI, fracture event and fracture component must be copied for each of the ingredients of that component.

*Numbers that start with a 0 should be entered with an apostrophe (e.g., licence 0401234 is entered as '0401234) or change the cell format to Text.*

*Only one well licence may be included per CSV file submission. Each CSV file cannot have multiple worksheets or tabs.*

Step 3. After all data has been entered, click Save As CSV and save the file with a CSV file extension.

*The CSV file can also be prepared as a zip file for later submission. Zip files can only contain one file.*

Step 4. Using **Browse**, locate the CSV file to be validated or submitted. When the file name is seen in the Browse window go to the next step.

Step 5. If only validation of the file is desired, click **Validate**. To submit the file, click **Submit**.

*Error messages will be displayed in red. If error messages appear, change the file according to the error messages and validate again.*

*Most common errors include the following:*

- *Non-alignment of licence number, UWI (drilling events only), fracture date, type, interval top, and interval base with interval data on AER system.*
- *Failure to include all leading zeroes on the well licence number.*
- *A single 0 in the "le" column (there needs to be a leading zero; e.g., 00, 02, etc.).*
- *Failure to exclude leading zeroes on LSD, section, township, range, or meridian.*
- *Failure to include all trailing zeroes on data that requires a specific number of decimal places (e.g., volumeWeight (3 decimal places), maximum concentration columns (6 decimal places)).*

*Some of these errors are caused by Excel autoformatting features. When editing a CSV file in Excel, keep it open while trying to validate and submit it. Also, viewing the file in Notepad will reveal the data in its final form, which may make apparent errors that were not visible in Excel. Do not edit a CSV file in Notepad. Do all edits in Excel or another application capable of editing and saving CSV files.*

Step 6. After a successful submission of all composition data for a fracture operation, log in to OneStop. Submit a PDF copy of the service company fracture job report using the alert generated by the fracture fluid composition data submission. Include all the data required for fracture operations listed in *Directive 059*, section 7.4. Refer to the quick reference guides on the OneStop Help page on the AER website under Guides for Daily Reports (Tours) (https://www.aer.ca/regulating-development/project-application/onestop/onestop-help).

*There is no requirement to print the AER submission report and send to the AER Core Research Centre.*

## 3.4 Amend Fracture Fluid Composition Data by File [Amend Fracture Fluid by File]

This functionality allows the user to validate or amend an XML or CSV file.

### 3.4.1 Amend Fracture Fluid Composition Data Using a CSV or XML File

The XML schema can be downloaded from DDS under Well Drilling Completion Data > Fracture Fluid Composition Data > Validate and Submit Fracture Fluid by File (figure 40).

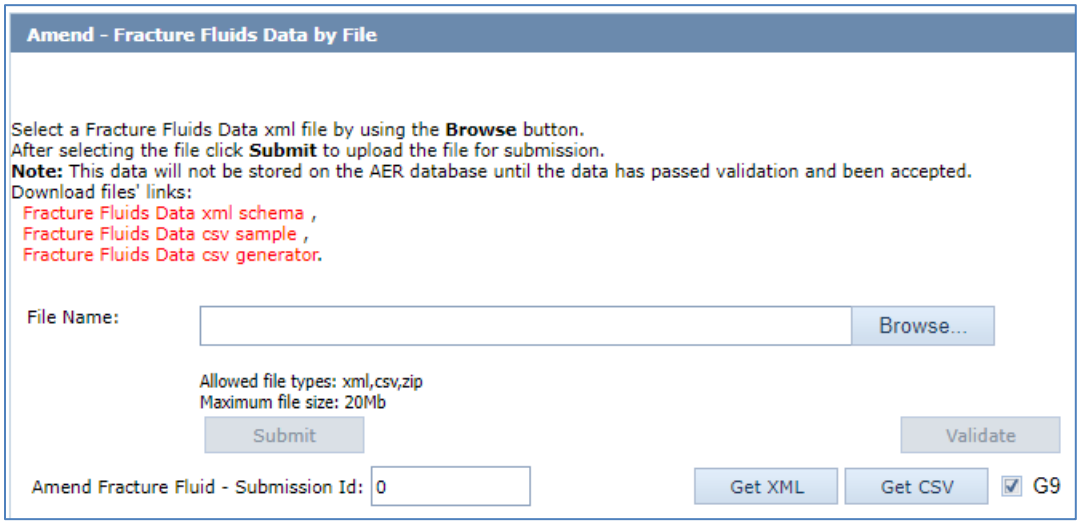



**Figure 40. Amend Fracture Fluids Data by File screen**

**Process Steps**

Step 1. Retrieve the existing XML or CSV file by entering the submission ID obtained when the original file was submitted in the Amend Fracture Fluid – Submission ID box (figure 40) and click **Get XML** or **Get CSV**. A popup box will appear allowing the file to be saved (XML) or opened or saved (CSV). Click Cancel to return to the main screen. Amend the data as needed and save the file.

*Use the G9 check box to retrieve data for event sequences greater than nine. However, fracture fluid composition data for event sequences greater than nine can only be amended by form amendment (see section 3.6).*

Step 2. Using Browse, locate and select the amended XML or CSV file to be validated or submitted.

Step 3. If only validation of the file is desired, click **Validate**. To submit the file, browse the file to be uploaded and click **Submit**.

*Error messages will be displayed in red. If error messages appear, change the file according to the error messages and validate again.*

*If the amendment includes composition data for intervals that have not been previously submitted, these cannot be added through the amend process. These have to be added using the submit process by file or form.*

*If the data amendment requires an update to the submitted service company job report, amend the report submission in OneStop to replace the previous report with the report with the amended data. This does not need to be completed if the amendment aligns with the original fracture job report.*

*If an error is shown when trying to submit an amendment by file and the message is "No submission with status SUBMITTED found for Submission ID: XXXXXX." Follow the procedure below:*

*Check if there is an amendment in progress by form. This will prevent the amendment by file. Check by clicking the Amend Fracture Fluid By Form menu item in DDS. Enter the licence number and proceed through to the Completions screen. If there is an amendment in progress the status will be "Saved Amendment." To clear this, go to the Amend & Print tab and either click **Cancel** to clear the amendment or click **Amend** to proceed with the amendment.*

### 3.4.2 Delete Fracture Fluid Composition Data by CSV File

This allows the user to delete a fracture fluid composition data submission using a blank CSV file to overwrite a previously submitted CSV file or form submission.

**Process Steps**

Step 1. Retrieve the CSV file for the submission to be deleted by clicking on Amend Fracture Fluid By File. Enter the submission ID in the Amend Fracture Fluid – Submission Id box and click **Get CSV**. On the file, delete all data entry leaving the Licence Prefix, LicenceBody, Licence Suffix and UWI components in place on row 3 (figure 41). Also leave header rows 1 and 2.

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | #AER-Fracture Fluid Composition Data CSV.v1.0 | | | | | | | | | | | | | | | | | | | |
| 2 | licencePre | licenceBo | licenceSu | ss | le | lsd | sec | twp | rge | ew | m | es | perfTreat | topDepth | baseDept | perfDate | servicePro | fractureSc | componer | proppant1 |
| 3 | | 2000609 | | 1 | 4 | 2 | 3 | 81 | 24 | W | 5 | 2 | | | | | | | | |
| 4 | | 2000609 | | 1 | 4 | 2 | 3 | 81 | 24 | W | 5 | 2 | | | | | | | | |
| 5 | | 2000609 | | 1 | 4 | 2 | 3 | 81 | 24 | W | 5 | 2 | | | | | | | | |

**Figure 41. Delete submission example**

Step 2. Name the delete file and click **Save**.

Step 3. Enter the submission ID in the Amend Fracture Fluid – Submission Id box again.

Step 4. **Browse** for the delete file and ensure the file name is shown in the file name window.

Step 5. Click **Validate** to check the file is valid or click **Submit** to delete the submission.

It is recommended that users keep the CSV file open after saving the file when edits have been made on the file. This way, the saved CSV formats are kept intact on submission.

For submissions to delete a previous submission using a CSV spreadsheet, convert the LicenceBody and LE code to text format to preserve the leading zeroes as stipulated in section 3.2.

## 3.5 Submit Fracture Fluid Composition by Form [Save and Submit Fracture Fluid by Form]

Fracture fluid data cannot be submitted if fracture interval data has not been submitted through DDS.

This functionality allows the user to enter fracture fluid composition data through an interactive web form to do the following:

- create a new submission via a web form
- submit (and validate)
- save (and validate) submission as a work in progress
- amend saved submission
- view previous submissions and saved submissions

### 3.5.1 Wells Tab: Select a Licence and UWI

The Wells tab allows the user to select the UWI to report the fracture fluid composition data as well as create UWIs for wells with more than nine event sequences.

A single submission can contain up to nine UWIs.

**Process Steps**

Step 1. In the Wells tab, select a Licensee Name if applicable. Enter a valid 7 digit well licence number including leading zeroes and click **Search** (figure 42).

*For older well licences that have been assigned a single string character for licence prefix and/or suffix, enter the prefix in the left-hand box and the licence suffix in the right-hand box.*

*The system displays all associated UWIs under the licence. Production String UWIs are listed but greyed out (e.g., a completed zone) as these are ineligible for fracture fluid submission.*

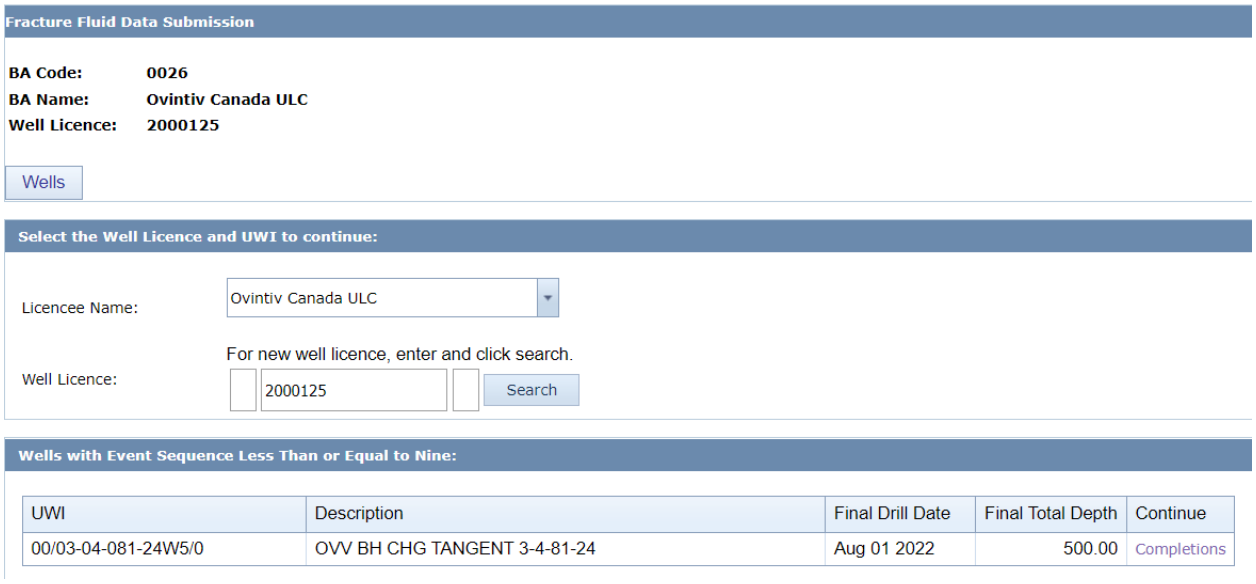



**Figure 42. Fracture Fluid Data Submission Licence Entry screen**

Step 2. For the UWI for which fracture fluid composition data are to be entered, (figure 42) click **Completions** under Continue for the desired UWI to navigate to the next tab and see section 3.5.2.

### 3.5.2 Completions Tab: Select Fracture Interval Record

The Completions tab allows the user to select the fracture interval record to report data as well as identify the service provider of the fracture operation and the fracture scenario based on the wellbore configuration.

The page displays completion operation types, Fracture and Multi-Stage Fracture that have previously been submitted or, in the case of wells with more than nine event sequences, the fracture record created via this interface.

If the well was not fractured or a fracture interval record has not been submitted, a blank screen will be displayed with the message “No data to display.”

A single submission can have up to 100 fracture interval records per UWI.

**Process Steps**

Step 1. Select the fracture interval to report by clicking on it (figure 43).

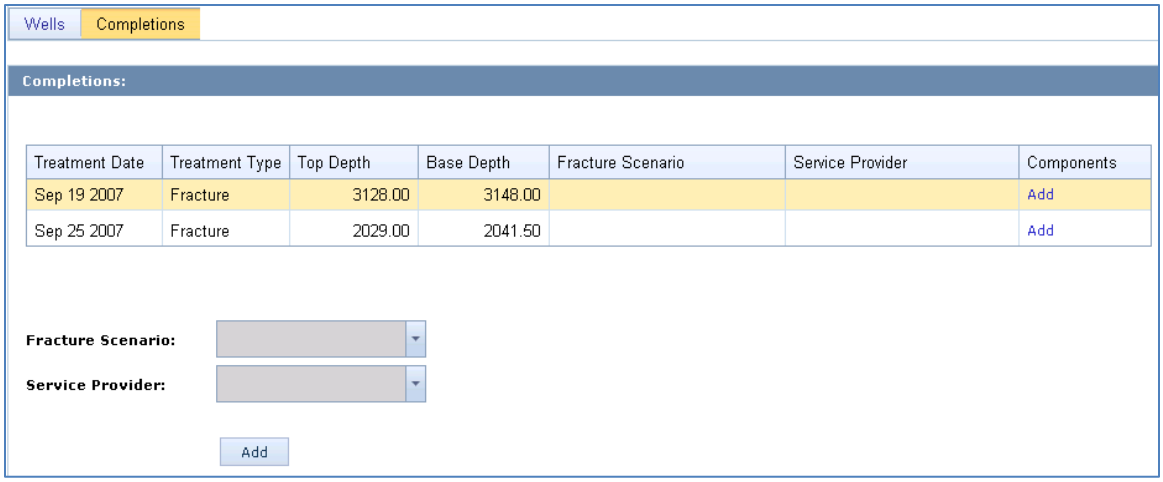



**Figure 43. Fracture Records screen**

Step 2. Click **Add** at the bottom of the page to enable the form.

*There is another Add components hyperlink on the right side of the page. Only click on this hyperlink when fracture scenario and service provider have been selected and the user is ready to add the components. If the user has incorrectly clicked on the Add components hyperlink without specifying fracture scenario and service provider, just go back to the Completions tab by clicking on it.*

*To add the fracture scenario and service provider click **Update**.*

Step 3. Select the Fracture Scenario from the drop-down list.

*Identify the closest wellbore configuration applicable to the reporting interval.*

Step 4. Select the Service Provider from the drop-down list.

*If the fracture scenario or service provider is not on the drop-down list, send a request to WellDataServices@aer.ca to have the fracture scenario or service provider added to AER's reference table (see section 8).*

Step 5. Save the record or click **Cancel** to undo.

Step 6. Continue to add fracture scenario and service provider into other fracture interval records to be submitted.

Step 7. After the fracture scenario and service provider are populated for each fracture interval to be submitted, click **Add** under the Components column for the selected interval to begin entering fracture component data in the next tab.

The user is now ready to add fracture component data for each of the selected fracture intervals. See section 3.5.3.

### 3.5.3 Fracture Components Tab: Enter Fracture Components

The Fracture Components tab allows the user to report the components of the fracture fluid pumped into the wellbore at each interval or stage. Each fracture component is categorized into three types: Carrier Fluid, Proppant, or Additive.

A single submission can have up to 100 fracture components for each fracture interval or stage.

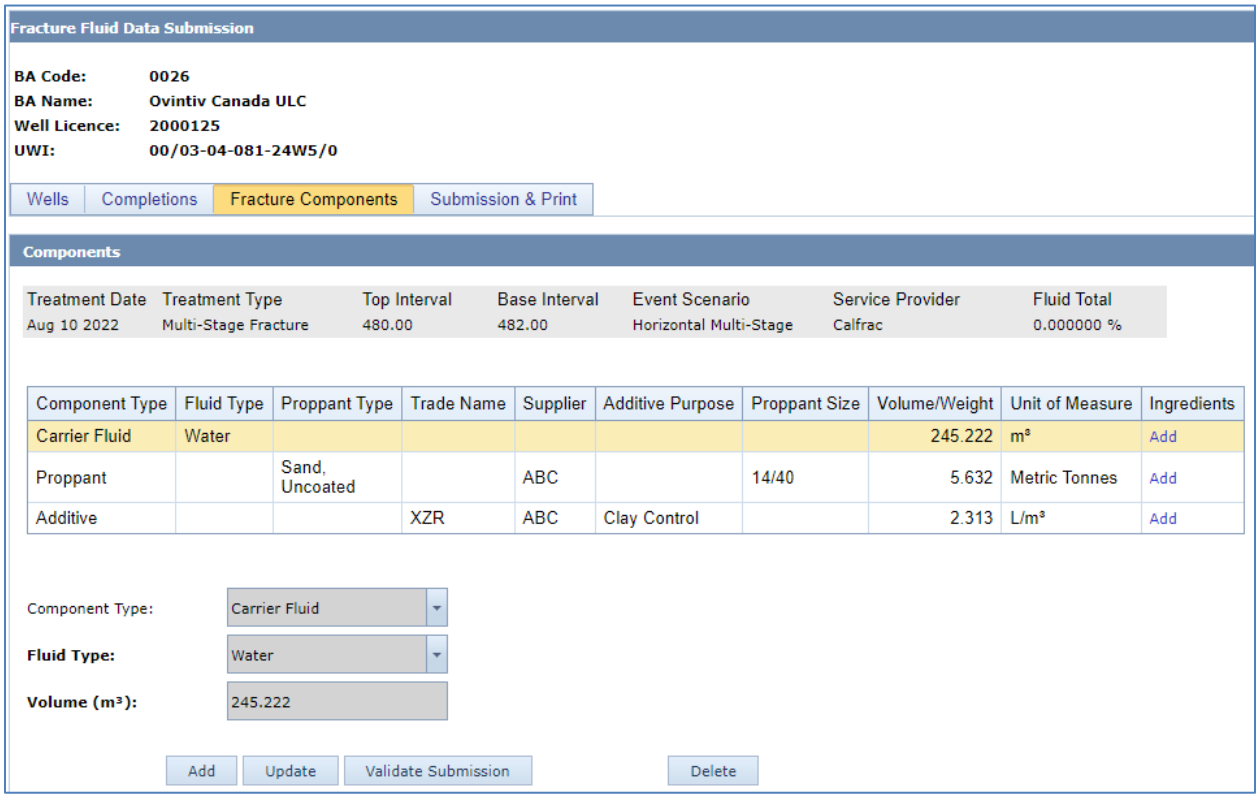



**Figure 44. Fracture Components screen**

**Process Steps**

Step 1. Ensure the correct fracture interval is displayed prior to continuing to enter fracture component data (figure 44).

Step 2. Click **Add** at the bottom of the page to enable the data entry form.

Step 3. Select the Component Type from the drop-down list.

*Depending on the component type, data fields, and cells applicable to each specific component type are displayed. Data labels in bold font are mandatory and those not bolded are optional.*

Step 4. Select **Carrier Fluid** from the drop-down when entering fracture component data for carrier fluids. Enter at least one carrier fluid for submission acceptance.

Step 5. Select the Carrier Fluid Type from the drop-down list.

*If the fluid type is not on the drop-down list, send a request to WellDataServices@aer.ca to have this carrier fluid type added to AER's reference table (see section 8).*

*If prepackaged water mixed with chemicals (e.g., potassium chloride) was used, report it as a Water carrier fluid and report the water and the chemicals as ingredients.*

Step 6. Enter the carrier fluid volume in cubic metres.

Step 7. Save the carrier fluid record or click **Cancel** to undo.

Step 8. Continue entering all other carrier fluids used for the fracture interval.

*If proppant was used, select **Proppant** from the drop-down list. All associated mandatory and optional data fields for proppant will be displayed on the page.*

Step 9. Select the Proppant Type from the drop-down list

Step 10. Enter the Trade Name, if applicable

Step 11. Enter the name of the Supplier

Step 12. Select the proppant Size from the drop-down list

Step 13. Enter the Weight of the proppant used in metric tonnes

Step 14. **Save** the proppant record or click **Cancel** to undo

Step 15. Continue entering all other proppant types used for the fracture interval.

*If the proppant type or the proppant size is not on the list, send a request to WellDataServices@aer.ca to have the proppant type or size added to AER's reference table (see section 8).*

*If additives were used, select **Additive** from the drop-down list. All associated mandatory and optional data fields for additive will be displayed on the page.*

Step 16. Enter the Trade Name

Step 17. Enter the name of the Supplier

Step 18. Select the Purpose from the drop-down list

Step 19. Enter the Volume/Weight of the additive and select the Unit of Measure from the drop-down list.

*Express the volume in standard temperature and pressure of 15°C and 101.325 kPa.*

Step 20. Save the additive record or click **Cancel** to undo

Step 21. Continue entering all other additives used for the fracture interval.

*If the additive purpose or the unit of measure is not in the drop-down list, send a request to WellDataServices@aer.ca to have a new additive purpose or unit of measure added to AER's reference table (see section 8).*

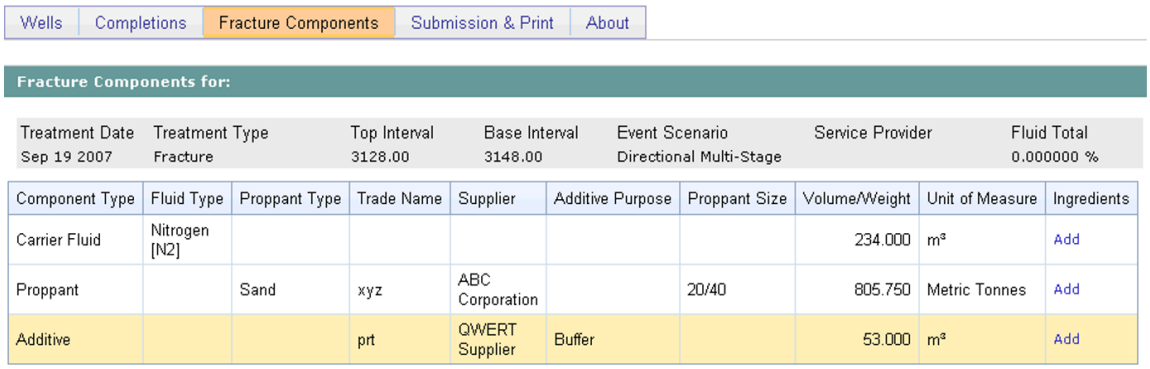



**Figure 45. Fractured Component screen**

Step 22. After all carrier fluids, proppants, and additives have been entered, click **Add** under the Ingredients column to begin entering ingredient data for each of the carrier fluids, proppants, and additives.

The user is now ready to add component ingredients. See section 3.5.4.

### 3.5.4 Component Ingredients Tab: Enter Component Ingredients

The Component Ingredients tab allows the user to report each ingredient in a carrier fluid, proppant, or additive used in the fracturing operation. It also allows the user to identify if the ingredient is a trade secret and to indicate the Chemical Abstract Service (CAS) number and Hazardous Material Information Review Commission (HMIRC) number.

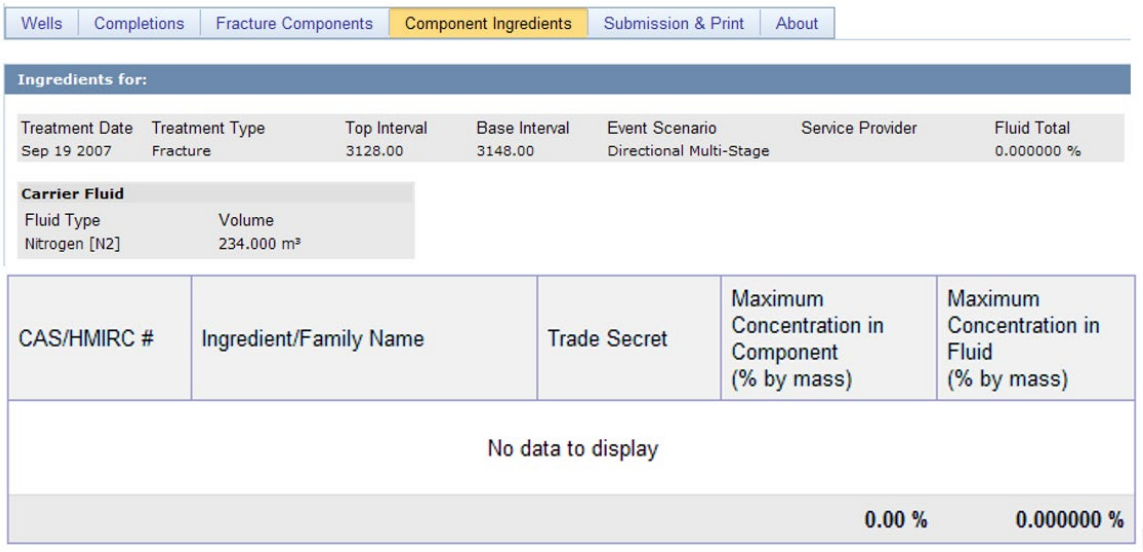



**Figure 46. Fracture Component Ingredient screen**

As each ingredient is entered and saved, the system calculates the sum of all ingredients' maximum concentrations in component (e.g., additive) and in the fluid as a whole (figure 46).

The Maximum Concentration in Component (% by mass) of ALL ingredients in each fracture component should be greater than or equal to 100%.

The Maximum Concentration in Fluid (% by mass) of ALL ingredients for ALL fracture components for the fracture interval should be greater than or equal to 100%.

For an example on how this is calculated, refer to section 3.5.4.1, "Maximum Concentrations (an Example)". If the maximum concentration in component is greater than 100%, the warning message below will appear on the Component Ingredients screen. Similarly, if the maximum concentration in fluid is greater than 110% the warning message below (figure 47) will appear. However, these are prompts to check the data but will not prevent submission if the data is unchanged.

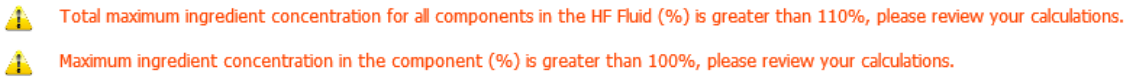



**Figure 47. Warning messages**

A single submission can have up to 100 component ingredients for each carrier fluid, proppant, and additive.

## Process Steps

Step 1. Click **Add** at the bottom of the page to enable the data entry form (figure 48).

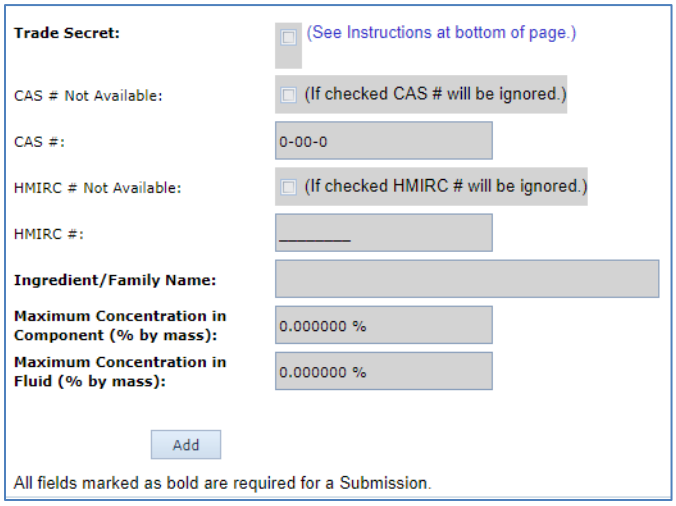



**Figure 48. Fracture Component Ingredient screen (before Add has been clicked)**

Step 2. If ingredient is a trade secret, check the Trade Secret check box.

*If the ingredient is a trade secret, in the Hazardous Materials Information Review Commission number (HMIRC #) field (see figure 49), enter the HMIRC # indicating that the ingredient is exempt from the HMIRC requirement to disclose the chemical identity or*

*concentration of the ingredient on the basis that it is confidential business information (i.e., a trade secret). In the Ingredient Name field, enter the chemical family name of the ingredient. If the HMIRC # is not available, check the* ***HMIRC # Not Available*** *check box. It is assumed that the ingredient is nonhazardous if no HMIRC # is available.*

*The system will not save any HMIRC # entered if the* ***HMIRC # Not Available*** *has a check mark.*

*The same HMIRC # may be assigned to multiple ingredients by HMIRC.*

*If the ingredient is a trade secret and is considered nonhazardous, In the Chemical Abstract Service number (CAS #) field, enter "trade secret" and in the Ingredient Name field, enter the chemical family name of the ingredient.*

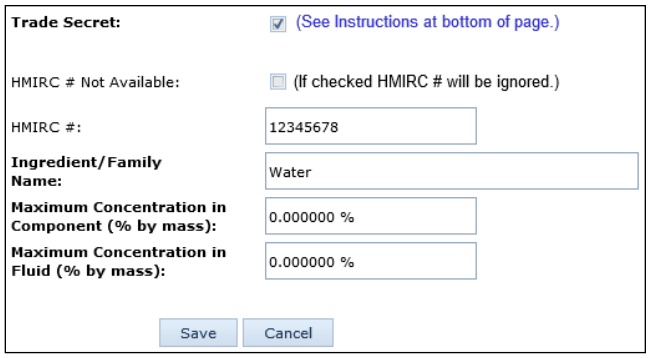



**Figure 49. Fracture Component Ingredient screen – Trade Secret**

Step 3. If the CAS # is not available, check **CAS # Not Available** (figure 50).

Step 4. Enter the CAS # if none of the above applies

*The system will not save any CAS # entered if the* ***CAS # Not Available*** *has a check mark.*

*CAS #s are unique and cannot be used for multiple ingredients within the same reported component (carrier fluid, proppant, and additive).*

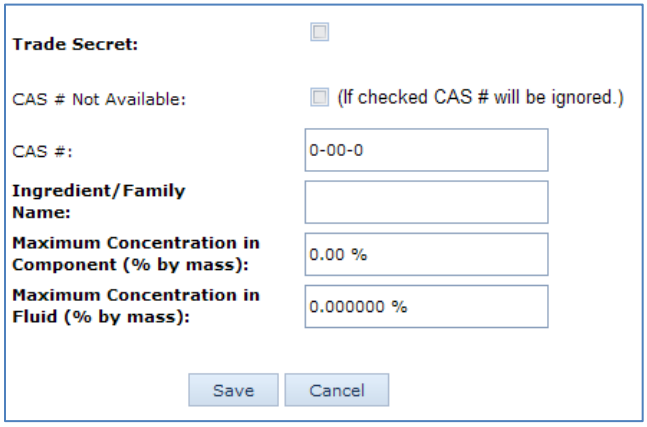



**Figure 50. Fracture Component Ingredient screen – Non-Trade Secret**

Step 5. Enter the Ingredient/Family Name.

*Family Name is the chemical family name (e.g., alkanes).*

*If a trade secret, enter the chemical family name. Otherwise, enter the ingredient name.*

Step 6. Enter the Maximum Concentration in Component (% by mass).

*For each ingredient, enter the maximum concentration by mass in the component (carrier fluid, proppant, and additive).*

Step 7. Enter the Maximum Concentration in Fluid (% by mass).

*For each ingredient, enter the maximum concentration by mass in the fracture fluid used for the interval.*

Step 8. Save the ingredient record or click **Cancel** to undo.

Step 9. Continue entering all other ingredients used in each component.

Step 10. After all ingredients for a component have been entered, enter the ingredients for the next component (see section 3.5.3).

*The fluid total sums up the maximum concentration of the hydraulic fluid once it is entered for each of the component ingredients.*

After all ingredients for each component have been entered, the user is ready to validate and submit (see section 3.5.5).

#### 3.5.4.1 Maximum Concentration (an Example)

Enter Maximum Concentration in Component and in Fluid in percentage by mass as Ingredients.

| | |
|---|---|
| Maximum Concentration in Component (% by mass) | Sums all the max concentrations in percentage by mass of ALL ingredients at the Component type level as entered.<br><br>Allowed values: ≥100%<br><br>ERROR: <100%<br>WARNING: >100% |
| Maximum Concentration in Fluid (% by mass) | Sums all the max concentration in Fluid in percentage by mass for ALL ingredients under all Component Types at the Fracture Interval level as entered.<br><br>Allowed values: ≥100%<br><br>ERROR: <100%<br>WARNING: >110% |

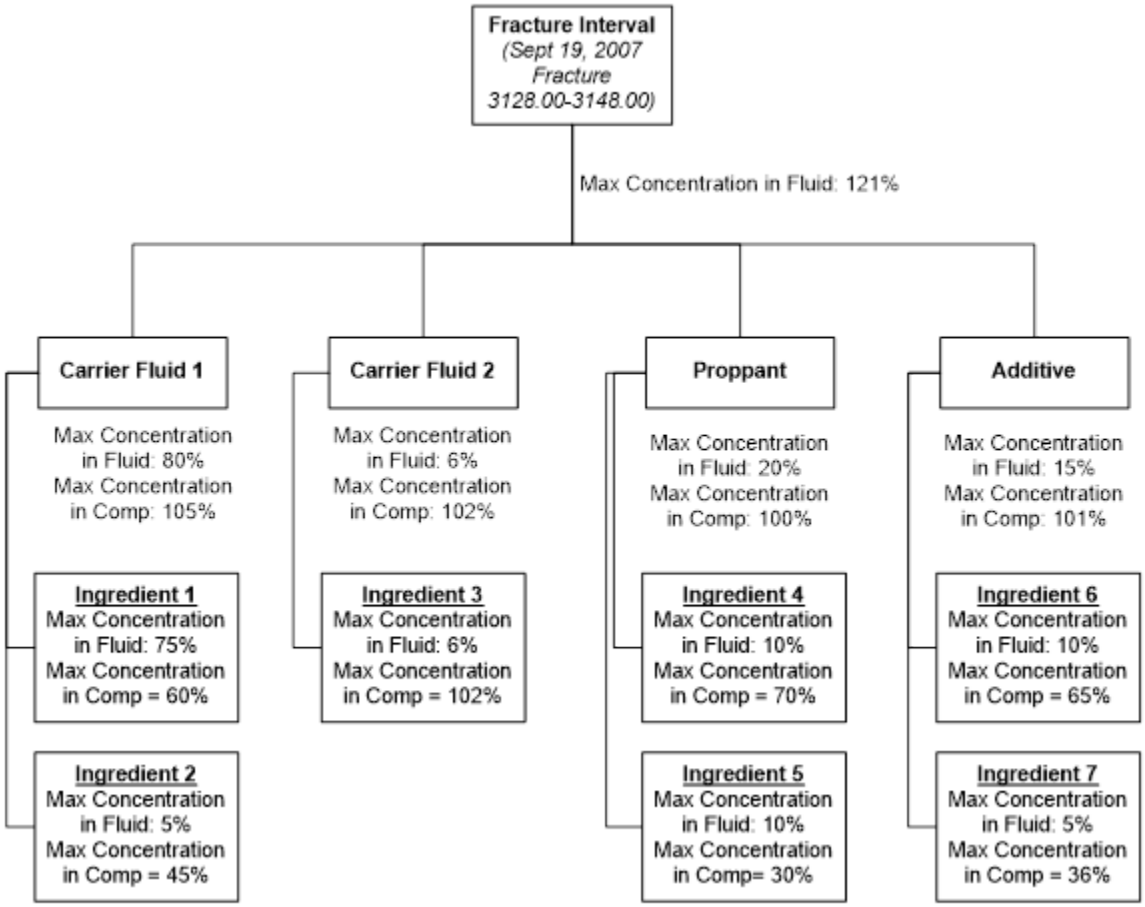



**Figure 51. Fracture fluid data example**

### 3.5.5 Validate, Submit, and Print Fracture Fluid Composition Data by Form

Validate, submit, and print the report after ALL data have been entered. Navigate to the Submission & Print tab.

**Process Steps**

Whenever **Save** is clicked while proceeding through a submission by form, the data is saved as part of a saved submission.

Step 1. The Submission & Print tab displays the following three options:

a) Validate – Validates data in the saved submission against business rules (see section 3.2). On validation, data that have errors will be displayed in red. Hover the cursor over the red data to display the ERROR message.

b) Submit – Validates and submits the data to the AER. On validation, data that have errors will be displayed in red. Hover the cursor over the red data to display the ERROR message.

c) Print – Displays a new window showing all the data under the saved submission.

Step 2. On a successful submission, a confirmation message appears in the page with the submission ID (figure 52). Retain a copy of this submission ID as it is required if the data is to be amended by file (see section 3.4).

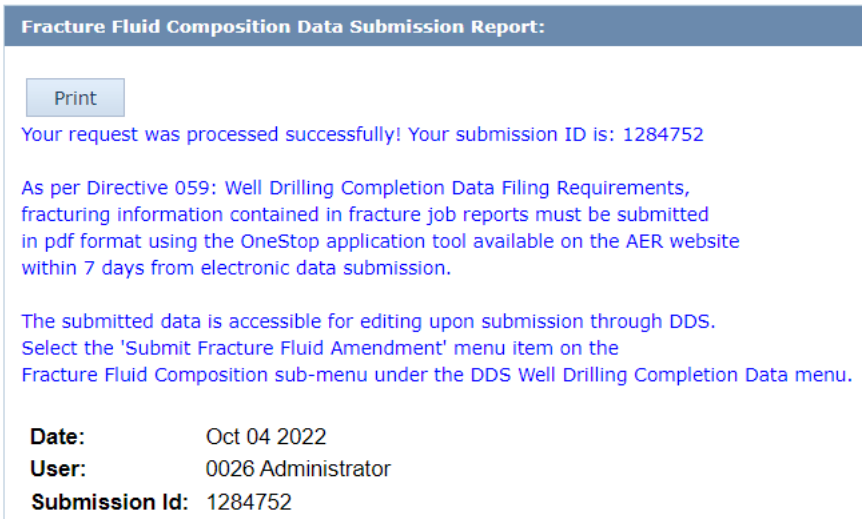



**Figure 52. Fracture fluid composition data submission report**

Step 3. DDS generates an email notification with the submission ID (figure 53).

**Figure 53. Successful submission email notification**

*There is no requirement to print the AER submission report and send to the AER Core Research Centre.*

### 3.5.6 Submission for a Well with More than Nine Event Sequences

The fracture type, date and interval in addition to the fracture fluid composition data for a fractured event sequence (ES) greater than nine can only be submitted via the interactive web form.

After a valid well licence number has been entered for a well that has data submitted for event sequences 0 and 2 – 9, an Extended Well Listing will appear (figure 54).

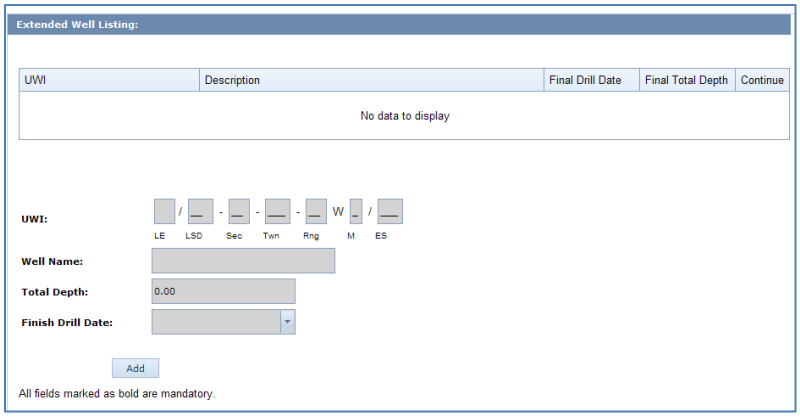



**Figure 54. Extended well listing**

## Process Steps

Step 1. Click **Add** to enable the data entry form.

Step 2. Create the UWI starting with event sequence ten.

*The system autopopulates a default UWI with the next available event sequence based on the UWI of the first event sequence (/0).*

*Change the Location Exception (LE) code and the Dominion Land Survey (DLS) portions, as needed, based on the actual bottom hole location of the wellbore.*

*The event sequence is autopopulated by the system in sequential order and cannot be modified by the user.*

Step 3. Enter the Well Name.

*The well name is autopopulated with the well name of the first event sequence (/0). Modify the well name as needed according to the bottomhole location of the event sequence being created.*

Step 4. Enter the Total Depth.

Step 5. Enter the Finish Drill Date.

Step 6. Save the well data created or click **Cancel** to undo.

Step 7. Create a fracture interval record by selecting the desired UWI (>9) and then click **Add Perfs**.

*This opens a data entry page where fracture interval records can be entered for a well with greater than nine event sequences (figure 55).*

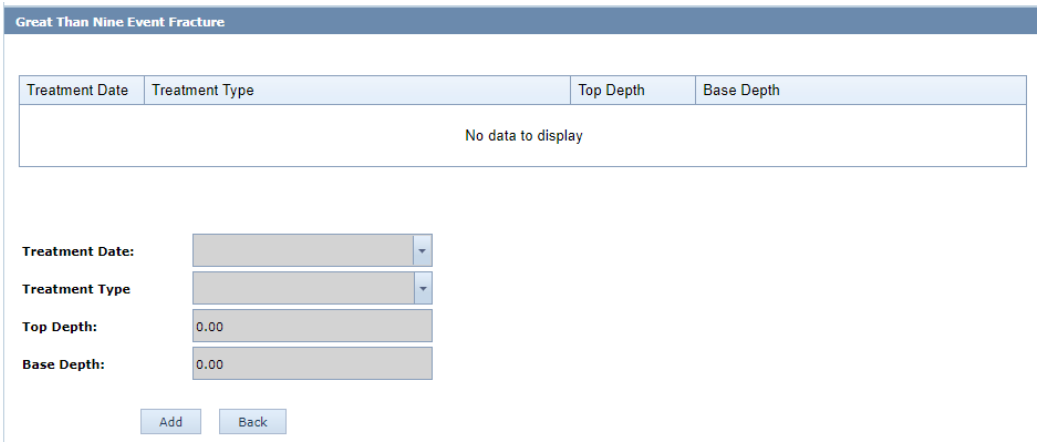



**Figure 55. Event Treatment screen**

Step 8. Click **Add** to enable the form or **Back** to return to the Wells tab (figure 55).

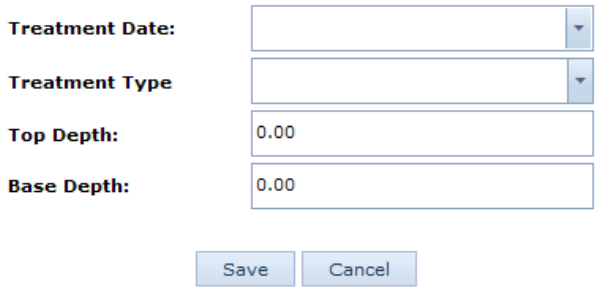



**Figure 56. Wells Tab screen**

Step 9. Enter the Treatment Date as the date the interval was fractured (figure 56).

*Enter a Treatment Date that is on or after the Finish Drill Date.*

Step 10. Select the Treatment Type between Fracture or Multi-Stage Fracture.

Step 11. Enter the top depth of the interval under Top Depth.

*Enter a value between 6 mKB and Total Depth, which is less than the Base Depth.*

Step 12. Enter the base depth of the interval under Base Depth.

*Enter a value between 6 mKB and Total Depth, which is greater than the Top Depth.*

Step 13. Save the fracture interval record or click **Cancel** to undo.

Step 14. Continue to add all fracture interval records associated with the well by clicking **Add** to activate the form (figure 55).

Step 15. When all fracture interval records have been added, click **Back** to return to the extended well listing (figure 55). Click **Completions** under Continue for the desired UWI.

The user is now ready to select the fracture interval record for which to report composition data (see section 3.5.2).

## 3.6 Amend Fracture Fluid Composition Data by Form [`Amend Fracture Fluid by Form`]

This functionality allows the user to amend fracture fluid composition data through an interactive web form and do the following:

- amend an existing fracture fluid composition submission via a web form
- submit (and validate) an amendment
- save (and validate) an amendment as a work in progress
- amend a saved amendment
- add additional components and component ingredients

### 3.6.1 Wells Tab: Select a Licence and UWI

The Wells tab allows the user to amend fracture fluid composition data. If amending fracture fluid for a well event greater than nine event sequences, the UWIs are listed under section 3.6.6.

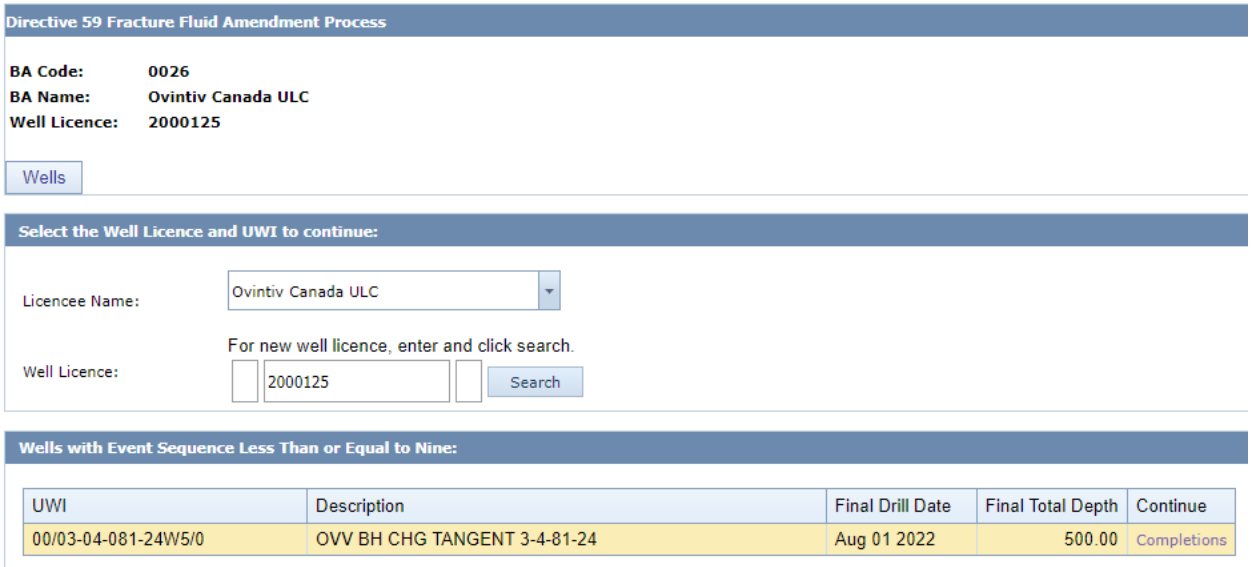



**Figure 57. Licence number entry screen**

**Process Steps**

Step 1. In the Wells tab, select a Licensee Name if applicable. Enter a valid 7 digit well licence number including leading zeroes and click **Search** (figure 57). Select the UWI to amend data by clicking on it.

*For older well licences that have been assigned a single string character for licence prefix or suffix, enter the prefix in the left-hand box and the licence suffix in the right-hand box.*

*The system displays only the UWIs that have fracture fluid data under the licence.*

Step 2. For the selected UWI for which fracture fluid composition data are to be amended, (figure 58) click **Completions** under Continue for the desired UWI to navigate to the next tab and see section 3.6.2.

*Users cannot amend fracture type, date, or interval through this function. If users wish to amend fracture type, date or interval submit an amendment request via the Submit Amendment menu item on the Well Drilling Completion Data menu, see section 2.7. If the fracture type, date, or interval are changed the data will be refreshed to show the new values and any related composition and water source data will be unchanged. However, if an interval is deleted the associated composition and water source data will be deleted and will have to be resubmitted if necessary.*

| UWI | Description | Final Drill Date | Final Total Depth | Continue |
|---|---|---|---|---|
| 00/04-02-081-24W5/0 | OVV BH CHG2 TANGENT 4-2-81-24 | May 14 2022 | 1,560.00 | Completions |

**Figure 58. Well licence details screen**

### 3.6.2 Completions Tab: Select Fracture Interval Record

The Completions tab allows the user to select the fracture interval record to amend data as well as amend the service provider and the fracture scenario. The page displays the completion operation types Fracture and Multi-Stage Fracture that have previously been submitted or, in the case of wells with more than nine event sequences, the fracture record created via this interface.

If the well was not fractured or a fracture interval record has not been submitted, a blank screen will be displayed with the message “No data to display.”

A single submission can have up to 100 fracture interval records per UWI.

**Process Steps**

Step 1. Select the fracture interval to report by clicking on it (figure 59).

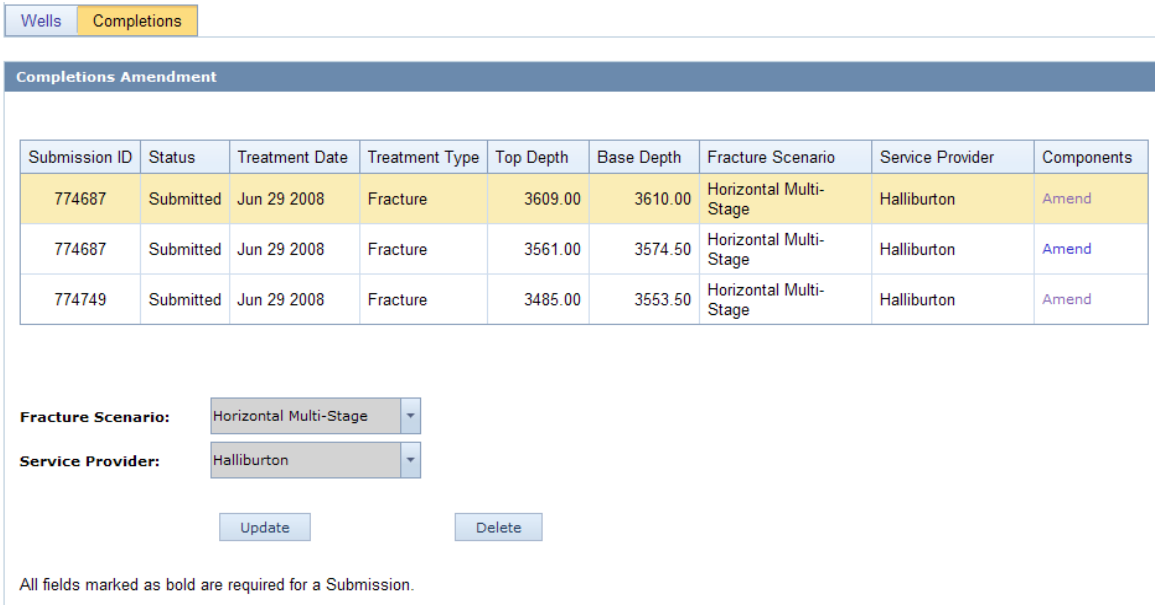



**Figure 59. Fracture Completions Amendment screen**

Step 2. Click **Update** at the bottom of the page to enable the form and amend fracture scenario and service provider.

Step 3. Select the Fracture Scenario from the drop-down list.

*Identify the closest well bore configuration applicable on the reporting interval.*

Step 4. Select the Service Provider from the drop-down list.

*If the fracture scenario or service provider is not on the drop-down list, send a request to WellDataServices@aer.ca to have the fracture scenario or new service provider added to AER's reference table (see section 8).*

Step 5. Save the record or click **Cancel** to undo.

Step 6. Continue to amend fracture scenario and service provider as needed for other fracture interval records.

Step 7. After the fracture scenario and service provider are amended, click **Amend** under the Components column for the selected interval to continue amending fracture component data in the next tab, if required.

The user is now ready to amend fracture component data for each of the selected fracture intervals.

### 3.6.3 Fracture Components Tab: Add and Amend Fracture Components

The Fracture Components tab allows the user to amend existing or add missing data on the components of the fracture fluid pumped into the wellbore at each interval. Each fracture component is categorized into three types: Carrier Fluid, Proppant, or Additive.

A single submission can have up to 100 fracture components for each fracture interval.

Data for intervals not submitted cannot be added using the amend process; use the submit process by file or form for that data.

Navigate to the Fracture Components tab. Scroll to the last column “Components” on the Completions tab corresponding to the reporting fracture interval and click the hyperlink **Amend**.

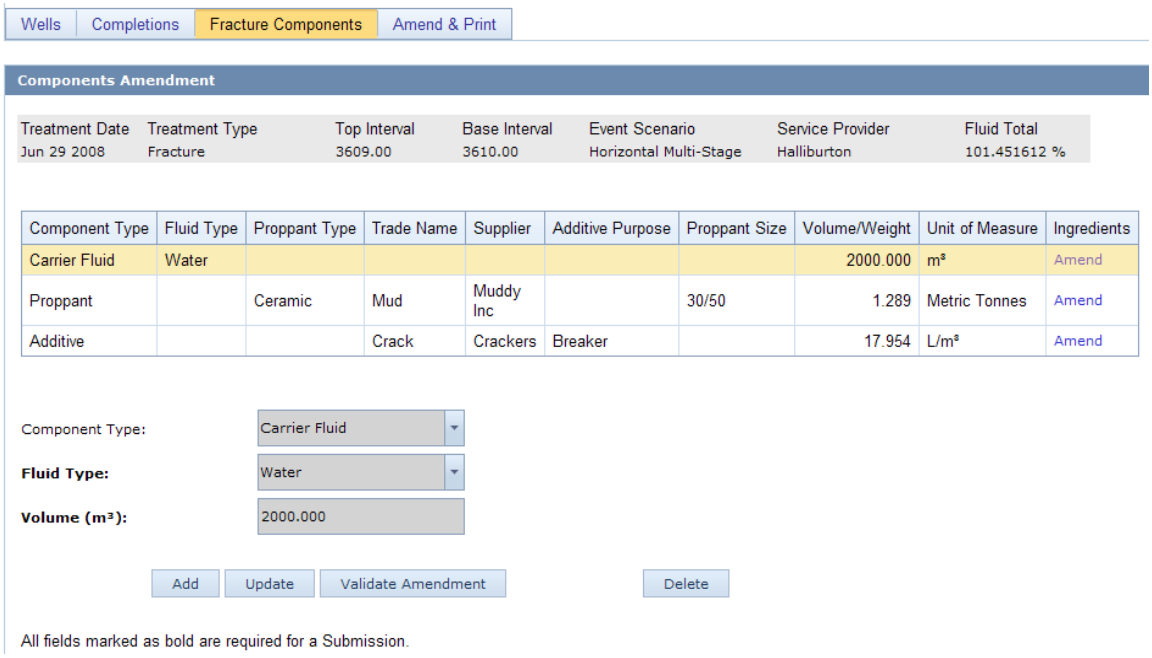



**Figure 60. Facture Components Amendment screen**

## Process Steps

Step 1. Ensure the correct fracture interval is displayed prior to continuing to enter fracture component data (figure 60).

Step 2. Highlight the component to be amended or to add another component proceed to the next step below.

Step 3. To add a new component, click **Add** at the bottom of the page to enable the data entry form. To amend an existing component, click **Update**.

Step 4. Select the Component Type from the drop-down list.

*Depending on the component type, data fields, and cells applicable to each specific component type are displayed. Data labels in bold font are mandatory and those not bolded are optional.*

Step 5. If adding or amending a carrier fluid, select Carrier Fluid from the drop-down. Submit carrier fluids when submitting fracture fluid data.

Step 6. Enter or amend the carrier fluid Volume in cubic metres.

Step 7. Save the carrier fluid record or click **Cancel** to undo.

Step 8. Continue entering or amending other carrier fluids used for the fracture interval as required.

*If the carrier fluid type is not on the drop-down list, send a request to WellDataServices@aer.ca to have this carrier fluid type added to AER's reference table (see section 8).*

Step 9. If adding or amending a proppant, select Proppant from the drop-down list. All associated mandatory and optional data fields for proppant will be displayed on the page.

Step 10. Enter or amend the Trade Name, if applicable.

Step 11. Enter or amend the name of the Supplier.

Step 12. Select the proppant size from the drop-down list.

Step 13. Enter or amend the weight of the proppant used in metric tonnes.

Step 14. Save the proppant record or click **Cancel** to undo.

Step 15. Continue entering or amending other proppant types used for the fracture interval as required.

*If the proppant type is not on the drop-down list, or if the proppant size is not on the list, send a request to WellDataServices@aer.ca to have the proppant type or size added to AER's reference table (see section 8).*

Step 16. If adding or amending an additive, select Additive from the drop-down list. All associated mandatory and optional data fields for additive will be displayed on the page.

Step 17. Enter or amend the Trade Name.

Step 18. Enter or amend the name of the Supplier.

Step 19. Select the Purpose from the drop-down list.

Step 20. Enter or amend the Volume/Weight of the additive and select the Unit of Measure from the drop-down list.

Step 21. Express the volume in standard temperature and pressure of 15°C and 101.325 kPa.

Step 22. Save the additive record or click **Cancel** to undo.

Step 23. Continue entering or amending other additives used for the fracture interval as required.

*If the additive purpose or the unit of measure is not in the drop-down list, send a request to WellDataServices@aer.ca to have a new additive purpose or unit of measure added to AER's reference table (see section 8).*

Step 24. After all carrier fluids, proppants, and additives have been added or amended, click **Amend** under the Ingredients column to continue entering or amending ingredient data for each of the carrier fluids, proppants, and additives.

*The user is now ready to add component ingredients. See section 3.6.4.*

### 3.6.4 Component Ingredients Tab: Add or Amend Component Ingredients

The Component Ingredients tab allows the user to add new or amend existing ingredients in a carrier fluid, proppant, or additive used in the fracturing operation. It also allows the user to identify if the ingredient is a trade secret or not and to enter the Chemical Abstract Service (CAS #) if available, select Not Available if not and to enter a Hazardous Material Information Material Commission (HMIRC #) if available and to select Not Available if not.

Maximum Concentration in Component (% by mass) of ALL ingredients in each fracture component should be greater than or equal to 100%.

The Maximum Concentration in Fluid (% by mass) of ALL ingredients for ALL fracture components for the fracture interval should be greater than or equal to 100%.

For an example on how this is calculated, refer to section 3.5.4.1, "Maximum Concentrations (an Example)."

A single submission can have up to 100 component ingredients for each carrier fluid, proppant, and additive.

Amend existing and add new data corresponding to the ingredient of each carrier fluid, proppant, or additive used as needed.

**Process Steps**

Step 1. Navigate to the Component Ingredients tab (figure 61) by scrolling to the "Ingredients" column on the Fracture Components tab corresponding to each of the fracture components (carrier fluid, proppant, additive) and click **Amend** (figure 60).

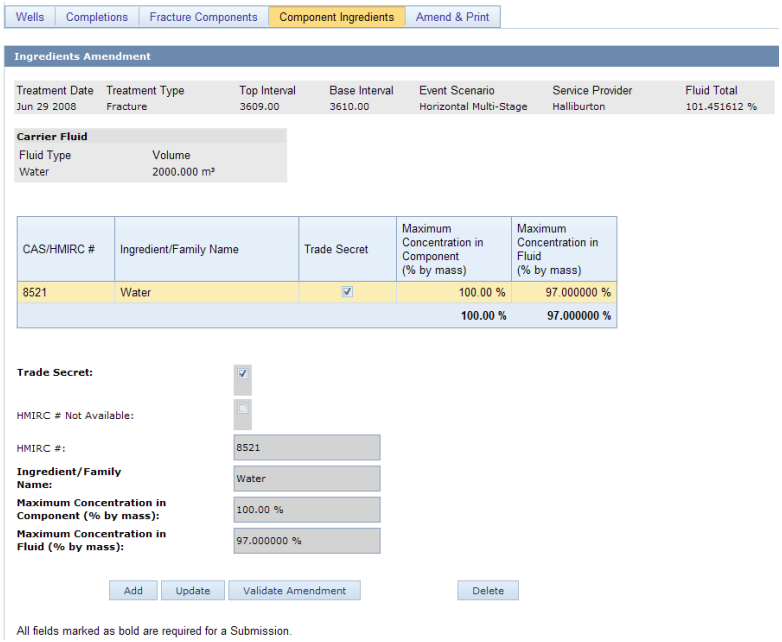



**Figure 61. Fracture component Ingredients Amendment screen**

Step 2. Click **Add** to enable the data entry form and enter a new ingredient or click **Update** to amend an existing ingredient (figure 61).

*If ingredient is a trade secret, check the Trade Secret check box*

Step 3. If the Trade Secret box is checked and the HMIRC # is not available, check the HMIRC # Not Available check box. It is assumed that the ingredient is nonhazardous if no HMIRC # is available (figure 62).

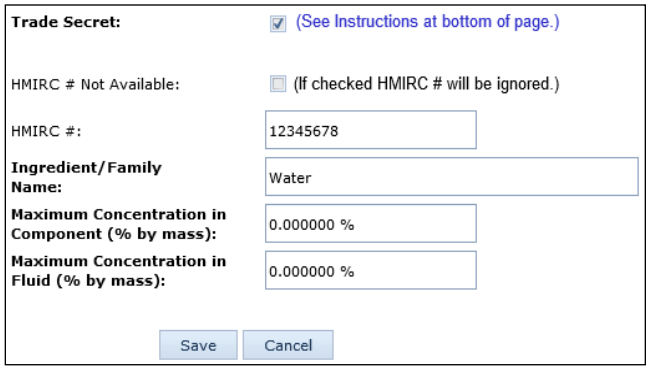



**Figure 62. Fracture component Ingredients Amendment Data Entry screen**

Step 4. Enter the HMIRC # if the ingredient is hazardous.

*The system will not save any HMIRC # entered if the HMIRC # Not Available has a check mark.*

Step 5. The same HMIRC # may be assigned to multiple ingredients by HMIRC.

Step 6. If the ingredient is NOT a trade secret, leave the Trade Secret check box unchecked (figure 63).

Step 7. If the CAS # is not available, check CAS # Not Available (figure 63).

Step 8. Enter the CAS # if none of the above applies.

*The system will not save any CAS # entered if the CAS # Not Available has a check mark.*

*CAS #s are unique and cannot be used for multiple ingredients within the same reported component (carrier fluid, proppant, and additive).*

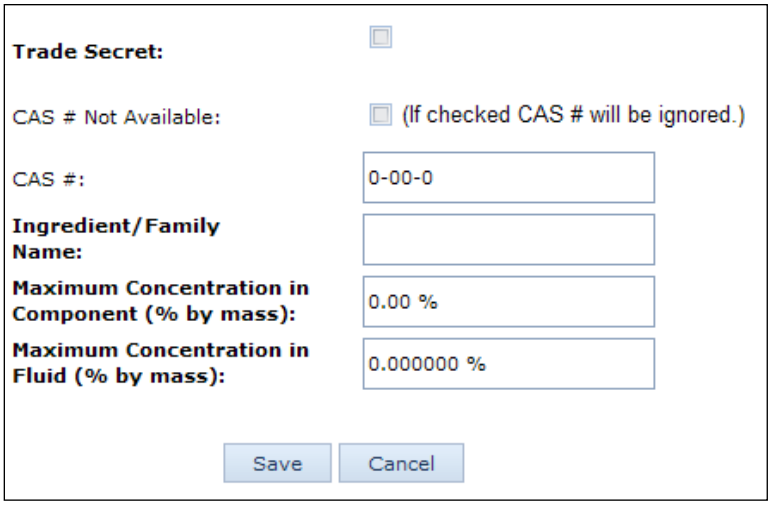



**Figure 63. Fracture component Ingredients Amendment screen**

Step 9. Enter or amend the Ingredient/Family Name.

*Family Name is the chemical family name (e.g., alkanes).*

*If a trade secret, enter the chemical family name. Otherwise, enter the ingredient name.*

Step 10. Enter or amend the Maximum Concentration in Component (% by mass)

*For each ingredient, enter the maximum concentration by mass in the component (carrier fluid, proppant, and additive).*

Step 11. Enter or amend the Maximum Concentration in Fluid (% by mass).

*For each ingredient, enter the maximum concentration by mass in the fracture fluid used for the interval.*

Step 12. **Save** the ingredient record or click **Cancel** to undo.

Step 13. Continue entering or amending other ingredients used in each component as required.

Step 14. After all ingredients for each component have been entered or amended, enter the ingredients for the next component (see section 3.6.3).

*The Fluid Total sums up the Maximum Concentration of the Hydraulic Fluid once it is added or amended for each of the component ingredients.*

After all ingredients for each component have been entered, the user is ready to validate and submit (see section 3.6.5).

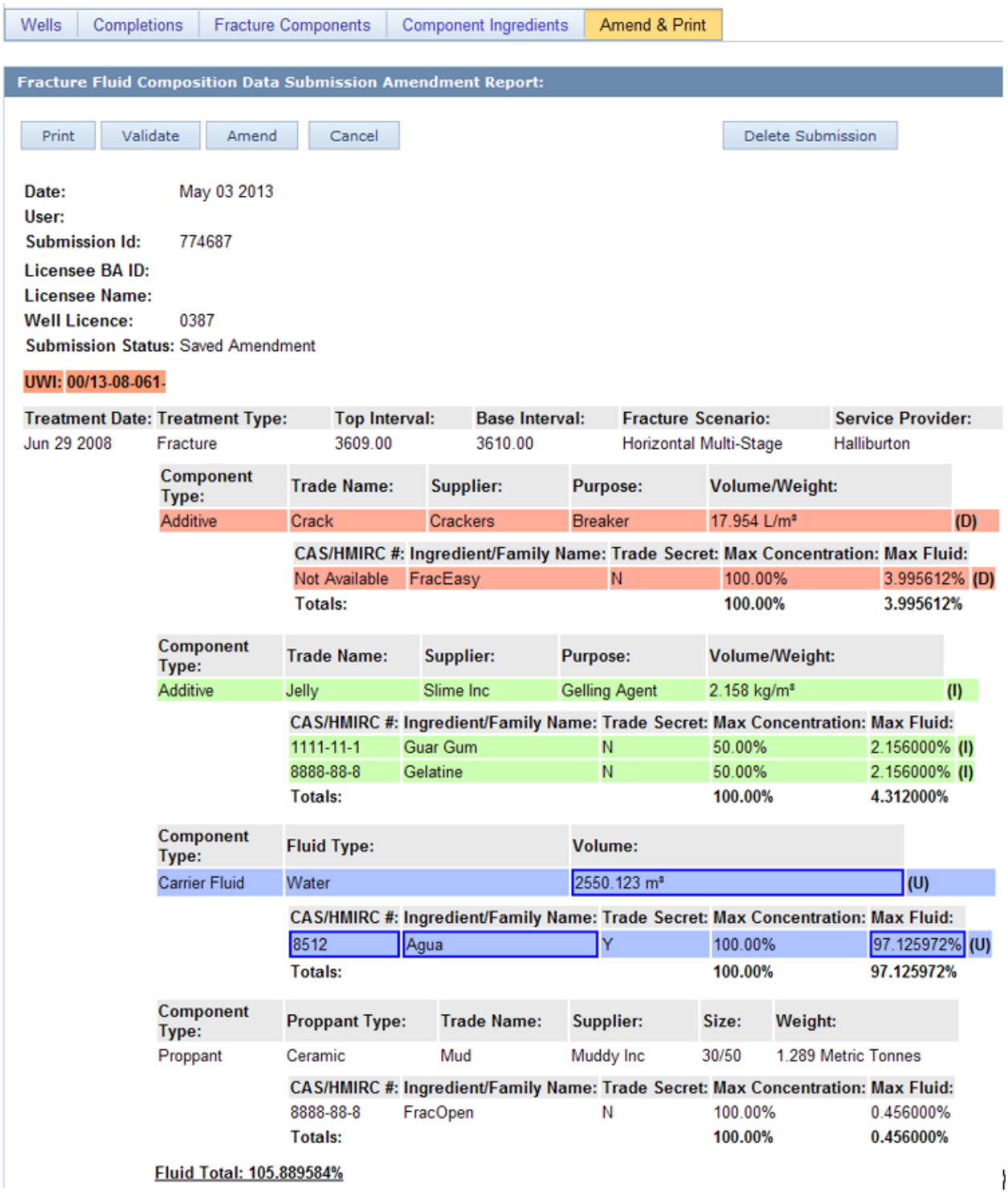
### 3.6.5 Validate, Amend, and Print Fracture Fluid Composition Data by Form

Validate, submit, and print the report after ALL amendments have been entered. Navigate to the Amend & Print tab.

**Process Steps**

Step 1. Whenever **Save** is clicked while proceeding through an amendment submission by form the data is saved as part of a saved amendment submission.

*Details of the saved amendment submission can be seen by clicking the Amend & Print tab. The amendments to the original dataset will be highlighted for review. Additions are in green, updates are in blue, and deletions are in red (figure 64). The colour coding does not carry through to the submission report once the amendment has been submitted. Print a copy of the report prior to submission if the colour coding is required.*



Wells | Completions | Fracture Components | Component Ingredients | Amend & Print

**Fracture Fluid Composition Data Submission Amendment Report:**

Print | Validate | Amend | Cancel | Delete Submission

**Date:** May 03 2013
**User:**
**Submission Id:** 774687
**Licensee BA ID:**
**Licensee Name:**
**Well Licence:** 0387
**Submission Status:** Saved Amendment

**UWI:** 00/13-08-061-

| Treatment Date: | Treatment Type: | Top Interval: | Base Interval: | Fracture Scenario: | Service Provider: |
|---|---|---|---|---|---|
| Jun 29 2008 | Fracture | 3609.00 | 3610.00 | Horizontal Multi-Stage | Halliburton |

| Component Type: | Trade Name: | Supplier: | Purpose: | Volume/Weight: | |
|---|---|---|---|---|---|
| Additive | Crack | Crackers | Breaker | 17.954 L/m³ | (D) |

| CAS/HMIRC #: | Ingredient/Family Name: | Trade Secret: | Max Concentration: | Max Fluid: | |
|---|---|---|---|---|---|
| Not Available | FracEasy | N | 100.00% | 3.995612% | (D) |
| Totals: | | | 100.00% | 3.995612% | |

| Component Type: | Trade Name: | Supplier: | Purpose: | Volume/Weight: | |
|---|---|---|---|---|---|
| Additive | Jelly | Slime Inc | Gelling Agent | 2.158 kg/m³ | (I) |

| CAS/HMIRC #: | Ingredient/Family Name: | Trade Secret: | Max Concentration: | Max Fluid: | |
|---|---|---|---|---|---|
| 1111-11-1 | Guar Gum | N | 50.00% | 2.156000% | (I) |
| 8888-88-8 | Gelatine | N | 50.00% | 2.156000% | (I) |
| Totals: | | | 100.00% | 4.312000% | |

| Component Type: | Fluid Type: | Volume: | |
|---|---|---|---|
| Carrier Fluid | Water | 2550.123 m³ | (U) |

| CAS/HMIRC #: | Ingredient/Family Name: | Trade Secret: | Max Concentration: | Max Fluid: | |
|---|---|---|---|---|---|
| 8512 | Agua | Y | 100.00% | 97.125972% | (U) |
| Totals: | | | 100.00% | 97.125972% | |

| Component Type: | Proppant Type: | Trade Name: | Supplier: | Size: | Weight: |
|---|---|---|---|---|---|
| Proppant | Ceramic | Mud | Muddy Inc | 30/50 | 1.289 Metric Tonnes |

| CAS/HMIRC #: | Ingredient/Family Name: | Trade Secret: | Max Concentration: | Max Fluid: |
|---|---|---|---|---|
| 8888-88-8 | FracOpen | N | 100.00% | 0.456000% |
| Totals: | | | 100.00% | 0.456000% |

Fluid Total: 105.889584%

**Figure 64. Fracture Fluid Composition Data Submission Amendment Report (prior to submission)**

Step 2. The Amend & Print tab displays the following five options:

a) Print – Displays a new window showing all the data under the saved submission.

b) Validate – Validates data in the saved submission against business rules. On validation, data that have errors will be displayed in red. Hover the cursor over the red data to display the ERROR message.

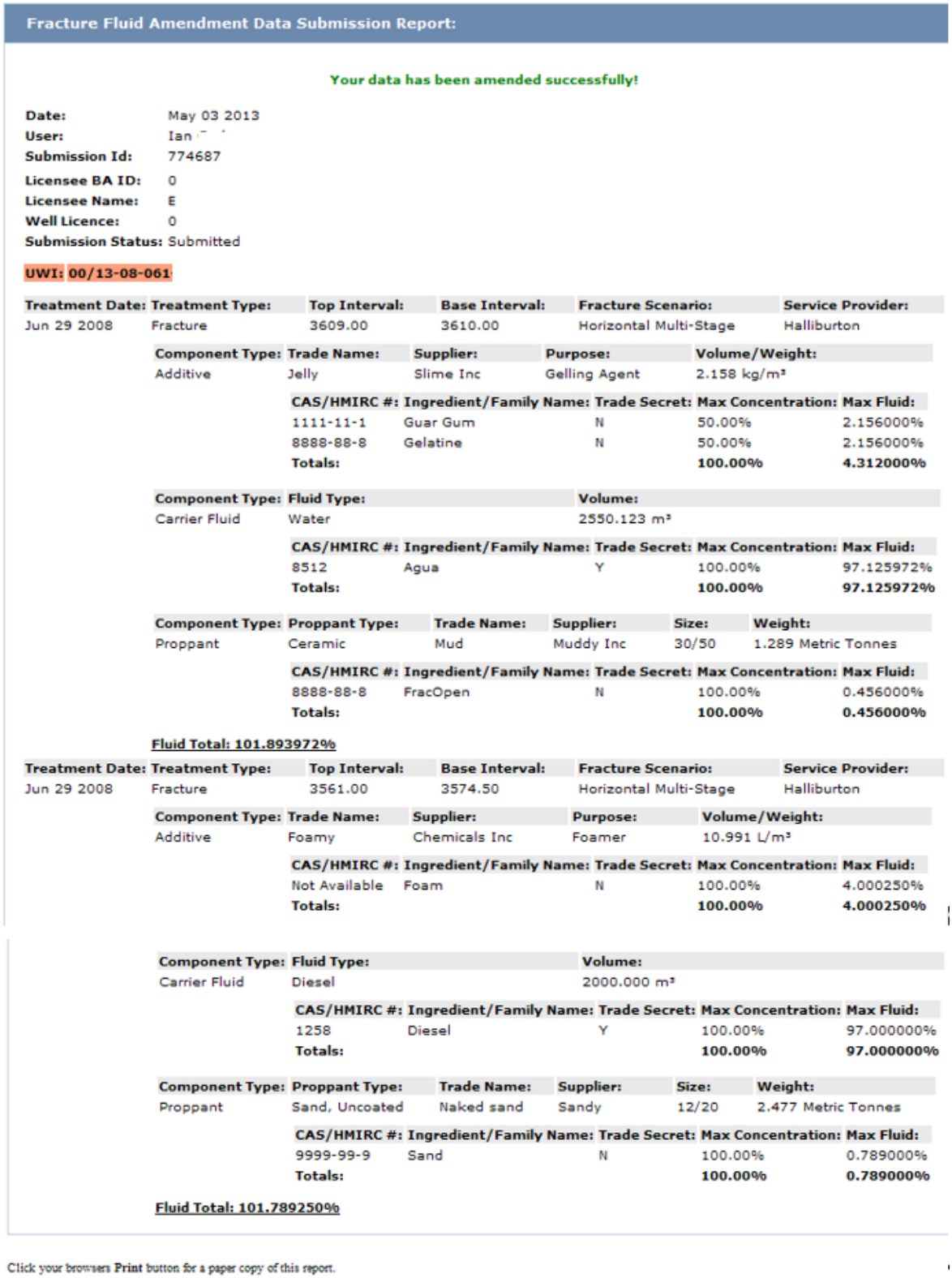
c) Amend – Validates and submits the amended data to the AER. On validation, data that have errors will be displayed in red. Hover the cursor over the red data to display the ERROR message.

d) Cancel – Cancels all amendments to the dataset and reverts to the original data before any amendments were made.

e) Delete Submission – Permanently deletes all fracture fluid data for that submission ID (see section 3.6.7).

*On validation, data that have errors will be displayed in red. Hover the cursor over the red data to display the ERROR message.*

Step 3. On a successful amendment, a confirmation message appears in the page with the submission ID (figure 65).



**Fracture Fluid Amendment Data Submission Report:**

**Your data has been amended successfully!**

**Date:** May 03 2013
**User:** Ian
**Submission Id:** 774687
**Licensee BA ID:** 0
**Licensee Name:** E
**Well Licence:** 0
**Submission Status:** Submitted

**UWI: 00/13-08-061**

| Treatment Date: | Treatment Type: | Top Interval: | Base Interval: | Fracture Scenario: | Service Provider: |
|---|---|---|---|---|---|
| Jun 29 2008 | Fracture | 3609.00 | 3610.00 | Horizontal Multi-Stage | Halliburton |

| Component Type: | Trade Name: | Supplier: | Purpose: | Volume/Weight: |
|---|---|---|---|---|
| Additive | Jelly | Slime Inc | Gelling Agent | 2.158 kg/m³ |

| CAS/HMIRC #: | Ingredient/Family Name: | Trade Secret: | Max Concentration: | Max Fluid: |
|---|---|---|---|---|
| 1111-11-1 | Guar Gum | N | 50.00% | 2.156000% |
| 8888-88-8 | Gelatine | N | 50.00% | 2.156000% |
| **Totals:** | | | **100.00%** | **4.312000%** |

| Component Type: | Fluid Type: | Volume: |
|---|---|---|
| Carrier Fluid | Water | 2550.123 m³ |

| CAS/HMIRC #: | Ingredient/Family Name: | Trade Secret: | Max Concentration: | Max Fluid: |
|---|---|---|---|---|
| 8512 | Agua | Y | 100.00% | 97.125972% |
| **Totals:** | | | **100.00%** | **97.125972%** |

| Component Type: | Proppant Type: | Trade Name: | Supplier: | Size: | Weight: |
|---|---|---|---|---|---|
| Proppant | Ceramic | Mud | Muddy Inc | 30/50 | 1.289 Metric Tonnes |

| CAS/HMIRC #: | Ingredient/Family Name: | Trade Secret: | Max Concentration: | Max Fluid: |
|---|---|---|---|---|
| 8888-88-8 | FracOpen | N | 100.00% | 0.456000% |
| **Totals:** | | | **100.00%** | **0.456000%** |

**Fluid Total: 101.893972%**

| Treatment Date: | Treatment Type: | Top Interval: | Base Interval: | Fracture Scenario: | Service Provider: |
|---|---|---|---|---|---|
| Jun 29 2008 | Fracture | 3561.00 | 3574.50 | Horizontal Multi-Stage | Halliburton |

| Component Type: | Trade Name: | Supplier: | Purpose: | Volume/Weight: |
|---|---|---|---|---|
| Additive | Foamy | Chemicals Inc | Foamer | 10.991 L/m³ |

| CAS/HMIRC #: | Ingredient/Family Name: | Trade Secret: | Max Concentration: | Max Fluid: |
|---|---|---|---|---|
| Not Available | Foam | N | 100.00% | 4.000250% |
| **Totals:** | | | **100.00%** | **4.000250%** |

| Component Type: | Fluid Type: | Volume: |
|---|---|---|
| Carrier Fluid | Diesel | 2000.000 m³ |

| CAS/HMIRC #: | Ingredient/Family Name: | Trade Secret: | Max Concentration: | Max Fluid: |
|---|---|---|---|---|
| 1258 | Diesel | Y | 100.00% | 97.000000% |
| **Totals:** | | | **100.00%** | **97.000000%** |

| Component Type: | Proppant Type: | Trade Name: | Supplier: | Size: | Weight: |
|---|---|---|---|---|---|
| Proppant | Sand, Uncoated | Naked sand | Sandy | 12/20 | 2.477 Metric Tonnes |

| CAS/HMIRC #: | Ingredient/Family Name: | Trade Secret: | Max Concentration: | Max Fluid: |
|---|---|---|---|---|
| 9999-99-9 | Sand | N | 100.00% | 0.789000% |
| **Totals:** | | | **100.00%** | **0.789000%** |

**Fluid Total: 101.789250%**

Click your browsers **Print** button for a paper copy of this report.

**Figure 65. Fracture Fluid Composition Data Submission Amendment Report (after submission)**

Step 4. DDS generates an email notification with the submission ID (figure 66).

**Figure 66. Successful amendment notification**

If the Daily Reports of Operations and Fracture Service Company Reports have not changed and have already been submitted in OneStop, they do not have to be resubmitted. However, if the reports have been submitted and have changed, then amend the OneStop submission to replace the previous file with the file containing the new data.

*There is no requirement to print the AER submission report and send to the AER Core Research Centre.*

### 3.6.6 Amendment for a Well with More than Nine Event Sequences

The fracture type, date and interval in addition to the fracture fluid composition data for a fractured event sequence (ES) greater than nine can only be amended via the interactive web form.

Well sequences greater than nine cannot have the UWI, Well Name, Total Depth, or Finish Drill Date amended via the amend by form function. This may be done via guidance in section 3.6.1.

After a valid well licence number has been entered for a well that has had fracture fluid composition data entered for event sequences greater than nine, the Extended Well Listing will appear (figure 67).

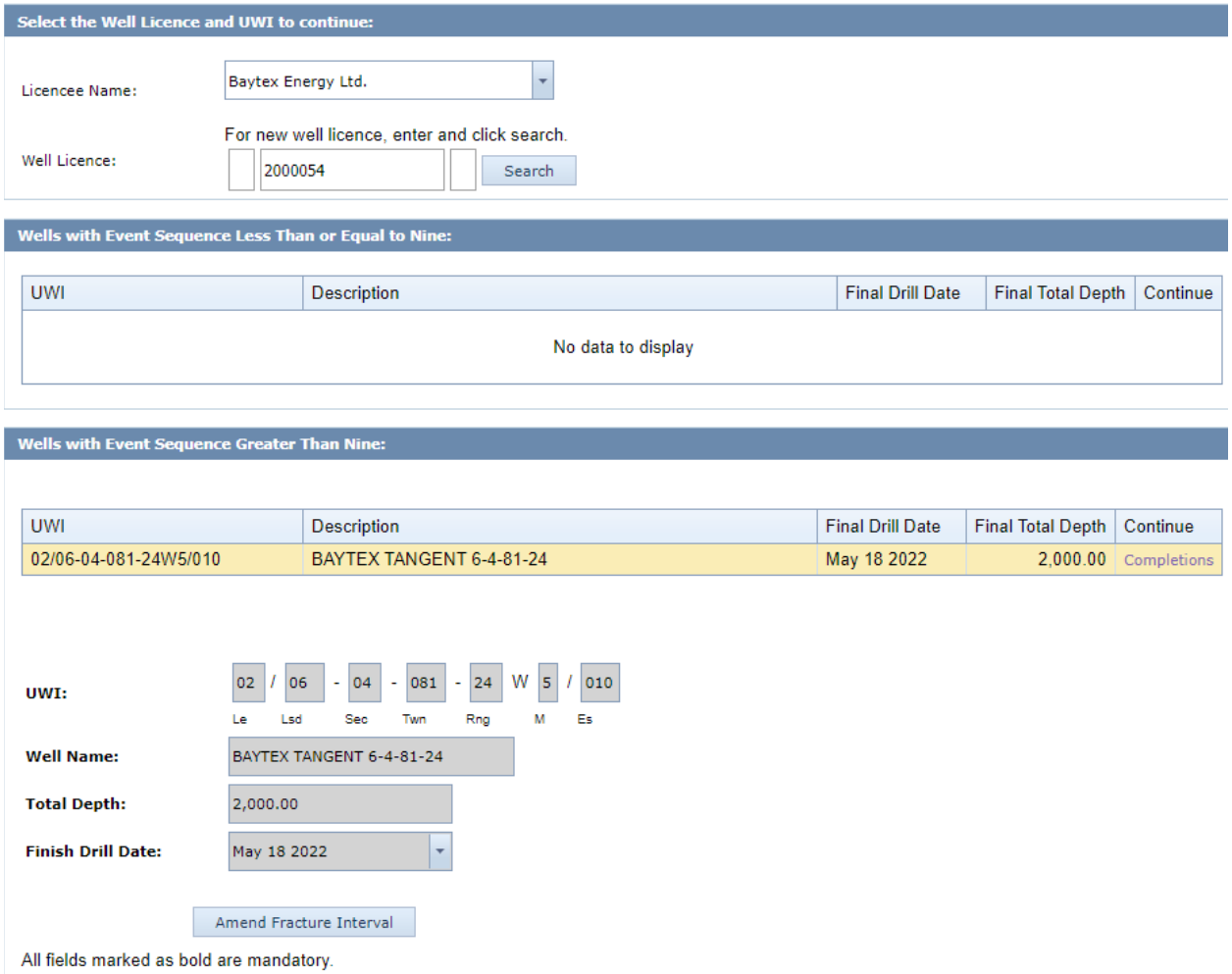



**Figure 67. Data entry screen for events greater than nine**

## Process Steps

Step 1. Amend a fracture interval record by selecting the desired UWI and then click **Amend Fracture Interval** (figure 67).

*This opens a data entry page where fracture interval records can be amended for event sequences greater than nine (figure 68).*

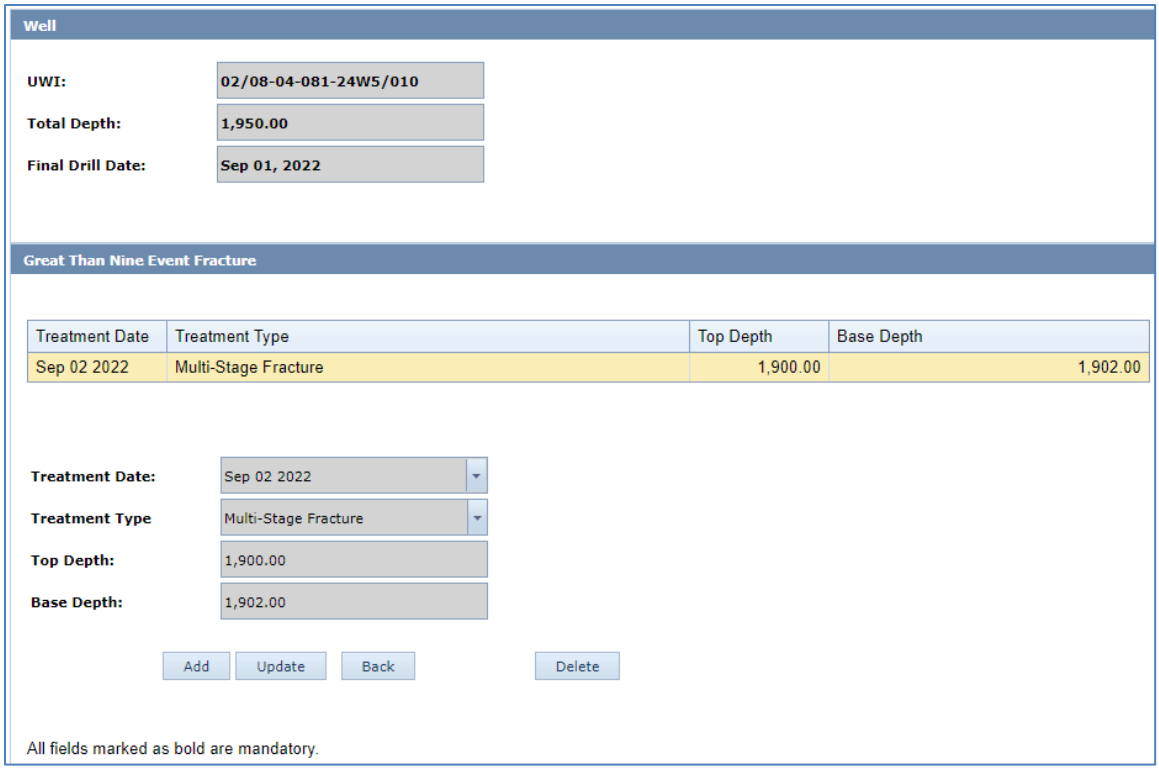



**Figure 68. Wells tab**

Step 2. Click **Update** to enable the form or **Back** to return to the Wells tab.

Step 3. Amend the Treatment Date as the date the interval was fractured.

*Enter a Treatment Date that is on or after the Finish Drill Date.*

Step 4. Amend the Treatment Type between Fracture or Multi-Stage Fracture.

Step 5. Amend the top depth of the interval under Top Depth.

*Enter a value that is between 6 mKB and Total Depth and is less than the Base Depth.*

Step 6. Amend the base depth of the interval under Base Depth.

*Enter a value that is between 6 mKB and Total Depth and is greater than the Top Depth.*

Step 7. Save the fracture interval record or click **Cancel** to undo.

Step 8. Continue to amend fracture interval records associated with the well by selecting the fracture interval and clicking **Update** to activate the form.

Step 9. Fracture intervals may also be deleted by clicking **Delete**; however, this will also delete all associated fracture fluid data attached to the selected interval. Click **Back** to return to the Wells tab.

### 3.6.7 Delete Fracture Fluid Composition Data by Form

If fracture fluid composition data has been submitted incorrectly the whole submission can be deleted by following the process below using Amend Fracture Fluid By Form.

**Process Steps**

Step 1. Enter the well licence on the Wells tab and click **Search** (figure 57).

Step 2. Click **Completions** under Continue to open the Completions tab.

Step 3. On the Completions tab, select the submission ID to be deleted, click **Update** not Delete (figure 69).

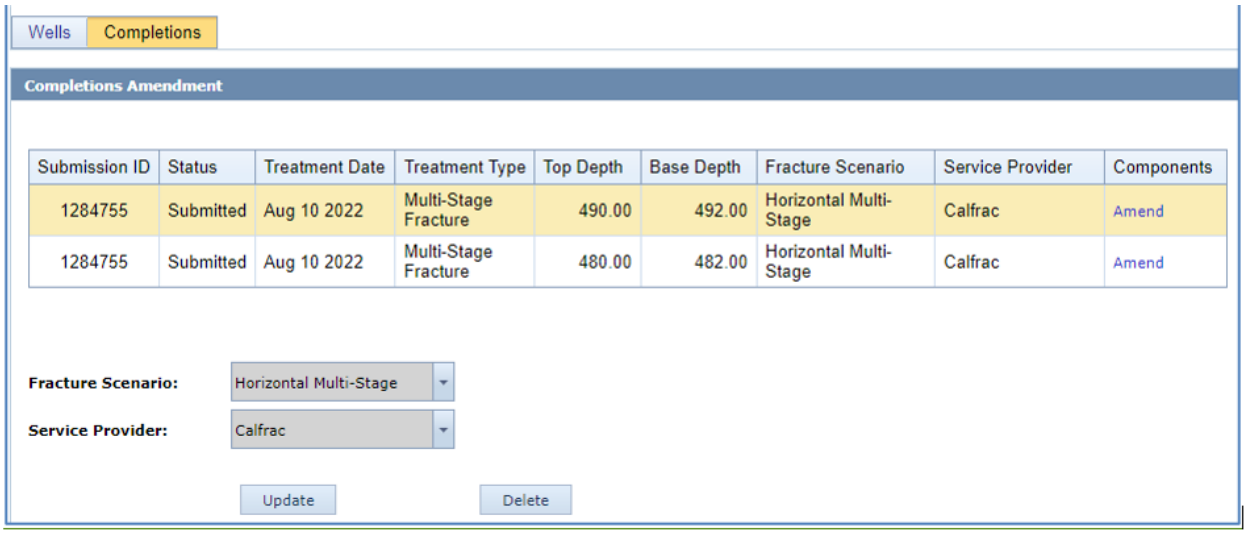



**Figure 69. Completion Amendment screen**

*If there is more than one fracture with the same submission ID, the user will only have to select one water source to delete the entire submission.*

Step 4. Click **Save**.

Step 5. Navigate to the Amend & Print tab and click **Delete Submission** and click **OK** to confirm (figure 70).

**Figure 70. Fracture Fluid Composition Data Submission Amendment Report (Showing Delete Submission)**

## 3.7 Review Submitted Fracture Fluid Composition Data

The Save or Submit Fracture Fluid by Form functionality allows all fracture fluid data for previous submissions under a well licence to be viewed.

### Process Steps

Step 1. Enter a Licensee Name (if applicable) and a valid well licence number (figure 71). The system will display all fracture fluid data under that well licence (figure 72).

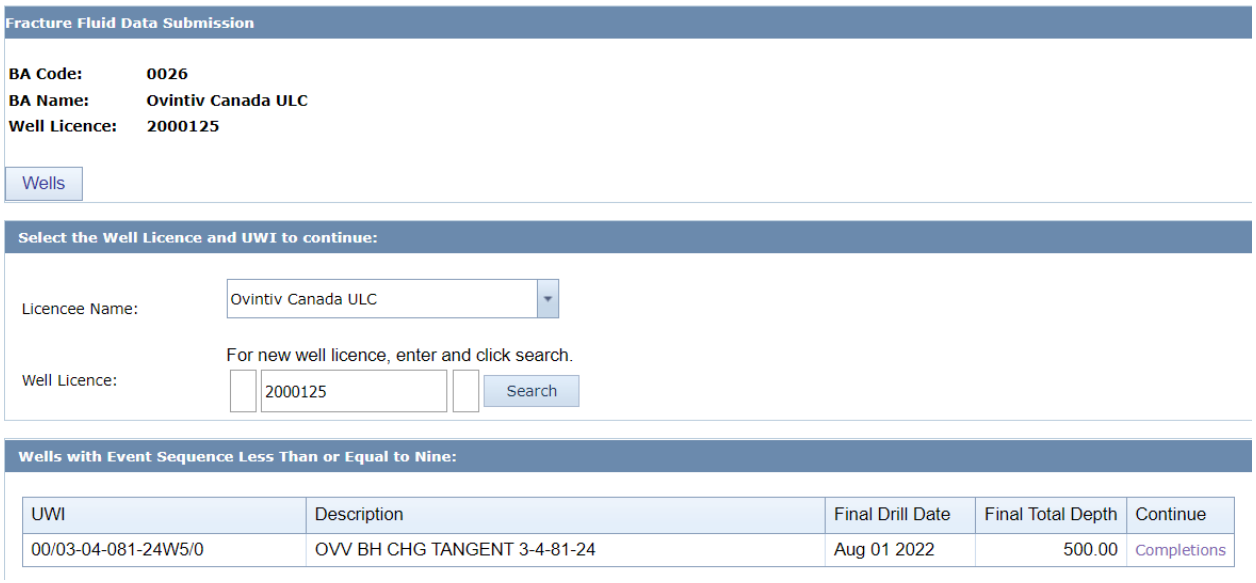
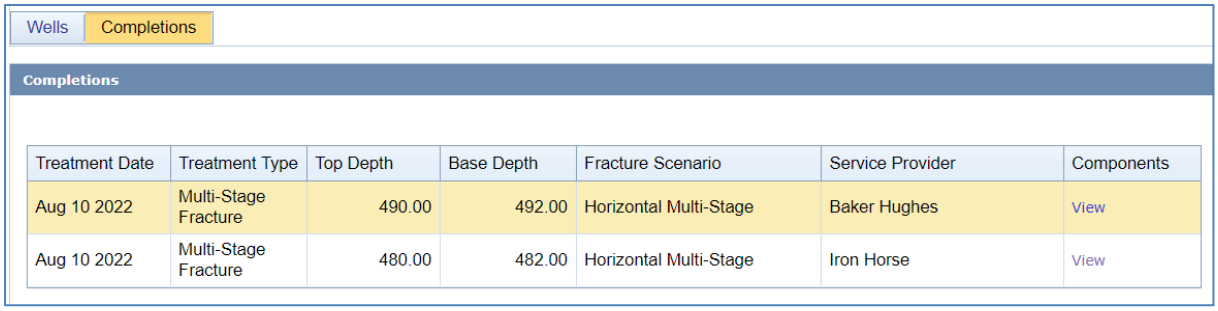



**Figure 71. Fracture Fluid Data Submission Licence Entry screen**




| Treatment Date | Treatment Type | Top Depth | Base Depth | Fracture Scenario | Service Provider | Components |
|---|---|---|---|---|---|---|
| Aug 10 2022 | Multi-Stage Fracture | 490.00 | 492.00 | Horizontal Multi-Stage | Baker Hughes | View |
| Aug 10 2022 | Multi-Stage Fracture | 480.00 | 482.00 | Horizontal Multi-Stage | Iron Horse | View |

**Figure 72. Completions screen**

View allows navigation from one tab to another and to view data already submitted. Data cannot be modified.

# 4 Fracture Fluid Water Source Data [Fracture Fluid Water Source Data]

## 4.1 Fracture Fluid Water Source Data Introduction

This part provides guidance on how to submit data for water sourced and used as carrier fluid in fracturing operations. Section 4.2 outlines the water type categories and their description, diversion authorization types, and geological zones.

For definitions and guidance for reporting alternative nonsaline, alternative waters, and high-quality nonsaline sources, consult *Manual 025: Applications Under the Water Conservation Policy for Upstream Oil and Gas Operations*.

It is recommended to use form submission as the form changes according to the selected water type to display only the required fields for that water type. However, if there are many sources, file submission may be more suitable.

For nine or fewer drilling well event sequences, most data submitted through the Fracture Fluid Water Source Data forms can be amended by selecting “Amend Water Source By File” or “Amend Water Source By Form.”

## 4.2 Water Types

The following is a list of water types and data elements used in the submission of fracture fluid water source data and they are listed in the drop-down options when selecting water types. Mandatory, optional, and system-populated data per water type are indicated in table 17.

### 4.2.1 Central Water Distribution Facility

Central water distribution facility is water (treated or untreated) sourced from a centralized water handling/distribution facility (excluding recycled or reused fracturing water). This facility may have water

inputs from a variety of sources – do not prorate water volumes back to original sources. Pretreated purchased water (e.g., methanol or KCl water) would also be classified under this water source.

Subtypes

- Alternative nonsaline
- Alternative waters
- High-quality nonsaline

### 4.2.2 Groundwater

Subtypes

- Nonsaline ≤150 m deep (total dissolved solids <4000 mg/L)
- Alternative nonsaline >150 m deep
- High-quality nonsaline >150 m deep
- Saline

### 4.2.3 Surface Water

Subtypes

- Lake (surface water sourced directly from a lake, pond, reservoir, etc.)
- River (surface water sourced directly from a river, stream, creek, canal, etc.)
- Runoff (Surface water collected as direct runoff from precipitation events, such as rain or snowmelt collected in depressions, dugouts, quarries, etc.)
- Alternative nonsaline
- High-quality nonsaline

### 4.2.4 Municipal Water

Municipal water is water sourced from a municipal water source.

### 4.2.5 Oilfield Produced Water

Oilfield produced water is water co-produced with oil or gas from an energy well, typically sourced from a battery or other facility.

### 4.2.6 Recycled Fracturing Water

Subtypes

- Treated at independent standalone facility (fracture flowback water sourced from a facility other than the well site where it was returned as flowback)
- Treated at well site (fracture flowback water sourced directly from the well site where it was returned as flowback)

### 4.2.7 Wastewater

Subtypes

- Industrial (Non-oilfield) (wastewater sourced from a non-oilfield industrial facility)
- Municipal (wastewater sourced from a municipal wastewater treatment facility)
- Oilfield (wastewater sourced from oilfield facilities)

### 4.2.8 Diversion Authorization Types

If surface water (see section 4.2.3) or groundwater types (see section 4.2.2) have been sourced, select the appropriate diversion authorization type from the drop-down when entering by form or by file.

- WRLIC – Water Resources Licence
- WALIC – Water Act Licence
- WATDL – Water Act Temporary Diversion Licence
- ASRD – Surface Disposition

### 4.2.9 Geological Zones

If groundwater types (see section 4.2.2) have been sourced, select the appropriate geological zone from the drop-down when entering by form or by file.

- Drift Sediments (i.e., above bedrock)
- Paskapoo Formation (including Scollard)
- Edmonton Group
- Belly River Group (including regional equivalents: Wapiti, Brazeau)
- Colorado Group
- Mannville group
- Jurassic Period Formations
- Triassic Period Formations
- Devonian Formations

- Other Paleozoic Formations (not Devonian)
- Unknown

Table 17 below displays the data fields that are mandatory, optional, or system-populated according to the selected fracture fluid water source type. It is recommended to submit data by Form as the form changes depending on the selected water source to show only the applicable data fields. If there are a large number of water types per UWI, file submission may be more suitable.

**Table 17. Mandatory, optional, and system-populated data per water type**

| Water types / Data elements | Central water distribution facility – alternative nonsaline | Central water distribution facility – alternative waters | Central water distribution facility – high-quality nonsaline | Groundwater – alternative nonsaline >150 m deep | Groundwater – high-quality nonsaline >150 m deep | Groundwater – nonsaline ≤150 m deep | Groundwater – saline | Municipal water | Oilfield produced water | Recycled frac. water (ind. facility) | Recycled frac. water (well site) | Surface water – lake | Surface water – river | Surface water – runoff – alternative nonsaline | Surface water – runoff – high-quality nonsaline | Wastewater – industrial (non-oilfield) | Wastewater – municipal | Waste water – oilfield |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Latitude | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| Longitude | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| DLS Location | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S |
| Major Basin | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S |
| Major Subwatershed | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S | S |
| Name of Water Body | – | – | – | – | – | – | – | – | – | – | – | M | M | – | – | – | – | – |
| Name of Geological Zone | – | – | – | M | M | M | M | – | – | – | – | – | – | – | – | – | – | – |
| Name of Supplier | M | M | M | – | – | – | – | M | S | S | – | – | – | – | – | M | M | S |
| Start Date of Diversion | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| End Date of Diversion | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| Average Daily Diversion Rate | – | – | – | M | M | M | M | – | – | – | – | M | M | M | M | – | – | – |
| Maximum Diversion Rate | – | – | – | M | M | M | M | – | – | – | – | M | M | M | M | – | – | – |
| Total Volume | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M | M |
| TDS Content | – | – | – | M | M | M | M | – | – | – | – | – | – | – | – | – | – | – |
| Diversion Authorization Type | – | – | – | M | M | M | – | – | – | – | – | M | M | M | M | – | – | – |
| Diversion Authorization ID | – | – | – | M | M | M | – | – | – | – | – | M | M | M | M | – | – | – |
| AER Reporting Facility ID | – | – | – | – | – | – | – | – | M | M | – | – | – | – | – | – | – | M |
| Name of Facility | M | M | M | – | – | – | – | – | S | S | – | – | – | – | – | M | M | S |
| AER Facility Licence | – | – | – | – | – | – | – | – | S | S | – | – | – | – | – | – | – | S |
| Water Well ID | – | – | – | O | O | O | – | – | – | – | – | – | – | – | – | – | – | – |
| AER Well UWI | – | – | – | M | M | – | M | – | – | – | M | – | – | – | – | – | – | – |

M data submission is mandatory
S data is system-populated based on another field (e.g., Major Basin is populated based on the latitude and longitude after the Verify Lat/Lon button is clicked)
• data submission is optional
– data submission is not required

## 4.3 Validation Rules for Fracture Fluid Water Source Form and File Submissions

Each XML and CSV file submission of fracture fluid water source data is governed by the following constraints:

- One XML/CSV file for each well licence number
- Up to nine UWIs for each well licence (wells with more than nine event sequences can only submit the data for the event sequences greater than nine using the online interactive web form)
- Up to 50 water types for each UWI

Some data values must be exactly the same as seen on the CSV generator file (e.g., uppercase "Municipal Water" will be accepted but lowercase "municipal water" will not). Check the lists on the CSV generator file or use the generator file and the drop-down lists to create a CSV file with the AER-prescribed values.

Use table 18 as a guide for data entry. The table lists out descriptions, acceptable formats and validation rules for each data element used for file submissions and its corresponding field names for form submissions.

**Table 18. Fracture fluid water source schema validation table**

| Data element/field name | Data description | Schema validation |
|---|---|---|
| **Licence** | | |
| licencePrefix | The alpha character at the beginning of the numeric licence number, if applicable, as assigned by the AER.<br>Only exists for older licences. | String, 1 character.<br>Value must be from A to Z except the following: E to H, T to W. |
| licenceBody/Well Licence | A 7 digit number assigned by the AER for an approved well application. | Integer, 7 digits.<br>Include leading 0s. |
| licenceSuffix | The alpha character at the end of the numeric licence number, if applicable, as assigned by the AER.<br>Only exists for older licences. | String, 1 character.<br>Value must be from A to Z. |
| **Unique well identifier (UWI)**<br>**Note: UWI has fracture fluid data in AER database where carrier fluid type is water** | | |
| SS | Survey system portion of the Unique Well Identifier (UWI). Alberta uses the Dominion Land Survey (DLS), assigned an SS value of 1. | Value must be 1. |
| LE | Location Exception code of the UWI. | String value, 2 characters<br>If string, value must be from AA to HZ except I or O.<br>If numeric, value must be from 00 to 99 except for 01.<br>Can also accept F, O, S, or W as the first character. Second character is numeric 0 to 9 except 1. |

| Data element/field name | Data description | Schema validation |
|---|---|---|
| LSD | Legal Subdivision portion of the UWI. | Integer, 2 digits.<br>Value must be from 1 to 16. |
| SEC | Section portion of the UWI. | Integer, 2 digits.<br>Value must be from 1 to 36. |
| TWP | Township portion of the UWI. | Integer, 3 digits.<br>Value must be from 1 to 126. |
| RGE | Range portion of the UWI. | Integer, 2 digits.<br>Value must be from 1 to 30. |
| EW | W is a fixed character of the UWI denoting location is to the West of a particular longitudinal meridian. | Value must be W or w. |
| M | Meridian portion of the UWI. | Integer, 1 digit.<br>Value must be 4, 5, or 6. |
| ES | Event sequence portion of the UWI. | Integer, 1 digit.<br>Value must be 0 to 9 except 1. |
| waterType/<br>Water Type | Classification of source water | String enumeration.<br>Value must exist in the CSV Generator file on the lists tab.<br>Water Source CSV Generator |
| latitude/<br>Latitude | Latitude of water source location. Datum must be NAD83. | Decimal “99.999999” format. |
| Longitude/<br>Longitude | Longitude of water source location. Datum must be NAD83. | Decimal “999.999999” format. |
| DLS Location | Location in Alberta in the Dominion Land Survey (DLS) | Populated based on the Latitude and Longitude in the submission file or form. If the source is outside Alberta the field will be populated with “Out of Alberta.” |
| Major Basin | Major Basin | Populated based on the Latitude and Longitude in the submission file or form. |
| Major Subwatershed | Major Subwatershed | Populated based on the Latitude and Longitude in the submission file or form. |
| Waterbody/<br>Name of Water Body | Name of water body | String, 80 characters.<br>Enter for surface water river and surface water lake only; NULL for the other water types.<br>Populated based on the latitude and longitude in the submission file or form. |
| geologicalZone/<br>Name of Geological Zone | Name of geological zone | String enumeration.<br>Enter for the groundwater types; NULL for the other water types.<br>Value must exist in the CSV Generator file on the lists tab.<br>Water Source CSV Generator |

| Data element/field name | Data description | Schema validation |
|---|---|---|
| supplierName/<br>Name of Supplier (Town/Company) | Name of water supplier | String, 30 characters.<br>Enter for wastewater types, municipal water, and central water distribution; NULL for the water other types. For AER-licensed facilities, populated based on the reporting facility ID. |
| facilityName<br>Facility Name | Name of water source facility | String, 60 characters.<br>Enter for wastewater types and central water distribution; NULL for the other water types. For AER-licensed facilities, populated based on the reporting facility ID. |
| diversionAuthorizationType/<br>Diversion Authorization Type | Water diversion authorization type | String enumeration.<br>Enter for the surface water types and the nonsaline groundwater types; NULL for the other water types.<br>Value must exist in the CSV Generator file on the lists tab.<br>Water Source CSV Generator |
| diversionAuthorizationID/<br>Diversion Authorization ID | Water diversion authorization ID | String, 14 characters.<br>Must follow “99999999-99-99” format (i.e., 8-2-2) except for surface dispositions. These follow “MSL999999.”<br>Enter when Diversion Authorization Type is populated. |
| wellID/<br>Water Well ID | Source water well ID | Integer, 7 digits.<br>Optional for the nonsaline groundwater types; NULL for the other water types. |
| wellUWI/<br>AER Well UWI | Source water well AER UWI | String, AA/99-99-999-99W9/999.<br>Enter for recycled frac water (well site), groundwater-nonsaline > 150 m deep and groundwater-saline; NULL for the other water types. |
| reportingFacilityID/<br>AER Reporting Facility ID | Water source facility AER ID | String, 20 characters.<br>Enter for oilfield produced water, oilfield wastewater and recycled frac water (facility); NULL for the other water types. |
| diversionStartDate/<br>Start Date of Diversion | Date water diversion was first started from the water source | Date format for XML<br>YYYY-MM-DD.<br>Date format for CSV<br>2008-03-01<br>1-MAR-2008<br>MAR 1 2008<br>1 MAR 2008<br>03/01/2008<br>2008/03/01. |

| Data element/field name | Data description | Schema validation |
|---|---|---|
| diversionEndDate/<br>End Date of Diversion | Date water diversion was completed from the water source | Date format for XML<br>YYYY-MM-DD.<br>Date format for CSV<br>2008-03-01<br>1-MAR-2008<br>MAR 1 2008<br>1 MAR 2008<br>03/01/2008<br>2008/03/01 |
| averageDailyDiversionRate/<br>Average Daily Diversion Rate | Average daily water diversion rate from the water source in m3/day | Must follow 999999 format<br>Must be > 0<br>Enter for the surface water types and groundwater types; NULL for the other water types. |
| maximumDiversionRate/<br>Maximum Diversion Rate | Maximum water diversion rate from the water source in m3/day (groundwater)<br>m3/second (surface water) | If Surface Water:<br>- In m3/s<br>- Must follow 999.999 format<br>If Groundwater:<br>- Must follow 999999 format<br><br>Enter for the surface water types and groundwater types; NULL for the other water types. |
| totalVolume/<br>Total Volume | Total volume diverted from the water source in m3 | Must follow 999999 format. |
| tdsContent<br>TDS Content (mg/L) | Total Dissolved Solids (TDS) of water source | Must follow 999999 format.<br>Enter for the groundwater types; NULL for the other water types. |

If the value to be submitted is not in the values listed in the XML schema or CSV generator file; (figure 73), send a request to WellDataServices@aer.ca to have the item added to the AER's reference table (see section 8).

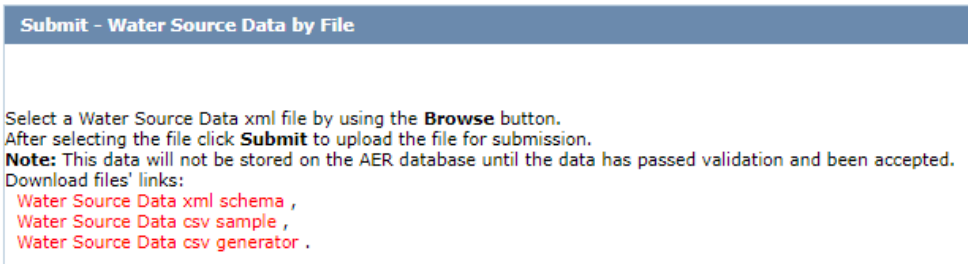



**Figure 73. Links to XML schema and CSV generator file**

## 4.4 Submit Fracture Fluid Water Source by File [Validate and Submit Water Source by File]

This functionality allows the user to validate without submission or to validate and submit a CSV or XML file.

DDS can accept data prepared in an AER-prescribed XML file format. Under the Validate and Submit Water Source By File menu item the **Water Source Data xml schema** brings up the AER XML schema. Ensure the data is consistent with the constraints and the lookup lists shown on the schema.

DDS can only accept data created within a spreadsheet if the file is in CSV file format. The **Water Source Data csv generator** link brings up the CSV template. This template contains a data sample as well as lookup lists. Create CSV files in accordance with the AER-prescribed format found in the CSV generator.

The CSV generator works best with Excel 2010. Users use the CSV generator at their own risk.

Data entered into the CSV generator and saved as a CSV file may be subject to Excel-specific formatting that will render the file unacceptable to the AER validation. Examples include the following:

- removal of leading zeroes from well licence numbers
- a single 0 in the “le” column (there needs to be a leading zero; e.g., 00, 02, etc.)
- removal of trailing zeroes on data that requires a specific number of decimal places (e.g., maximumDiversionRate)

Through experience, it has been found that the file is rendered unacceptable if a csv file is saved, closed, and then reopened in Excel. To avoid this, it is recommended to validate or submit the file while it is still open or to submit from a saved and closed state.

Enter data only for well event sequences that have been fractured using water as a carrier fluid. Fracture fluid water source data cannot be submitted if fracture interval data *and* fracture fluid data have not been submitted through DDS.

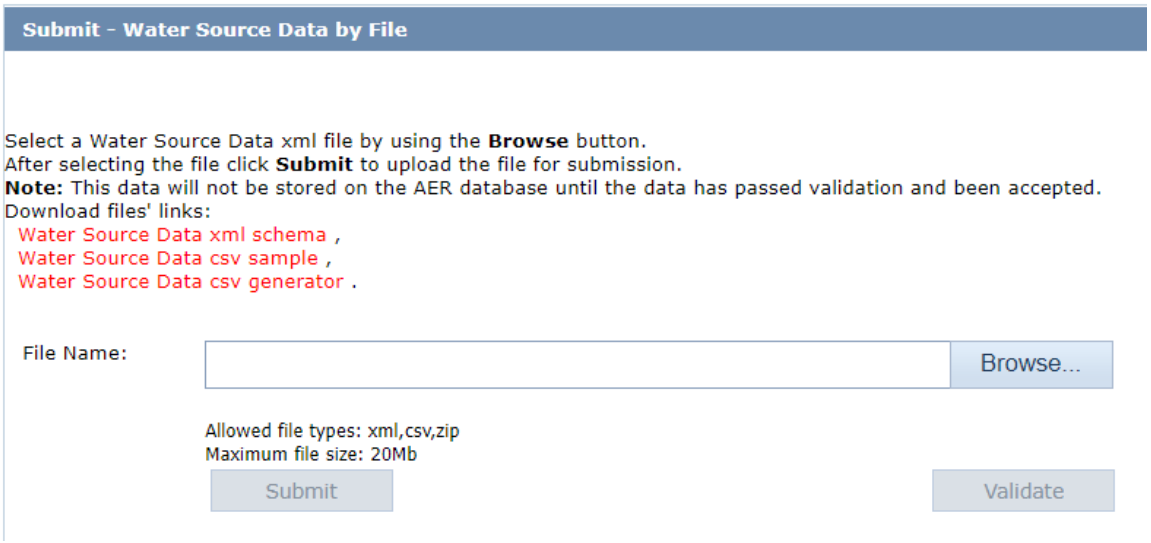



**Figure 74. Validate and Submit – Water Source Data by File screen**

## Process Steps for XML File Preparation and Submission

Step 1. Download and use the XML schema from the DDS Well Drilling Completion Data submission system > Fracture Fluid Water Source Data > Validate and Submit Water Source by File (figure 74). The file the user creates needs to adhere to the format of the XML Schema.

*Only one well licence may be included per XML submission.*

Step 2. After all data elements have been entered per section 4.3, save the file with an XML file extension.

*The XML file can also be prepared as a zip file for later submission. Zip files can only contain one file.*

*Up to 50 water sources per UWI can be submitted. Enter water volumes in cubic metres ($m^3$).*

Step 3. Using **Browse**, locate and select the XML file to be validated or submitted (figure 74).

Step 4. If only validation of the file is desired, click **Validate**. To submit the file, click **Submit**.

*Error messages will be displayed in red. If error messages appear, change the file according to the error messages and validate again.*

*Most common errors include the following:*

- *Non-alignment of licence number, UWI (drilling events only), fracture date, type, interval top, and interval base with interval data on AER system.*

- *Failure to include all leading zeroes on the well licence number.*
- *A single 0 in the "le" column (there needs to be a leading zero; e.g., 00, 02, etc.).*
- *Failure to exclude leading zeroes on LSD, section, township, range, or meridian.*
- *Failure to include all trailing zeroes on data that requires a specific number of decimal places (e.g., Maximum Diversion Rate [3 decimal places]).*

*There is no requirement to print the AER submission report and send to the AER Core Research Centre.*

**Process Steps for CSV File Preparation and Submission**

Step 1. Download and use the CSV template from the DDS Well Drilling Completion Data submission system > Fracture Fluid Water Source Data > Validate and Submit Water Source by File (figure 74) and use it with the following caveats:

a) The column sizes can be adjusted.

b) Additional columns cannot be inserted or added.

c) The order of the columns cannot be changed.

d) There are restrictions on number of UWIs.

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | #AER-Fracture Fluid Water Source Data CSV.v1.0 | | | | | | Copy New Row | | | | | Save As CSV | | Reset |
| 2 | licencePrefix | licenceBody | licenceSuffix | ss | le | lsd | sec | twp | rge | ew | m | es | waterType | latitude |
| 3 | | 20970 | | 1 | 00 | 1 | 1 | 1 | 1 | W | 4 | 0 | Surface Water - River | 49.637821 |
| 4 | | | | | | | | | | | | | | |

**Figure 75. CSV generator**

Step 2. Enter the data in the row immediately after the data headers starting with row 3 (figure 75). Duplicate the row up to the point where the data changes. For example, the licence and UWI must be copied for each of the water types.

*Numbers that start with a 0 should be entered with an apostrophe (e.g., licence 0401234 is entered as '0401234) or the cell format changed to Text.*

*Only one well licence may be included per CSV file submission. Each CSV file cannot have multiple worksheets or tabs.*

*Up to 50 water sources per UWI can be submitted. Select the applicable water types. Enter water volumes in cubic metres ($m^3$).*

Step 3. After all the data elements have been entered per section 4.3, click **Save As CSV** and save the file with a CSV file extension.

*The CSV file can also be prepared as a zip file for later submission. Zip files can only contain one file.*

Step 4. Using **Browse**, locate the CSV file to be validated or submitted. When the file name is seen in the Browse window go to the next step.

Step 5. If only validation of the file is desired, click **Validate**. To submit the file, click **Submit**.

*Error messages will be displayed in red. If error messages appear, change the file according to the error messages and validate again.*

*Most common errors include the following:*

- *Non-alignment of licence number, UWI (drilling events only), fracture date, type, interval top, and interval base with interval data on AER system.*
- *Failure to include all leading zeroes on the well licence number.*
- *A single 0 in the "le" column (there needs to be a leading zero; e.g., 00, 02, etc.).*
- *Failure to exclude leading zeroes on LSD, section, township, range, or meridian.*
- *Failure to include all trailing zeroes on data that requires a specific number of decimal places (e.g., Maximum Diversion Rate [3 decimal places]).*

*Some of these errors are caused by Excel autoformatting features. When editing a CSV file in Excel, keep it open while trying to validate and submit it. Also, viewing the file in Notepad will reveal the data in its final form, which may make apparent errors that were not visible in Excel. Do not edit a CSV file in Notepad. Do all edits in Excel or another application capable of editing and saving CSV files.*

*There is no requirement to print the AER submission report and send to the AER Core Research Centre.*

## 4.5 Amend Fracture Fluid Water Source by File [`Amend Water Source by File`]

This functionality allows the user to validate or amend a CSV or XML file.

### 4.5.1 Amend Fracture Fluid Water Source Using a CSV or XML File

A water source data amendment is only possible for well event sequences that have prior submissions for wells fractured using water-based carrier fluids.

The XML schema can be downloaded from DDS under Well Drilling Completion Data > Fracture Fluid Water Source Data > Validate and Submit Water Source by File (figure 76).

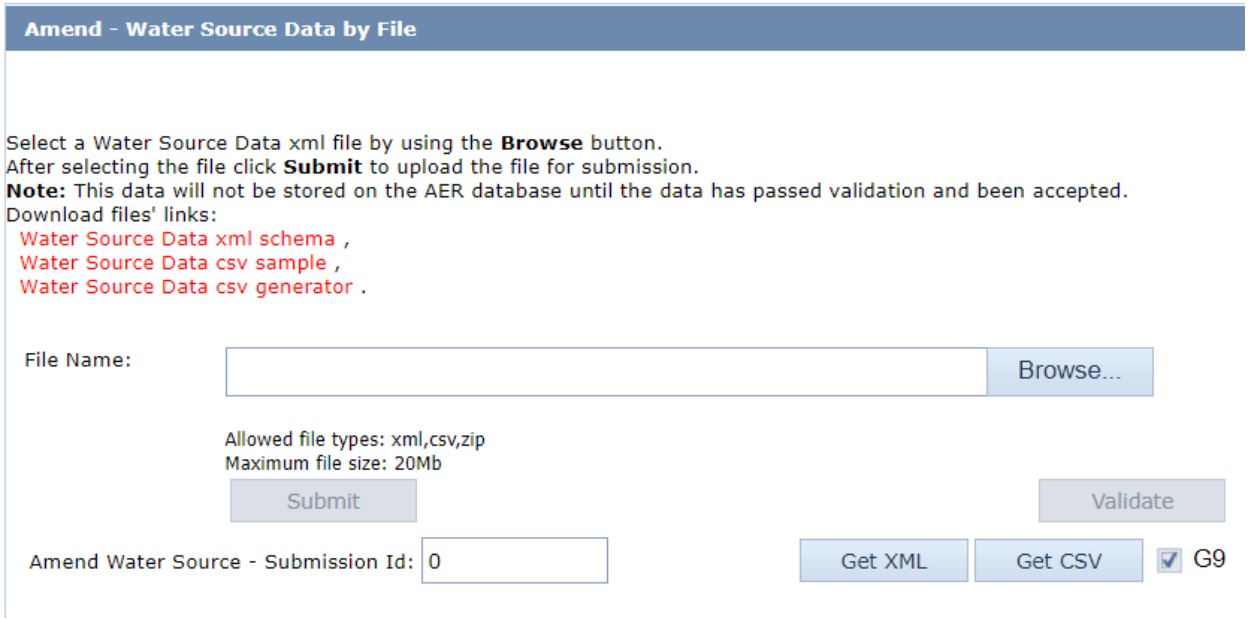



**Figure 76. Amend – Water Source Data by File**

### Process Steps

Step 6. Retrieve the existing XML or CSV file by entering the submission ID obtained when the original file was submitted in the Amend Water Source – Submission ID box (figure 76) and click **Get XML** or **Get CSV**. A popup box will appear allowing the file to be saved (XML) or opened or saved (CSV). Click **Cancel** to return to the main screen. Amend the data as needed and save the file.

*Use the G9 check box to retrieve data for event sequences greater than nine. However, fracture fluid water source data for event sequences greater than nine can only be amended by form amendment (see section 4.7.3).*

Step 7. Using **Browse**, locate and select the amended XML or CSV file to be validated or submitted.

Step 8. If only validation of the file is desired, click **Validate**. To submit the file, browse the file to be uploaded and click **Submit**.

*Error messages will be displayed in red. If error messages appear, change the file according to the error messages and validate again.*

*If an error is shown when trying to submit an amendment by file and the message is "No submission with status SUBMITTED found for Submission ID: XXXXXX." Follow the procedure below:*

*Check if there is an amendment in progress by form. This will prevent the amendment by file. Check by clicking the Amend Water Source By Form menu item in DDS. Enter the licence number and proceed through to the Completions screen. If there is an amendment in progress the status will be "Saved Amendment." To clear this, go to the Amend & Print tab and either click **Cancel** to clear the amendment or click **Amend** to proceed with the amendment.*

*It is not required to submit the field reports or submission reports through OneStop.*

### 4.5.2 Delete Fracture Fluid Water Source by CSV File

This allows the user to delete a fracture fluid water source data submission using a blank CSV file to overwrite a previously submitted CSV file or form submission.

**Process Steps**

Step 1. Retrieve the CSV file for the submission to be deleted by clicking on Amend Water Source By File. Enter the submission ID in the Amend Water Source – Submission Id box and click **Get CSV**. On the file, delete all data entry leaving the Licence Prefix, LicenceBody, Licence Suffix and UWI components in place on row 3 (figure 77). Also leave header rows 1 and 2.

| | A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | #AER-Fracture Fluid Water Source Data CSV.v1.0 | | | | | | | | | | | | | | | | | | | | | |
| 2 | licencePre | licenceBo | licenceSu | ss | le | lsd | sec | twp | rge | ew | m | es | waterTyp | latitude | longitude | waterBod | geological | supplierN | facilityNa | diversion | diversion | wellID | w |
| 3 | | 2000609 | | 1 | 4 | 2 | 3 | 81 | 24 | W | 5 | 2 | | | | | | | | | | |

**Figure 77. Delete submission example**

Step 2. Name the delete file and click **Save**.

Step 3. Enter the submission ID in the Amend Water Source – Submission Id box again.

Step 4. **Browse** for the delete file and ensure the file name is shown in the file name window.

Step 5. Click **Validate** to check the file is valid or click **Submit** to delete the submission.

*It is recommended that users keep the CSV file open after saving the file when edits have been made on the file. This way, the saved CSV formats are kept intact on submission.*

*For submissions to delete a previous submission using a CSV spreadsheet, convert the LicenceBody and LE code to text format to preserve the leading zeroes and the required decimal places as stipulated in Table 18.*

## 4.6 Submit Fracture Fluid Water Source by Form [`Save or Submit Water Source by Form`]

Water source data for all well event sequences, including those greater than nine, that have been fractured using water-based carrier fluids can be submitted. Note the composition data has to be submitted before the water source data can be submitted.

Up to 50 water sources per UWI can be submitted. Select the applicable water types. Enter water volumes in cubic metres ($m^3$).

This functionality allows the user to enter fracture fluid water source data through an interactive web form and do the following:

- create a new submission via a web form
- submit (and validate)
- save (and validate) submission as a work in progress
- amend saved submission
- view previous submissions and saved submissions

### 4.6.1 Wells Tab: Select a Licence and UWI

The Wells tab allows the user to select the UWI to report the fracture fluid water source data as well as create UWIs for wells with more than nine event sequences.

A single submission can contain up to nine UWIs.

**Process Steps**

Step 1. In the Wells tab, select a Licensee Name if applicable. Enter a valid 7 digit well licence number including leading zeroes and click **Search** (figure 78).

*Only UWIs for the selected well licence with a previously submitted carrier fluid of water will be displayed for selection.*

Step 2. For the UWI for which water sources are to be entered, click **Water Sources** under the Continue column for the desired UWI to navigate to the next tab and see section 4.6.2.

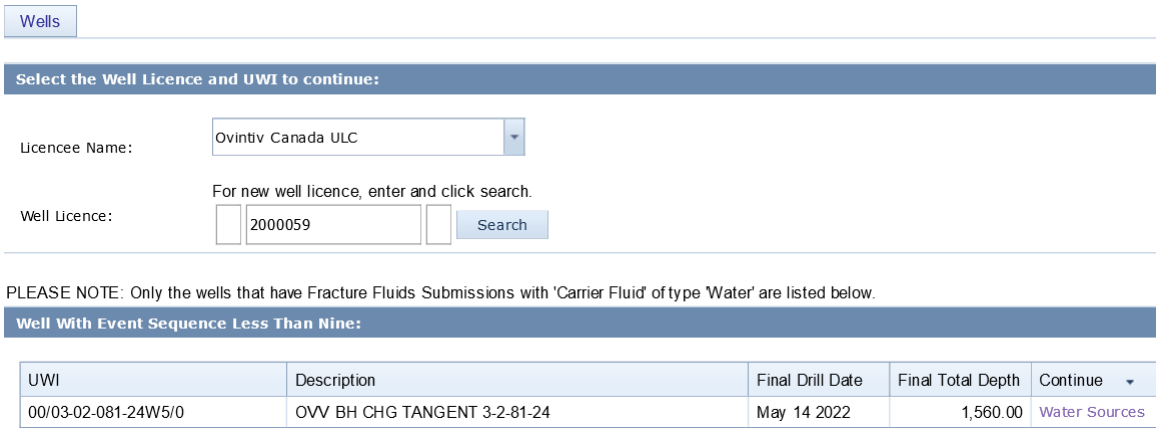



**Figure 78. Wells Tab screen (ES less than 10)**

### 4.6.2 Water Source Data Tab

In the Water Source Data tab (figure 79), the top of the page displays the well details including BA Code, BA Name, Well Licence, and UWI currently selected for water source submission. Below this is all water source information for the UWI as it is entered and saved. The Submission Status on the right-hand side indicates the water source record as either saved or submitted.

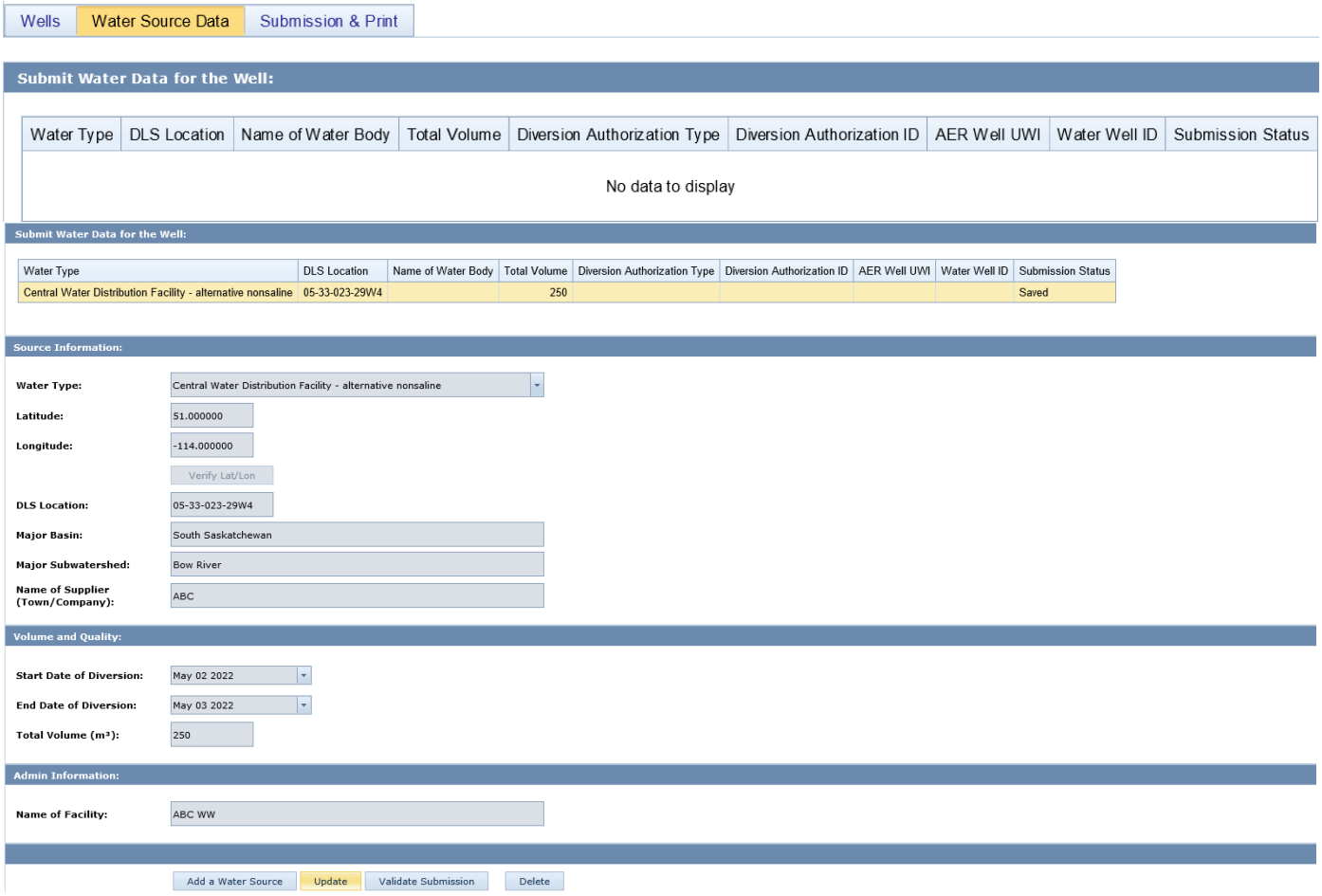



**Figure 79. Water Source Data Tab screen**

## Process Steps

Step 1. Click **Add a Water Source** to activate the page.

Step 2. Select the water type used in the fracture fluid from the drop-down list (see section 4.2 and table 17 for options) and enter associated water source data.

*The water source data displayed under Source Information, Volume and Quality and Admin Information depends on the water type. Mandatory data is in bold font.*

*Click **Verify Lat/Long** after entering the Latitude and Longitude data to populate the DLS Location, Major Basin, and Major Subwatershed fields. Click **Cancel** if the data is not to be saved.*

*If the water type, name of geological zone, or diversion authorization type is not on the drop-down list, send a request to WellDataServices@aer.ca to have the water type, name of geological zone, or diversion authorization type added to AER's reference table (see section 8).*

Step 3. For each water type entered in accordance with table 17 click **Save**.

Step 4. After **Save** has been clicked, four options will appear:

a) Click **Add a Water Source** to add another water source.

b) Click **Update** to edit the displayed water source.

c) Click **Validate Submission** to validate the submission.

d) Click **Delete** to delete the displayed water source.

Step 5. After water source data have been entered for all water types, click **Submission & Print** to validate and submit the data (figure 80).

Step 6. Whenever **Save** is clicked while proceeding through a submission by form, the data is saved as part of a saved submission. Select one of the following three options:

a) Print – displays the submission report in a new window but will only display a submission ID if the data has been submitted.

b) Validate – Validates data in the saved submission against business rules.

c) Submit – Validates and submits the data.

*On validation, data that have errors will be displayed in red. Hover the cursor over the red text to display the ERROR message.*

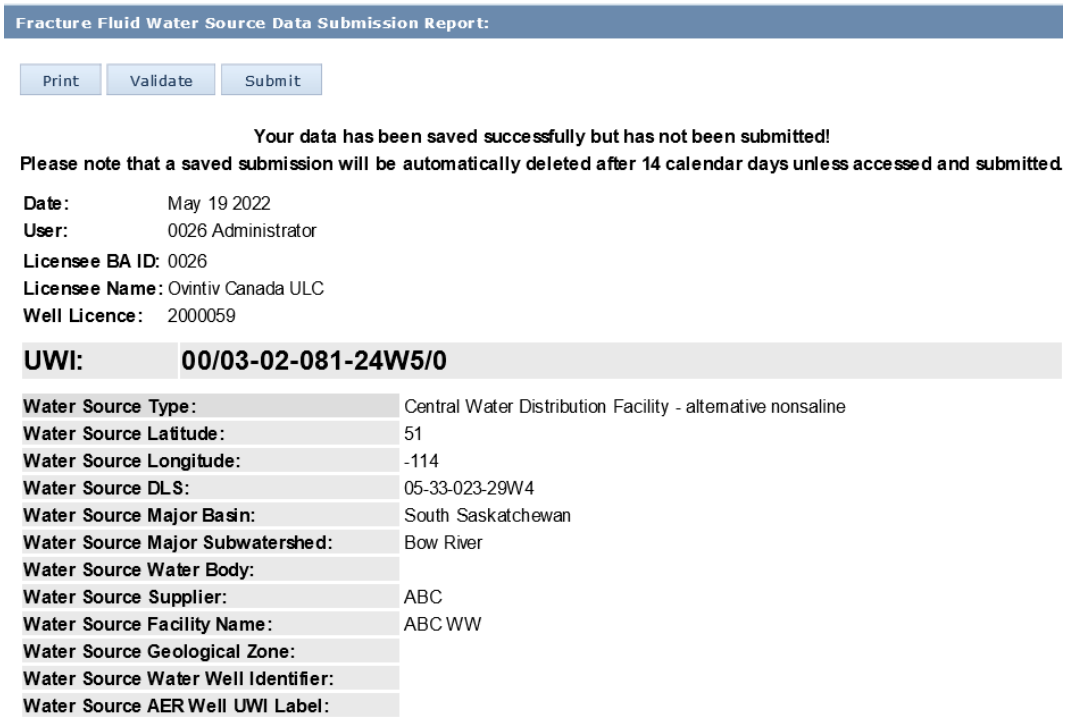



**Figure 80. Fracture Fluid Water Source Data Submission Report screen**

Step 7. On a successful submission, a confirmation message appears in the page with the submission ID (figure 81).

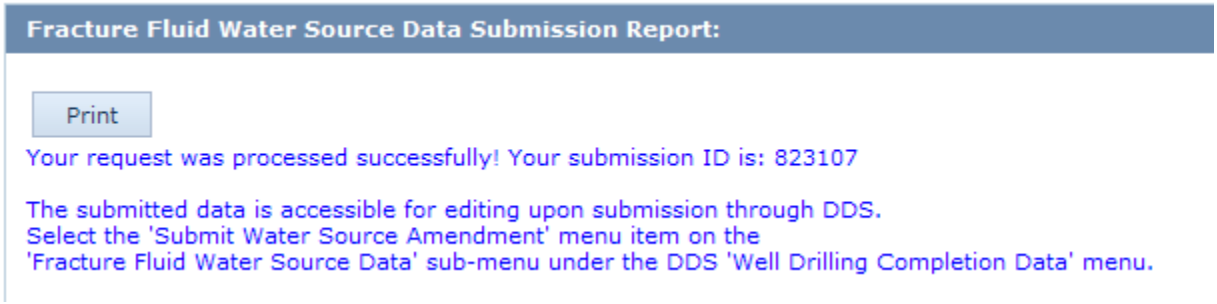



**Figure 81. Successful Submission screen**

Step 8. If **Print** is clicked, the submission report is displayed in a new window.

*The submission report can be printed and retained for company records. There is no requirement to print the AER submission report and send to the AER Core Research Centre.*

Step 9. If **Submit** is clicked, DDS generates an email notification to the submitter with the submission ID (figure 82).

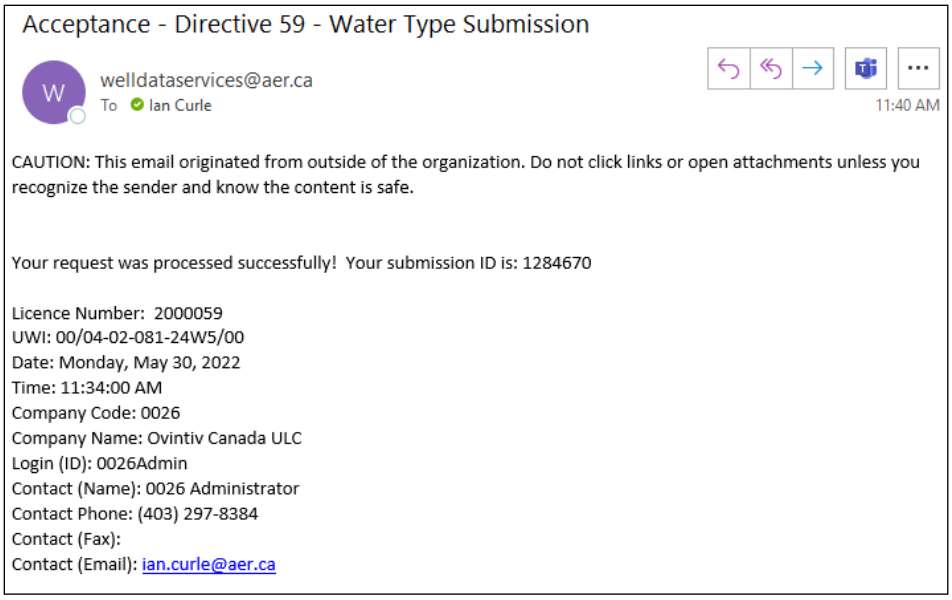



**Figure 82. Email notification to submitter**

*There is no requirement to print the AER submission report and send to the AER Core Research Centre.*

### 4.6.3 Submission for a Well with More than Nine Event Sequences

When the fracture type, date, interval and fracture fluid composition data for a fractured event sequence (ES) greater than nine have been submitted, the water source data can be submitted via the interactive web form.

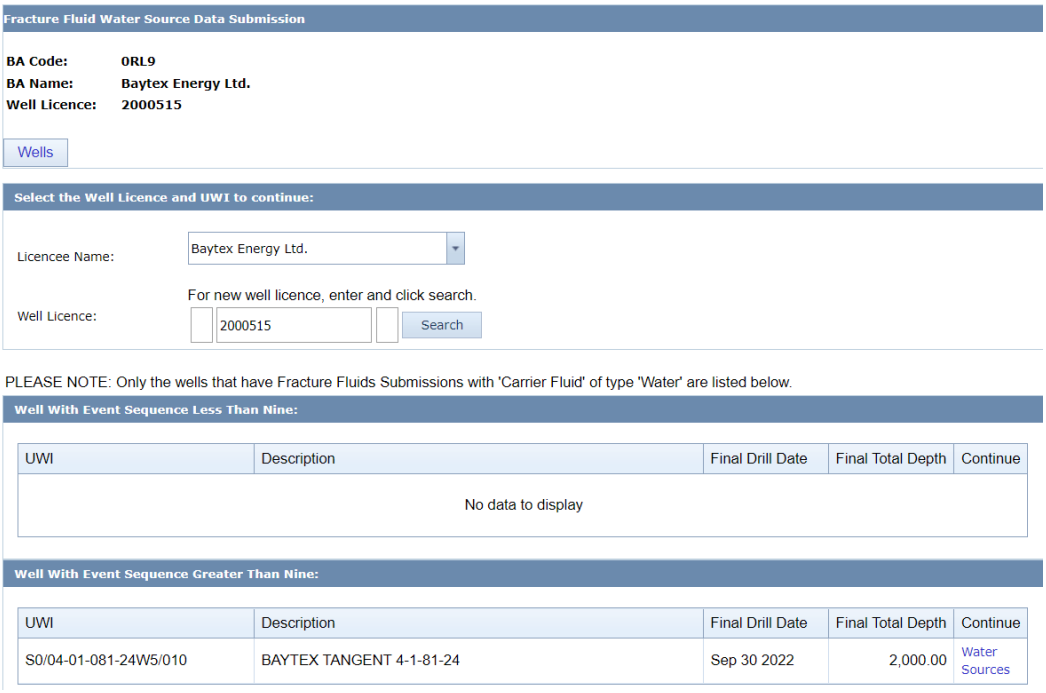



**Figure 83. Well tab screen (Event sequences greater than nine)**

## Process Steps

Step 1. Under the Well With Event Sequences Greater Than Nine banner, click **Water Sources** under Continue to open the data entry form.

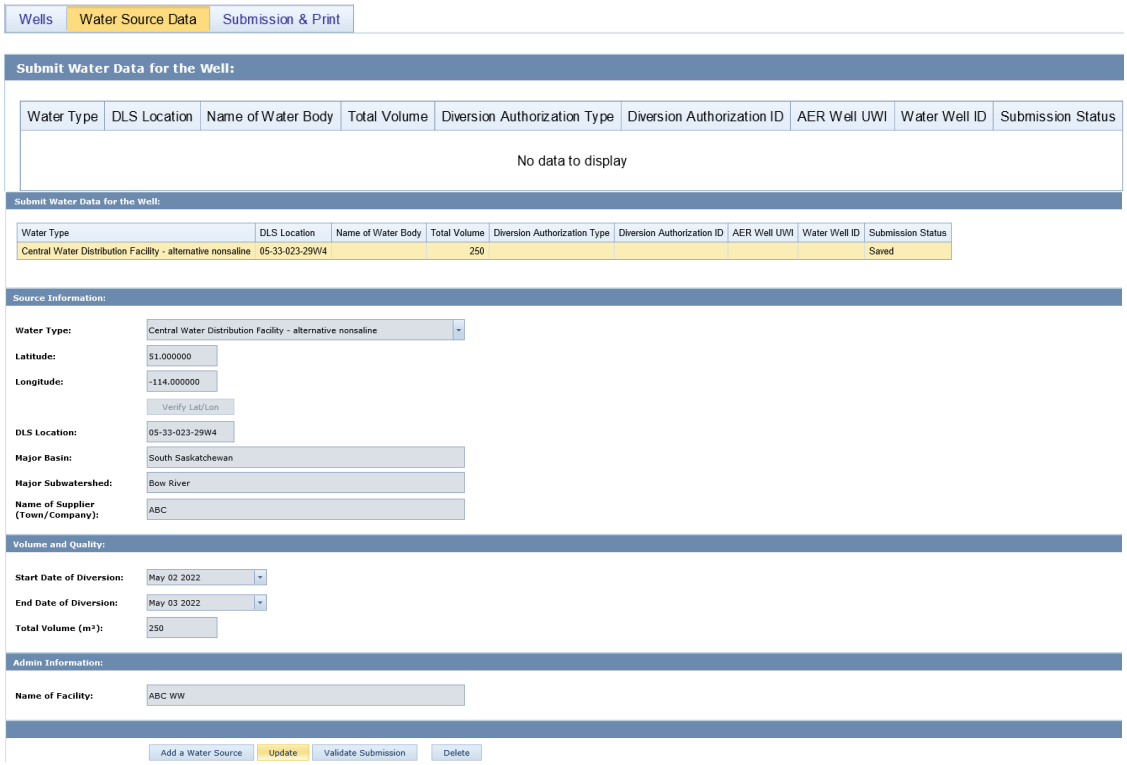



**Figure 84. Water Source Data Tab screen**

Step 2. Scroll to the bottom of the page and click **Add a Water Source** to activate the form (figure 84).

Step 3. Select the water type used in the fracture fluid from the drop-down list (see section 4.2 and table 17 for options) and enter associated water source data.

*The water source data fields displayed under Source Information, Volume and Quality and Admin Information depends on the water type. Mandatory data is in bold font.*

*Click **Verify Lat/Long** after entering the Latitude and Longitude data to populate the DLS Location, Major Basin, and Major Subwatershed fields. Click **Cancel** if the data is not to be saved.*

*If the water type, name of geological zone, or diversion authorization type is not on the drop-down list, send a request to WellDataServices@aer.ca to have the water type, name of geological zone, or diversion authorization type added to AER's reference table (see section 8).*

Step 4. For each water type entered in accordance with table 17, click **Save**.

Step 5. After **Save** has been clicked, four options will appear:

a) Click **Add a Water Source** to add another water source.

b) Click **Update** to edit the displayed water source.

c) Click **Validate Submission** to validate the submission.

d) Click **Delete** to delete the displayed water source.

Step 6. After water source data have been entered for all water types, click **Submission & Print** to validate and submit the data (figure 85).

Step 7. Whenever **Save** is clicked while proceeding through a submission by form, the data is saved as part of a saved submission. Select one of the following three options:

a) Print – displays the submission report in a new window but will only display a submission ID if the data has been submitted.

b) Validate – Validates data in the saved submission against business rules.

c) Submit – Validates and submits the data.

*On validation, data that have errors will be displayed in red. Hover the cursor over the red text to display the ERROR message.*

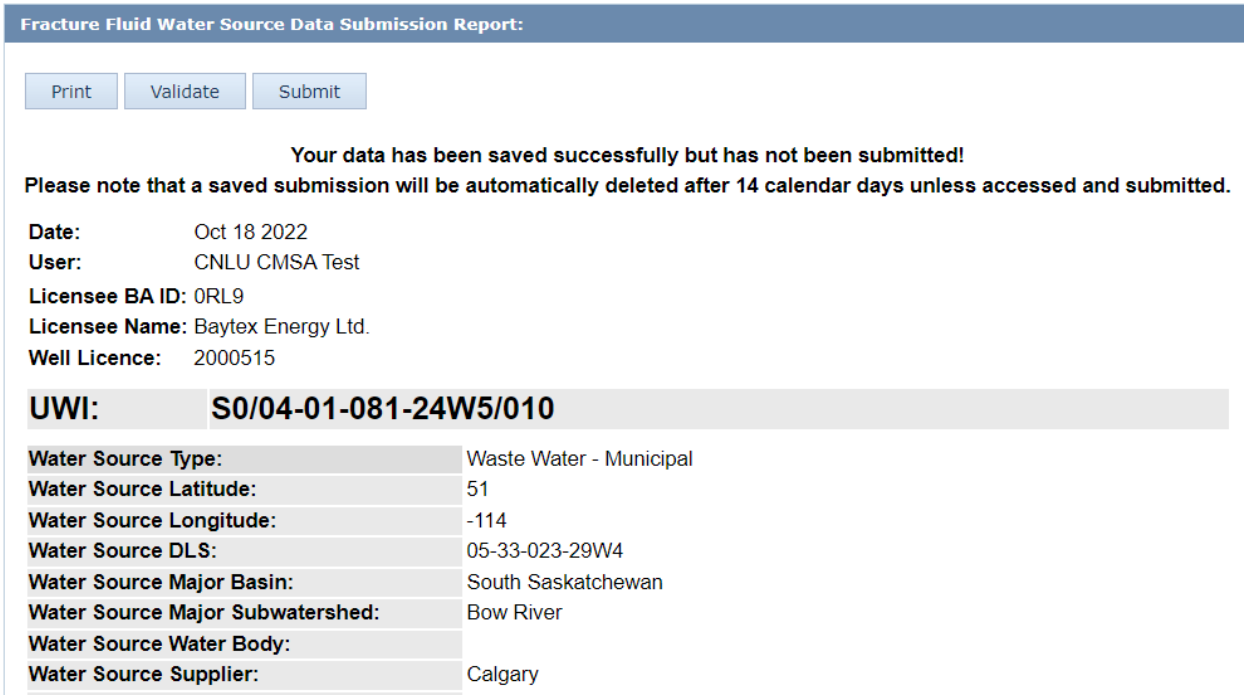



**Figure 85. Fracture Fluid Water Source Data Submission screen (Event sequences greater than nine)**

Step 8. On a successful submission, a confirmation message appears in the page with the submission ID (figure 81).

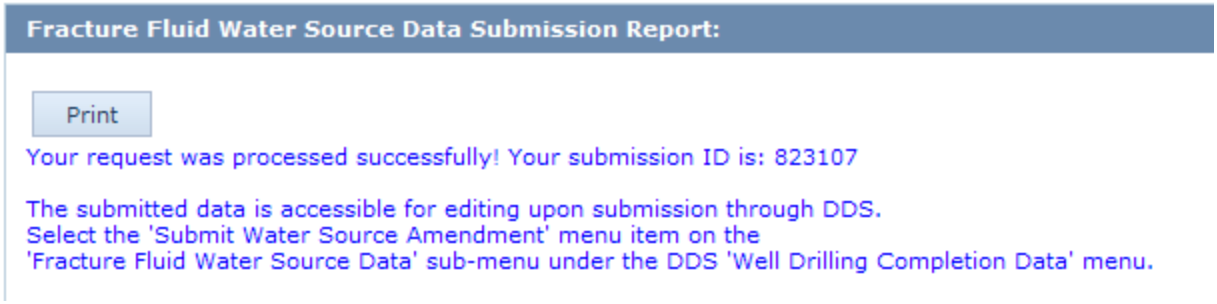



**Figure 86. Successful Submission screen**

Step 9. If **Print** is clicked, the submission report is displayed in a new window.

*The submission report can be printed and retained for company records. There is no requirement to print the AER submission report and send to the AER Core Research Centre.*

If **Submit** is clicked, DDS generates an email notification to the submitter with the submission ID (figure 82).

**Figure 87. Email notification to submitter**

## 4.7 Amend Fracture Fluid Water Source by Form [`Amend Water Source by Form`]

This functionality allows the user to amend fracture fluid water source data through an interactive web form and do the following:

- amend an existing fracture fluid water source submission via a web form
- submit (and validate) an amendment
- save (and validate) an amendment as a work in progress
- amend a saved amendment

### 4.7.1 Wells Tab: Select a Licence and UWI

The Wells tab allows the user to amend fracture fluid water source data. If amending water source for a well with greater than nine event sequences, the UWIs are listed under section 4.7.3.

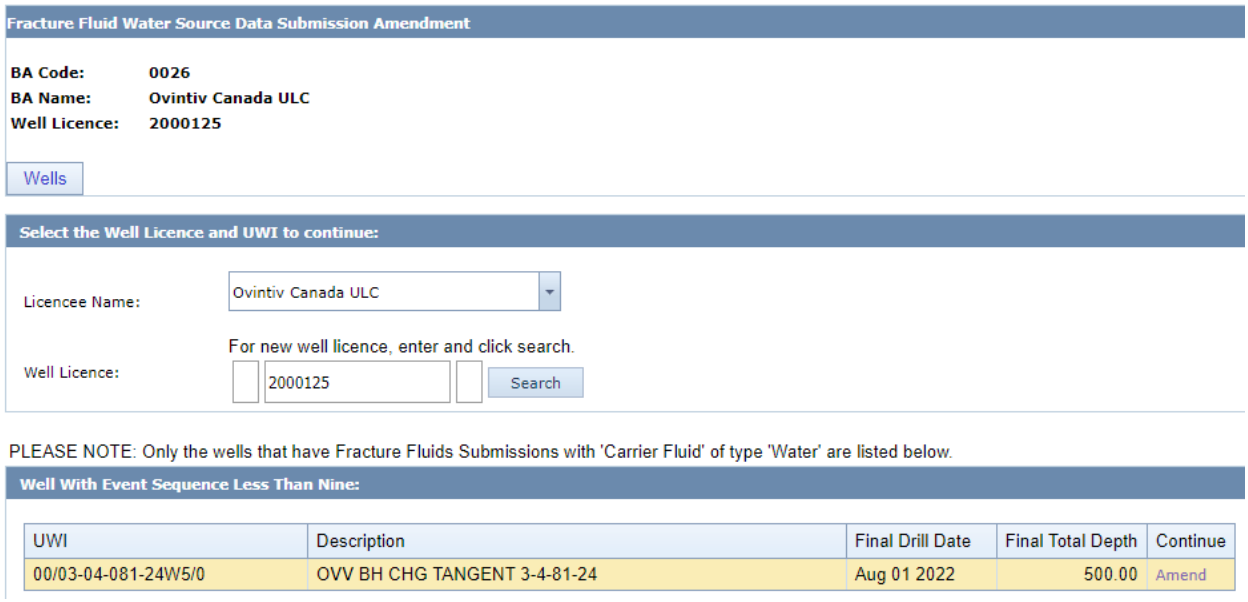



**Figure 88. Licence number entry screen**

**Process Steps**

Step 1. In the Wells tab, select a Licensee Name if applicable. Enter a valid 7 digit well licence number including leading zeroes and click **Search** (figure 88). Select the UWI to amend data by clicking on it.

*For older well licences that have been assigned a single string character for licence prefix or suffix, enter the prefix in the left-hand box and the licence suffix in the right-hand box.*

*The system displays only the UWIs that have water source data under the licence.*

Step 2. For the selected UWI for which fracture fluid water source data are to be amended, (figure 88) click **Amend** under Continue for the desired UWI to navigate to the next tab and see section 3.5.2.

### 4.7.2 Water Source Data Tab

In the Water Source Data tab (figure 89), the top of the page displays the well details including BA Code, BA Name, Well Licence, and UWI currently selected for water source amendment. Below this is all water source information for the UWI as it has been submitted. The Submission Status on the right-hand side indicates the water source record as either submitted or saved amendment (amendment in progress). The Submission ID column shows the submission ID for each water type.

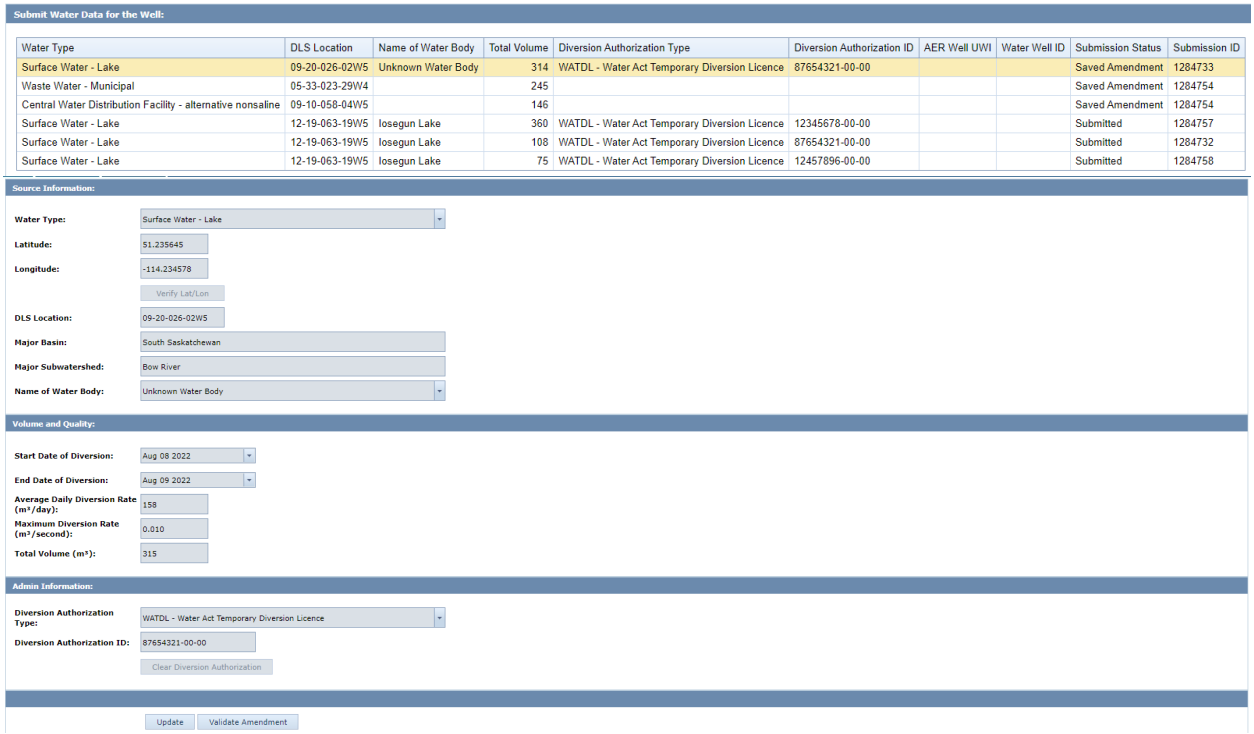



**Figure 89. Water Source Data Tab screen**

## Process Steps

Step 1. Click on the water type to be amended on the list at the top of the page (figure 89). The selected water type will be highlighted in yellow.

Step 2. Scroll to the bottom and click **Update** to activate the page.

Step 3. Edit the data fields according to the desired amendment.

*The water source data displayed under Source Information, Volume and Quality and Admin Information depends on the water type. Mandatory data is in bold font.*

*If needed, click **Verify Lat/Long** after amending the Latitude and Longitude data to populate the DLS Location, Major Basin, and Major Subwatershed fields.*

*Click **Cancel** if the data is not to be saved.*

*If the water type, name of geological zone, or diversion authorization type is not on the drop-down list, send a request to WellDataServices@aer.ca to have the water type, name of geological zone, or diversion authorization type added to AER's reference table (see section 8).*

Step 4. For each water type amended click **Save**.

Step 5. After **Save** has been clicked, three options will appear:

a) Click **Update** to continue editing the water source.

b) Click **Validate Amendment** to validate the amendments.

c) Click **Cancel** to cancel the amendment.

Step 6. After water source data have been amended for all desired water types, click the **Amend & Print** tab to validate and amend the data (figure 90).

Step 7. Whenever **Save** is clicked while proceeding through a submission by form, the data is saved as part of a saved submission. Select one of the following three options:

a) **Print** – displays the submission report in a new window but will only display a submission ID if the data has been submitted.

b) **Validate** – Validates data in the saved submission against business rules.

c) **Amend** – Validates and amends the data.

d) **Cancel** – Validates and amends the data.

e) **Delete Submission** – deletes the selected water source and any other water source included in the same submission with the same submission ID.

*On validation, data that have errors will be displayed in red. Hover the cursor over the red text to display the ERROR message.*

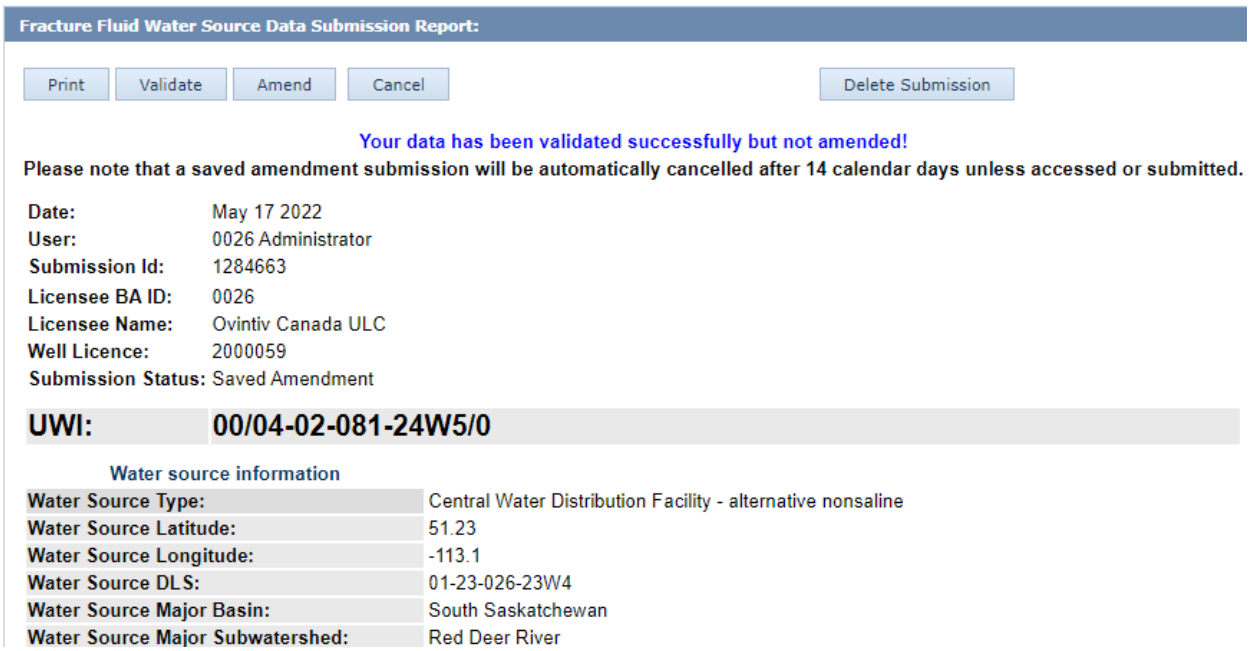



**Figure 90. Fracture Fluid Water Source Data Submission Report screen**

Step 8. On a successful amendment, a confirmation message appears in the page with the submission ID (figure 91).

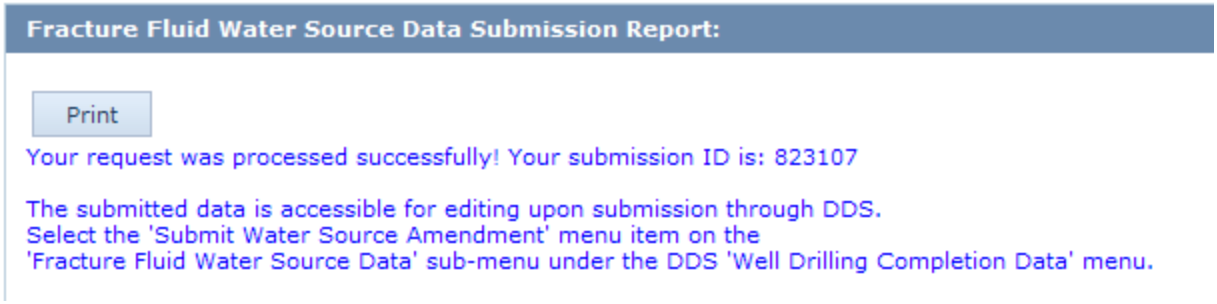



**Figure 91. Successful Submission screen**

a) If **Print** is clicked, the submission report is displayed in a new window.

*The submission report can be printed and retained for company records. There is no requirement to print the AER submission report and send to the AER Core Research Centre.*

b) If **Amend** is clicked, DDS generates an email notification to the submitter with the submission ID (figure 92).

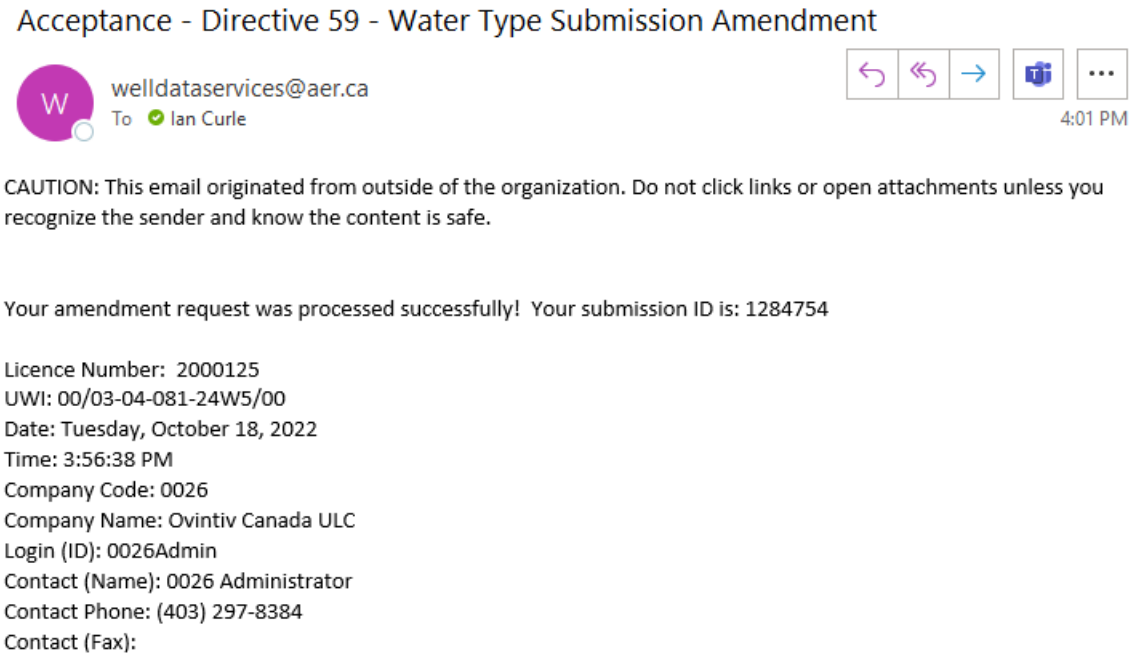



**Figure 92. Email notification to submitter**

### 4.7.3 Amendment for a Well with More than Nine Event Sequences

The fracture type, date and interval in addition to the fracture fluid water source data for a fractured event sequence (ES) greater than nine can only be amended via the interactive web form.

This functionality allows the user to amend fracture fluid water source data through an interactive web form and do the following:

- Amend an existing submission via a web form

- Submit (and validate) submission
- Save (and validate) submission as a work in progress
- Amend saved submission

It does not allow additional water sources to be added. This can be done through the "Save or Submit Water Source By Form" menu item in DDS, see section 4.6.

**Process Steps**

Step 1. In the Wells tab (figure 93), select a Licensee Name if applicable, enter a valid well licence number, and click **Search**. Select the UWI on which to amend data.

*Only UWIs with previously submitted water source data will be displayed for selection. Select the UWI to amend water source data.*

Step 2. Click **Amend** under the Continue column for the desired UWI to navigate to the next tab.

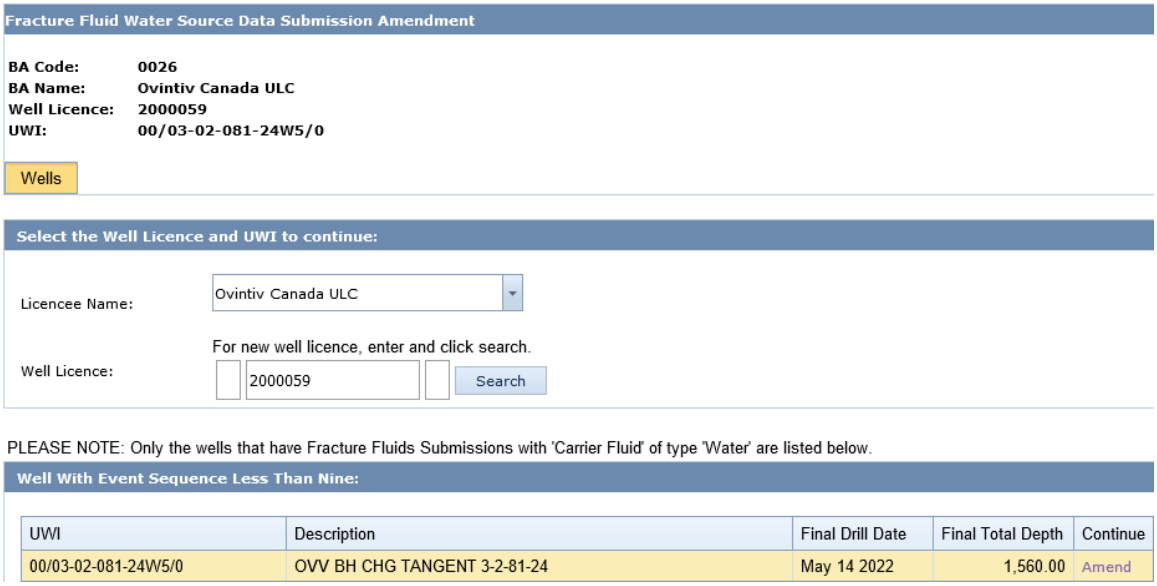



**Figure 93. Wells Tab screen**

Step 3. In the Water Source Data tab (figure 94), select the water type to be amended by clicking on it, scrolling down, and clicking **Update** to activate the screen and amend the data as required. The display changes to the fields applicable to each water type.

*Click the **Save** button to save the changes or click the **Cancel** button to cancel the changes. The submission status is Saved Amendment once an amendment has been saved; to return to the Submitted status, cancel or submit the amendment.*

*If the water type, name of geological zone, or diversion authorization type is not on the drop-down list, send a request to WellDataServices@aer.ca to have the water type, name of*

*geological zone or diversion authorization type added to AER's reference table (see section 8).*

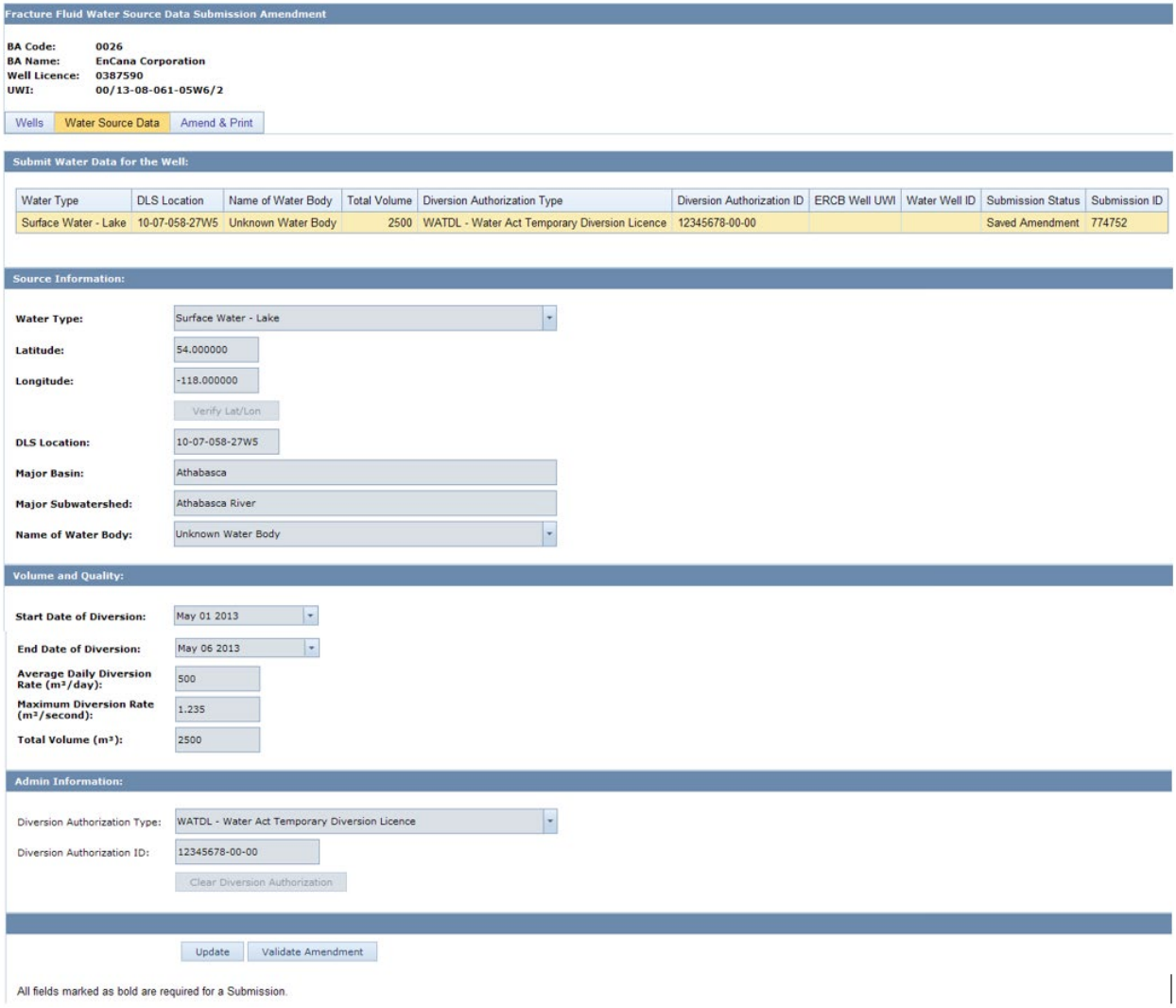



**Figure 94. Water Source Data screen**

Step 4. After water source data have been amended as required and saved, click **Update** to make more changes or click **Validate Amendment** (figure 94) to validate the amendment.

*On validation, data that have errors will be displayed in red. Hover the cursor over the red data to display the ERROR message.*

*When the amendment is ready for submission, click the Amend & Print tab.*

Step 5. Click on the Amend & Print tab for the following four options:

a) Click **Validate** (figure 95) to validate the amendment.

*On validation, data that have errors will be displayed in red. Hover the cursor over the red data to display the ERROR message.*

*Before **Amend** is clicked, this will only be a draft report.*

b) Click **Amend** to submit the amendment.

c) Click **Cancel** to cancel the amendment.

d) Click **Print** to open a new window for the amendment report. This allows access to a printable copy of the amendment report.

e) Click **Delete Submission** to permanently delete the water source data for that submission ID (see section 4.7.4)

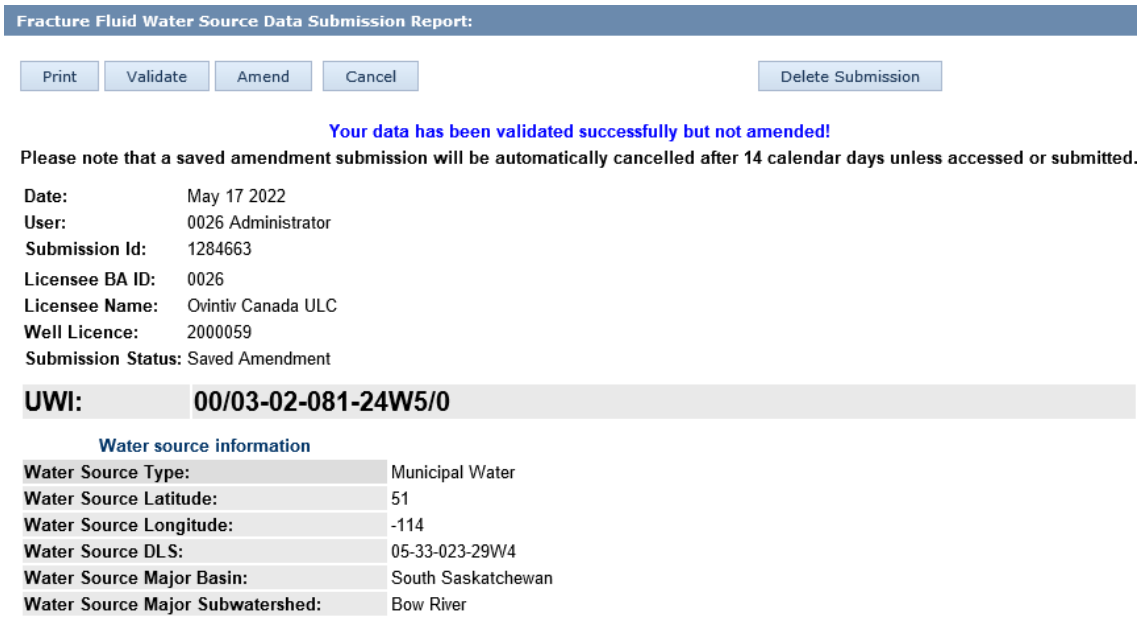



**Figure 95. Fracture Fluid Water Source Data Submission Report**

Step 6. On a successful submission, a confirmation message appears in the page with the submission ID (figure 96).

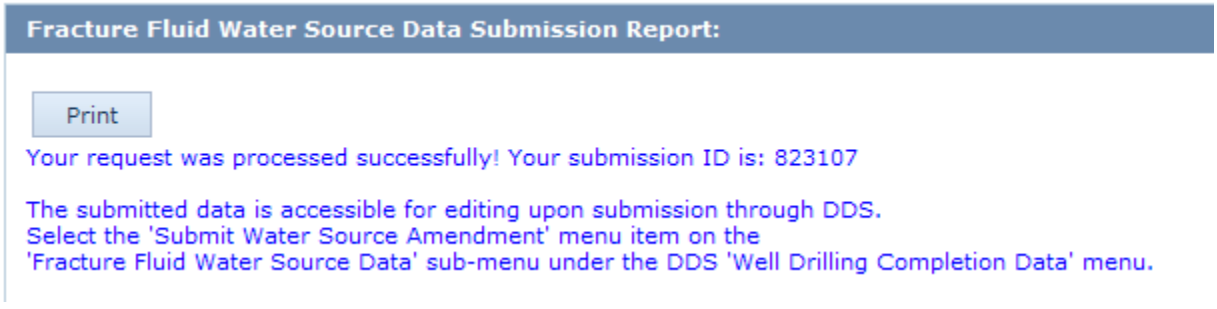



**Figure 96. Fracture Fluid Water Source Data Submission Report**

Step 7. DDS generates an email notification with the submission ID (figure 97).

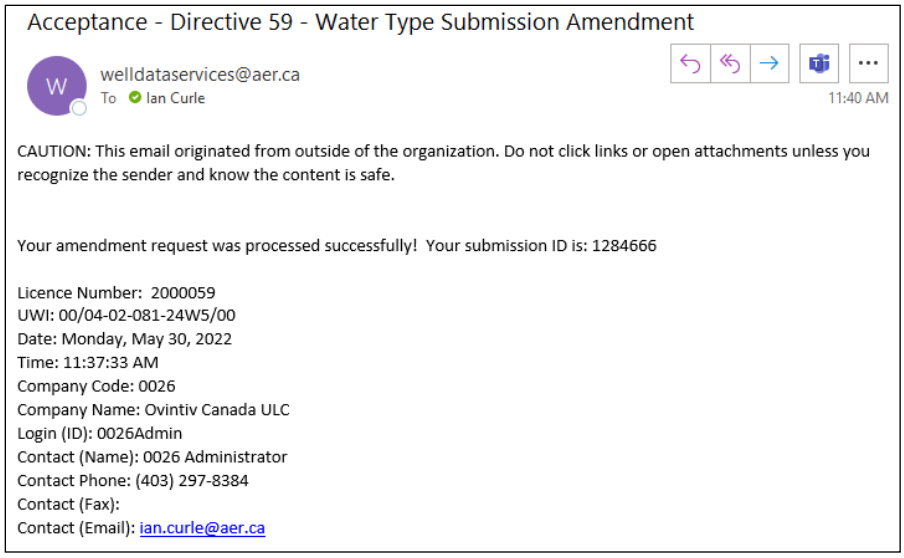



**Figure 97. Email notification to submitter**

The submission report can be printed and retained for company records. A copy of the water submission report does not have to be submitted through OneStop.

There is no requirement to print the AER submission report and send to the AER Core Research Centre.

### 4.7.4 Delete Fracture Fluid Water Source by Form

If fracture fluid water source data has been submitted incorrectly the whole submission can be deleted by following the process below using Amend Water Source By Form.

**Process Steps**

Step 1. Enter the well licence on the Wells tab and click **Search** (figure 98).

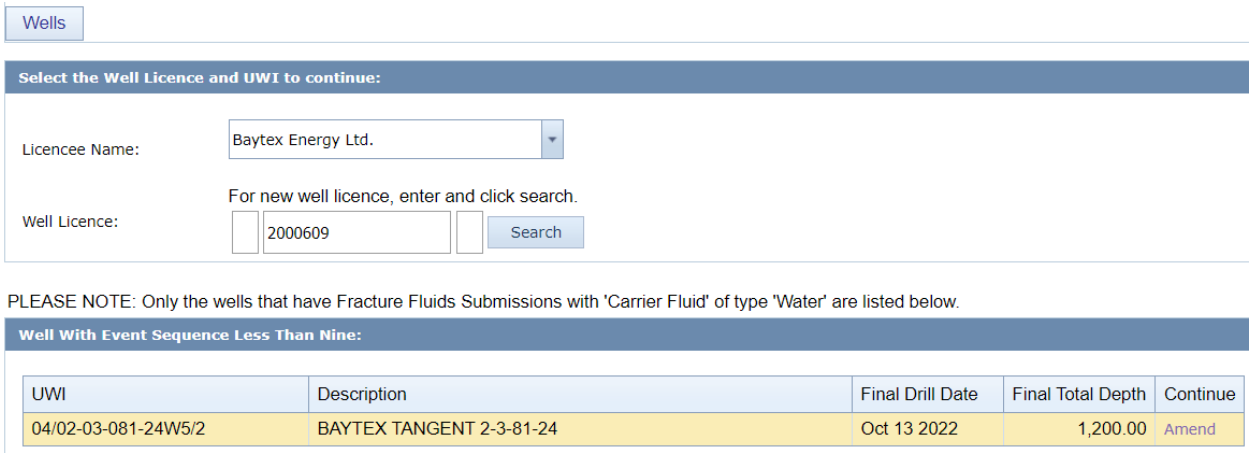
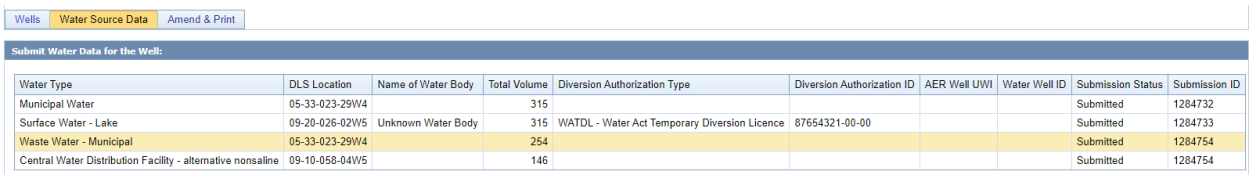



**Figure 98. Wells Tab screen**

Step 2. Click **Amend** under Continue to open the Water Source Data tab.




| Water Type | DLS Location | Name of Water Body | Total Volume | Diversion Authorization Type | Diversion Authorization ID | AER Well UWI | Water Well ID | Submission Status | Submission ID |
|---|---|---|---|---|---|---|---|---|---|
| Municipal Water | 05-33-023-29W4 | | 315 | | | | | Submitted | 1284732 |
| Surface Water - Lake | 09-20-026-02W5 | Unknown Water Body | 315 | WATDL - Water Act Temporary Diversion Licence | 87654321-00-00 | | | Submitted | 1284733 |
| Waste Water - Municipal | 05-33-023-29W4 | | 254 | | | | | Submitted | 1284754 |
| Central Water Distribution Facility - alternative nonsaline | 09-10-058-04W5 | | 146 | | | | | Submitted | 1284754 |

**Figure 99. Water Source Data tab showing submission IDs**

Step 3. On the Water Source Data tab (figure 99), select the Submission ID to be deleted, click **Update**.

*If there is more than one water source with the same submission ID, the user will only have to select one water source to delete the entire submission.*

Step 4. Click **Save**.

Step 5. Navigate to the Amend & Print tab and click **Delete Submission** and click **OK** to confirm (figure 100).

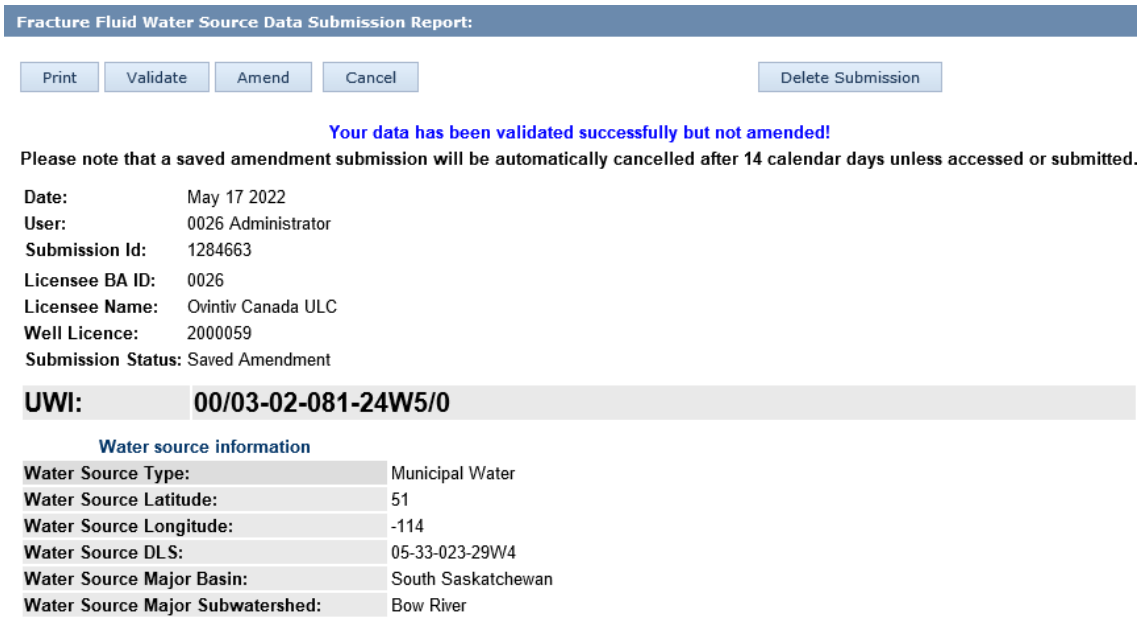



**Figure 100. Fracture Fluid Water Source Data Submission Report**

## 4.8 Review Fracture Fluid Water Source Data

The Save or Submit Water Source by Form functionality allows all water source data for previous submissions under a well licence to be viewed.

### Process Steps

Step 1. Enter a Licensee Name (if applicable) and a valid well licence number (figure 101). The system will display all water source data submitted for UWIs under that well licence.

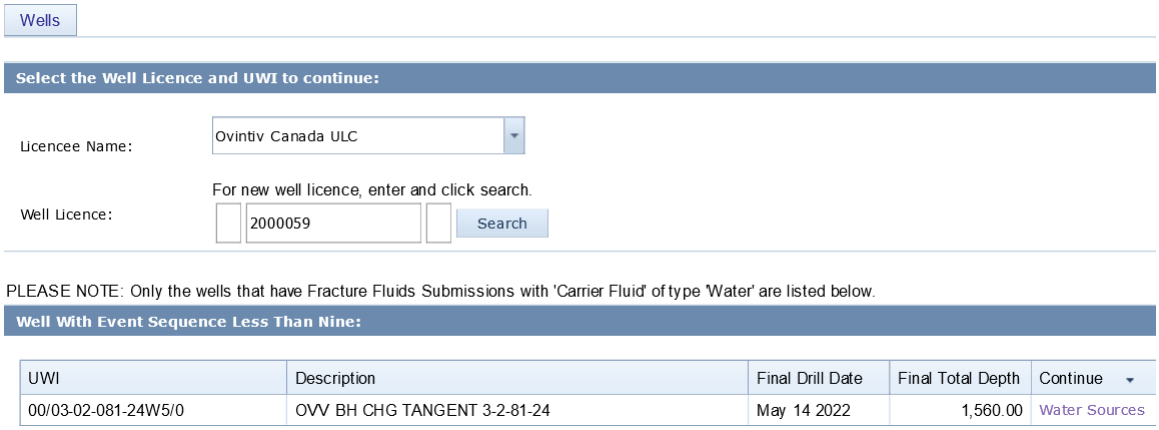



**Figure 101. Wells Tab screen**

Step 2. Click **Water Sources** under Continue to navigate to the Water Source Data tab (figure 102).

*On the Water Source Data tab, under the Submit Water Data for the Well, the submission status will display Saved if submission is a work in progress and is within 14 days from the last submission modification date. Status will display Submitted if the data has been successfully submitted to the AER.*

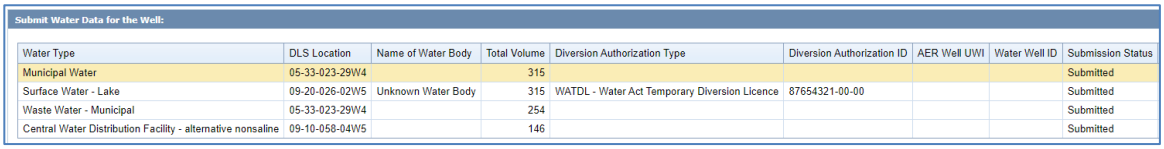



**Figure 102. Water Source Data tab screen**

Water source data that have been previously submitted will be displayed. Every time water source data is submitted for a UWI a submission ID will be generated. To avoid having multiple submission IDs, ensure that all the water source data is inputted prior to submission.

## 4.9 How to Report High-Quality Nonsaline and Alternative Nonsaline Water Sourced from a Central Water Distribution Facility

Under *Directive 059*, the list of water source types for hydraulic fracturing has changed to align with the requirements of the *Water Conservation Policy for Upstream Oil and Gas Operations* (WCP). To report waters sourced from a central water distribution facility (CWDF), where types have been mixed, to a fracture site, the water inputs to the CWDF must be tracked so that the percentage of each water type (i.e., high-quality or alternative nonsaline) is known. For instance, if a CWDF has received 1000 $m^3$ of water from a freshwater lake (high quality) and 1500 $m^3$ of groundwater greater than 150 m deep (alternative), the percentages are 40% and 60%. If 1000 $m^3$ is then sourced from the CWDF to a fracture site, the water source is reported as follows:

- 40% high-quality nonsaline = 400 $m^3$ Central Water Distribution Facility – High quality nonsaline
- 60% alternative nonsaline = 600 $m^3$ Central Water Distribution Facility – Alternative nonsaline

If the CWDF does not receive any more water, the proportion of high quality to alternative will remain the same. However, if water is added, the percentages will change accordingly.

If water is sourced from more than one holding facility (e.g., tank, lagoon, C-ring) at a CWDF, the percentages should be reported according to the overall volume. For example, if one lagoon has 1000 $m^3$ of water from a freshwater lake (high quality) and 1500 $m^3$ of groundwater greater than 150 m deep (alternative), and another lagoon has 2000 $m^3$ of freshwater from a river (high quality) and 800 $m^3$ of groundwater greater than 150 m deep (alternative) the proportions would be as follows:

| **Lagoon 1** | **Volume ($m^3$)** | **Percentage** |
|---|---|---|
| Surface Water – Lake (HQNS) | 1000 | 40.0 |
| Groundwater – Alternative nonsaline greater than 150 m deep (ANS) | 1500 | 60.0 |
| | | |
| **Lagoon 2** | | |
| Surface Water – River (HQNS) | 2000 | 71.4 |
| Groundwater – Alternative nonsaline greater than 150 m deep (ANS) | 800 | 28.6 |

If 1000 $m^3$ is then sourced from the CWDF to a fracture site consisting of 500 $m^3$ from each lagoon, the water source is reported as follows:

Lagoon 1

500 $m^3$ * 40% high quality = 200 $m^3$ high quality

500 $m^3$ * 60% alternative = 300 $m^3$ alternative

Lagoon 2

500 $m^3$ * 71.4% high quality = 357 $m^3$ high quality

500 $m^3$ * 28.6% alternative = 143 $m^3$ alternative

Total for final reporting

557 $m^3$ high quality

443 $m^3$ alternative

## 4.10 Process for Reporting Sourced Water Transfer Between Fracture Sites

When reporting fracture fluid water source data, report unused water volumes transferred between fracture sites as being sourced from a central water distribution facility (CWDF) and select the CWDF category according to the water types transferred (see section 4.9 for examples). All fracture flowback fluid transferred from one site to another should be reported under the appropriate “Recycled Fracturing Water” category.

For example, consider two sites. Site 1 receives 1000 $m^3$ of water for fracturing from three sources, 900 $m^3$ is used and the remaining unused 100 $m^3$ of water is transferred to Site 2 for fracturing. Site 1 reports as below.

| Site 1 | | |
|---|---|---|
| **Sources** | **Reported volume ($m^3$)** | **Reporting water type** |
| Source 1 | 500 | See section 4.2 |
| Source 2 | 250 | See section 4.2 |
| Source 3 | 250 | See section 4.2 |
| TOTAL | 1000 | - |
| Volume used on Site 1 | 900 | N/A |

Site 2 receives 600 $m^3$ of water for fracturing from three sources: 100 $m^3$ of water transferred from Site 1 and 500 $m^3$ from two new sources. Site 2 reports all the sources and volumes as per the table below. In DDS, the submitter must include the words "TRANSFER FROM" and insert the DLS surface location of the site from which the water was transferred in the "Name of Facility" field when submitting the transferred volumes (figure 103).

| Site 2 | | |
|---|---|---|
| **Sources** | **Reported Volume ($m^3$)** | **Reporting Water Type** |
| Transfer from Site 1 | 100 | See section 4.2 |
| Source 4 | 250 | See section 4.2 |
| Source 5 | 250 | See section 4.2 |
| TOTAL | 600 | - |
| Volume used on Site 2 | 600 | N/A |

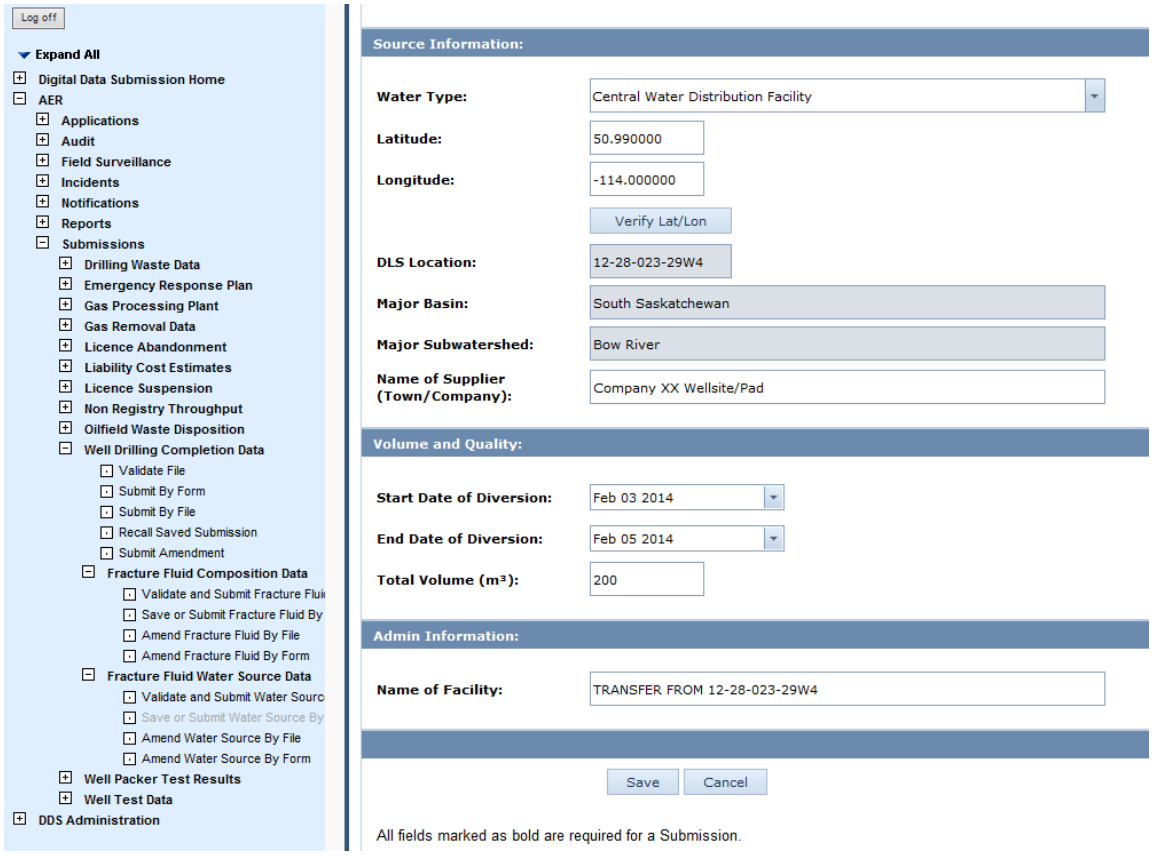



**Figure 103. Reporting transfer of unused water from other facture site**

## 5 Submit Daily Reports of Operations

In addition to the summary data submitted electronically to the AER, submit an electronic (PDF) copy of the daily reports from which the electronic data submission was made. This applies to well drilling, completion, servicing, and abandonment data and fracture fluid composition data. It does not apply to fracture fluid water source data. This is only required for accepted submissions not entered data that has been saved but not been submitted. Submit the PDF copy using the OneStop application. Refer to the quick reference guides on the OneStop Help page of the AER website https://www.aer.ca/regulating-development/project-application/onestop/onestop-help under Guides for Daily Reports (Tours).

A cover sheet is no longer required.

Only submit reports related to operations listed in section 7 of *Directive 059*. Do not attach reports that have their own submission process (i.e., directional surveys, logs).

## 6 Submit Directional Surveys

Submit an electronic copy of the directional survey report to the AER if a well deviates from vertical. Submit the report immediately upon completing the directional survey and within 30 calendar days of the finished drilling date. If a well consists of more than nine event sequences, submit a directional survey report for all drilling legs that require a directional survey (see section 5 of *Directive 059*).

Submit using the OneStop application. Refer to the quick reference guides on the OneStop Help page of the AER website https://www.aer.ca/regulating-development/project-application/onestop/onestop-help under Guides for Directional Survey Submissions.

## 7 Submit Surface Abandonment Data

Submit summary electronic surface abandonment data to the AER within 30 calendar days from the conclusion of the abandonment operation. Submit surface abandonment data using the OneStop application. For guidance view the video “OneStop Training – Wells Abandonment” at https://www.youtube.com/watch?v=5UN4UJupFtY.

## 8 Adding an Item to a Reference Table

A number of fields have a list of selections drawn from system reference tables. Current lists include:

- Fracture Fluid Composition
  - Fracture Scenario
  - Service Provider
  - Carrier Fluid Type
  - Proppant Type

  - Proppant Size
  - Unit of Measure, and
  - Additive Purpose
- Fracture Fluid Water Source
  - Water Type,
  - Name of Geological Zone, and
  - Diversion Authorization Type

A submission may have a value that is not available in the lists. If there is no appropriate option, then follow the procedure below.

**Process Steps**

Step 1. Submit an amendment through the Well Drilling Completion Data submission system (figure 103).

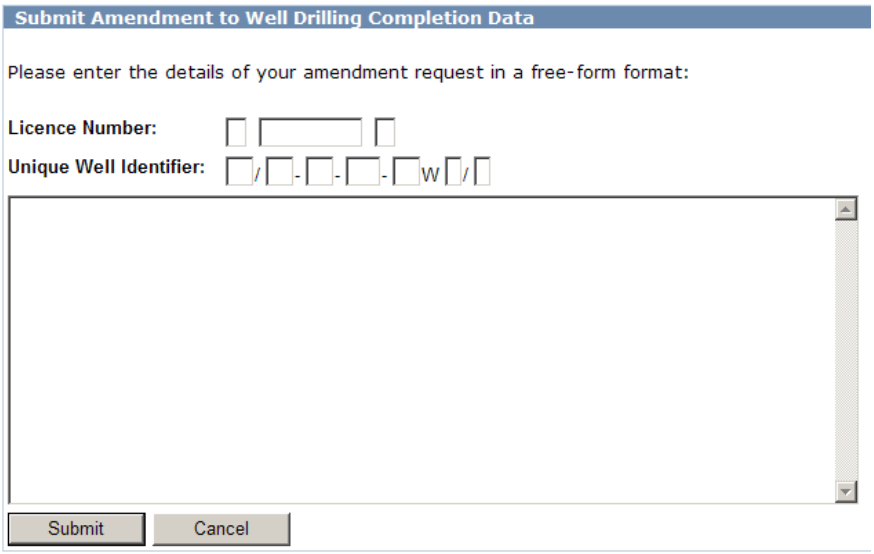



**Figure 104. Submit Amendment to Well Drilling Completion Data screen**

Step 2. Enter the Licence Number and the UWI of the event sequence that was fractured.

Step 3. In the text box, describe the item to be added to the reference table and indicate the category (i.e., Proppant Size, Proppant Type, etc.).

*The AER will contact the user if additional clarification is required. We will determine the validity of the new item and communicate its decision to the amendment submitter.*

# 9 Compliance

Users can access noncompliance reports in DDS under Reports > Business Intelligence > Report Query.

These reports list current noncompliance for the licensee under which the user is logged in for the following categories.

- Hydraulic Fracturing Fluid Composition
- Hydraulic Fracturing Fluid Water Source
- Drilling Data

# Appendix 1 Clarification Related to Well Drilling, Completion, and Directional Survey Data

## Re-entry Operations (for Abandoned Wells Being Re-entered by a New Licensee)

An abandoned well licensed to another company is re-entered by a different company. See *Directive 056: Energy Development Applications and Schedules* for well licence submission and approval requirements prior to beginning re-entry operations.

| | |
|---|---|
| **Finished drill date** | The date re-entry operations are completed. |
| **Historical casings** | Ensure historical casings are recorded. Date, grade, density, and cement details are optional. |
| **Rig release date** | The date the contractor is released from the well site. |
| **Spud date** | The date that re-entry operations start. |
| **Unique well identifier (UWI)** | A new unique well identifier is issued through the application for a re-entry licence. It will have the next available event sequence. |
| **Well status** | The status of the original well will be changed to “Abandoned and Re-entered” (ABRENT) after receiving the electronic drilling data for the re-entered well. |

## Resumption Operations (for Open or Abandoned Wells Being Re-entered by the Licensee of the Well)

If an abandoned or open (i.e., nonabandoned) well licensed to the same company is being re-entered for the purpose of deepening, whipstocking, recompletion, or horizontal recompletion, file an application for approval to resume drilling (see *Directive 056: Energy Development Applications and Schedules*).

If resuming drilling operations within six months of the spud date and the terminating formation and type of drilling operation (vertical, directional, or horizontal) are the same as originally licensed, application and approval to resume drilling is not required. Otherwise, submit a resumption per section 7.6(9) of *Directive 056*.

The only exception is if a well has been preset (i.e., surface or intermediate casing set and cemented without drilling to licensed depth and well status is PRESET). In this case a resumption licence is not required even after six months provided the terminating formation and type of drilling operation (vertical, directional, or horizontal) are the same as originally licensed.

Once approved, the AER creates a new event sequence using the next available event sequence if

- it is the same licensee resuming drilling,
- the licensee is drilling to a new terminating formation,
- the drilling operation type changes (vertical, slant, directional, or horizontal),

- there is a change in regulations, or
- there is a change in the well category and type.

If the original well that was abandoned is being re-entered by the same company, the status of the original well will change to "Abandoned and Re-entered" once the electronic drilling data for the well on which drilling operations are being resumed is received.

| | |
|---|---|
| **Spud date** | For wells on which drilling has resumed and a new event sequence has been assigned, enter the date operations were resumed. For continuing drilling operations on wells that have had surface casing preset or for wells being deepened without penetrating a new pool, do not resubmit the spud date. |
| **Finished drill date** | The date resumption operations are completed. |
| **Rig release date** | The date the contractor is released from the well site. |

## Re-abandonments

If a cement plug in a previously abandoned well is drilled out and a new cement plug set, submit the new plug details in the plug back record and indicate the method as "rerun plug."

If casing is run to control a vent flow, enter the casing and cement details in the casing record.

If the well is perforated and remedial cementing done to control a vent flow, enter the perforations and remedial casing cementing in the completion records.

If a new abandonment plug has to be monitored, the status and status date of the well do not change.

## Ghost Holes

A ghost hole is an uncased section of well that cannot be re-entered for mechanical reasons or due to conditions within the formation and for which none of the following have been completed:

- cores
- directional survey
- drillstem tests
- logs (electric wireline or mud logs)

Ghost holes are not considered events and do not require an event sequence. Licensees are not required to submit data for a ghost hole.

## Non-Initial Well Statuses

AER updates non-initial well statuses after receiving drilling and completion data or upon enforcement of a board closure order.

Downhole abandonment is the complete abandonment of all pools and legs associated with the well. Surface abandonment is where casing strings are cut and the well is capped permanently.

**Abandoned (ABD/ABAN)**

For a well that has been drilled and had some other well operation performed (e.g., production, injection, testing) and then subsequently abandoned downhole and at surface.

The AER updates the well status to "Abandoned" after it receives downhole abandonment and surface abandonment data.

For re-abandonments, the AER does not update the original "Abandoned" well status date.

**Abandoned and Re-entered (ABRENT)**

For a well that has been abandoned (downhole and surface) and re-entered on a re-entry licence or a resumption application.

The AER updates the well status of the abandoned well from "Abandoned" to "Abandoned and re-entered" after it receives drilling data on the new well event sequence. The status date of the abandoned well remains the same.

**Abandoned Zone (ABZONE)**

For a well or portion of a well that has been drilled, has completed intervals, and subsequently abandoned downhole.

For the abandonment of a single-pool completion within a cased hole or the downhole abandonment of an open-hole interval in a cased hole.

When the abandonment device (packing device, bridge plug) is used to abandon multiple pools belonging to multiple well events, note the following:

- If there are no open intervals above the plug, the "Abandoned zone" status is applied to all well events below the plug. There is no need to submit an amendment to the AER to change the well status to "Abandoned zone."
- If there are open intervals above the plug, submit the data related to the abandonment device (packing device, bridge plug) on the well event being abandoned. Submit an amendment if the same plug is used to abandon other well events for the AER to change the well statuses to "Abandoned zone."

The AER updates the well status to "Abandoned zone," after plug data has been received, either under "Plugback" or "Completion," with the appropriate abandonment code and a log tag code.

**Closed**

For a well that has been shut in or closed by an AER board order resulting in the company not being able to operate the well.

The date of this status is the date of the enforcement order. When the shut-in or closure order is rescinded or withdrawn, the AER updates the well with the status it had prior to the closure order.

## Casing and Cementing

| | |
|---|---|
| **Production tubing** | A casing record is not required for uncemented production tubing. |
| **Tie-back casing** | Tie-back casing is not required to be submitted. |
| **Slotted liner run on bottom of cemented section of casing** | If the liner and casing have the same outside diameter, report a casing entry for both the casing section and liner section of the string.<br><br>If the liner and casing have different outside diameters, record a regular casing entry with the shoe set depth equal to the stage tool depth. Report the cement details. For the slotted uncemented portion, report a second casing entry with the shoe set depth equal to the depth of the slotted liner shoe and a liner top depth equal to the top of the liner. Report the cement entry as slotted uncemented liner.<br><br>When a slotted liner is run in a well, in addition to reporting it in the casing record, also report it in the completion record showing the interval of the well covered by the slotted liner (from the shoe set depth of the previous casing to the shoe set depth of the liner).<br><br>If the slotted liner is not run all the way to total depth, also record the open-hole interval from the shoe set depth of the liner to total depth. |
| **Open hole** | If after running casing, the casing shoe is drilled out, leaving an open hole, report the open-hole interval in the completion record, showing the open hole from the shoe set depth of the last casing run to total depth of the well. |
| **Casing (uncemented) in open-hole intervals** | If a section of casing is run in an open-hole interval with no overlap to other casing strings, production is possible from behind it. Submit it under “Liner” (see table 6, code 5) and “Uncemented casing” (see table 7, code 92). |
| **Casing/liner for multistage fracture** | When submitting the operation type “Multistage fracture,” see appendix 2 for examples.<br><br>Under the drilling details, report a casing record for either production casing or liner in addition to a cementing record. Report the cement detail as uncemented casing if uncemented. If the casing or liner includes a combination of cemented and uncemented sections, enter cementing details for all sections with the appropriate intervals.<br><br>If the casing or liner is not run to total depth, enter the operation type code for open-hole/barefoot completion (see table 4, code 8) from the casing or liner shoe to total depth. |
| **Scavenger cements** | Do not record scavenger cements. |

## Plug Backs/Abandonment Purpose Codes

| | |
|---|---|
| **Abandon** | A cement plug or series of cement plugs is run in the hole for the purpose of abandonment during a drilling operation. |
| **Abandon zone** | A cement plug or series of cement plugs is run in the hole for the purpose of abandoning a pool. |
| **Lost circulation plug (not drilled out)** | A cement plug is run over the lost circulation interval to stop the drilling fluid from leaking into the formation. |
| **Plug back and case** | A cement plug is run before or after a casing has been set in the hole. |
| **Plug back and whipstock** | A cement plug is run and used to achieve the angle for directional or horizontal drilling from the original wellbore. |

| | |
|---|---|
| **Plug back and sidetrack (fish)** | A portion of the drill string or tools (fish) is stuck downhole and cannot be recovered. A cement plug is run over the fish. A new hole is then drilled around the fish to resume drilling operations. |
| **Plug back and straighten** | Drilling operations have deviated off target from the intended direction. A cement plug is run in a portion of the drilled hole and drilling operations continue at the correct deviation. |

## Operational Incidents (Includes Drilling, Completion, and Servicing Operations)

| | |
|---|---|
| **Blowouts** | A blowout is an unintended flow of wellbore fluids (oil, gas, water, or other substance) at surface that cannot be controlled by existing wellhead and/or blowout prevention equipment or a flow from one pool to another pool(s) (underground blowout) that cannot be controlled by increasing the fluid density. Control can only be regained by installing additional and/or replacing existing wellhead and/or blowout prevention equipment to allow shut-in or permit the circulation of control fluids or by drilling a relief well.<br><br>An incident is not considered a blowout if the flow of fluids (oil, gas, water, etc.) into the wellbore can be circulated out or bled off through the existing wellhead and/or blowout prevention equipment. (See the definition of a kick below.) |
| **Kicks** | A kick is any unexpected entry of water, gas, oil, or other formation fluid into a wellbore that is under control and can be circulated out. |
| **Lost circulation** | A loss of circulation occurs when drilling fluids flow from the wellbore into the formation. |
| **No incidents encountered** | If no incidents were encountered during the operation, submit a well incident record to show that no incidents were encountered. |

## Operation Type Codes

| | |
|---|---|
| **Acid treatment** | A volume of acid circulated down a wellbore over or into a completed interval. |
| **Alcohol squeeze** | Alcohol injected into the formation to clean out deposits that have collected in the formation. |
| **Casing patch** | A mechanical apparatus used to seal leaking casing, isolate perforations or to cover leaking cement squeezed perforations. Can be submitted with a cement squeeze over the same interval. |
| **Casing vent production** | A surface casing vent that contributes to production. |
| **Cement plug** | A volume of cement placed in the casing to abandon a well or isolate a completion interval (i.e., abandon a pool). |
| **Cement squeeze** | Cement squeezed into a completed interval to seal it off or facilitate a casing repair. |
| **Chemical squeeze** | Chemicals injected into the formation to clean out deposits that have collected in the formation. |
| **Fracture** | A split in the rock achieved by applying pressure to the formation via the wellbore. |
| **Hydrajet perforation** | A perforation using fluid containing abrasive material. Shots per metre are not required. Also use this code to submit water-jetted slots that are used to perforate the formation significant distances from the wellbore. Include intervals in the GCI. |
| **Multistage fracture** | Multiple fractures achieved within the same operation. Include intervals in the GCI.<br><br>If an open hole exists between the deepest fracture and total depth, record the GCI from the top of the shallowest open port to total depth. |

| | |
|---|---|
| **Multistage fracture—port closed** | A previously open fracture or blast port that has been closed. |
| **Open-hole/barefoot completion** | An open-hole/barefoot completion allows reservoir fluids to flow unrestricted (no casing) into the wellbore.<br><br>If casing and associated cement is milled out through a full 360° use this code to represent the milled interval and record the completion date as when the milling operation was completed. Include intervals in the GCI.<br><br>Multiple open-hole records in a drilling leg can be submitted. |
| **Packing device capped with cement** | A mechanical device that is set (e.g., bridge plug, cement retainer) and then capped with cement. |
| **Packing device capped with resin/gypsum cement** | A mechanical device that is set (e.g., bridge plug, cement retainer) and then capped with resin-based low permeability gypsum cement. |
| **Packing device, no cement** | A packing device (e.g., whipstock packer, bridge plug) is set with no cement on top to abandon a pool. AER approval may be required prior to performing this operation. |
| **Perforation** | Holes made through the casing and cement into a formation using a perforating gun or pneumatic drill to expose the formation. Include intervals in the GCI.<br><br>Also use this code for radially drilled slots. Do not include water-jetted slots. |
| **Remedial casing cementing** | Usually performed after perforating a casing to remedy casing cementing issues. A perforated interval is not included in the GCI. |
| **Slotted liner** | Mostly used as a completion in horizontal or directional wells. Requires a casing record and an associated completion record. Include intervals in the GCI.<br><br>Multiple slotted liner records in a drilling leg can be submitted. |

## Packer Codes

| | |
|---|---|
| **Packer** | A device used to isolate the annulus from production tubing in the wellbore to allow separate production, injection, or treatment |

## Additional Definitions

| | |
|---|---|
| **Maximum True Vertical Depth (max TVD)** | The max TVD is populated by the AER from the directional survey report. |

## Gross Completion Intervals (GCI) – AER Review Process

| | |
|---|---|
| **Pending** | If the GCI value submitted to Petrinex requires confirmation due to the presence of either an abandonment or an isolation device, the GCI status is set to “PENDING.” The AER will review all GCI values with this status. |
| **Review** | After reviewing a GCI value with a “PENDING” status, the AER will set the status to “REVIEW” if further review by the well licensee is deemed necessary. Otherwise, the GCI will be accepted and confirmed. The AER may indicate reasons for setting the GCI status to “REVIEW” under an accompanying comments section. |
| **Confirmed** | Any GCI value with a status other than “CONFIRMED” is not considered a valid submission. |

If Petrinex receives a new completion record that indicates an open interval, the GCI status of the well event will automatically be set to “REVIEW.” This includes the following operation type codes:

- 2 Perforation
- 5 Hydrajet perforation
- 7 Slotted liner
- 8 Open-hole/barefoot completion
- 9 Casing vent production
- 42 Multistage fracture

If Petrinex receives a new completion record that indicates that a previously open interval is now closed but that the well event may still be producing or injecting from the same pool, the GCI status for the well event will automatically be set to "REVIEW." This includes the following operation type codes:

- 43 Multistage fracture (port closed)
- 51 Cement plug
- 52 Cement squeeze
- 53 Packing device capped with cement
- 57 Packing device capped with resin-gypsum cement

If Petrinex receives a packer record where the operation is either "Set" or "Pull," the GCI status for the well event will automatically be set to "REVIEW."

Wells that have had the GCI status set to "REVIEW" can be listed in the report entitled "Wells with GCI Status 'REVIEW.'" The report is generated by Petrinex on a monthly basis but can also be created at any time by the well licensee.

If submitting a GCI to Petrinex, an error will result if

- a well status is active and GCI values have not been submitted,
- the GCI interval includes a missing completion record (i.e., the completion submission has not flowed to Petrinex), or
- the GCI top is deeper than the GCI base or vice versa, or if the GCI interval does not align exactly with the completion record that indicates an open interval (perforations, open-hole completions, slotted liners, or multistage fractures).

If submitting a GCI for commingled wells, enter the GCI for commingled wells only for the reporting well event. Petrinex will populate the same value for the other well events with the “COMMIN” (i.e., commingled) status.

For wells with a previously approved MU order where production is allocated to each pool, the GCI will not be common. Each well event sequence will identify the open interval for the individual producing pools.

# Appendix 2 Submission Examples

## Directional Drill Event Submissions

### 1. Sidetrack fish example

**Submission details:**

Submit DDE #1 for point where hole inclination reaches 5° (Deviate).

Subsequently, a fish is lost and the /0 has to be plugged back. (Note: this leg requires an event sequence).

/2 sidetracks above the cement plug abandoning the /0 event sequence. Submit this DDE as a "Sidetrack fish" DDE on the sidetrack event, not the event in which the fish was lost. If this sidetrack leg has been drilled horizontally, then submit a second DDE with the same depth and date as the Sidetrack fish DDE.

**Example:**

/0

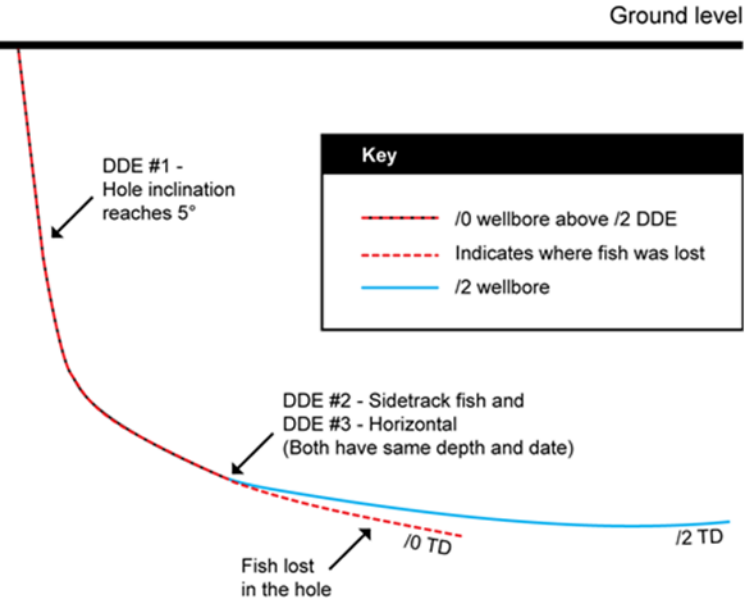
DDE #1 = 20101205, 400.00 mKB, Deviate

/2

DDE #1 = 20101205, 400.00 mKB, Deviate

DDE #2 = 20101207, 1500.00 mKB, Sidetrack fish

DDE #3 = 20101207, 1500.00 mKB, Horizontal




### 2. Single drilling event well

**Submission details:**

Submit DDE #1 for point where hole inclination reaches 5° (Deviate).

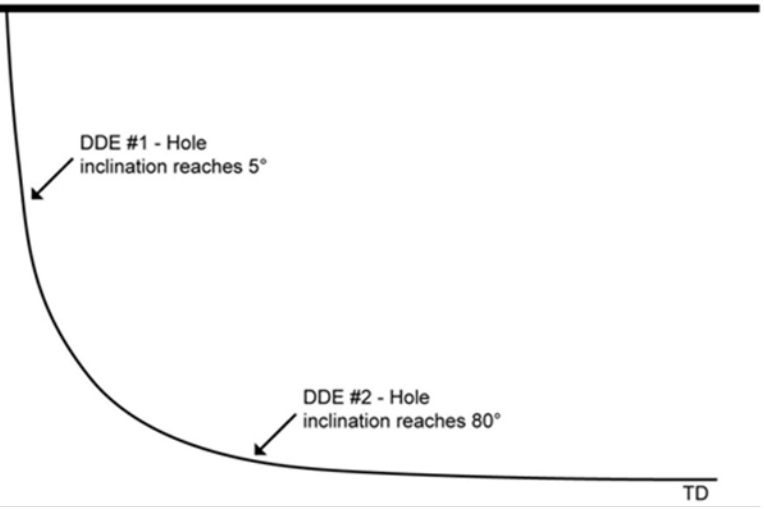
Submit DDE #2 for point where hole inclination reaches 80° (Horizontal).

Both DDEs **must** be submitted.

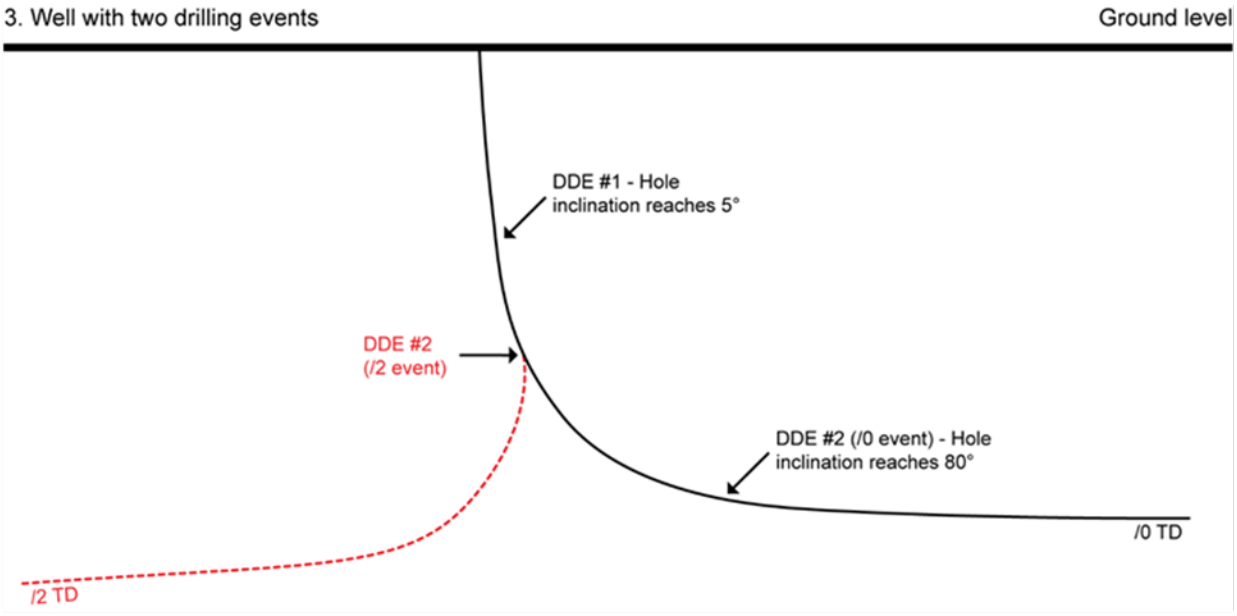
**Example:**

DDE #1 = 20101205, 400.00 mKB, Deviate

DDE #2 = 20101207, 1500.00 mKB, Horizontal



3. Well with two drilling events




**Submission details:**

For /0 submit DDE #1 for point where hole inclination reaches 5° (Deviate). Submit DDE #2 (/0 event) for point where hole inclination reaches 80° (Horizontal).

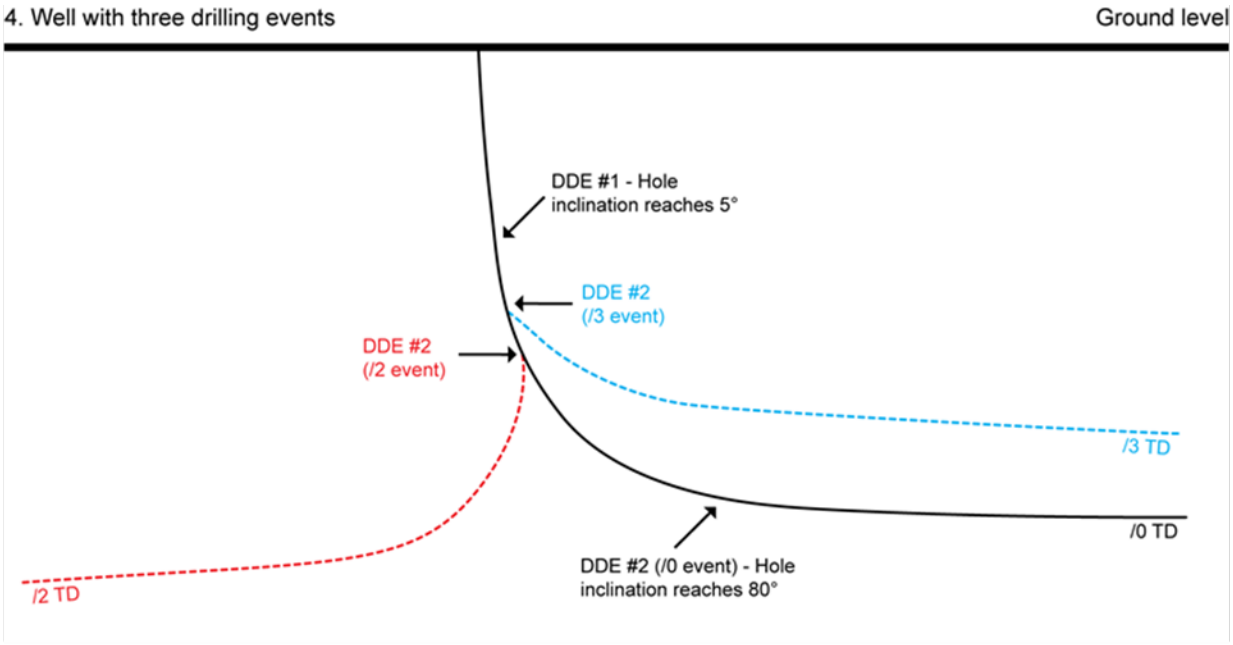
For /2, submit DDE #1 from the /0 event with same details because it is common to both events. Submit DDE #2 (/2 event) where /2 sidetracks from the /0 event. If the leg was drilled horizontally (i.e., inclination is >80°), give reason as Horizontal, otherwise the reason should be Deviate.

**Example:**

/0
DDE #1 = 20101205, 400.00 mKB, Deviate
DDE #2 = 20101207, 1500.00 mKB, Horizontal

/2
DDE #1 = Same as for the /0 event
DDE #2 = 20101212, 900.00 mKB, Deviate (if inclination reached 5°) or Horizontal (if inclination reached 80°).

4. Well with three drilling events




**Submission details:**

For /0, submit DDE #1 for point where hole inclination reaches 5° (Deviate). Submit DDE #2 for point where hole inclination reaches 80° (Horizontal).

For /2, submit DDE #1 from the /0 event with same details because it is common to both events. Submit DDE #2 (/2 event) where /2 sidetracks from the /0 event. If the leg was drilled horizontally (i.e., incl >80°), give reason as Horizontal, otherwise the reason should be Deviate.

For /3, submit DDE #1 from the /0 event with same details because it is common to both events. Submit DDE #2 (/3 event) where /3 sidetracks from the /0 event. If the leg was drilled horizontally (i.e., incl >80°) give reason as Horizontal, otherwise the reason should be Deviate

**Example:**

/0
DDE #1 = 20101205, 400.00 mKB, Deviate
DDE #2 = 20101207, 1500.00 mKB, Horizontal

/2
DDE #1 = Same as for the /0 event
DDE #2 = 20101212, 900.00 mKB, Deviate (if inclination reached 5°) or Horizontal (if inclination reached 80°).

/3
DDE #1 = Same as for the /0 event
DDE #2 = 20101217, 700.00 mKB, Deviate (if inclination reached 5°) or Horizontal (if inclination reached 80°).

## Mixed Casing Submission

If a mixed (i.e., more than one casing grade steel process, grade yield strength, density, or diameter) casing string is run, enter two casing records to represent the extremes of the grades, densities, and diameters.

If a mixed (i.e., more than one casing grade steel process, grade yield strength, density, or diameter) casing string is run, enter two casing records to represent the extremes of the grades, densities, and diameters.

In the example below (table 19), the production casing string has three different substrings. For data submission, the first production casing record (Observation No. 2), include the highest density, the largest diameter, and the associated grade and have no date entered. The second production casing record (Observation No. 3), include the lowest density, the smallest diameter, and the associated grade. For the upper substring record (Observation No. 2), the shoe set depth, which will depend on the casing string mix, can be anywhere along the entire casing string except the actual shoe depth. The lower substring record (Observation No. 3) enter a shoe set depth equal to the shoe of the casing string.

The cementing record for the entire casing string should be attached to the lower substring record. Do not attach a cement record to the upper substring.

**Table 19. Mixed casing submission example**

| Observation no. | Date | Shoe set depth (mKB) | Liner top depth (mKB) | Casing density (kg/m) | Grade steel process | Grade yield strength | Type | Outside diameter (mm) |
|---|---|---|---|---|---|---|---|---|
| 1 | 25 Jan 2011 | 264.00 | | 29.8 | H | 40 | Surface | 177.8 |
| 2 | No date | 1500.00 | N/A | 17.3 Highest | J | 55 | Production | 114.3 Largest |
| Casing information not submitted | | | | 14.1 | L | 80 | Production | 101.6 |
| 3 | 30 Jan 2011 | 3000.00 | N/A | 11.5 Lowest | P | 110 | Production | 88.9 Smallest |

## Copying Casing Record Where New Drill Leg Sidetracks Above Casing Shoe

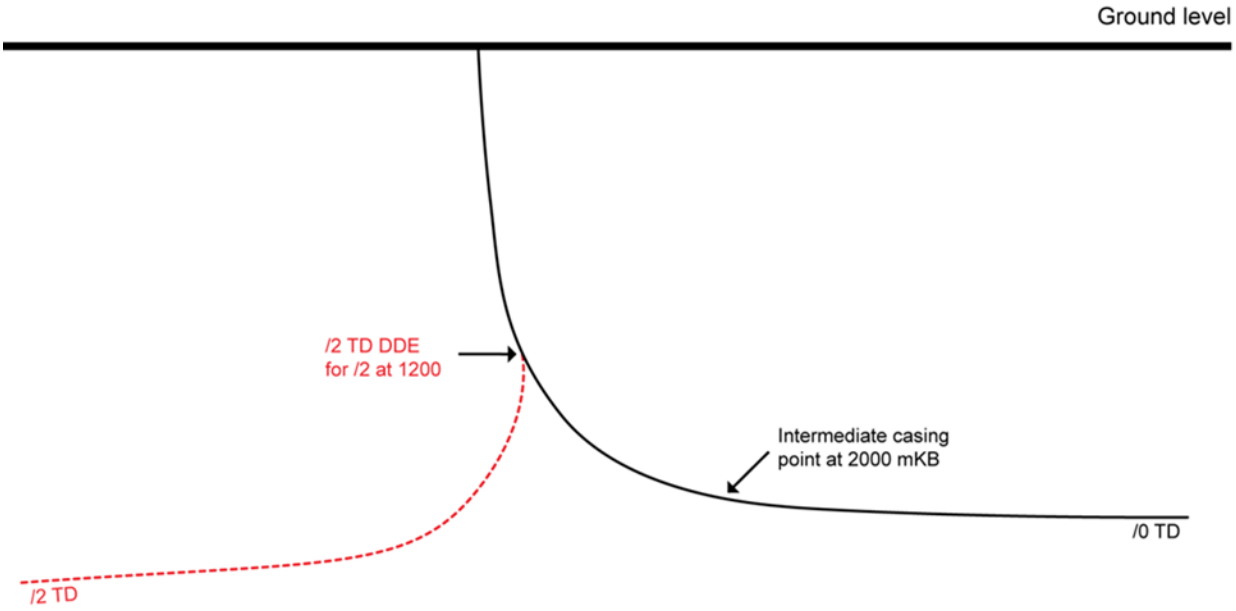



**Table 20. Copy casing record submission**

| Observation no. | Date | Shoe set depth (mKB) | Liner top depth (mKB) | Casing density (kg/m) | Grade steel process | Grade yield strength | Type | Outside diameter (mm) |
|---|---|---|---|---|---|---|---|---|
| **/0 event** | | | | | | | | |
| 1 | 25 Jan 2011 | 264.00 | N/A | 48.1 | H | 40 | Surface | 244.5 |
| 2 | 30 Jan 2011 | 2000.00 | N/A | 17.3 | J | 55 | Intermediate | 177.8 |
| **/2 event** | | | | | | | | |
| 1 | 25 Jan 2011 | 264.00 | N/A | 48.1 | H | 40 | Surface | 244.5 |
| 2 | No date | 1200.00 | N/A | 17.3 | J | 55 | Intermediate | 177.8 |

After casing a leg, if a subsequent leg is drilled and sidetracks above the previous casing shoe (e.g., through a milled window in the casing) and is not cased (i.e., open hole) indicate the shoe of the casing for the sidetrack leg as the start of the sidetrack not the shoe of the previous casing, which is not applicable to the sidetrack leg.

## Multistage Fracture Submission

For each submission, submit the following:

- Open or open and fractured fracture ports or blast ports only.
- Open-hole/barefoot completion only if there is a gap between the liner shoe and TD.
- Unless both an interval top and interval base are available, the fracture or blast port interval is to be 0.1 m (e.g., 1500.0–1500.1 m).

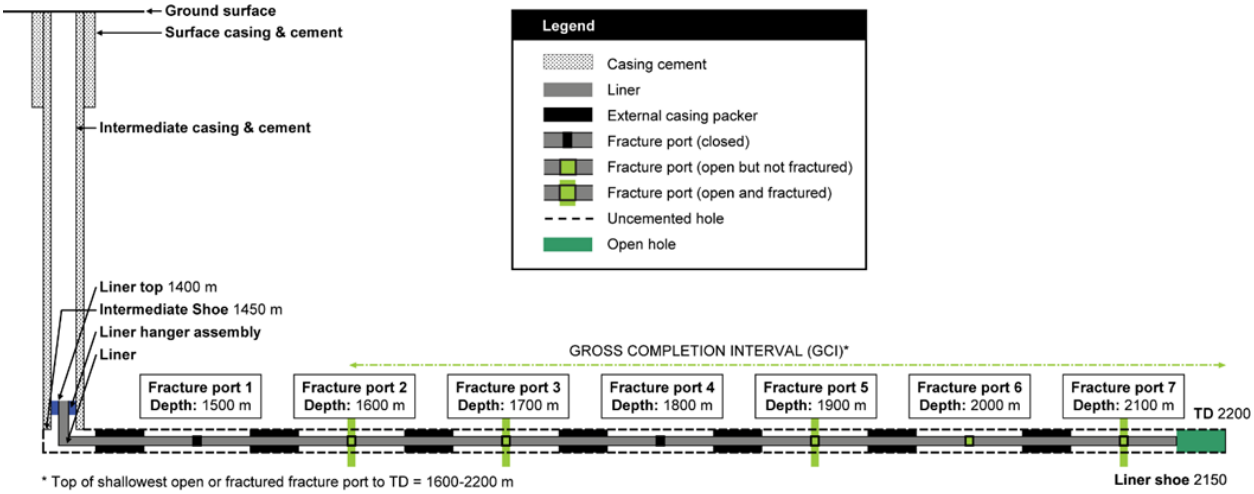



**Figure 105. Fracture liner hung from intermediate casing**

**Table 21. Multistage fracture submission example**

| | | Interval (mKB) | |
|---|---|---|---|
| | **Code** | **Top** | **Base** |
| **Drilling** | | | |
| Liner | 5 | 1400 | 2150 |
| Liner cement | 92 | 1400 | 2150 |
| **Completion** | | | |
| Open hole | 8 | 2150 | 2200 |
| Fracture port 2 | 42 | 1600 | 1600.1 |
| Fracture port 3 | 42 | 1700 | 1700.1 |
| Fracture port 5 | 42 | 1900 | 1900.1 |
| Fracture port 6 | 42 | 2000 | 2000.1 |
| Fracture port 7 | 42 | 2100 | 2100.1 |

If production casing is run and cemented to TD and subsequently perforated to provide openings for fracturing. The table would be as below assuming the perforations were completed prior to each fracture.

**Table 22. Assuming the perforations were completed prior to each fracture**

| | | Interval (mKB) | |
|---|---|---|---|
| | **Code** | **Top** | **Base** |
| **Drilling** | | | |
| Production casing | 4 | 0 | 2200 |
| Production casing cement | * | 0 | 2200 |
| **Completion** | | | |
| Perforation | 2 | 1600 | 1600.1 |
| Fracture port 2 | 42 | 1600 | 1600.1 |
| Perforation | 2 | 1700 | 1700.1 |
| Fracture port 3 | 42 | 1700 | 1700.1 |
| Perforation | 2 | 1900 | 1900.1 |
| Fracture port 5 | 42 | 1900 | 1900.1 |
| Perforation | 2 | 2000 | 2000.1 |
| Fracture port 6 | 42 | 2000 | 2000.1 |
| Perforation | 2 | 2100 | 2100.1 |
| Fracture port 7 | 42 | 2100 | 2100.1 |

* If casing is cemented, use the appropriate code from table 7.