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Well Drilling Completion Data Submission system

User Guide

- **Well Drilling and Completion Data submission**
- **Fracture Fluid Data submission**
- **Water Source Data submission**

Version 2.1 September 2013

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Change Control

Version	Date	Primary Authors	Change Description
1.0	2012 Oct 10	Miriam Romero, Ian Curle	Initial Create
1.1	2012 Dec 31	Miriam Romero, Ian Curle	Added Fracture Fluid and Water Source sections
2.0	2013 May 16	Ian Curle, Abiodun Adeniran	Added Fracture Fluid and Water Source amendment sections
2.1	2013 Sept 13	Ian Curle, Abiodun Adeniran	Minor Updates

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About Well Drilling Completion Data Submission System

The Well Drilling Completion Data submission system is a web-based data capture system. It allows users to submit well drilling and completion data directly to the AER using the Digital Data Submission (DDS) system. This satisfies the filing requirements stated in AER Directive 059: *Well Drilling and Completion Data Filing Requirements*.

Data can be submitted in two ways:

- By using interactive forms
- By submitting batch files that contain data organized in the AER-prescribed format. These files can be in any of the following format:
  - XML (Extensible Markup Language)
  - CSV (Comma Separated Values) – for fracture fluid and water source data submissions only

Previously submitted data can also be amended by the licensee by requesting an amendment through the DDS system. This functionality is currently not available for fracture fluid and water source submissions.

Getting Started

Before accessing the Well Drilling Completion Data Submission system, you 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

If you have not been assigned a User ID and Password or do not have the required DDS roles, please contact your corporate DDS administrator. You may also consult the DDS User Guide by clicking on the link “DDS Guide” on the DDS Home page.

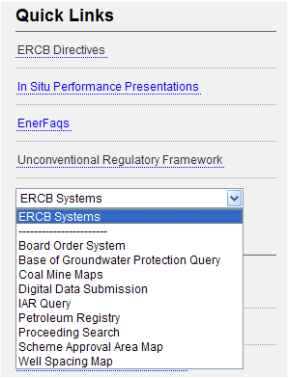
Accessing Well Drilling Completion Data Submission System

You can access the Well Drilling Completion Data submission system via the AER Web site as follows:

1. Open the AER home page at the following URL: http://www.aer.ca.

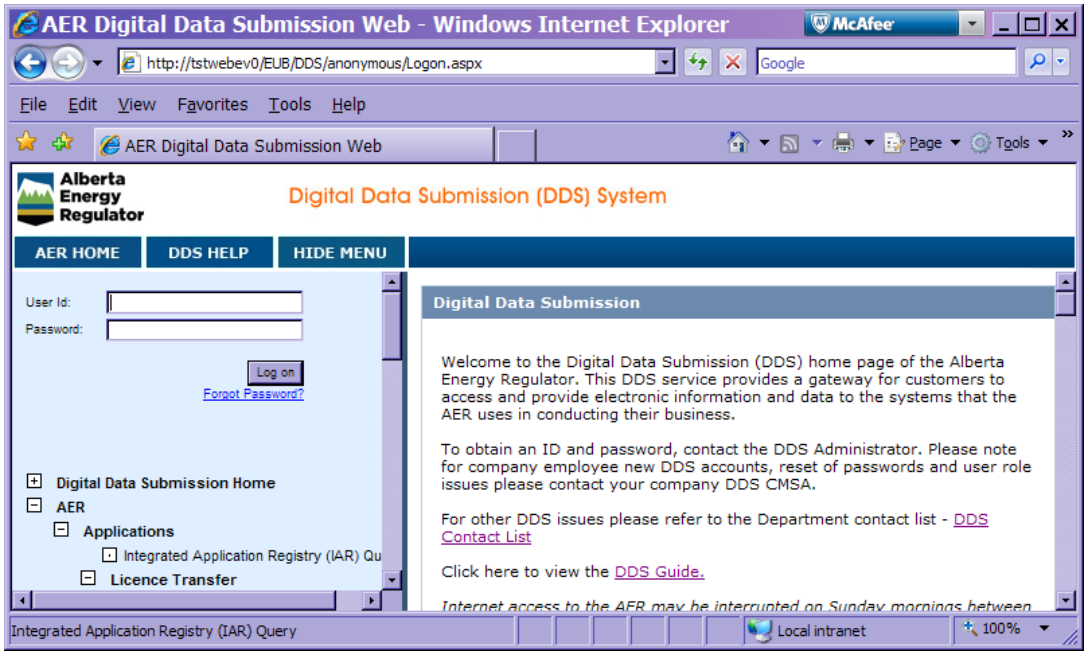
2. There are two options to navigate to the DDS homepage.

   Option 1: On the right hand section of the website, locate **Quick Links** and select **Digital Data Submission** from the drop down list.



   Option 2: On the top menu items, point cursor to “Data & Publications” and select **Digital Data Submission**

3. After you select **Digital Data Submission (DDS)** the DDS Login screen opens in a new window.



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

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

5. In the left side menu, when successfully logged in, expand the “AER” menu, then the “Submissions” menu then the “Well Drilling Completion Data” menu all by clicking the + icon beside the menu header. From the Well Drilling Completion Data menu item, select the item you wish to access.

How to use this User Guide

This User Guide explains how to use the functions in the DDS Well Drilling Completion Data system in order to comply with the electronic submission requirements of AER's Directive 059: *Well Drilling and Completion Data Filing Requirements*.

- The User Guide should always be used in conjunction with the current edition of Directive 059.
- While the User Guide outlines the submission process, the user should always refer to Directive 059 for data submission definitions and requirements.
- The User Guide refers to data elements using Directive 059 code tables, e.g. Conductor casing is not referred to as 'Conductor' casing but as casing type 1. For a complete list of all these codes, refer to Appendix A under Part A. Well Drilling and Completion of this guide.
- The User Guide highlights some submission rules but the user should always refer to the Business Rules spreadsheet on the DDS homepage *for Well Drilling Completion Data* (**Business Rules** hyperlink on the right hand pane under **Related Resources).**

Navigation for Web Submissions

The table below describes the general functionality of the following commands when submitting via web form:

Commands	Submission system			System action
	D&C	FF	WS	
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 page where fracture records can be added for wells with more than 9 event sequence.
Amend		x		On “Amend & Print” form page, 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 page 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. **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 and deleting a fracture composition component will delete any associated ingredients.

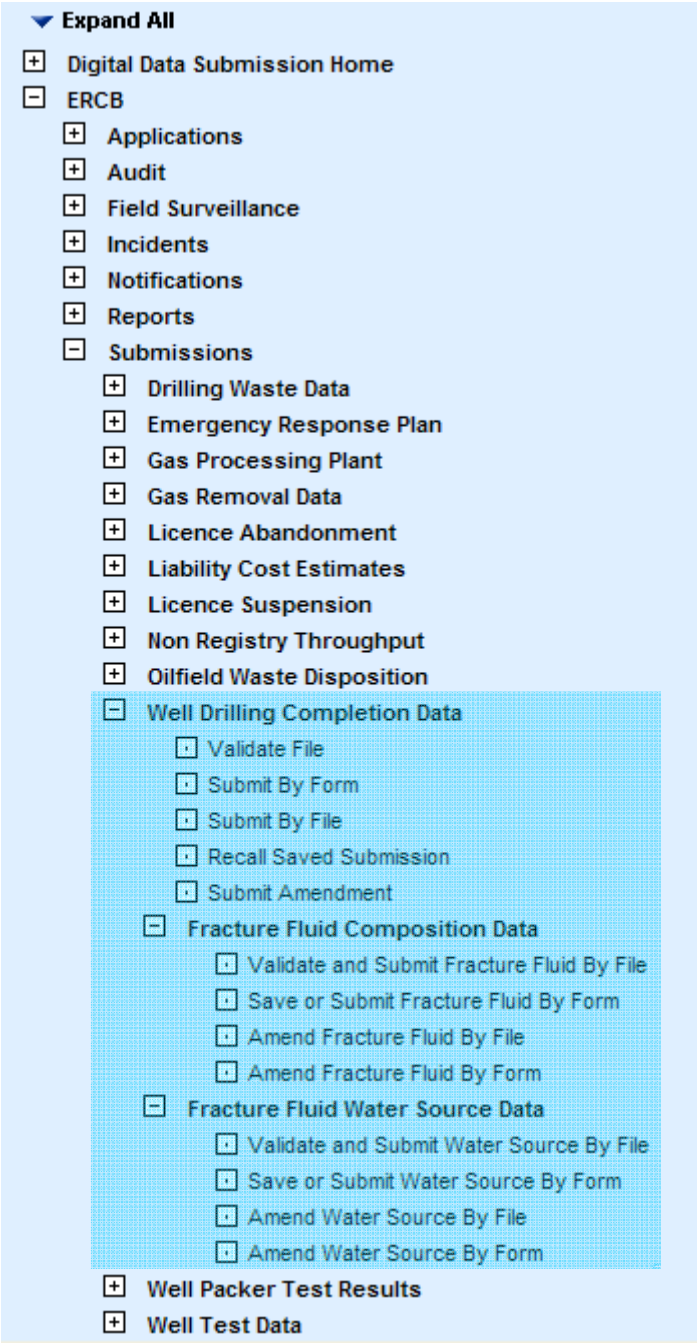
Commands	Submission system			System action
	D&C	FF	WS	
Delete Submission		x		Deletes entire fracture fluid composition submission. Note: there is a dialog box to confirm is desired.
Edit 	x			Opens a data panel that displays saved data; when opened in this mode, the saved data can be modified.
Edit hyperlink		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, you can select and edit.
Ok	x			Validates the entered data and closes the window that has the focus.
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.
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 your 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, sends 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).

Commands	Submission system			System action
	D&C	FF	WS	
Validate Submission or Validate Amendment		x	x	Validates data entered or amended while working on the active tab. An error message will appear when the data submission has not fulfilled all the business rules for submissions. A warning message will appear when the data entered may need to be reviewed prior to submission.  Error message icon – submission denied. (Form submission – composition & water source)  Warning message icon – submission allowed. (Form submission – composition & water source)
Validate		x	x	Validates data for the entire submission. An error message will appear when the data submission has not fulfilled all the business rules for submissions. A warning message will appear when the data entered may need to be reviewed prior to submission.  Error message icon – submission denied. (Form submission – composition & water source)  Warning message icon – submission allowed. (Form submission – composition & water source)
Verify Lat/Lon			x	Validates surface latitude and longitude entered are within Alberta and returns its “DLS Location”, the “Major Basin”, “Major Subwatershed” and “Name of Water Body” within 200m radius of the lat/long.
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**

Commands	Submission system			System action
	D&C	FF	WS	
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.

Overview

The Well Drilling Completion Data submission system menu options can be found under the menu path AER > Submissions. See below. If you do not have the required roles as noted in the “Getting Started” section on page 5, you will not see the menu options highlighted in blue.



A. Drilling and Completion submission menu items

REQUIREMENT: Electronic drilling and completion data is required to be submitted within 30 days of the well operation end date.

1. *Validate by File*
   This option allows the an XML file to be confirmed if meeting the AER schema requirements.

2. *Submit by Form*
   This option allows the entry of electronic summaries of the Daily Tour Reports through an interactive form and to either submit the data or save it for submission at a later time. The system performs basic validation on the data as it is entered into the screens.

3. *Submit by File*
   This option allows the submission of an XML file containing drilling and completion data. The system automatically validates the file against the schema and business rules in DDS.

4. *Recall Saved Submission*
   This option allows the retrieval of a submission saved 14 days from last saved date.

5. *Submit Amendment*
   This option allows the submission of an amendment request to the AER Well Data Services for AER to amend previously submitted data.

B. Fracture Fluid Composition Data

REQUIREMENT: Fracture Fluid Composition Data is required to be submitted when completion operation types ‘41’ (Fracture) or ‘42’ (Multi-stage Fracture) are submitted via DDS Well Drilling Completion system.

6. *Validate and Submit Fracture Fluid by File*
   This option allows the XML or CSV file to be confirmed if meeting AER schema requirements. This also allows the submission of an XML or CSV file or a zipped XML/CSV file.

7. *Save or Submit Fracture Fluid by Form*
   This allows the entry of fracture fluid data through an interactive form and to either submit the data or save it for submission at a later time. This functionality also allows the creation of UWIs with more than 9 event sequences, the well’s fracture interval data and submission of fracture fluid data.

8. *Amend Fracture Fluid by File*
   This allows the amendment of fracture fluid data through updates to a previously submitted XML or CSV file. This functionality also allows the deletion of previously submitted fracture fluid data

9. *Amend Fracture Fluid by Form*
   This allows the amendment of fracture fluid data through an interactive form and to either amend the data or save it for amendment at a later time. This functionality allows the amendments to fracture fluid data for UWIs with more than 9 event sequences (amendments for UWIs with more than 9 event sequences cannot be done by the batch file process),

C. Fracture Fluid Water Source Data

REQUIREMENT: Fracture Fluid Water Source Data is required to be submitted when water is submitted as a Carrier Fluid in the fracture operation.

10. *Validate and Submit Water Source by File*
    This option allows the XML or CSV file to be confirmed if meeting AER schema requirements. This also allows the submission of an XML or CSV file or a zipped XML/CSV file.

11. *Save or Submit Water Source by Form*
    This allows the entry of water source data through an interactive form and to either submit the data or save it for submission at a later time.

12. Amend Water source data by File
    This allows the amendment of water source data through updates to a previously submitted XML or CSV file. This functionality also allows the deletion of previously submitted water source data

13. Amend Water Source data by Form
    This allows the amendment of water source data through an interactive form and to either amend the data or save it for amendment at a later time.

Resources

a. Contacts

For company account set up,
contact the DDS Administrator at 403-297-5802 or by email to ddsadministrator@AER.ca
Individual accounts and roles should be referred to the company DDS administrator.

For submission issues where the answer is not in this user guide,
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 paper reports of daily operations, send package to
Alberta Energy Regulator
Core Research Center
3545 Research Way NW
Calgary, Alberta T2L 1Y7

b. Other References

Submission requirements are found in Directive 059: *Well Drilling and Completion Filing Requirements*. A copy can be found at www.AER.ca under Regulations & Directives.

Submission processes are outlined in this User Guide.

Submission validation rules are found in the DDS homepage for each submission system, on the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink:

- well drilling and completion rules are in Well Drilling Completion homepage
- fracture fluid data submission rules are in Fracture Fluid Composition Data homepage
- water source data submission rules are in Fracture Fluid Water Source Data homepage

XML/CSV file layouts and XML schemas are found in the DDS homepage for each submission system:

- for well drilling and completion, on the right hand pane under **Related Resources**, click on the **XML File Layout** and **XML submission schema** hyperlink.
- for fracture fluid data, in the upper portion of the page when selecting **Submit Fracture Fluids Data by File**
- for water source data, in the upper portion of the page when selecting **Submit Water Source Data by File**

Frequently asked questions (FAQs) are found in the following:

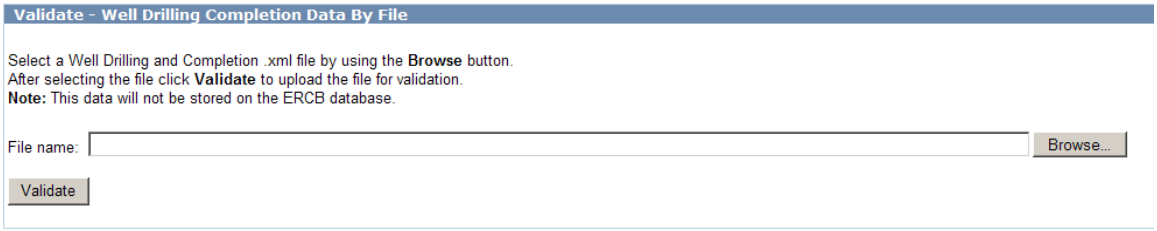
- Directive 059 requirements at the Directive 059 page at www.AER.ca
- Submissions in the appropriate DDS submission homepage
- Fracture Fluid report at www.fracfocus.ca

Part A. Well Drilling and Completion

A.1 Validate File

This functionality allows the user to do the following:

- Validate an XML file without submission



Process steps:

Step 1. On the Well Drilling Completion Data submission system, select **Validate File**.

Step 2. Prepare the XML file to be uploaded according to the schema and file layout.

*For the XML file layout and submission schema, refer to the DDS homepage for Well Drilling Completion Data by clicking on the 'Well Drilling Completion Data' menu item. On the right hand pane under **Related Resources**, click on the **XML File Layout** and **XML submission schema** hyperlink.*

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

Step 4. Click the **Validate** button.

The system will validate the file structure as well as the data it contains to ensure that all requirements are met.

A Validation Error Report will be displayed with error messages if errors are found in the file.

A Validation Success Report will be displayed for error free submissions. This file is now ready to be submitted to the AER via the **Submit by File** option.

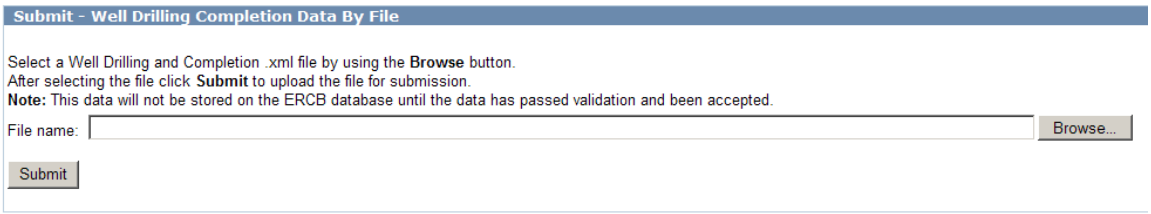
Both validation reports provide a link on the top right to **Return to File Validate**. This returns back to the **Validate File** screen.

*For a complete list of business rules and edits, refer to the DDS homepage for Well Drilling Completion Data. On the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink.*

A.2 Submit by File

This functionality allows the user to do the following:

- Submit an XML file (the system automatically validates for errors)
- Print a submission report and a cover sheet



Process steps:

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

Step 2. Prepare the XML file to be uploaded according to the schema and file layout.

*For the XML file layout and submission schema, refer to the DDS homepage for Well Drilling Completion Data by clicking on the 'Well Drilling Completion Data' menu item. On the right hand pane under **Related Resources**, click on the **XML File Layout** and **XML submission schema** hyperlink.*

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

Step 4. Click **Submit** button.

The system will validate the file structure as well as the data it contains to ensure that all requirements are met.

An error message will be displayed in the event of an XML error. Once the file is fixed, it can be resubmitted.

A Submission Error Report will be displayed with error messages if errors are found in the file. The window provides a link on the top right to **Return to File Submission**.

*For a complete list of business rules and edits, refer to the DDS homepage for Well Drilling Completion Data. On the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink.*

Step 5. A Submission Acknowledgement will be displayed when an error free submission is successful. There will be hyperlinks to View Submission Report and to View Cover Sheet.

Step 6. Print the Cover Sheet and attach it to the paper daily reports of operations from which the electronic submission data were derived. Sign and date the cover sheet to confirm that no personal information is contained in the report. Send the package to the Core Research Centre.

A.3 Submit by Form

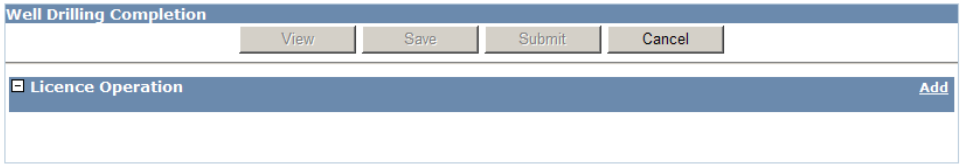
This functionality allows the submitter to do the following:

- Create a new submission via a web form
- Save the submission report for 14 days
- Submit and print a cover sheet and the submission report

Process steps:

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

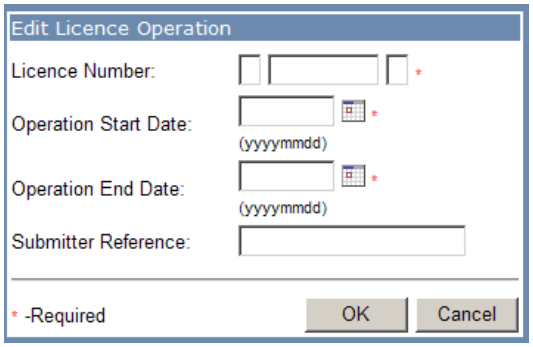
Step 2. The view below is displayed. On the **Licence Operation** panel, click the **Add** *link* to display the **Edit Licence Operation** window.



Step 3. Enter a valid Licence Number, including prefix and suffix if applicable, an Operation Start and End dates and Submitter Reference.

Click OK once done.

Note that data entry fields with asterisks (*) are mandatory fields.



Step 4. When the Licence Operation panel is displayed, a new row appears for Well Operation. Click the Add link to display the Add Well Operation window.

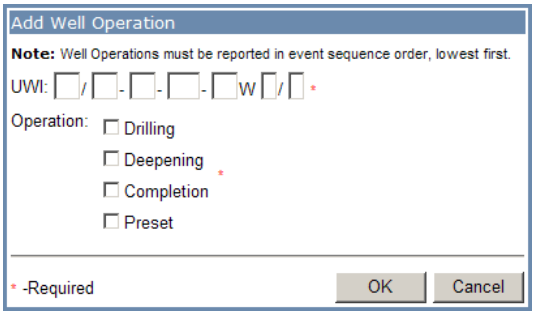
Enter a valid UWI.

Check the box(es) for the applicable operation. At least one well operation has to be checked.

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

- Drilling and Completion
- Deepening and Completion

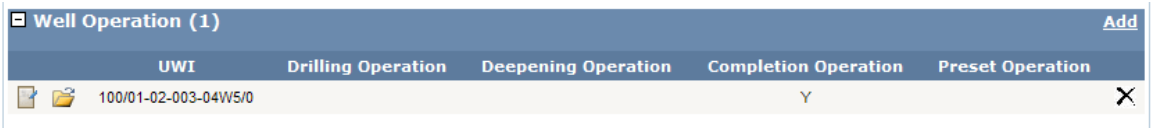
Click OK once done.



Please note the following rules on UWI creation during a submission:

- If the UWI has already been created by the AER (during licensing approvals), please enter the UWI as it is assigned and displayed in AER sourced databases (e.g. UWI displayed in PETRINEX).
- 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 except for the following instances:
  i. the license is already abandoned in which a re-entry application is required
  ii. the spud date of the subsequent UWI is more than 6 months from the previous UWI in which a resumption application is required

Step 5. The Licence Operation panel now displays the UWI and the type of well operation selected for submission.



Note the two icons  .

The notepad (Edit Well) takes you back to Add Well Operation where you can add additional UWIs to report.

The folder (View Well) takes you to the web form where you can enter data for the submission.

Step 6. Click the Add link directly on the right of the data being submitted to each of the data entry panel.

Enter data for the well operation being submitted. Refer to pages 21 to 26.

Step 7. On the top right hand corner of the page, click the Return to Licence Operation link to go back to the Well Drilling Completion page.

Here, you can click on the  notepad icon to add additional well operation for the UWI or click the **Add** *link* on the right hand side of the **Well Operation** item to add additional UWIs in the same submission.

Step 8. Once submission is complete, you can either do the following –

a. Click **View** to review your report. The Submission Status will show 'In Progress'.
b. Click **Save** to save the submission as a work in progress. The submission will be saved for 14 days from when it was saved. Otherwise, it will be automatically deleted from the system
c. Click **Submit** to send the data to the AER.

Step 9. Upon submission, any of the following can occur:

a. The submission passes the validation. 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.

b. A Validation Failed result will be displayed with error messages 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. Click **Cancel** in order to make corrections on the submission or **Save** if saving report for later retrieval. Note that the submission must be saved again or submitted to include any changes.

c. A Submission Acknowledgement will be displayed when a submission is successful. There will be hyperlinks to View Submission Report and to View Cover Sheet.

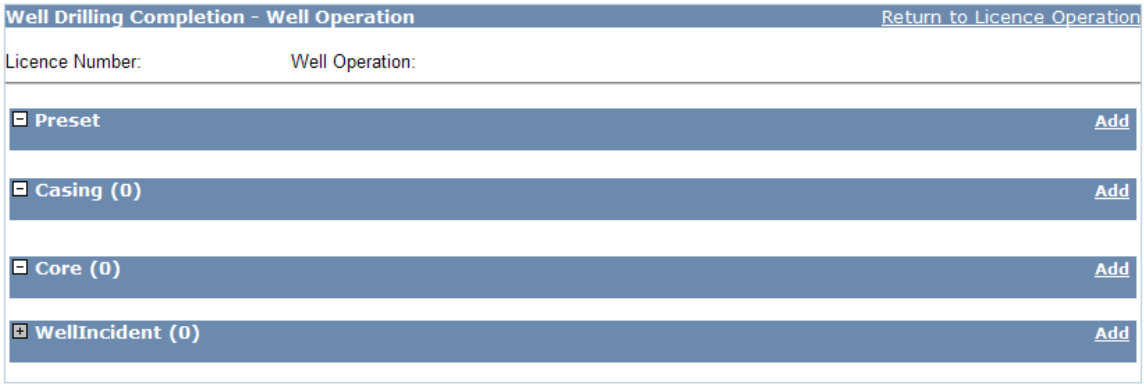
*For a complete list of business rules and edits, refer to the DDS homepage for Well Drilling Completion. On the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink.*

Step 10. Print the Cover Sheet and attach it to the paper daily reports of operations from which the electronic submission data were derived. Sign and date the cover sheet to confirm that no personal information is contained in the report. Send the package to the Core Research Centre.

A.3.1 Submitting Well Operation 'Preset'

{Section 3.2 requirement 4, page 11 of Directive 059}

This enables the user to enter data related to wells which have been preset as part of a separate operation when well has not been drilled to licensed Total Depth.



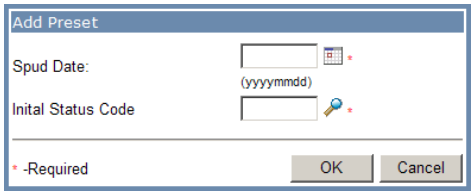
From step 6 of page 19, follow the following process when submitting a preset operation:

- Click the **Add** *link* directly on the right of the Preset folder.

  Enter the Spud Date *(mandatory).*

  Enter the Initial Status Code *(mandatory).* The only acceptable code for this submission is code 6 "PRESET".

  Click OK once done.



- Enter Casing and Cementing data *(mandatory).* Refer to pages 28 and 30.
- Enter Core data, if applicable. Refer to page 31.
- Enter Well Incident data *(mandatory).* Refer to page 35.

After all mandatory and optional data have been entered, go back to step 7 (Submit by Form) in page 19.

A.3.2 Submitting Well Operation 'Drilling'

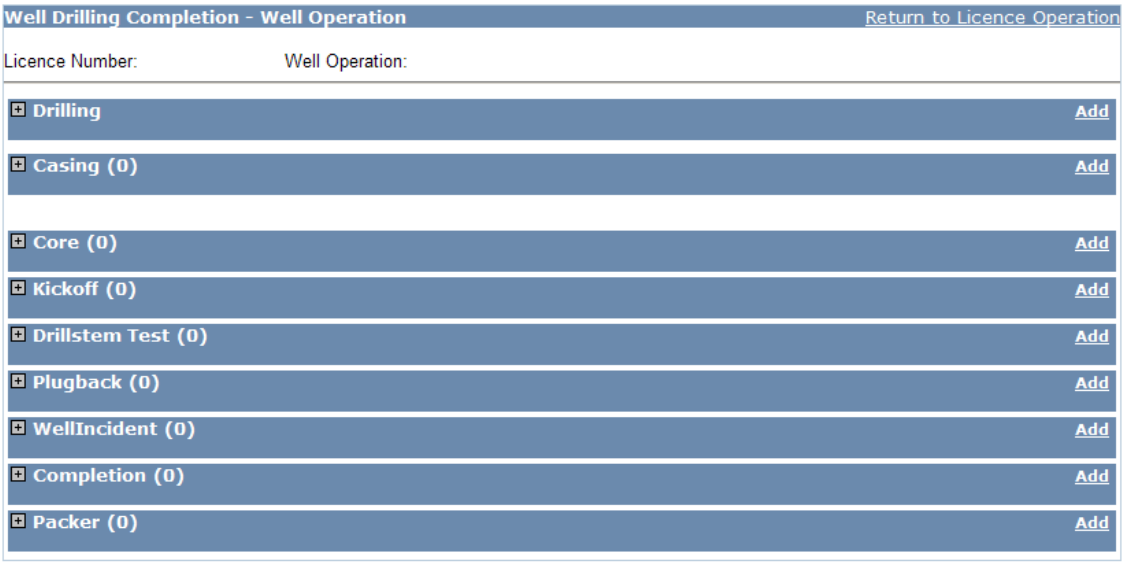
{Section 3.2 requirement 5, page 11-13 of Directive 059}

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

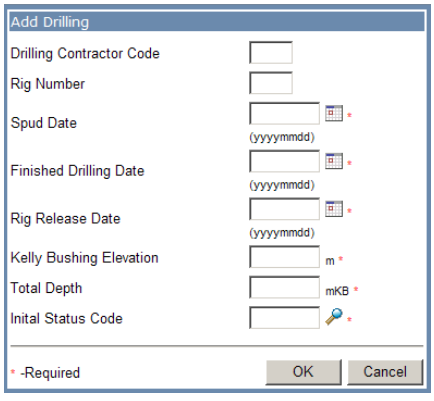
- ✓ new drilling,
- ✓ drilling to total depth of a preset well (when occurring more than 30 days from the presetting),
- ✓ resumption operation where a new event sequence has been assigned by the AER
- ✓ re-entry operation.

Under the following scenario, DDS will not allow a submission unless a resumption or a re-entry application has been obtained from Directive056

- ☒ 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



From step 6 of page 19, follow the following process when submitting a drilling operation:



o Click the **Add** *link* directly on the right of the Drilling folder.

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

Enter the Rig Number.

Enter the Spud Date. Leave blank if a spud date has already been previously submitted (i.e. presetting operation).

Enter a Finished Drilling Date *(mandatory)* which should be on or after the Spud Date.

Enter a Rig Release Date *(mandatory)* which should be on or after the Finished Drilling Date.

Enter Kelly Bushing Elevation *(mandatory)* which should be greater than the Ground Elevation submitted during licensing but not more than (Ground Elevation + 12 metres). If drilled ground elevation has changed (i.e. reduced by more than 12 metres) during construction, contact WellDataServices@aer.ca on how this data should be submitted.

Enter Total Depth *(mandatory)*.

Enter an Initial Status Code between 1 and 5 *(mandatory)*.

- Multiple UWIs on the same submission having the same code 1 will not be allowed.
- Multiple UWIs on the same submission having the same code 2 will not be allowed.
- Multiple UWIs on the same submission having the same code 4 will not be allowed.
- If selecting a code 3, the submission should have another UWI (i.e. the subsequent drill leg).
- If selecting a code 5, another UWI on the same submission should have a code 1.
- Code 6 will not be allowed on a drilling submission.

Click OK once done.

- Enter casing and cementing data. Refer to pages 28 and 30.

  When well has not been preset, casing data is mandatory. If well has been preset and this submission is for the operation to drill the well to total depth or for the abandonment of a preset well, casing is not mandatory.
- Enter core data, if applicable. Refer to page 31.
- Enter kickoff data, if applicable. Refer to page 32.
- Enter drillstem test data, if applicable. Refer to page 33.
- Enter plugback data, if applicable. Refer to page 34.

  Plugback data is mandatory when the initial status code selected is 2, 3 or 4.
- Enter Well Incident data *(mandatory)*. Refer to page 35.

Note that 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 7 (Submit by Form) in page 19.

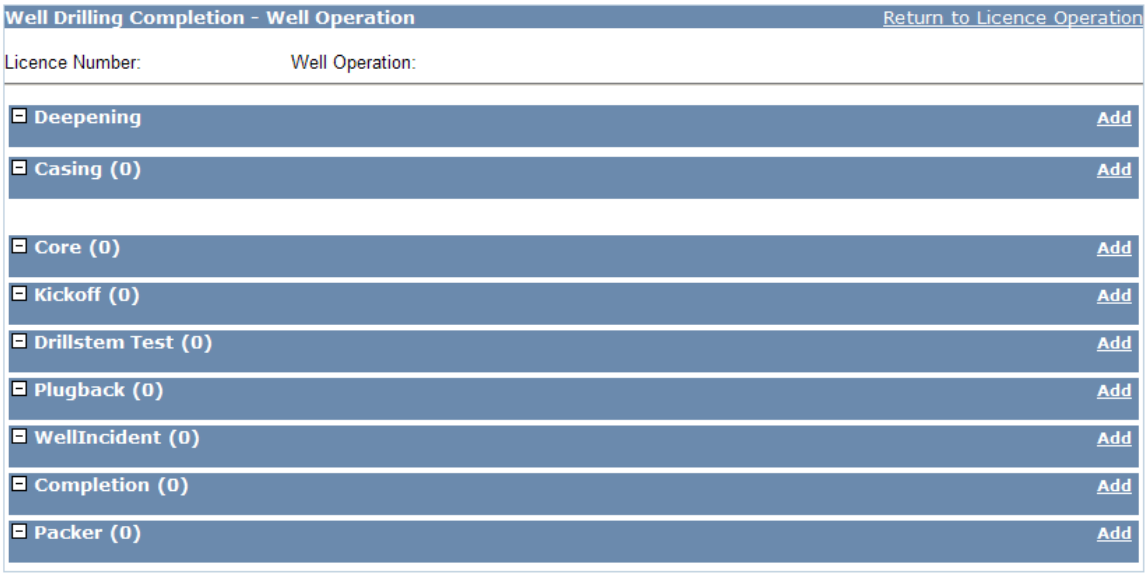
A.3.3 Submitting Well Operation 'Deepening'

{Section 3.2 requirement 6, page 13 of Directive 059}

This enables the user to enter the data related to a deepening operation of a particular UWI. Directive 059 considers deepening as any additional drilling where the new total depth terminates in the same original formation.

DDS will 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 has to be pulled first before the submission.



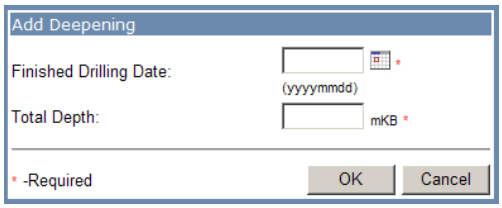
From step 6 of page 19, follow the following process when submitting a deepening operation:

- Click the **Add** *link* directly on the right of the Deepening folder.

  Enter the new Finished Drilling Date *(mandatory)* which should be a date after the old Finished Drilling Date.

  Enter a deeper Total Depth *(mandatory)*.

  Click OK once done.



- Enter casing and cementing data, if applicable. Refer to pages 28 and 30.
- Enter core data, if applicable. Refer to page 31.
- Enter kickoff data, if applicable. Refer to page 32.
- Enter drillstem test data, if applicable. Refer to page 33.
- Enter plugback data, if applicable. Refer to page 34.

- Enter Well Incident data *(mandatory).* Refer to page 35.

Note that the Completion and Packer folders appear but data can only be added if this submission is a combined 'Drilling' and 'Completion' submission.

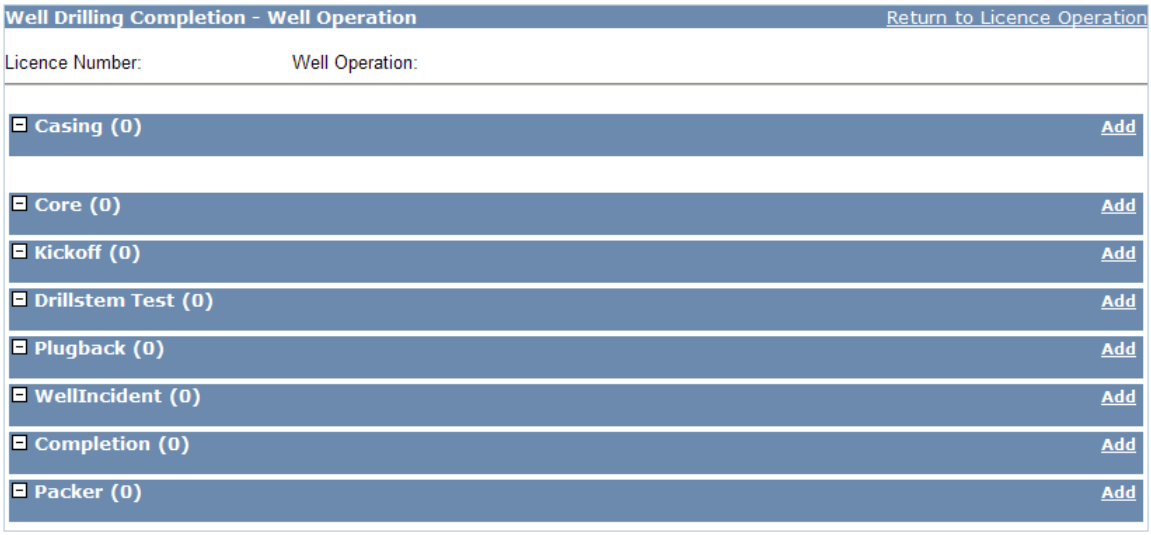
After all mandatory and optional data have been entered, go back to step 7 (Submit by Form) in page 19.

A.3.4 Submitting Well Operation 'Completion'

{Section 3.2 requirement 14, page 20 of Directive 059}

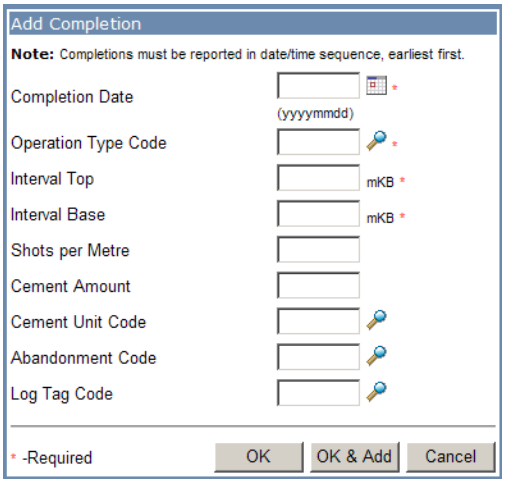
This enables the user to enter the data related to a completion operation.

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



From step 6 of page 19, follow the following process when submitting a completion operation:

o Locate the Completion folder, second item from the bottom, and click the **Add** *link* on the right hand side.



Enter the Completion Date *(mandatory)*.

Enter the Operation type code *(mandatory)*.

Enter Interval top *(mandatory)*.

Enter Interval base *(mandatory)*.

Enter Shots per metre if submitting a code 2.

Enter cement amount if submitting for a completion operation type code 51, 52, 53 or 57.

Enter cement unit code if submitting for a completion operation type code 51, 52, 53 or 57.

Enter abandonment code if applicable. Abandonment code can only be submitted for completion operation type codes 51, 52, 53 and 57.

Enter log tag code if abandonment code is submitted.

Click OK when entering only 1 completion record.

Otherwise, keep on clicking OK & Add to enter additional completion records.

- Enter casing and cementing data, if applicable. Refer to pages 28 and 30.
- Enter plugback data, if applicable. Refer to page 34.
- Enter packer data, if applicable. Refer to page 36.
- Enter Well Incident data, if applicable. Refer to page 35.

  Any completion submission requires the submission of well incident data except if the submission is for a Packer 'Modify' only.

Note that the Core, Kickoff and Drillstem Test appear but data can only be added if this submission is a combined 'Drilling' and 'Completion' submission.

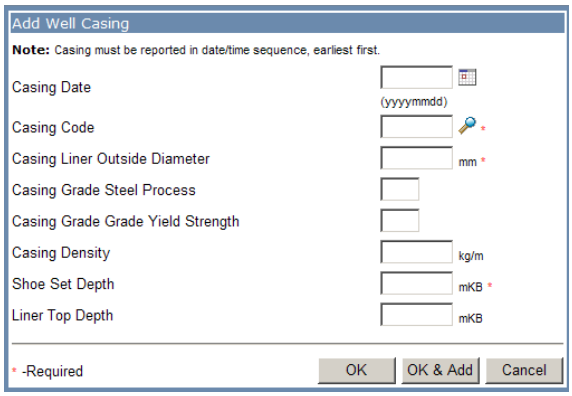
After all mandatory and optional data have been entered, go back to step 7 (Submit by Form) in page 19.

A.3.5 Enter Casing data

{Section 3.2 requirement 7, page 13 of Directive 059}

Casing data is mandatory for preset and drilling submissions and optional for a deepening submission. Exceptions to drilling submissions are oilsands evaluation wells and drilling operation submissions for a previously submitted preset well.

Click the **Add** *link* directly on the right of the Casing folder to enter Casing data.



- Enter Casing Date.

  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.

  For a Deepening submission, casing date should be on or after the new Finished Drilling Date.

- Enter Casing Code (*mandatory*).

  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 are allowed to be submitted for a preset operation.

  Only casing codes 3, 4 or 5 are allowed to be submitted for a deepening operation.

- Enter Casing Liner Outside Diameter in millimetres (*mandatory*).

  The value should be between 0 and 999 mm.

- Enter Casing Grade Steel Process.

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

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

- Enter Casing Grade Yield Strength.

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

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

- Enter Casing Density in kg/m^3.

  Enter a numeric value between 1.0 and 999.9.

  Casing Density is optional when submitting common and historical casings.

- Enter Shoe Set Depth (*mandatory*) in mKB.

  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.

- Enter Liner Top Depth in metres in mKB.

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

Click OK when done.

Otherwise, keep on clicking OK & Add to enter additional casing records.

A.3.6 Enter Cementing data

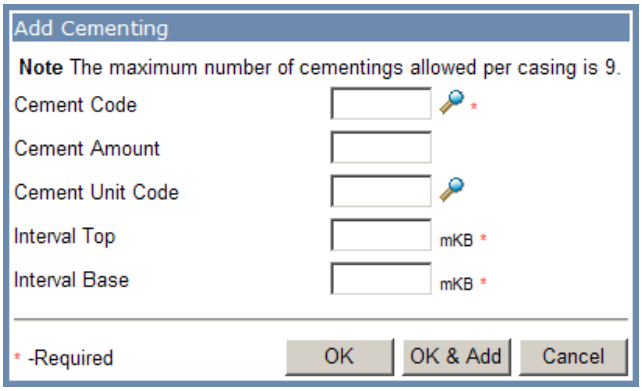
{Section 3.2 requirement 8, page 14 of Directive 059}

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

For mixed casing strings, cementing is not required for the 1st casing record. Instead, cementing data for the entire casing string is submitted on the 2nd casing record.

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

After entering casing data, select the **View** *link* next to the appropriate casing record in the panel and click on the **Add** *link* next to the **Cementing**.



- Enter Cement Code *(mandatory).*

  If submitting a code 91, a completion operation type code 7 should also be submitted under Completions with the same interval.
- Enter Cement Amount.

  Cement Amount should not be submitted when the cement code is either 91 or 92.
- Enter Cement Unit Code.

  Cement Unit Code should not be submitted when the cement code is either 91 or 92.
- Enter Interval Top *(mandatory).*

  Enter 0 when the casing is cemented to ground surface.
- Enter Interval Base *(mandatory).*

  Interval Base should not be deeper than the casing shoe.

Click OK when done.

Otherwise, keep on clicking OK & Add to enter additional cementing records for the specific casing.

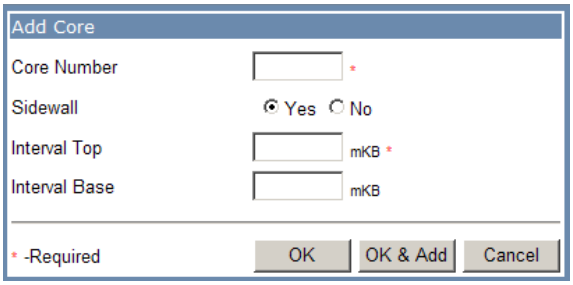
A.3.7 Enter Core data

{Section 3.2 requirement 9, page 15 of Directive 059}

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

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

Click the **Add** *link* directly on the right of the Core folder to enter Core data, if applicable.



- Enter the Core Number *(mandatory).*

  Core Number should start from 1 and increment by 1 when submitting ‘Drilling’ operation.

  On a ‘Deepening’ operation, Core Number should start 1 more than the last core observation in the database.
- Indicate whether the core is a sidewall core *(mandatory)*.
- Enter the Interval Top *(mandatory).*

  For sidewall cores, only the Interval Top is required.
- Enter Interval Base.

  For sidewall cores, do not submit an Interval Base.

Click OK when done.

Otherwise, keep on clicking OK & Add to enter additional core observations.

A.3.8 Enter Kickoff data

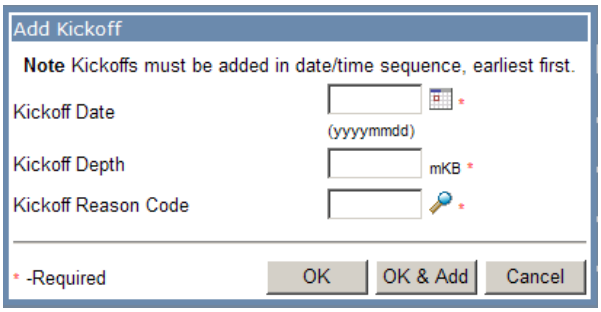
{Section 3.2 requirement 11, page 16 of Directive 059}

Note that kickoff is now referred to as 'Directional Drill Event (DDE)' in Directive 059 but the submission system still refers to this data as 'Kickoff'.

Kickoff is an optional data that can only be submitted for 'Drilling' or 'Deepening' operations.

A good reference for determining kickoff data is the directional survey report.

Click the **Add** *link* directly on the right of the Kickoff folder to enter Kickoff data, if applicable.



- Enter the Kickoff Date *(mandatory).*
- Enter Kickoff Depth *(mandatory).*

  Kickoff Depth should be greater than (Kelly Bushing Elevation – Ground Elevation), except when the Kickoff Reason code is '1'

  Kickoff Depth can be 0 if the Kickoff Reason code is '1' (i.e. well drilled by a slant rig).
- Enter Kickoff Reason Code *(mandatory).*

  Kickoff Reason code is '1' when the well has an inclination of ≥5 and <80 degrees.

  Kickoff Reason code is '2' when a fish has been on lost and the wellbore is sidetracked into a new wellbore. This kickoff is applied to the new wellbore.

  Kickoff Reason code is '4' when the well has an inclination of ≥80 degrees.

Click OK when done.

Otherwise, keep on clicking OK & Add to enter additional kickoff data.

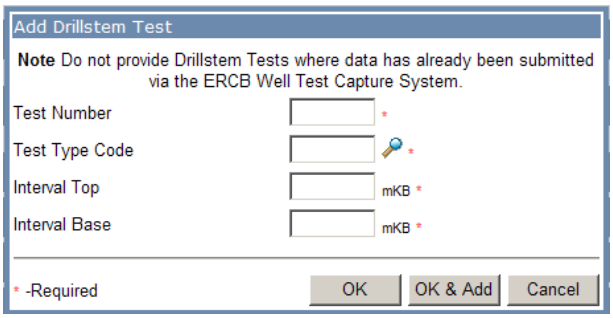
A.3.9 Enter Drillstem Test data

{Section 3.2 requirement 10, page 16 of Directive 059}

Drillstem Test is an optional data that can only be submitted for 'Drilling' or 'Deepening' operations.

DDS will display an error message if the drillstem test being submitted has the same intervals as a drillstem test that already exists in the AER Well Test Capture system.

Click the **Add** *link* directly on the right of the Drillstem Test folder to enter Drillstem Test data, if applicable.



- Enter the Test Number *(mandatory).*

  Test Number should start from 1 and increment by 1 when submitting 'Drilling' operation.

  On a 'Deepening' operation, Test Number should start 1 more than the last test number in the database.
- Enter the Test Type Code *(mandatory).*
- Enter the Interval Top *(mandatory).*
- Enter the Interval Base *(mandatory).*

Click OK when done.

Otherwise, keep on clicking OK & Add to enter additional drillstem tests.

A.3.10 Enter Plugback data

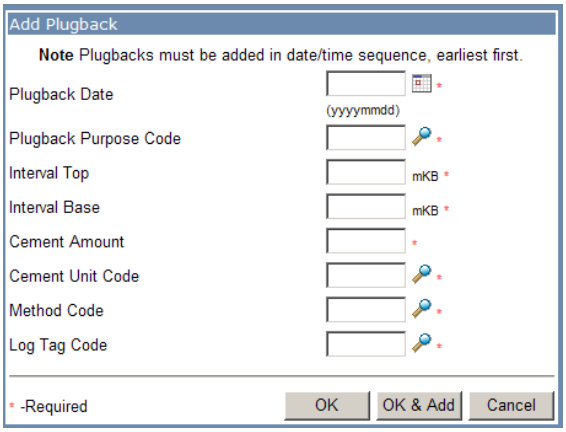
{Section 3.2 requirement 12, page 18 of Directive 059}

Plugback data is mandatory when the Initial Status Code is 2, 3 or 4 on a 'Drilling" submission.

Plugback data can be submitted on well operation types 'Drilling', 'Deepening' or 'Completion'.

Plugback should be recorded in the order they were run.

Click the **Add** *link* directly on the right of the Plugback folder to enter Plugback data, if applicable.



- Enter the Plugback Date *(mandatory).*

  Date should be on or after Finished Drilling Date and in sequential order when submitting multiple plugback records.
- Enter the Plugback Purpose Code *(mandatory).*

  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.
- Enter the Interval Top *(mandatory).*
- Enter the Interval Base *(mandatory).*

  Interval Base cannot overlap with another Plugback for the same UWI unless the Method Code is 3.
- Enter the Cement Amount *(mandatory).*
- Enter the Cement Unit Code *(mandatory).*
- Enter the Method Code *(mandatory).*

  Method Code 3 can only be submitted when Plugback Purpose Code is 1.
- Enter the Log Tag Code *(mandatory).*

Click OK when done.

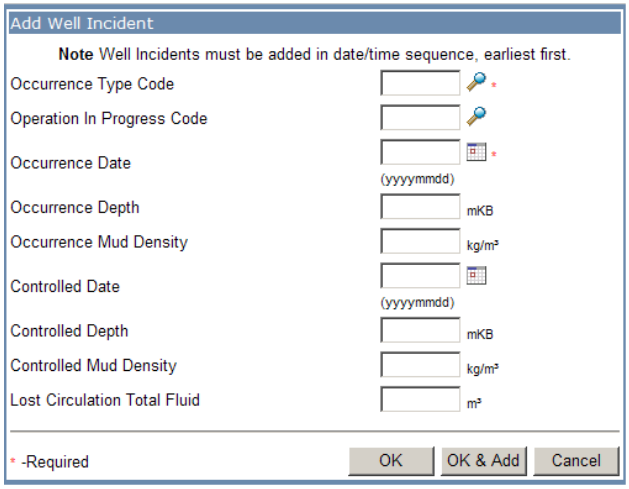
Otherwise, keep on clicking OK & Add to enter additional plugback data.

A.3.11 Enter Well Incident data

{Section 3.2 requirement 13, page 19 of Directive 059}

Reporting of Well Incident is required for all submissions except when submitting well operation type 'Completion' for a Packer 'Modify'. Any Completion submission for a Packer 'Modify' that includes any other data requirement will require a well incident record.

Click the **Add** *link* directly on the right of the Well Incident folder to enter Well Incident data.



- Enter the Occurrence Type Code *(mandatory).*

  Note that Occurrence Type Codes 10, 30 and 40 require all mandatory fields.

  Code 99 only requires Occurrence Date.
- Enter the Operation in Progress Code.
- Enter the Occurrence Date *(mandatory).*

  Date should be in sequential order when submitting multiple well incident records.
- Enter the Occurrence Depth.
- Enter the Occurrence Mud Density (kg/m^3).

  Enter a value between and including 800 to 2500
- Enter the Controlled Date.
- Enter the Controlled Depth.

  Controlled Depth should be equal or deeper than Occurrence Depth.
- Enter the Controlled Mud Density (kg/m^3).

  Enter a value between and including 800 to 2500
- Enter the Lost Circulation Total Fluid (m^3).

Click OK when done.

Otherwise, keep on clicking OK & Add to enter additional well incident records.

A.3.12 Enter Packer data

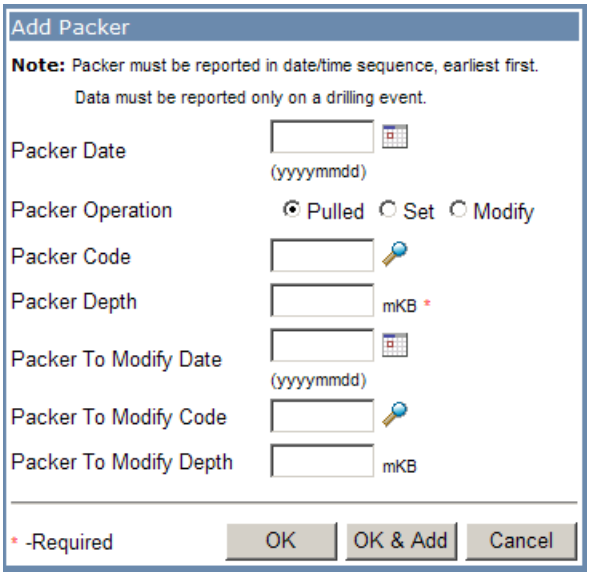
{Section 3.2 requirement 15, page 22 of Directive 059}

Packer is an optional data that can only be submitted for a 'Completion' operation.

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 as long as the new packer date is on or between the next shallowest and the next deepest packers where applicable
- Change an existing packer depth as long as 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

Click the **Add** *link* directly on the right of the Plugback folder to enter Plugback data, if applicable.



- Enter the Packer Date *(mandatory).*

  When Packer Operation is 'Set', date should be in sequential order when submitting multiple packer data.

  When Packer Operation is 'Pull', date should be the actual date the packer was pulled.

  When Packer Operation is 'Modify', enter the correct Packer Date here.
- Select the Packer Operation *(mandatory).*
- Enter the Packer Code.

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

  When Packer Operation is 'Modify', enter the correct Packer Code here.
- Enter the Packer Depth *(mandatory).*

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

  When Packer Operation is 'Set', enter the Packer Depth from deepest to shallowest when pulling multiple packers.

  When Packer Operation is 'Modify', enter the correct Packer Depth here.
- Enter the Packer to Modify Date.

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

  When Packer Operation is 'Modify', enter the Packer Date of the packer data being modified.
- Enter the Packer to Modify Code.

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

When Packer Operation is ‘Modify’, enter the Packer Code of the packer data being modified.

- Enter the Packer to Modify Depth.

  Should be blank for Packer Operations ‘Set’ and ‘Pull’.

  When Packer Operation is ‘Modify’, enter the Packer Depth of the packer data being modified.

Click OK when done.

Otherwise, keep on clicking OK & Add to enter additional packer data.

A.4 Recall Saved Submission

This functionality allows the user to do the following:

- Retrieve previously saved submissions

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 the 14 day period.

Note that any submission can be saved for 14 days from the time it is saved. The clock restarts every time the submission is modified and saved.

Step 3. Click on the Edit icon in order to access the data entry panel of the submission.

Step 4. Modify as you wish. You can refer to the section Submit by Form from pages 13 to 15 for guidance on how to enter data into the data entry web form.

Step 5. Once all the changes have been done, you can do the following:

5.1 View

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

5.2 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.

5.3 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 hyperlinks to View Submission Report and to View Cover Sheet. Note that a new Submission ID will be generated.

Print the Cover Sheet and attach it to the paper daily reports of operations from which the electronic submission data were derived. Sign and date the cover sheet to confirm that no personal information is contained in the report. Send the package to the Core Research Centre. *Refer to page 127 Part D. Submit Paper Daily Reports Package to Core Research Center (CRC).*

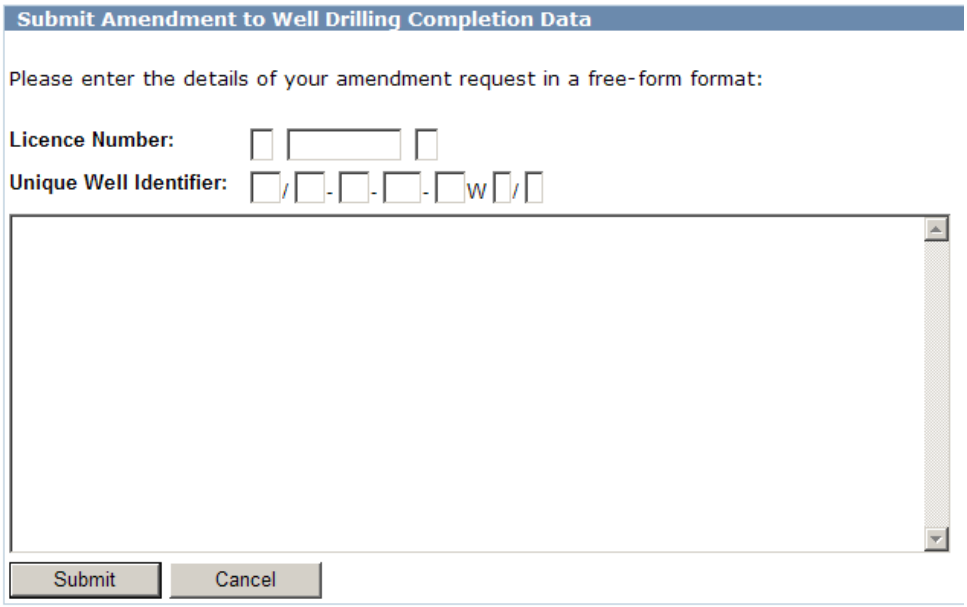
5.4 Cancel

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

A.5 Submit Amendment

This functionality allows the user to do the following:

- Submit an amendment request to the AER of the following:
  - Correction of previously submitted data. Exceptions are packer transactions that can be done through the Packer 'Modify' facility
  - Data entry of a submission that cannot get through due to existing business edits.
  - Adding new items to the fracture fluid composition and water source reference tables. Refer to **B.4 Adding an Item to a Reference Table** on page 94.



Process steps:

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

Step 2. The Submit Amendment to Well Drilling Completion Data panel is displayed.

Step 3. Enter a valid Licence Number and a Unique Well Identifier in the input boxes. If the amendment is for more than one UWI, enter the UWI with the lowest event sequence (typically /0).

Step 4. Describe the amendment request in the free flow 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 5. Click **Submit** when done.

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

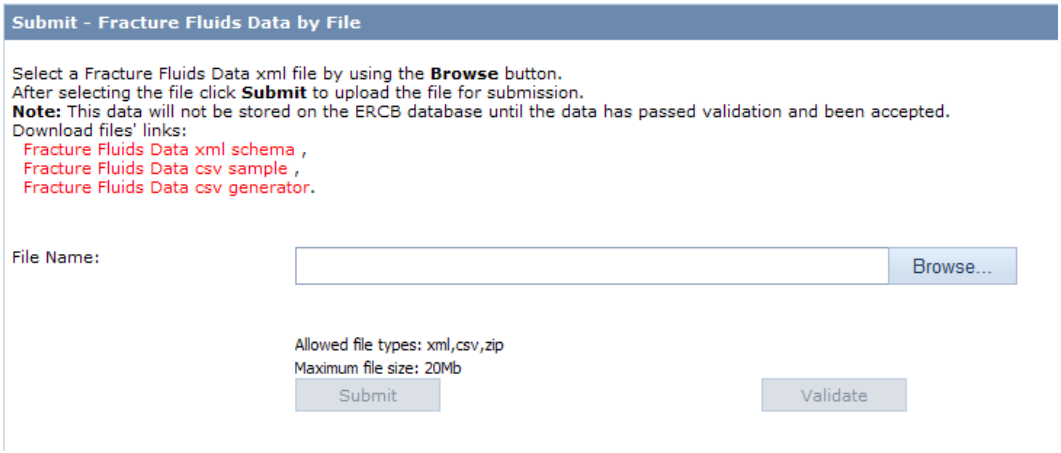
Part B. Fracture Fluid Composition Data

B.1 Validate and Submit Fracture Fluid by File

Please note that fracture fluid data cannot be submitted if fracture interval data has not been submitted through the DDS system.

This functionality allows the user to do the following:

- Validate an XML or CSV file without submission
- Submit an XML, CSV or zipped CSV file with automatic validation for errors



Process steps summary:

Step 1. Prepare the file to be uploaded.

If preparing an XML file, refer to **B.1.1 Preparing an XML File for Submission** on page 46.
If preparing a CSV file, refer to **B.1.2 Preparing a CSV File for Submission** on page 47.

Step 2. Using the **Browse** button, locate the XML or CSV file to be validated or submitted.

Step 3. If you are not planning to submit but wish to validate the file, click the **Validate** button. If you want to submit the file, click the **Submit** button.

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

*For a list of business rules and edits, refer to the DDS homepage for **Fracture Fluid Composition Data**. On the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink.*

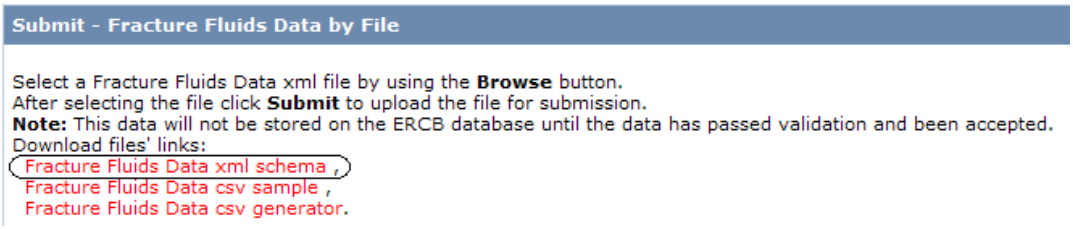
Step 4. Print the Cover Sheet. Attach it and submit together with a hard copy of the fracture job report which must include all the data required for fracture operations listed in Directive 059 Appendix 3, provided associated operations information has not already been submitted with the Completion Operations hard copy records. Sign and date the cover sheet to confirm that no personal information is contained in the report. Send the package to the AER Core Research Centre at the address below.

Alberta Energy Regulator
Core Research Centre
3545 Research Way NW
Calgary, Alberta T2L 1Y7

B.1.1 Preparing an XML file for submission

The DDS submission system can accept data prepared in XML file format. The XML file should be in accordance with the AER prescribed format.

The XML template and schema can be downloaded from the ***DDS Well Drilling Completion > Data submission system > Fracture Fluid Composition Data > Validate and Submit Fracture Fluid by File***, see below:



The link **Fracture Fluids Data xml schema** brings up the XML schema and template. The data must be consistent with the constraints and the lookup lists in Appendix C. Fracture Fluid Composition Data Submission Matrix.

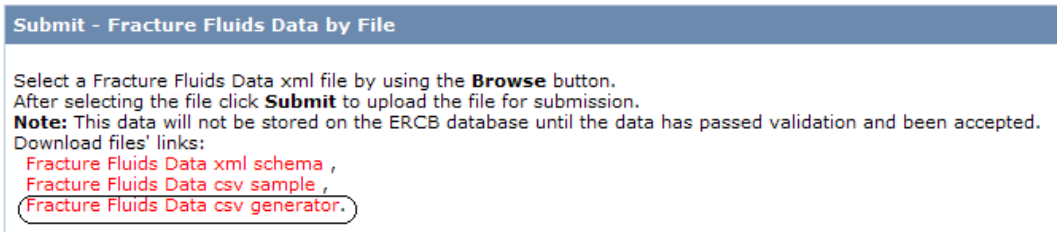
1. Create a new XML file from the downloaded AER XML template. This can either be done through an internal system that produces an AER compliant XML file or by manually entering the data within the XML tags. Note that only one well licence is allowed per XML submission and any UWIs referenced in the XML file must be drilling legs not production strings.

2. After all data has 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.

B.1.2 Preparing a CSV File for Submission

The DDS submission system can only accept data created within a spreadsheet if the file is in CSV file format. The CSV file must be in accordance with the AER prescribed format.

The CSV template can be downloaded from the ***DDS Well Drilling Completion Data submission system > Fracture Fluid Composition Data > Validate and Submit Fracture Fluid***, see below:



The **Fracture Fluids Data csv generator** link brings up the CSV template. This template contains a data sample as well as lookup lists as per Appendix C. Fracture Fluid Composition Data Submission Matrix. Please note that the csv generator works best with Excel 2010. Users use the csv generator at their own risk.

Please also note that data entered into the csv generator and saved as a csv file may be subject to Excel specific formatting which will render the file unacceptable for the file validation process. Examples include but are not restricted to the following:

- removal of leading zeroes from well licence numbers;
- reversion to a single 0 in the le column (this needs to be two zeroes (00);
- removal of trailing zeroes on data that requires a specific number of decimal places (e.g. volumeWeight)

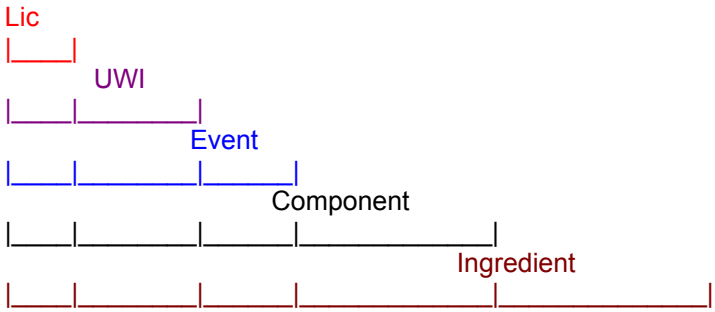
Through experience, it has been found that this happens if a csv file is saved, closed and then reopened in Excel. To avoid this, it is recommended to validate or submit the file while it is still open or to submit from a saved and closed state.

1. Copy a new CSV file from the downloaded AER supplied template. Please note the following:

    - The column sizes can be adjusted;
    - Additional columns cannot be inserted or added;
    - The order of the columns cannot be changed.
    - Note restrictions on number of UWIs, stages, etc.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	#ERCB-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		0020970		1	00	1	1	1	6	W	4	0	Fracture	777.00	1395.10
4															

Also note that the row must be duplicated up to the point where the data changes. As an example, the licence, UWI, fracture event and fracture component must be copied for each of the ingredients.



2. Enter the data in the row immediately after the data labels starting with row 3.

    - A series of numbers that start with a 0 should be entered with an apostrophe (e.g. licence 0401234 is entered as ‘0401234).
    - Data containing double quotes, and commas should be enclosed in double quotes (e.g. “Ali’s Alcohols, ethoxylated #22” is entered as ““Ali’s Alcohols, ethoxylated #22””).
    - Line fields within a data field are not allowed.

    When preparing a CSV file submission, there can only be one well licence number per CSV file submission and the referenced UWIs must be drilling legs not production strings. Each CSV file cannot have multiple worksheets or tabs.

3. After all data has been entered, save the file with a CSV file extension.

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

B.1.3 Validation rules for batch submissions

1 *File constraints*

Each XML and CSV file submission 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 have the data submitted for the event sequences greater than nine using the online web form.
- Up to 50 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
- Data values from lists must be exactly the same as seen on the list, e.g. Fracture will be accepted but fracture will not be accepted.

2 *Schema validation*

*For a complete list of business rules and edits, refer to the DDS homepage for **Fracture Fluid Composition Data**. On the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink.*

Data Element	Data Description	Data/Schema Validation
License		
licencePrefix	The alpha character at the beginning of the numeric licence number, if applicable, as assigned by the AER. Only exists for older licences.	Optional. String, 1 character. Value must be from A to Z except the following: E to H, T to W.
licenceNumber	A 7 digit number assigned by the AER for an approved well application.	Mandatory. Integer, 7 digits. **Include leading 0's**
licenceSuffix	The alpha character at the end of the numeric licence number, if applicable, as assigned by the AER. Only exists for older licences.	Optional. String, 1 character. Value must be from A to Z.
Unique Well Identifier (UWI)		
		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.	Mandatory. Value must be 1.

Data Element	Data Description	Schema Validation
LE	Location Exception code of the UWI.	Mandatory. String value, 2 characters If string, value must be from AA to HZ except I or O. If numeric, value must be from 00 to 99 except for 01. 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.	Mandatory. Integer, 2 digits. Value must be from 1 to 16.
SEC	Section portion of the UWI.	Mandatory. Integer, 2 digits. Value must be from 1 to 36.
TWP	Township portion of the UWI.	Mandatory. Integer, 3 digits. Value must be from 1 to 126.
RGE	Range portion of the UWI.	Mandatory. Integer, 2 digits. 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.	Mandatory. Value must be W or w.
M	Meridian portion of the UWI.	Mandatory. Integer, 1 digit. Value must be 4, 5 or 6.
ES	Event sequence portion of the UWI.	Mandatory. Integer, 1 digit. Value must be 0 to 9 except 1.
Fracture Interval Data		
perfTreatmentType	A fracture record previously submitted through DDS completion submission.	Mandatory. String enumeration. Value must exist in the Reference Table (refer to Appendix C)
topDepth	The top interval of the fracture as previously submitted in DDS.	. Decimal format 9999.99
baseDepth	The bottom interval of the fracture as previously submitted in DDS.	Decimal format 9999.99
perfDate	The fracture date as previously submitted in DDS.	Mandatory. Date format for XML YYYY-MM-DD. Date format for CSV 2008-03-01 1-MAR-2008 MAR 1 2008 1 MAR 2008 03/01/2008 2008/03/01

Data Element	Data Description	Schema Validation
serviceProvider	Company that conducted the hydraulic fracture operation on behalf of the licensee.	Mandatory. String enumeration. Value must exist in the Reference Table (refer to Appendix C)
fractureScenario	Wellbore configuration in the location of the fracture operation	Mandatory. String enumeration. Value must exist in the Reference Table (refer to Appendix C)
Components		
componentType	Carrier fluid, proppant or additive	Mandatory. String enumeration. Value must exist in the Reference Table (refer to Appendix C)
proppantType	Proppant type	Mandatory for Proppant, NULL for Carrier Fluid and Additive. String enumeration. Value must exist in the Reference Table (refer to Appendix C)
tradeName	Name of proppant or additive as used by the supplier	Mandatory for Additive, optional for Proppant and NULL (not required) for Carrier Fluid. String, 60 characters maximum
supplier	Supplier of proppant or additive	Mandatory for Proppant and Additive, NULL (not required) for Carrier Fluid. String, 60 characters maximum
purpose	Purpose of additive	Mandatory for Additive, NULL for Carrier Fluid and Proppant. String enumeration. Value must exist in the Reference Table (refer to Appendix C)
carrierFluidType	Type of carrier fluid used	Mandatory for Carrier Fluid, NULL for Proppant and Additive. String enumeration. Value must exist in the Reference Table (refer to Appendix C)
Size	Proppant Size	Mandatory for Proppant, NULL for Carrier Fluid and Additive. String enumeration. Value must exist in the Reference Table (refer to Appendix C)
unitOfMeasure	Unit of measure of an additive	Mandatory for Additive, String enumeration. Value must exist in the Reference Table (refer to Appendix C)
volumeWeight	Weight in metric tonnes for Proppant. Volume in cubic metres for Carrier Fluid.	Mandatory. Decimal format 99999999.999 Value must be from 0.001 to 9999999.999

Data Element	Data Description	Schema Validation
	Ingredients	
casNumber	Chemical Abstract Number assigned to an ingredient, if available. "Not Available" when CAS # is not available. HMIRC Approval number if ingredient is hazardous and a trade secret. "Trade Secret" if ingredient is non-hazardous and a trade secret.	Mandatory. If Trade Secret is "Yy", casNumber must be 4 digit HMIRC # or "Trade Secret" If Trade Secret is "Nn", casNumber must be up to 10 numeric digits or "Not Available"
ingredientName	Name of ingredient or chemical family	Mandatory. String, 60 characters maximum
maxConcinComp	Maximum concentration of an ingredient in an carrier fluid, proppant or additive	Mandatory. Decimal format 999.999999 Value must be from 0 to 999
maxConcinHydraulicFluid	Maximum concentration of an ingredient in the hydraulic fracturing fluid	Mandatory. Decimal format 999.999999 Value must be from 0 to 999
tradeSecret	Whether an ingredient is a trade secret or not	Mandatory. Value must be Y, y, N or n

If the value to be submitted is not in the Reference Table (refer to Appendix C for the selections), follow the following process:

a. select a value close enough from the available options in Appendix C
b. if there is none, request the item to be added in the AER's Reference Table. Refer to **B.4 Adding an item to the Reference Table**.

B.2 Save and Submit Fracture Fluid by Form

Please note that fracture fluid data cannot be submitted if fracture interval data has not been submitted through the DDS system.

This functionality allows the user to enter fracture fluid composition data through a web form and to do any of 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

Process steps summary:

Step 1. In the **Wells tab**, enter a valid well licence number and select the UWI to report. If reporting fracture fluid for a well event greater than nine, the well record and fracture record must be created first before data can be entered.

Step 1 is described in **B.2.1 Wells Tab: Select a Licence and UWI** on page 55.

Step 2. Select the fracture interval or stage to report the fracture data composition.

Navigate to the **Completions tab**. Scroll to the last column *Continue* corresponding to the reporting well and click the hyperlink **Completions**.

Step 2 is described in **B.2.2 Completions Tab: Select fracture interval record** on page 58.

Step 3. Enter data corresponding to the carrier fluid, proppant and/or additive used in the fracture operation.

Navigate to the **Fracture Components tab**. Scroll to the last column *Components* corresponding to the reporting fracture interval and click the hyperlink **Add**.

Step 3 is described in **B.2.3 Fracture Components tab: Enter Fracture Components** on page 60.

Step 4. Enter data corresponding to the ingredient of each carrier fluid, proppant or additive used.

Navigate to the **Ingredients tab**. Scroll to the last column *Ingredients* corresponding to each of the fracture component (carrier fluid, proppant, additive) and click the hyperlink **Add**. .

Step 4 is described in **B.2.4 Component Ingredients tab: Enter component ingredients** on page 63.

Step 5. Validate, submit and/or print the report after ALL ingredients of ALL components have been entered. Navigate to the **Submission & Print tab**.

Step 5 is described in **B.2.5 Validate, Submit and Print** on page 94.

Step 6. Send the hard copy report to the Core Research Center.

Attach the printed cover sheet to the paper daily reports of operations from which the electronic submission data were derived, provided associated operations information has not already been submitted with the Completion Operations hard copy records. Sign and date the cover sheet to confirm that no personal information is contained in the report. Send the package to the Core Research Centre.

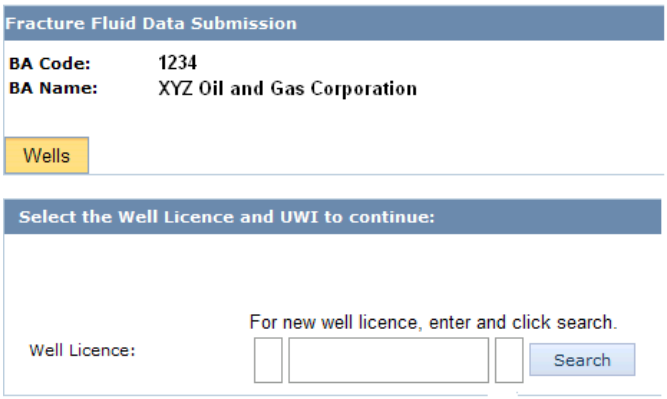
Step 6 is described in **Part D. Submit Paper Daily Reports Package to Core Research Center (CRC)** on page 127.

B.2.1 Wells Tab: Select a Licence and UWI

{Section 4, pages 24-27 of Directive 059}

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

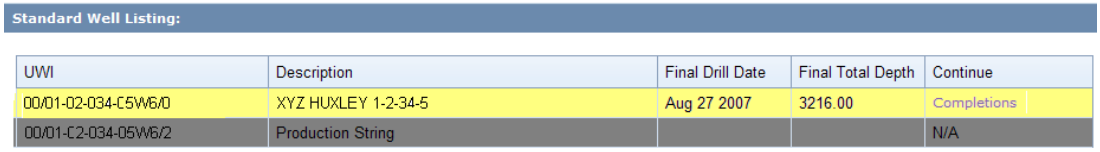
A single submission can contain up to nine UWIs.



- Enter a valid 7 digit well licence number including leading zeroes.

  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. If the UWI is a production string (i.e. a completed zone), it is greyed out and cannot be selected.



- Select the UWI to report data on by clicking on it.

- After the UWI has been selected, you are ready to select the fracture interval record to report data on.

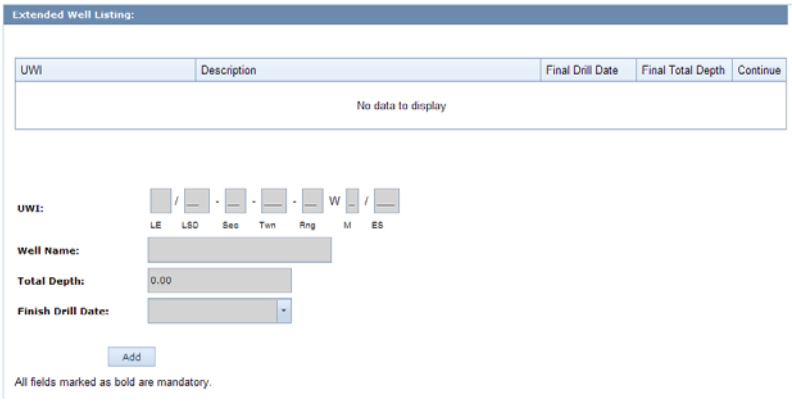
Next step: **B.2.2 Completions Tab: Select fracture interval record,** pages 58 to 59.

Submission for a Well with More than Nine Event Sequences

{Section 4.3.3, pages 30-31 of Directive 059}

When a well with more than nine event sequence (ES) has been fractured, the UWI, for each event sequence greater than nine, can be created in the **Wells tab** and fracture fluid composition data submitted via web form. Note that fracture fluid data cannot be submitted via batch file (XML or CSV) for event sequences greater than nine.

After a valid well licence number has been entered for a well that has used event sequences 0 and 2-9, an Extended Well Listing appears at the bottom of the page.



- Click the **Add** button to enable the data entry form.
- Create the **UWI** starting with event sequence ten.

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

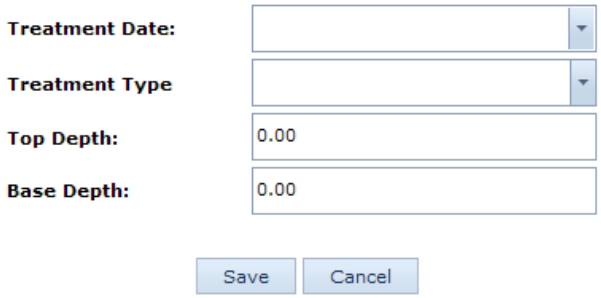
  Change the Location Exception (LE) code and the Dominion Land Survey (DLS) portions, as needed, based on the actual bottom hole location of the wellbore.

  The event sequence is auto-populated by the system in sequential order and cannot be modified by the user.
- Enter the **Well Name**.

  The well name is auto-populated with the well name of the first event sequence (/0) Modify the well name as needed according to the bottom hole location of the event sequence being created.
- Enter the **Total Depth**.
- Enter the **Finish Drill Date**.
- **Save** the well data created or click **Cancel** to undo.
- Create a fracture interval record by selecting the desired UWI (>9) and then clicking on the **Add Perfs** button.

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

- Click the **Add** button to enable the form or **Back** to go back to the **Wells tab**.



- Enter the **Treatment Date** as the date the interval was fractured.

  The Treatment Date must be on or after the Finish Drill Date.

- Select the **Treatment Type** between 'Fracture' or 'Multi-Stage Fracture'.

- Enter the top depth of the interval under **Top Depth**.

  The value must be between 6 mKB and Total Depth and must be less than the Base Depth.

- Enter the base depth of the interval under **Base Depth**.

  The value must be between 6 mKB and Total Depth and must be greater than the Top Depth.

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

- Continue to add all fracture interval records associated with the well by clicking **Add** to activate the form.

- After all fracture interval records are added, you can amend or delete them by selecting the desired interval and clicking either **Update** or **Delete**. Click **Back** to go back to the **Wells tab**.

You are now ready to select the fracture interval record to report data on.

Next step: **B.2.2 Completions Tab: Select fracture interval record,** pages 58 to 59.

B.2.2 Completions Tab: Select fracture interval record

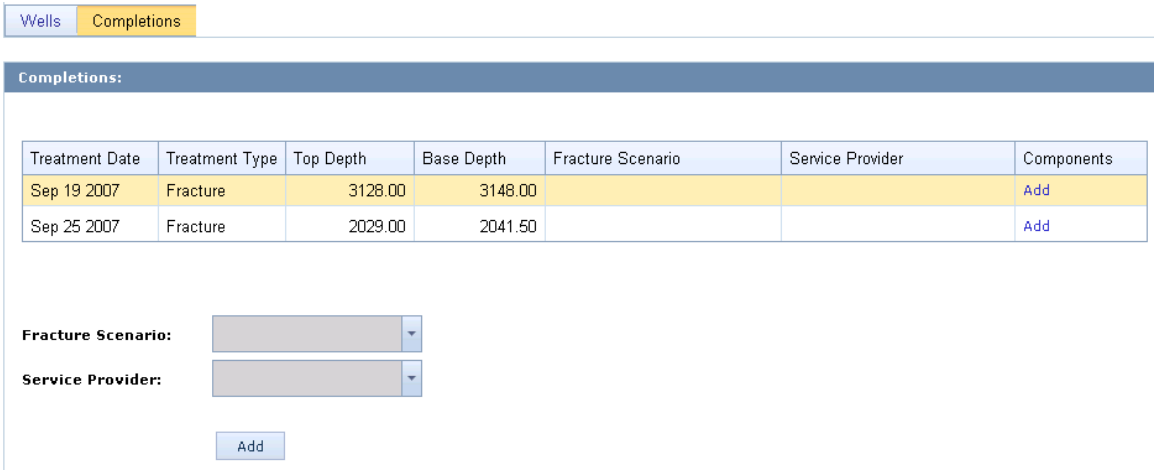
{Section 4, pages 24-27 of Directive 059}

The **Completions Tab** allows the user to select the fracture interval record to report data on 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.

Other completion types (e.g. perforation, etc) are not displayed. 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 50 fracture interval records per UWI.



- Highlight the fracture interval to report by clicking on it.
- Click the **Add** button at the bottom of the page to enable the form.

  Note that 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 you are ready to add the components. If you have 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 on the **Update** button.
- Select the **Fracture Scenario** from the drop down list.

  Identify the closest well bore configuration applicable to the reporting interval.
- Select the **Service Provider** from the drop down list.

If the fracture scenario or service provider is not on the drop down list and needs to be added as an option on the list, send an amendment to the AER Well Data Services to have the new fracture scenario or new service provider added to AER's reference table. Refer to **B.4 Adding an item to a Reference Table** on page 94.

- **Save** the record or click **Cancel** to undo.
- Continue to add fracture scenario and service provider into other fracture interval records to be submitted.
- After the fracture scenario and service provider are populated for each fracture interval to be submitted, click the **Add** hyperlink under the Components column for the selected interval to continue entering fracture component data in the next tab.

You are now ready to add fracture component data for each of the selected fracture intervals.

Next step: **B.2.3 Fracture Components Tab: Enter fracture components,** pages 60 to 62.

Navigating within the page

❶	**Add**	Add a new record. Enables the data input fields including selection of the drop down menu items.
❷	**Save**	Saves data entered.
❸	**Cancel**	Cancels the current activity.
❹	**Update**	Enables the grayed out items to be edited.
❺	**Delete**	Deletes the selected record (fracture scenario and service provider and all associated components and ingredients). Only applies to data entered but not submitted.
❻	**Validate Submission**	Validates the data entered so far in the submission. **NOTE:** At this point in the submission, an ERROR message will be displayed when fracture scenario and/or a service provider has not been entered. Error message icon – submission will be denied.
❼	**Add** hyperlink (Components column)	Opens the Fracture components tab.

B.2.3 Fracture Components tab: Enter Fracture Components

{Section 4, pages 24-27 of Directive 059}

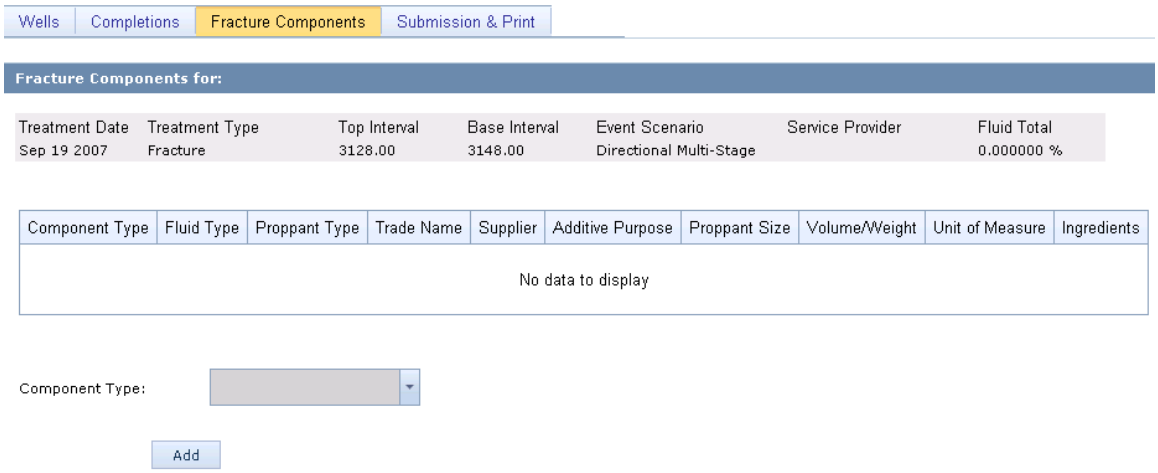
The **Fracture Components tab** allows the user to report the components of the fracture fluid pumped into the wellbore at each interval or stage. Each fracture component is categorized into three types: as a Carrier Fluid, a Proppant or an Additive.

At the top of page, the reporting fracture interval including treatment date, the fracture scenario and service provider for the fracture operation are displayed. Ensure the correct fracture interval is displayed prior to continuing to enter fracture component data.

The middle of the page displays fracture component data as it is being entered. The Fluid Total sums up the Maximum Concentration of the Hydraulic Fluid once it is entered for each of the component ingredients.

The bottom of the page displays the data entry fields.

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



- Click the **Add** button at the bottom of the page to enable the data entry form.
- 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.
- Select **Carrier Fluid** from the drop down when entering fracture component data for carrier fluids. Note that carrier fluids are mandatory when submitting fracture fluid data.

  - Select the Carrier **Fluid Type** from the drop down list

  If the fluid type is not on the drop down list, identify the closest fluid type. If there is no fluid type close enough to describe the carrier fluid used in the wellbore, send an amendment to the AER Well Data Services to have this type added to AER's reference table. Refer to **B.4 Adding an item to a Reference Table** on page 94.

- Enter the carrier fluid **Volume** in cubic metres.
- **Save** the carrier fluid record or click **Cancel** to undo
- Continue entering all other carrier fluids used for the fracture interval.

o 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.

- Select the **Proppant Type** from the drop down list
- Enter the Trade Name, if applicable.
- Enter the name of the **Supplier**
- Select the proppant **Size** from the drop down list
- Enter the **Weight** of the proppant used in metric tonnes.
- **Save** the proppant record or click **Cancel** to undo
- Continue entering all other proppant types used for the fracture interval.

If the proppant type is not on the drop down list, identify the closest type. If there is no type close enough to describe the proppant used, or if the proppant size is not on the list, send an amendment to the AER Well Data Services to have the proppant type or size added to AER's reference table. Refer to **B.4 Adding an item to a Reference Table** on page 94.

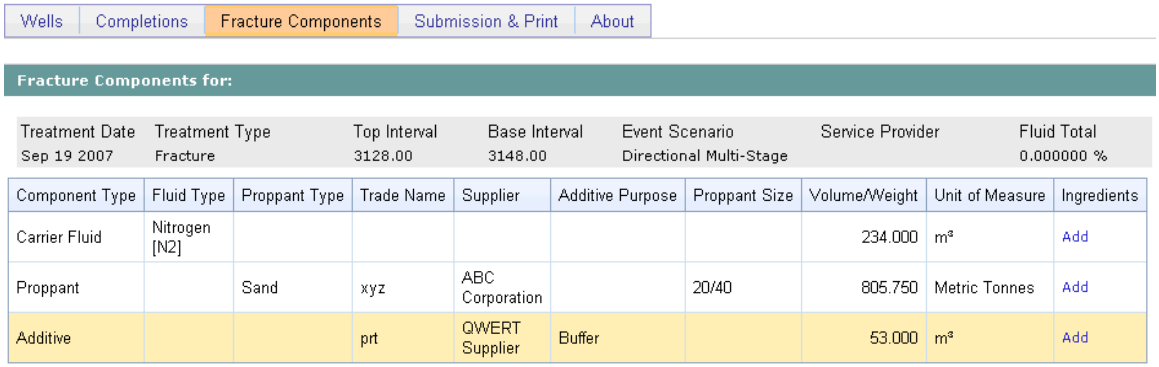
o If additives were used, select **Additive** from the drop down list. All associated mandatory and optional data fields for additive will be displayed on the page.

- Enter the **Trade Name**
- Enter the name of the **Supplier**
- Select the **Purpose** from the drop down list
- Enter the **Volume/Weight** of the additive and select the **Unit of Measure** from the drop down list.

  The volume must be expressed in standard temperature and pressure of 15°C and 101.325 kPa.
- **Save** the additive record or click **Cancel** to undo
- Continue entering all other additives used for the fracture interval.

If the additive purpose is not on the drop down list, identify the closest that can describe the purpose of the additive used. If additive purpose or if the unit of measure is not in the drop down list, send an amendment to the AER Well Data Services to have a new additive purpose or unit of measure added to AER's reference table. Refer to **B.4 Adding an item to a Reference Table** on page 94.

Below is a sample of what the screen looks like each time a fracture component type is added.



o After all carrier fluid(s), proppant(s) and additive(s) have been, click the **Add** hyperlink under the Ingredients column to continue entering ingredient data for each of the carrier fluid(s), proppant(s) and additive(s).

You are now ready to add component ingredients.

Next step: **B.2.4 Component Ingredients Tab: Enter component ingredients,** pages 60 to 63.

Navigating within the page

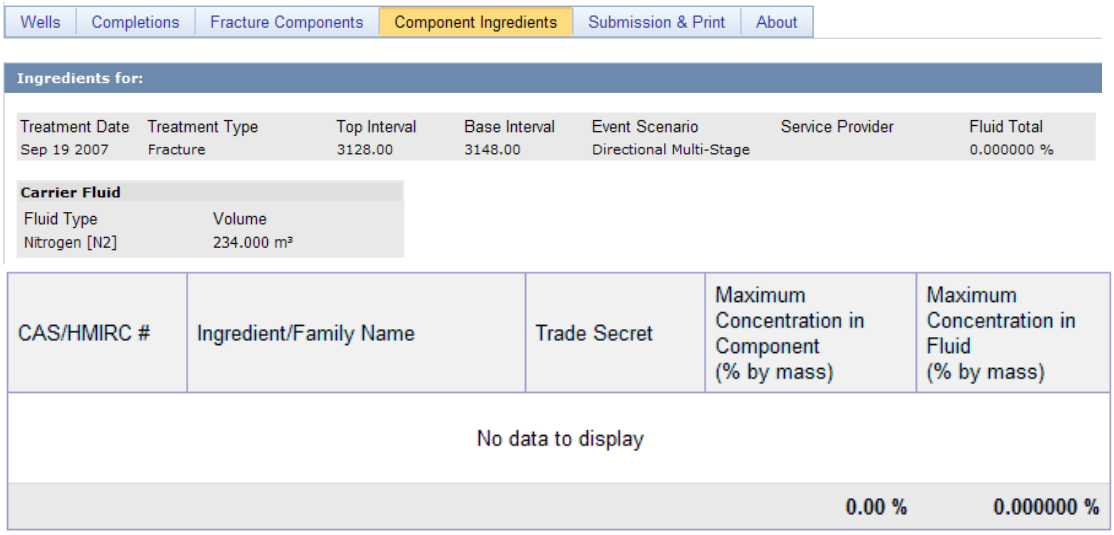
❶	**Add**	Adds a new component type. Enables the data entry fields.
❷	**Save**	Saves data entered.
❸	**Cancel**	Cancels the current activity.
❹	**Update**	Enables the greyed out items to be edited.
❺	**Delete**	Deletes the component type. **NOTE:** This will delete all data associated with the component being deleted, including ingredients, if any.
❻	**Validate Submission**	Validates the data entered so far in the submission. **NOTE:** At this point in the submission, an ERROR message will be displayed when mandatory data has not been submitted. . Error message icon – submission will be denied.
❼	**Add** hyperlink (Ingredients column)	Opens the Component Ingredients tab.

B.2.4 Component Ingredients tab: Enter component ingredients

{Section 4, pages 24-27 of Directive 059}

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 or not and to enter the Chemical Abstract Service (CAS #) if available, select Not Available if not and to enter a HMIRC (Hazardous Material Information Material Commission) # if available and to select Not Available if not.

The top of the page displays the reporting fracture interval including treatment date, the fracture scenario and the service provider of the fracture operation. The fracture fluid component and its details, for which ingredient data is being reported, are also displayed.

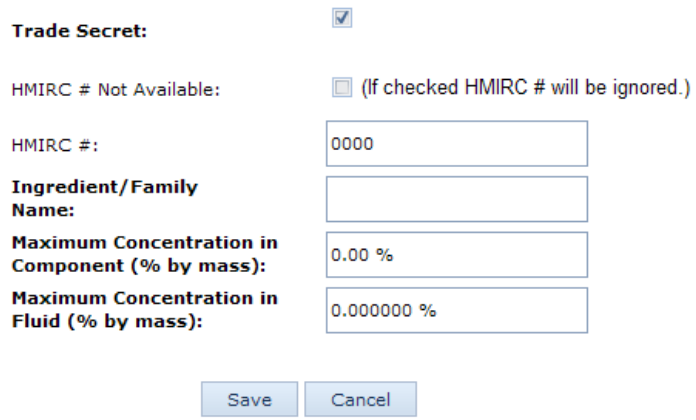


The middle of the page displays the data for each ingredient as it is being entered. As each ingredient is entered and saved, the system calculates the sum of each ingredient's maximum concentrations:

> **Maximum Concentration in Component** (% by mass) of ALL ingredients in each fracture component should be greater than 100%.
>
> The **Maximum Concentration in Fluid** (% by mass) of ALL ingredients for ALL fracture components for the fracture interval should be between and including 100 – 150%.
>
> As an example on how this is calculated, refer to **Calculating Maximum Concentration** on page 88.

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

- Click the **Add** button at the bottom of the page to enable the data entry form.
- If ingredient is a trade secret, check the **Trade Secret** check box

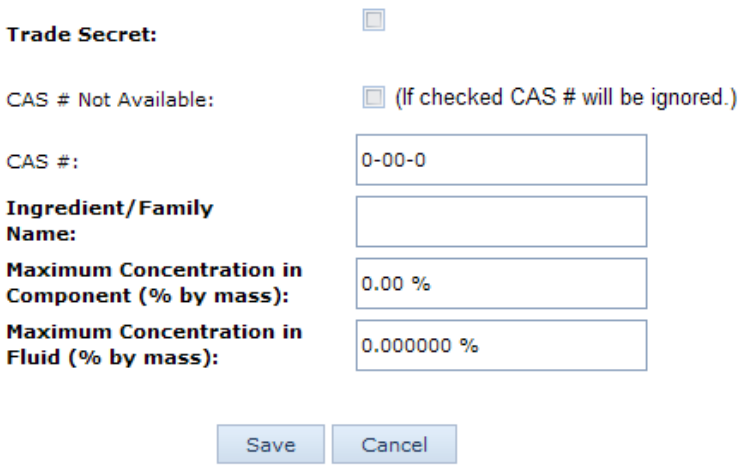


- If the HMIRC # is not available, check the **HMIRC # Not Available** check box. It is assumed that the ingredient is nonhazardous if no HMIRC # is available.
- Enter the **HMIRC** 4 digit **#** if the ingredient is hazardous

Note that 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.

o If the ingredient is NOT a trade secret, leave the **Trade Secret** check box unchecked.



- If the CAS # is not available, check the **CAS # Not Available** check box
- Enter the **CAS #**

Note that 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).

o Enter the **Ingredient/Family Name**

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

If a trade secret, whether hazardous or nonhazardous, enter the chemical family name. Otherwise, enter the ingredient name.

- 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).

- 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.

- **Save** the ingredient record or click **Cancel** to undo

- Continue entering all other ingredients used in each component.

- After all ingredients for each component have been entered, enter the ingredients for the next component. To do this, click on the **Fracture Component tab**, highlight the component record and click the **Add** hyperlink on the record to report ingredients.

  Do this for each component.

After all components have all their ingredients entered, you are ready to validate and submit.

Next step: **B.2.5 Validate, Submit and Print,** pages 67 to 68.

Navigating within the page

①	**Add**	Adds a new component ingredient. Enables the data entry fields.
②	**Save**	Saves data entered.
③	**Cancel**	Cancels the current activity.
④	**Update**	Enables the greyed out items to be edited.
⑤	**Delete**	Deletes the component ingredient.
⑥	**Validate Submission**	Validates the data entered so far in the submission. **NOTE:** An ERROR message will be displayed when mandatory data has not been submitted or if business rules have been breached. A warning message will appear when the data entered may need to be reviewed prior to submission.  Error message icon – submission will be denied.  Warning message icon – submission will be allowed.

Maximum Concentration (An example)

Maximum Concentration in Component and in Fluid in percentage by mass as Ingredients must be entered.

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.

Allowed values: >100%

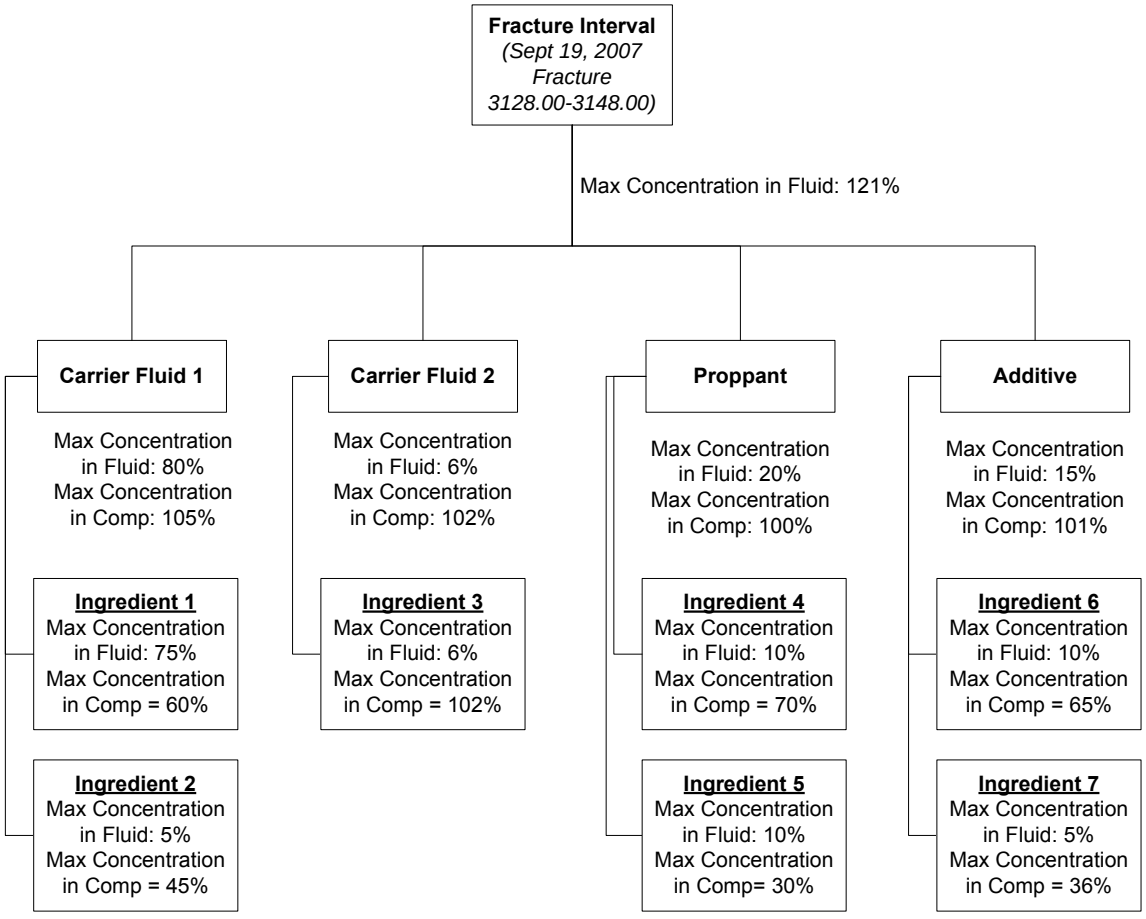
ERROR: Less than 100%
WARNING: >100%

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.

Allowed values: 100 – 150%

ERROR: Less than 100%; More than 150%
WARNING: >100 – 150%



B.2.5 Validate, Submit and Print

Whenever the **Save** button is clicked while proceeding through a submission by form the data is saved as part of a saved submission. The system automatically saves the submission for 14 calendar days from last modified date. Any saved submission that remains unsubmitted without being modified will be automatically deleted after 14 calendar days.

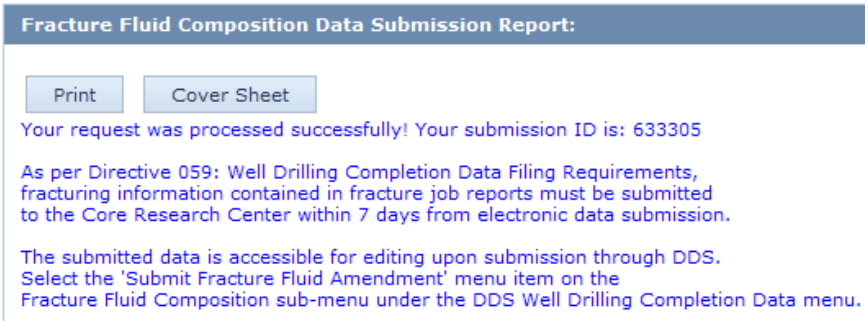
The page displays the following three buttons for selection:

Print	Displays a new window showing all the data under the saved submission. In order to print to a destination printer, click the browsers File > Print menu or print icon.
Validate	Validates data in the saved submission against business rules in the DDS system. **NOTE:** ERROR messages will be displayed when mandatory data has not been submitted or if business rules have been breached.
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.

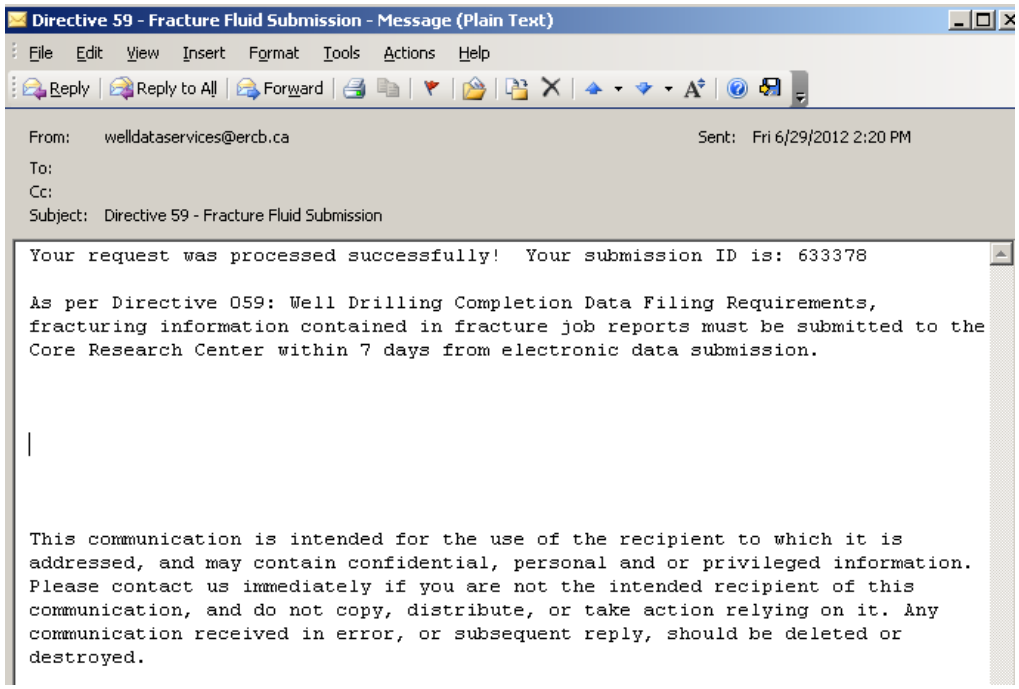
*For a complete list of business rules and edits, refer to the DDS homepage for **Fracture Fluid Composition Data**. On the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink.*

On a successful submission, a confirmation message appears in the page with the submission ID. Retain a copy of this submission ID as it is required if you wish to amend the data by file. See section B.3



Click on the **Cover Sheet** button. The cover sheet is displayed in a new window. Print using the browsers File > Print menu or print icon and submit together with a hard copy of the fracture job report to the Core Research Centre.

DDS generates an email notification to the submitter with the submission ID, as per below.



After the successful submission of data and the printing of the cover sheet you are now ready to submit the hard copy report package to the AER.

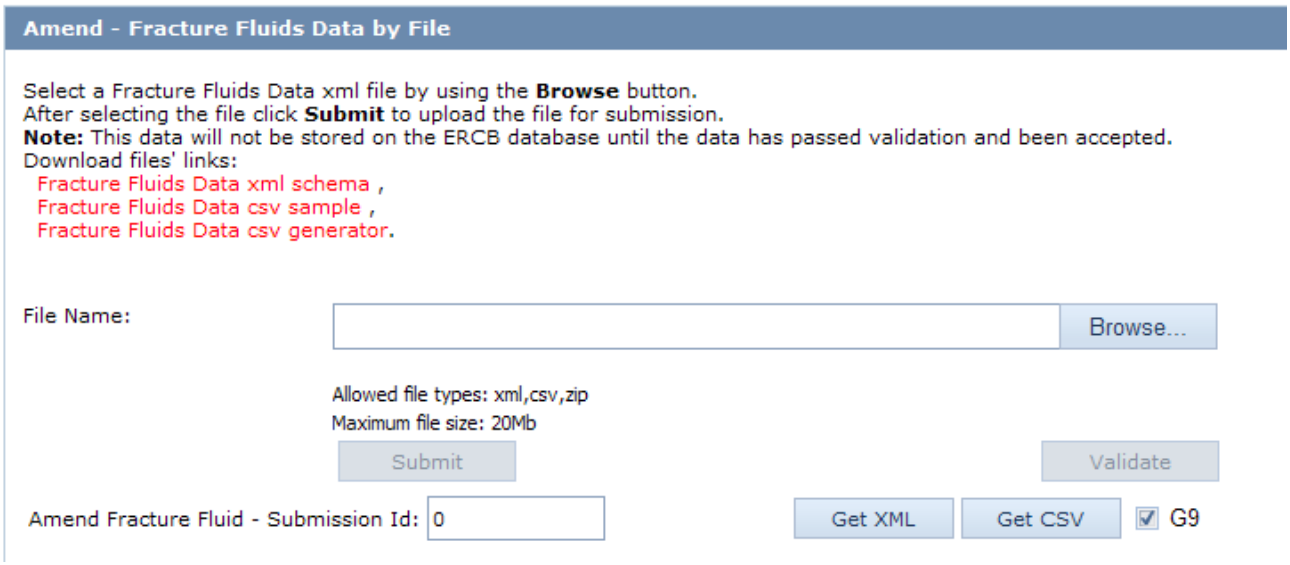
Next step: **Part D. Submit Paper Daily Reports Package to Core Research Centre (CRC)**, page 127.

*B.3 Validate and Amend Fracture Fluid by File

Fracture fluid data can only be amended if fracture interval data has been previously submitted through the DDS system.

This functionality allows the user to do the following:

- Update a previous XML or CSV file
- Validate an XML or CSV file without amending
- Amend an XML, CSV or zipped CSV file with automatic validation for errors



Process steps summary:

Step 1. Prepare the file to be uploaded. If updating or amending an XML file, refer to **B.3.1 Preparing an XML File for Amendment** on page 71.
If updating or amending a CSV file, refer to **B.3.2 Preparing a CSV File for Amendment** on page 72.

Step 2. Enter the submission ID for the original submission and either browse for the submitted file using the browse button or retrieve a copy through the “Get XML” or Get CSV buttons.
Use the G9 check box to include greater than 9 events sequence data. Note that fracture fluid data can for Greater than 9 event sequences can only be amended by form amendment.

Step 3. If you are not planning to submit for amendment but wish to validate the file, click the **Validate** button. If you want to amend and submit the file, click the **Submit** button.

Data that have errors will be displayed in red.

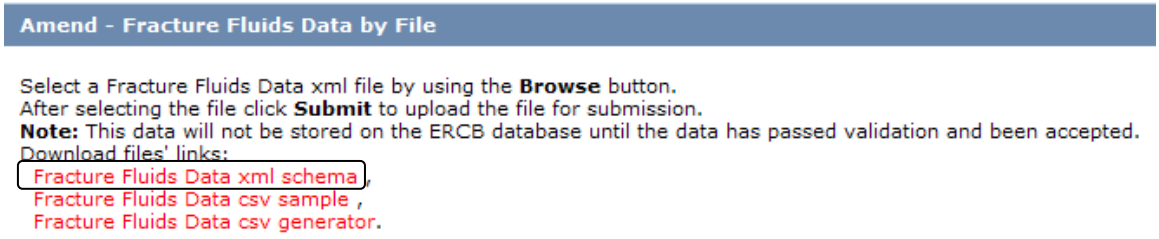
*For a list of business rules and edits, refer to the DDS homepage for **Fracture Fluid Composition Data**. On the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink.*

Step 4. If the amendment includes new data that has not been previously submitted to the AER Core Research centre, print the Cover Sheet. Attach it and submit together with a hard copy of the fracture job report. Sign and date the cover sheet to confirm that no personal information is contained in the report. Send the package to the AER Core Research Centre. There is no requirement for this (step 4) if the amendment does not involve new data that was not on the original fracture Job report.

B.3.1 Preparing an XML file for amendment

The DDS amendment process accepts data from an updated XML file format. The XML files should be in accordance with the AER prescribed format.

The XML template and schema can be downloaded from the ***DDS Well Drilling Completion Data submission system > Fracture Fluid Composition Data > Amend Fracture Fluid by File***, see below:



The link **Fracture Fluids Data xml schema** brings up the XML schema and template. The data must be consistent with the constraints and the lookup lists in Appendix C. Fracture Fluid Composition Data Submission Matrix.

To amend data on an originally submitted xml file

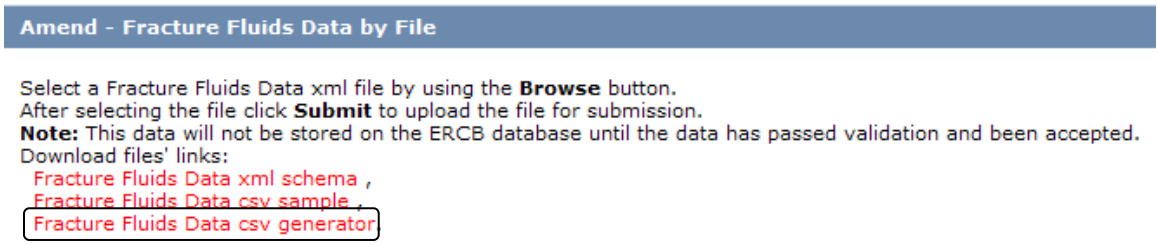
1. Use the browse function and retrieve the original submitted XML file or enter the submission ID. The submission ID must be entered in the Amend Fracture Fluid – submission ID box. Choose the Get XML option and the XML file from the original submission becomes available to be updated. This update can be done by manually entering the data within the XML tags

2. Once the edits have been made, 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.

B.3.2 Preparing a CSV File for Amendment

The DDS amendment process accepts data from an updated CSV file or a newly created spreadsheet in CSV file format. The CSV file must be in accordance with the AER prescribed format.

The CSV template can be downloaded from the ***DDS Well Drilling Completion Data submission system > Fracture Fluid Composition Data > Amend Fracture Fluid by file***, see below:



To amend data by submitting an entirely new CSV file, follow steps outlined in B.1.2. Depending on what is to be amended, the original data may have to be deleted before the new CSV file is submitted.

To amend data on a previously submitted CSV file:

1. Use the browse function and retrieve the original submitted CSV file or enter the submission ID. The submission ID must be entered in the Amend Fracture Fluid – submission ID box. Choose the Get CSV option and the CSV file from the original submission becomes available to be updated. This update can be done by manually entering the data within the CSV file

2. To insert or delete data on a previously submitted interval from a CSV file with multiple interval submissions; delete or add data from the interval of interest from the spreadsheet, save and upload the file.

3. To delete the entire data on a previously submitted interval, delete all data entry on the file while leaving the Licence Prefix, LicenceBody, Licence Suffix and UWI in place.

Delete all items in red font

It is recommended that you 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 all submissions using a CSV spreadsheets, the LicenceBody, LE code, unitOf Measure, maxConcinComp and maxConcinHydraulicFluid must be converted to text format to preserve the leading zeros and the required decimal places as stipulated in B.1.3 page 49 (Validation rules for batch submissions)

B.3.3 *Validation Rules for batch amendments*

The validation rules applicable to batch submissions (see B.1.3. page 49) also apply for batch amendments using the CSV and XML formats.

B.4 Amend Fracture Fluid by Form

This functionality allows the user to amend fracture fluid composition data through a web form and to do any of the following:

- Amend a current fracture fluid composition dataset 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

Process steps summary:

Step 1. In the **Wells tab**, enter a valid well licence number and select the UWI to amend. If amending fracture fluid for a well event greater than nine, the UWIs are listed under the title "Wells with Event Sequences Greater Than Nine".

Please note that you cannot amend fracture type, date or interval through this facility. If you wish to amend fracture type, date or interval you can do so by submitting an amendment request via the "Submit Amendment" menu item on the Well Drilling Completion Data menu. Note that if there is fracture fluid or water source data attached to the interval, these will have to be deleted before the change can be made.

Step 1 is described in **B.4.1 Wells Tab: Select a Licence and UWI** on page 76.

Step 2. Select the fracture interval or stage to amend the fracture data composition.

Navigate to the **Completions tab**. Scroll to the last column *Continue* corresponding to the reporting well and click the hyperlink **Completions**.

Step 2 is described in **B.4.2 Completions Tab: Select fracture interval record** on page 80.

Step 3. Amend existing and add new data corresponding to the carrier fluid, proppant and/or additive used in the fracture operation.

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

Step 3 is described in **B.4.3 Fracture Components tab: Amend Fracture Components** on page 82.

Step 4. Amend existing and add new data corresponding to the ingredient of each carrier fluid, proppant or additive used.

Navigate to the **Ingredients tab**. Scroll to the last column *Ingredients* corresponding to each of the fracture components (carrier fluid, proppant, additive) and click the hyperlink **Amend**. .

Step 4 is described in **B.4.4 Component Ingredients tab: Amend component ingredients** on page 85.

Step 5. Validate, submit and/or print the report after ALL amendments have been entered. Navigate to the **Amend & Print tab**.

Step 5 is described in **B.4.5 Validate, Amend and Print** on page 89.

Step 6. Please note that if the hard copy reports have not changed and have already been submitted to the Core Research Centre, they do not have to submitted again..However if the hard copy reports have been submitted and have changed then they must be resubmitted.

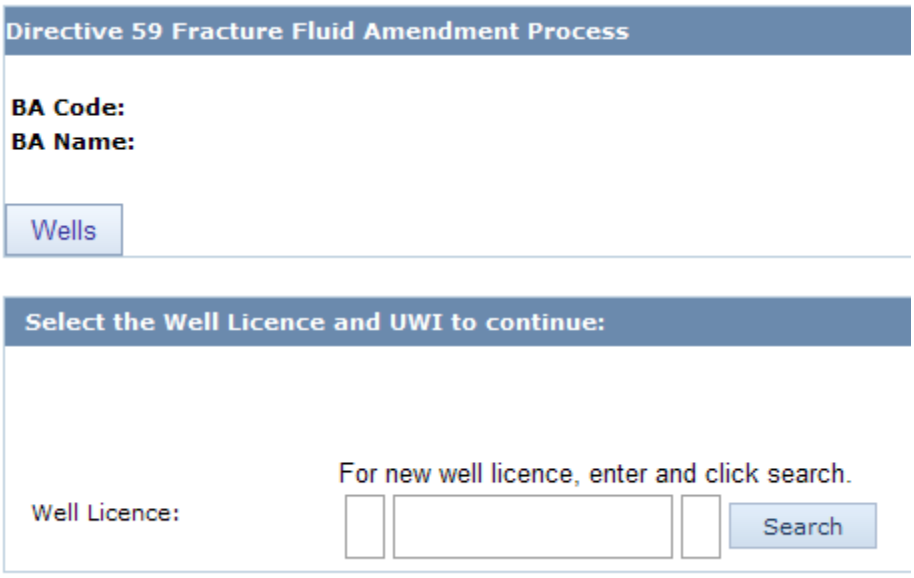
Attach the printed cover sheet to the paper daily reports of operations from which the electronic submission data were derived, provided associated operations information has not already been submitted with the Completion Operations hard copy records. Sign and date the cover sheet to confirm that no personal information is contained in the report. Send the package to the Core Research Centre.

Step 6 is described in **Part D. Submit Paper Daily Reports Package to Core Research Center (CRC)** on page 127.

B.4.1 Wells Tab: Select a Licence and UWI

{Section 4, pages 24-27 of Directive 059}

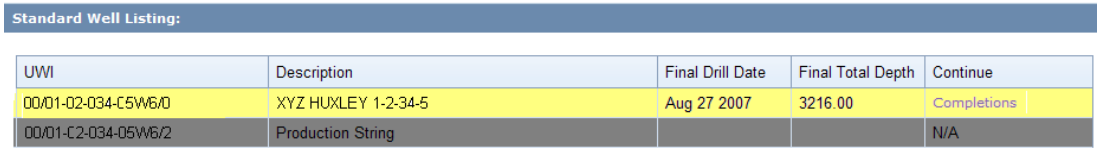
The **Wells tab** allows the user to enter a valid licence number and then select the UWI, including UWIs with event sequences greater than nine, to amend the fracture fluid composition data.



- Enter a valid 7 digit well licence number including leading zeroes.

  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. If the UWI is a production string (i.e. a completed zone), it is greyed out and cannot be selected. Fracture Fluid composition data are only reportable for drill legs.



- Select the UWI to amend data on by clicking on it.

- After the UWI has been selected, you are ready to select the fracture interval record to amend data on.

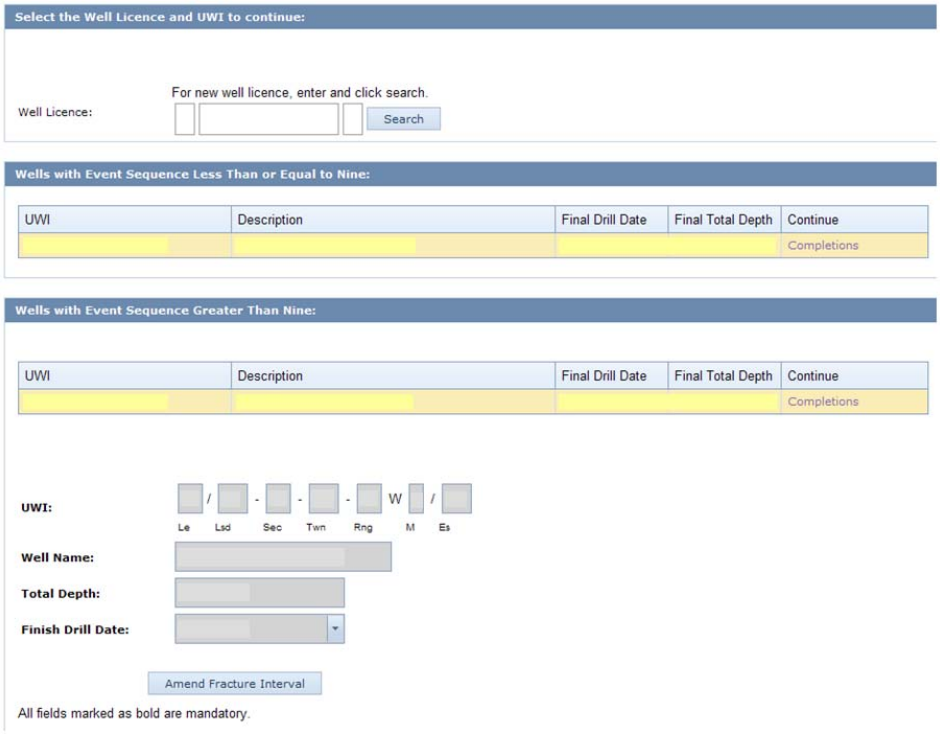
Data Amendment for a Well with More than Nine Event Sequences

{Section 4.3.3, pages 30-31 of Directive 059}

The fracture type, date and interval in addition to the fracture fluid composition data for a fractured event sequence (ES) greater than nine can be,amended via the web form. Fracture type, date, interval and fluid composition data cannot be amended via batch file (XML or CSV) for event sequences greater than nine.

Well sequences greater than nine cannot have the UWI, Well Name, Total Depth or Finish Drill Date amended via the amend by form facility. This should be done via the “Save or Submit Fracture Fluid By Form” facility.

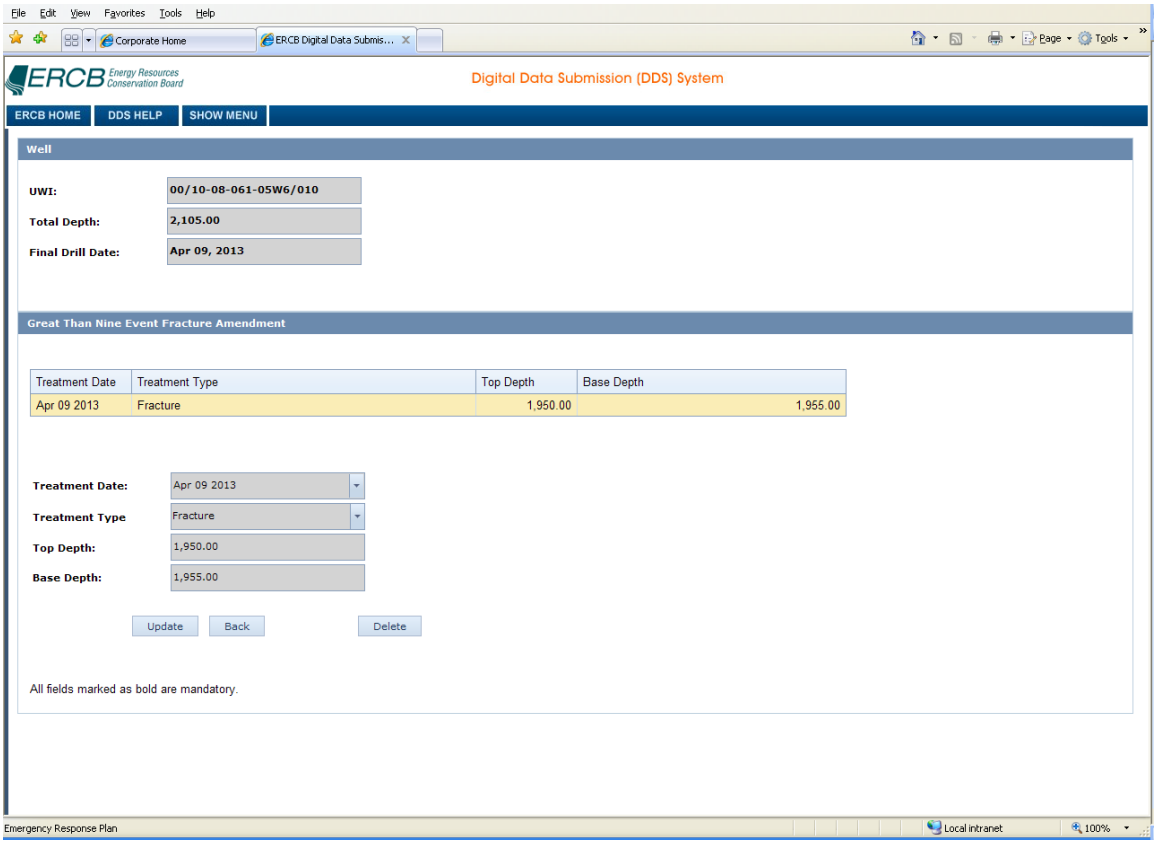
After a valid well licence number has been entered for a well that has had fracture fluid composition data entered for event sequences greater than nine , the Extended Well Listing will appear at the bottom of the page.



o Amend a fracture interval record by selecting the desired UWI and then clicking on the **Amend Fracture Interval** button.

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

- Click the **Update** button to enable the form or **Back** to go back to the **Wells tab**.



- Amend the **Treatment Date** as the date the interval was fractured.

  The Treatment Date must be on or after the Finish Drill Date.

- Amend the **Treatment Type** between ‘Fracture’ or ‘Multi-Stage Fracture’.

- Amend the top depth of the interval under **Top Depth**.

  The value must be between 6 mKB and Total Depth and must be less than the Base Depth.

- Amend the base depth of the interval under **Base Depth**.

  The value must be between 6 mKB and Total Depth and must be greater than the Top Depth.

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

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

- **Fracture intervals may also deleted by clicking Delete however this will also delete all associated fracture fluid data attached to the selected interval**. Click **Back** to go back to the **Wells tab**.

You are now ready to select the fracture interval record to report data on.

Next step: **B.4.2 Completions Tab: Select fracture interval record,** pages 80 to 81.

B.4.2 Completions Tab: Select fracture interval record

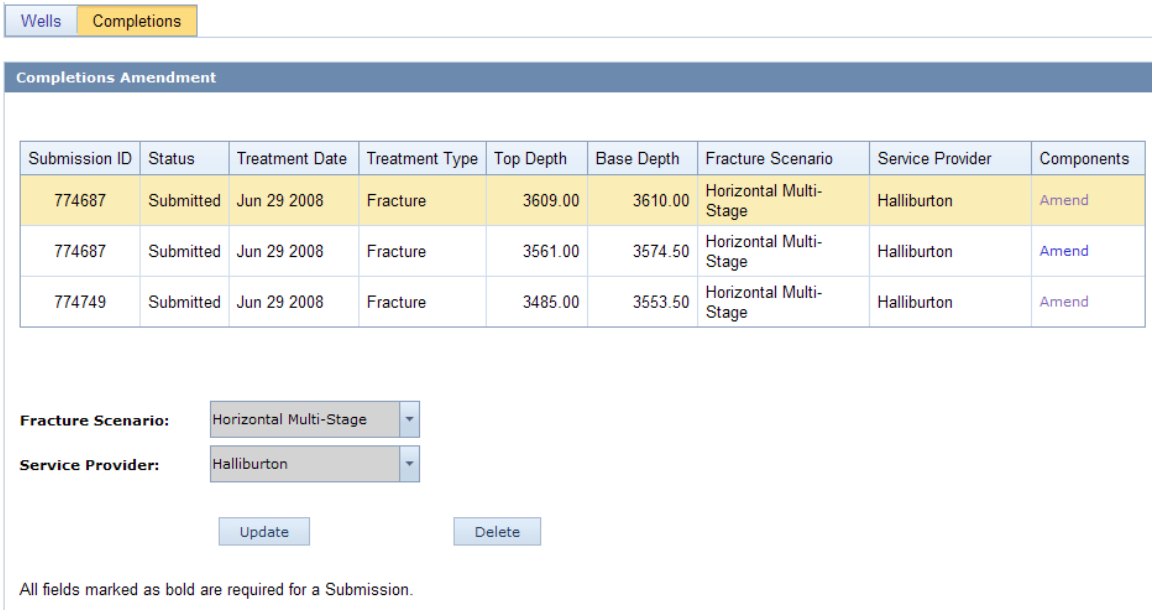
{Section 4, pages 24-27 of Directive 059}

The **Completions Tab** allows the user to select the fracture interval record to amend data on including the service provider and the fracture scenario. This tab is reached by clicking the **Completions** hyperlink under the *Contine* column on the **Wells tab**.

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.

Other completion types (e.g. perforation, etc) are not displayed. 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 50 fracture interval records per UWI.



- Highlight the fracture interval to report by clicking on it.
- Click the **Update** button at the bottom of the page to enable the form.

  To amend the fracture scenario and service provider click on the **Update** button.
- Select the **Fracture Scenario** from the drop down list.

  Identify the closest well bore configuration applicable on the reporting interval.
- Select the **Service Provider** from the drop down list.

If the fracture scenario or service provider is not on the drop down list and needs to be added as an option on the list, send an amendment to the AER Well Data Services to have the fracture

scenario or new service provider added to AER's reference table. Refer to **B.4 Adding an item to a Reference Table** on page 94.

- **Save** the record or click **Cancel** to undo.
- Continue to amend fracture scenario and service provider as needed for other fracture interval records.
- Clicking **Delete** will delete the fracture scenario and service provider for the selected interval. It will also delete all the associated fracture fluid components and ingredients
- After the fracture scenario and service provider are amended, click the **Amend** hyperlink under the Components column for the selected interval to continue amending fracture component data in the next tab, if required.

You are now ready to amend fracture component data for each of the selected fracture intervals.

Next step: **B.4.3 Fracture Components Tab: Amend fracture components,** pages 82 to 83.

Navigating within the Completions page

❶	**Save**	Saves data entered.
❷	**Cancel**	Cancels the current activity.
❸	**Update**	Enables the greyed out items to be edited.
❹	**Delete**	Deletes the selected record (fracture scenario and service provider) and any associated components and ingredients.
❺	**Amend** hyperlink (Components column)	Opens the Fracture components tab.

B.4.3 Fracture Components tab: Add and Amend Fracture Components

{Section 4, pages 24-27 of Directive 059}

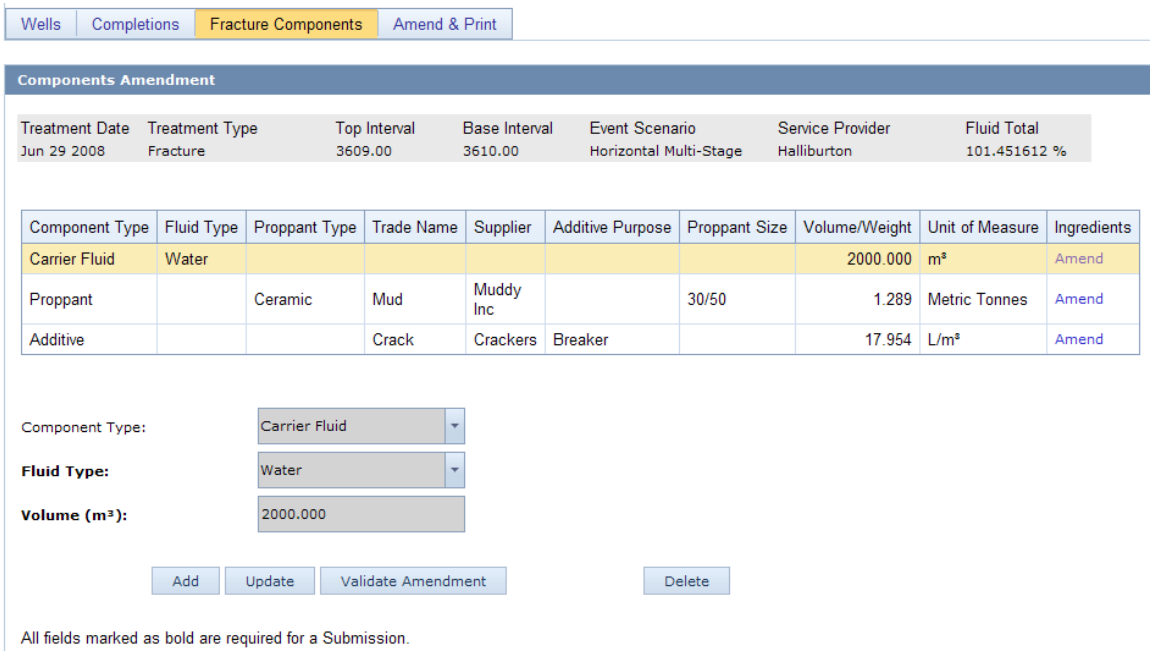
The **Fracture Components tab** allows the user to amend existing or add new data on the components of the fracture fluid pumped into the wellbore at each interval or stage. Each fracture component is categorized into three types: as a Carrier Fluid, a Proppant or an Additive.

At the top of the page, the reporting fracture interval including treatment date, the fracture scenario and service provider for the fracture operation are displayed. Ensure the correct fracture interval is displayed prior to continuing to enter fracture component data.

The middle of the page displays fracture component data as it is being added or amended. The Fluid Total sums up the Maximum Concentration of the Hydraulic Fluid once it is added or amended for each of the component ingredients.

The bottom of the page displays the data entry fields.

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



- Highlight the component you wish to amend or if you wish to add another component proceed to the next step below.
- To add a new component, click the **Add** button at the bottom of the page to enable the data entry form. To amend an existing component, click the **Update** button.
- Select the **Component Type** from the drop down list, if required.

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.

- If adding or amending a carrier fluid, select **Carrier Fluid** from the drop down. Note that carrier fluids are mandatory when submitting fracture fluid data.

  If the fluid type is not on the drop down list, identify the closest fluid type. If there is no fluid type close enough to describe the carrier fluid used in the wellbore, send an amendment to the AER Well Data Services to have this type added to AER's reference table. Refer to **B.4 Adding an item to a Reference Table** on page 94.

  - Enter or amend the carrier fluid **Volume** in cubic metres.
  - **Save** the carrier fluid record or click **Cancel** to undo
  - Continue entering or amending other carrier fluids used for the fracture interval as required.

- 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.

  - Enter or amend the Trade Name, if applicable.
  - Enter or amend the name of the **Supplier**
  - Select the proppant **Size** from the drop down list
  - Enter or amend the **Weight** of the proppant used in metric tonnes.
  - **Save** the proppant record or click **Cancel** to undo
  - 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, identify the closest type. If there is no type close enough to describe the proppant used, or if the proppant size is not on the list, send an amendment to the AER Well Data Services to have the proppant type or size added to AER's reference table. Refer to **B.4 Adding an item to a Reference Table** on page 94.

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

  - Enter or amend the **Trade Name**
  - Enter or amend the name of the **Supplier**
  - Select the **Purpose** from the drop down list
  - Enter or amend the **Volume/Weight** of the additive and select the **Unit of Measure** from the drop down list.

  The volume must be expressed in standard temperature and pressure of 15°C and 101.325 kPa.

- **Save** the additive record or click **Cancel** to undo
- Continue entering or amending other additives used for the fracture interval as required.

If the additive purpose is not on the drop down list, identify the closest that can describe the purpose of the additive used. If additive purpose or if the unit of measure is not in the drop down list, send an amendment to the AER Well Data Services to have a new additive purpose or unit of measure added to AER's reference table. Refer to **B.4 Adding an item to a Reference Table** on page 94.

o After all carrier fluid(s), proppant(s) and additive(s) have been added or amended, click the **Amend** hyperlink under the *Ingredients* column to continue entering or amending ingredient data for each of the carrier fluid(s), proppant(s) and additive(s).

You are now ready to add component ingredients.

Next step: **B.4.4 Component Ingredients Tab: Enter component ingredients,** pages 85 to 88.

Navigating within the Fracture Components page

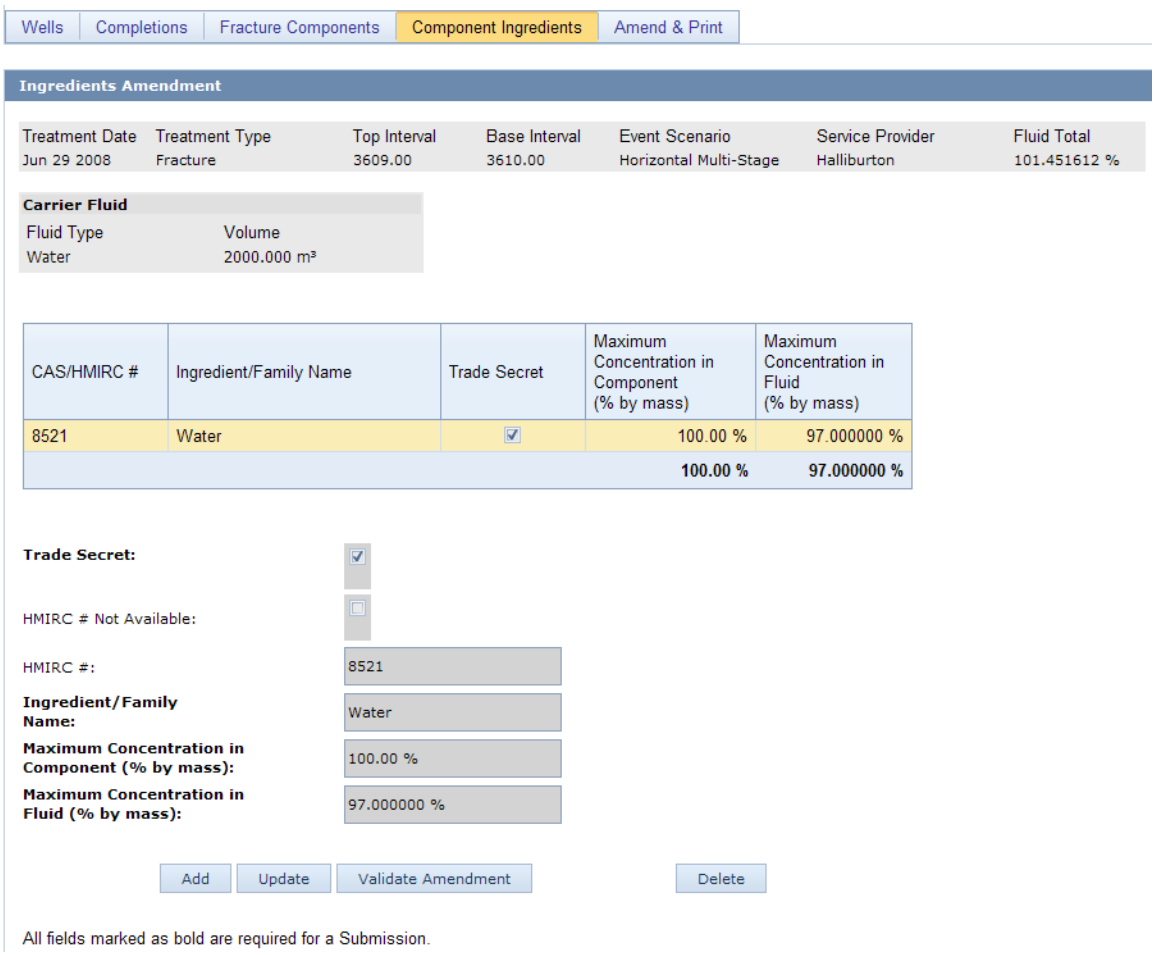
❶	**Add**	Adds a new component type. Enables the data entry fields.
❷	**Save**	Saves data entered.
❸	**Cancel**	Cancels the current activity.
❹	**Update**	Enables the greyed out items to be edited.
❺	**Delete**	Deletes the component type. **NOTE:** This will delete all data associated with the component being deleted, including ingredients, if any.
❻	**Validate Submission**	Validates the data entered so far in the submission. **NOTE:** At this point in the submission, an ERROR message will be displayed when mandatory data has not been submitted. . Error message icon – submission will be denied.
❼	**Amend** hyperlink (Ingredients column)	Opens the Component Ingredients tab.

B.4.4 Component Ingredients tab: Add or amend component ingredients

{Section 4, pages 24-27 of Directive 059}

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 HMIRC (Hazardous Material Information Material Commission) # if available and to select Not Available if not.

The top of the page displays the reporting fracture interval including treatment date, the fracture scenario and the service provider of the fracture operation. The fracture fluid component and its details, for which ingredient data is being entered or amended, are also displayed.



The middle of the page displays the data for each ingredient as it is being entered or amended. As each ingredient is entered or amended and saved, the system calculates the sum of each ingredient's maximum concentrations:

> **Maximum Concentration in Component** (% by mass) of ALL ingredients in each fracture component should be <u>greater than 100%.</u>

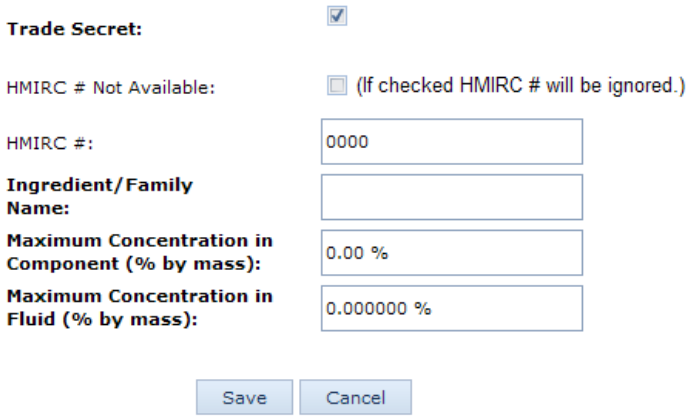
The **Maximum Concentration in Fluid** (% by mass) of ALL ingredients for ALL fracture components for the fracture interval should be between and including 100 – 150%.

As an example on how this is calculated, refer to **Calculating Maximum Concentration** on page 88.

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

- Click the **Add** button at the bottom of the page to enable the data entry form and enter a new ingredient or click the **Update** button to amend an existing ingredient.

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



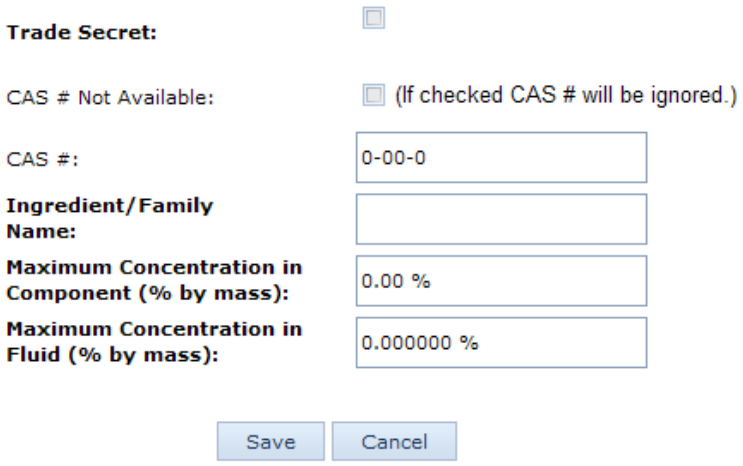
  - If the HMIRC # is not available, check the **HMIRC # Not Available** check box. It is assumed that the ingredient is nonhazardous if no HMIRC # is available.

  - Enter the **HMIRC** four digit **#** if the ingredient is hazardous

  Note that 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 NOT a trade secret, leave the **Trade Secret** check box unchecked.



- If the CAS # is not available, check the **CAS # Not Available** check box
- Enter the **CAS #**

  Note that 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).

o Enter or amend the **Ingredient/Family Name**

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

  If a trade secret, whether hazardous or nonhazardous, enter the chemical family name. Otherwise, enter the ingredient name.

o 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).

o 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.

o **Save** the ingredient record or click **Cancel** to undo

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

o After all ingredients for each component have been entered or amended, enter the ingredients for the next component. To do this, click on the **Fracture Component tab**, highlight the component record and click the **Amend** hyperlink on the record to report ingredients.

After all components have all their ingredients entered, you are ready to validate and submit.

Next step: Revert to **B.2.5 Validate, Amend and Print,** pages 67 to 68.

Navigating within the Component Ingredients page

①	**Add**	Adds a new component ingredient. Enables the data entry fields.
②	**Save**	Saves data entered.
③	**Cancel**	Cancels the current activity.
④	**Update**	Enables the greyed out items to be edited.
⑤	**Delete**	Deletes the component ingredient.
⑥	**Validate Submission**	Validates the data entered so far in the submission. **NOTE:** An ERROR message will be displayed when mandatory data has not been submitted or if business rules have been breached. A warning message will appear when the data entered may need to be reviewed prior to submission. Error message icon – submission will be denied. Warning message icon – submission will be allowed.

Maximum Concentration (An example)

Maximum Concentration in Component and in Fluid in percentage by mass as Ingredients must be entered.

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.

Allowed values: ≥100%

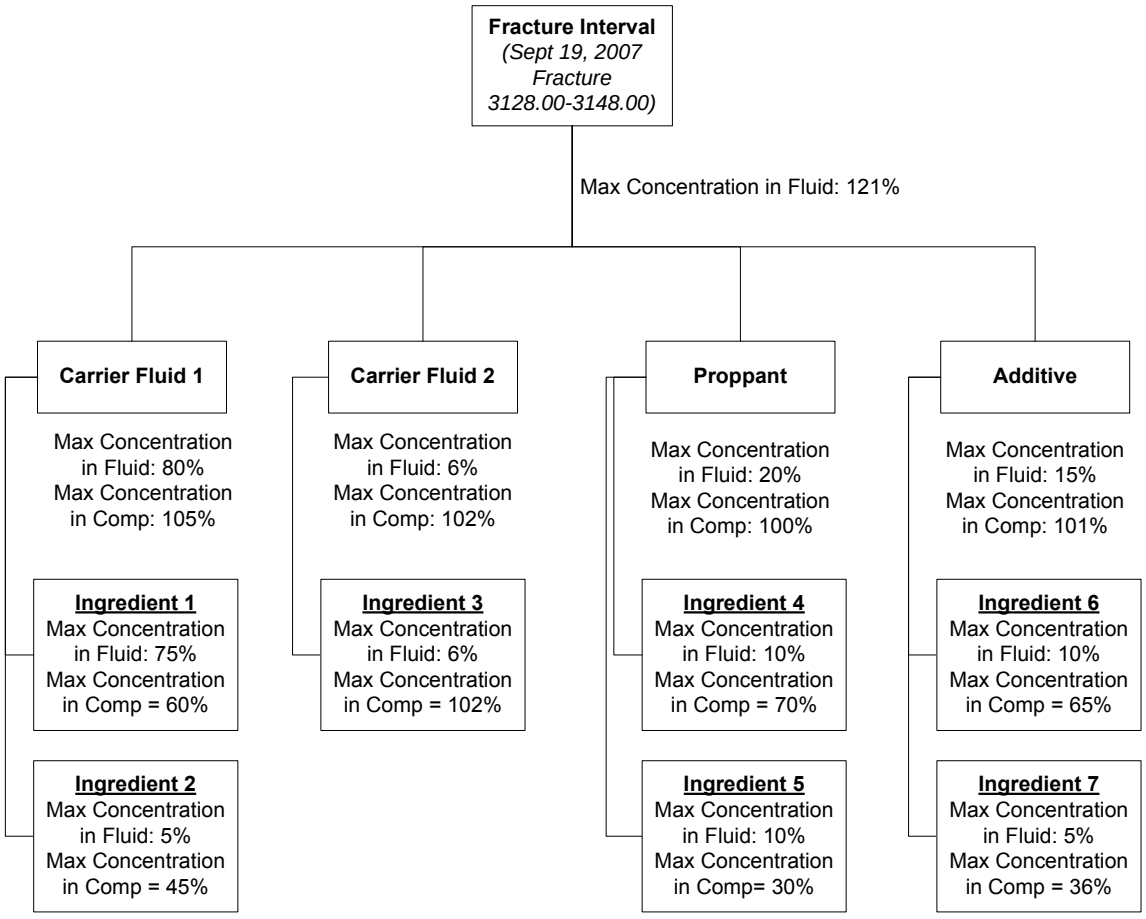
ERROR: Less than 100% (Submission rejected)
WARNING: ≥100% (Submission allowed)

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.

Allowed values: 100 – 150%

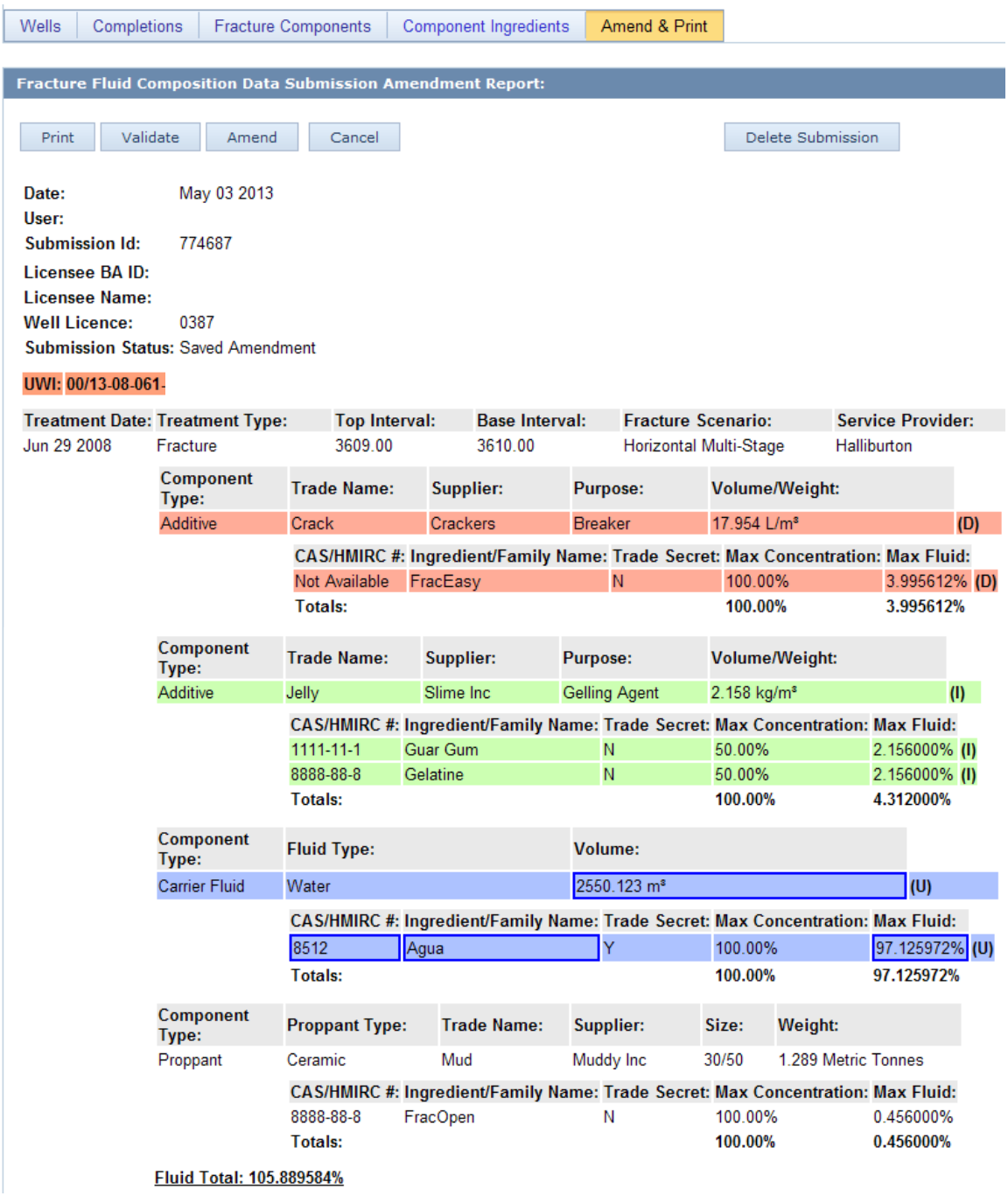
ERROR: Less than 100%; More than 150% (Submission rejected)
WARNING: 100 – 150% (Submission allowed)



B.4.5 Validate, Amend and Print

Whenever the **Save** button is clicked while proceeding through an amendment submission by form the data is saved as part of a saved amendment submission. The system automatically saves the amendment submission for 14 calendar days from last modified date. Any saved amendment submission that remains unsubmitted without being modified will be automatically deleted after 14 calendar days.

Details of the saved amendment submission can be seen by clicking on 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, see the screenshot below for an example. Please note that the colour coding does **not** carry through to the submission report once the amendment has been submitted. Please 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)

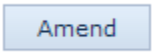
CAS/HMIRC #:	Ingredient/Family Name:	Trade Secret:	Max Concentration:	Max Fluid:	
8512	Agua	Y	100.00%	97.125972%	(U)
Totals:			**100.00%**	**97.125972%**	

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%

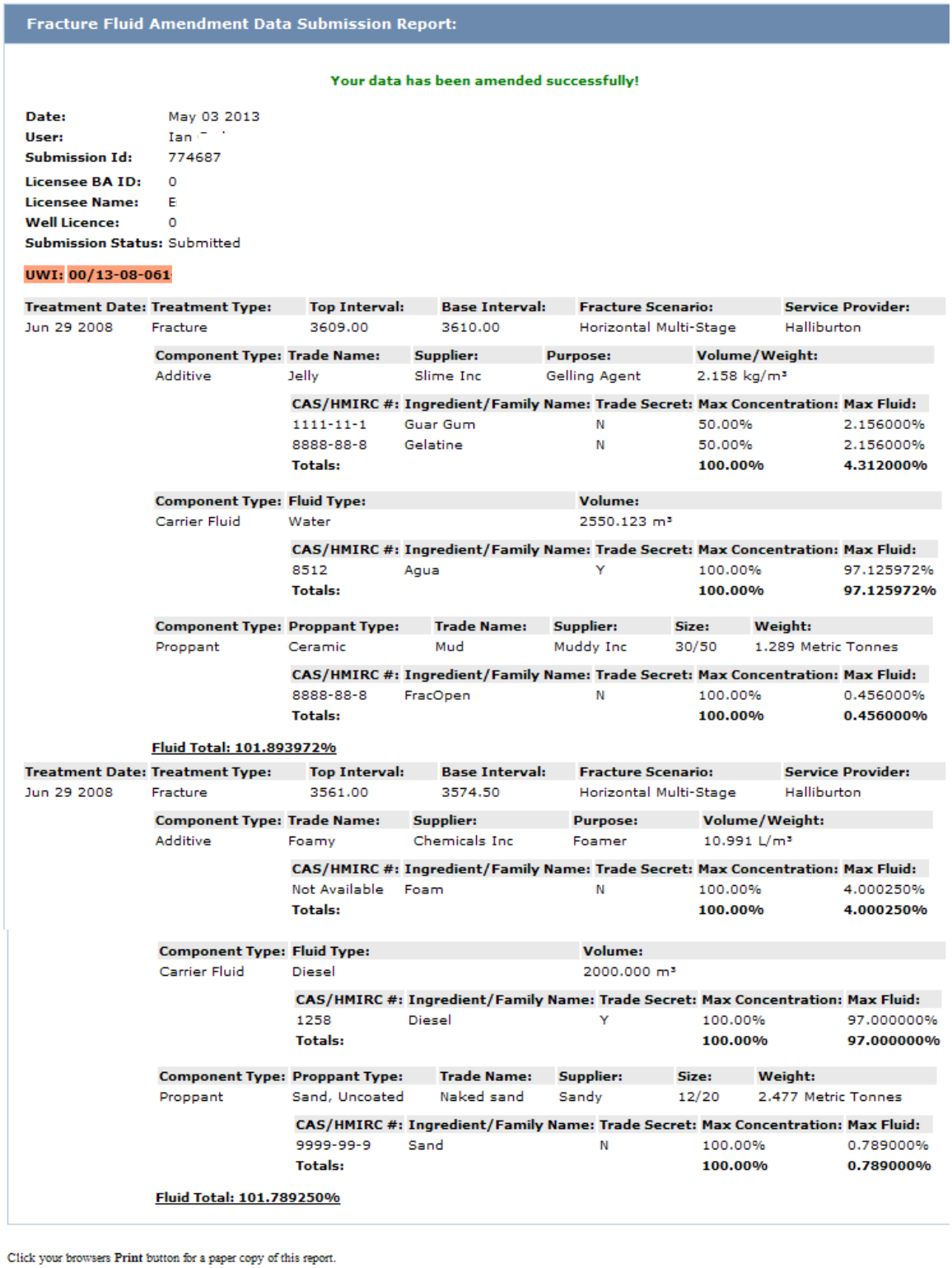
The **Amend & Print** page displays the following five buttons for selection:

	Displays a new window showing all the data under the saved submission. In order to print to a destination printer, click the browsers File > Print menu or print icon.
	Validates data in the saved submission against business rules in the DDS system. **NOTE:** ERROR messages will be displayed when mandatory data has not been submitted or if business rules have been breached.
	Validates and submits the amended data to the AER.
	Cancels all amendments to the dataset and reverts to the original data before any amendments were made.
	Permanently deletes all fracture fluid data.

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

*For a complete list of business rules and edits, refer to the DDS homepage for **Fracture Fluid Composition Data**. On the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink.*

On a successful submission, a confirmation message appears in the page with the submission ID.



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

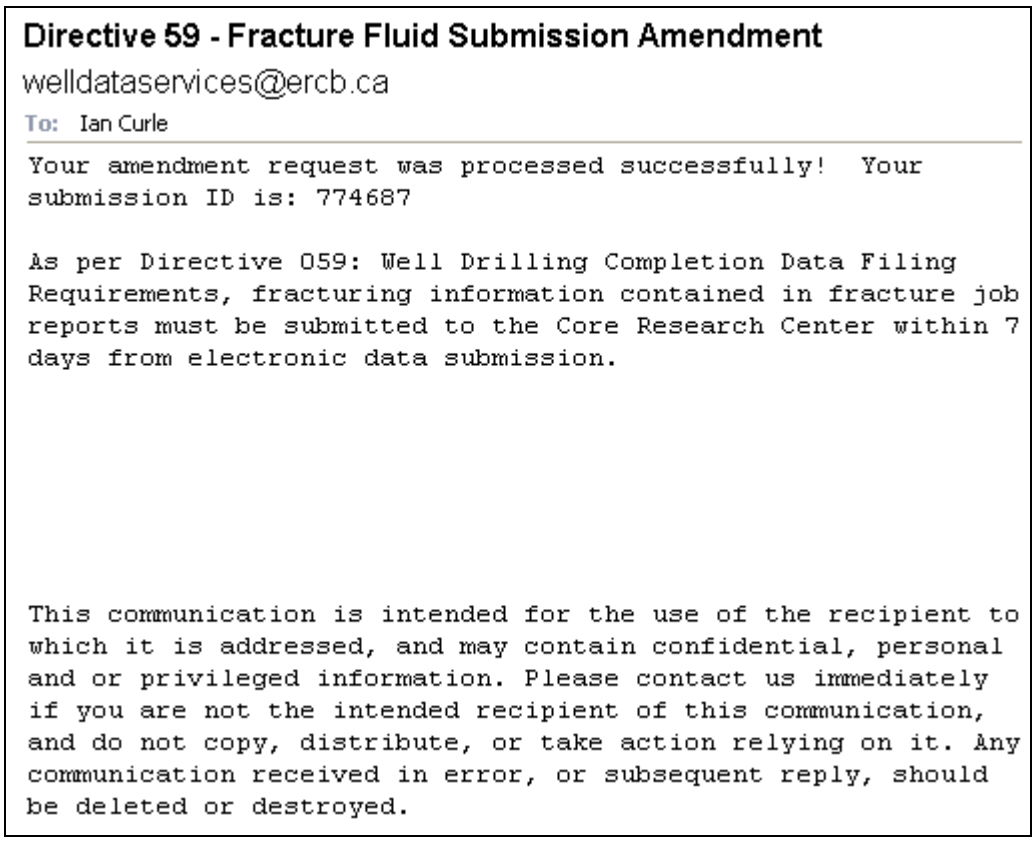
CAS/HMIRC #:	Ingredient/Family Name:	Trade Secret:	Max Concentration:	Max Fluid:
9999-99-9	Sand	N	100.00%	0.789000%
Totals:			**100.00%**	**0.789000%**

Fluid Total: 101.789250%

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

Click on the **Cover Sheet** button. The cover sheet is displayed in a new window. Print using the browsers File > Print menu or print icon and submit together with a hard copy of the fracture job report to the Core Research Centre. Please note that if the hard copy reports have not changed and have already been submitted to the Core Research Centre, they do not have to submitted again. However if the hard copy reports have changed, these must be resubmitted.

DDS generates an email notification to the submitter with the submission ID, as per below.



Directive 59 - Fracture Fluid Submission Amendment

welldataservices@ercb.ca

To: Ian Curle

Your amendment request was processed successfully! Your submission ID is: 774687

As per Directive 059: Well Drilling Completion Data Filing Requirements, fracturing information contained in fracture job reports must be submitted to the Core Research Center within 7 days from electronic data submission.

This communication is intended for the use of the recipient to which it is addressed, and may contain confidential, personal and or privileged information. Please contact us immediately if you are not the intended recipient of this communication, and do not copy, distribute, or take action relying on it. Any communication received in error, or subsequent reply, should be deleted or destroyed.

After the successful submission of data and the printing of the cover sheet you are now ready to submit the hard copy report package to the AER.

Next step: **Part D. Submit Paper Daily Reports Package to Core Research Centre (CRC)**, page 127.

B.5 Review Submitted data

The **Save or Submit Fracture Fluid by Form** functionality allows all fracture fluid data under a well licence to be viewed (for previous submissions) or modified (for saved but not submitted entries).

To do this, enter a valid well licence number. The system will display all fracture fluid data under that well licence.

Completions:

Treatment Date	Treatment Type	Top Depth	Base Depth	Fracture Scenario	Service Provider	Components
Feb 21 2008	Fracture	3265.00	3266.00			Add
Feb 21 2008	Fracture	3232.00	3233.00			Add
Feb 22 2008	Fracture	3140.00	3141.00	Horizontal Liner Hole	Gasfrac	View ❶
Feb 23 2008	Fracture	3068.00	3068.50	Directional Single Stage	Halliburton	View
Feb 23 2008	Fracture	3050.00	3061.00			Add
Feb 26 2008	Fracture	2950.50	2965.00	Horizontal Cased Hole	Sanjel	Edit ❷
Feb 27 2008	Fracture	2874.00	2877.00			Edit
Mar 01 2008	Fracture	2809.00	2812.00			Add
Mar 05 2008	Fracture	2613.00	2616.00			Add ❸
Mar 09 2008	Fracture	2573.50	2599.00			Add

Saved submission(s)

Fracture fluid data that have been saved within 14 days from the last modification will be displayed.

Edit hyperlinks ❷ allow navigation from one saved record to another. Buttons like Add, Delete, Update and Validate that the system shows during the creation of a new submission will be displayed when in Edit mode.

Add hyperlinks ❸ allow new records to be added to the saved submission. Follow the same process as you would when creating a new submission.

Data can be modified for those in the **Edit** and **Add** modes.

Submitted data

Fracture fluid data that have been previously submitted will also be displayed.

A **View** hyperlink ❶ allows navigation from one tab to another and to view data already submitted.

Data **cannot** be modified.

B.6 Adding an item to a Reference Table

The following data requirements have a finite list of selections from system reference tables:

Fracture Fluid Composition:

- Fracture Scenario,
- Service Provider,
- Carrier Fluid Type,
- Proppant Type,
- Proppant Size,

- Unit of Measure and
- Additive Purpose.

For a complete list of these selections, refer to Appendix C. Fracture Fluid Composition Data Submission Matrix.

Fracture Fluid Water Source:

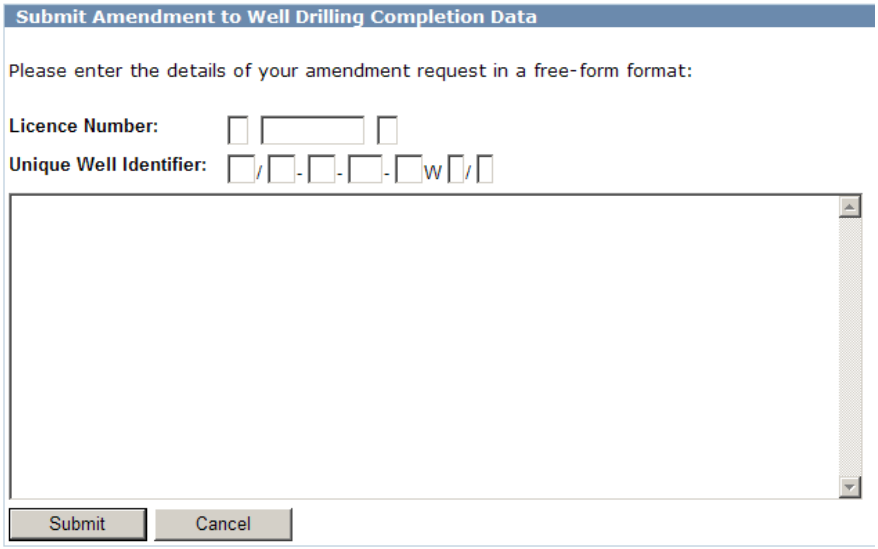
- Water Type,
- Name of Geological Zone and
- Diversion Authorization Type

For a complete list of these selections, refer to Appendix D. Fracture Fluid Water Source Data Submission Matrix.

A submission may have a value that is not available in the selection. If this is the case, choose the closest value. If there is no appropriate option, then follow the procedure below.

Process steps:

Step 1. Submit a DDS amendment through the Well Drilling Completion Data submission system.



   - Enter the Licence Number and the UWI of the event sequence that was fractured.
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.)

Step 2. AER will communicate with the DDS amendment submitter if additional clarification is required.

AER will determine validity of the new item and communicate its decision to the DDS amendment submitter.

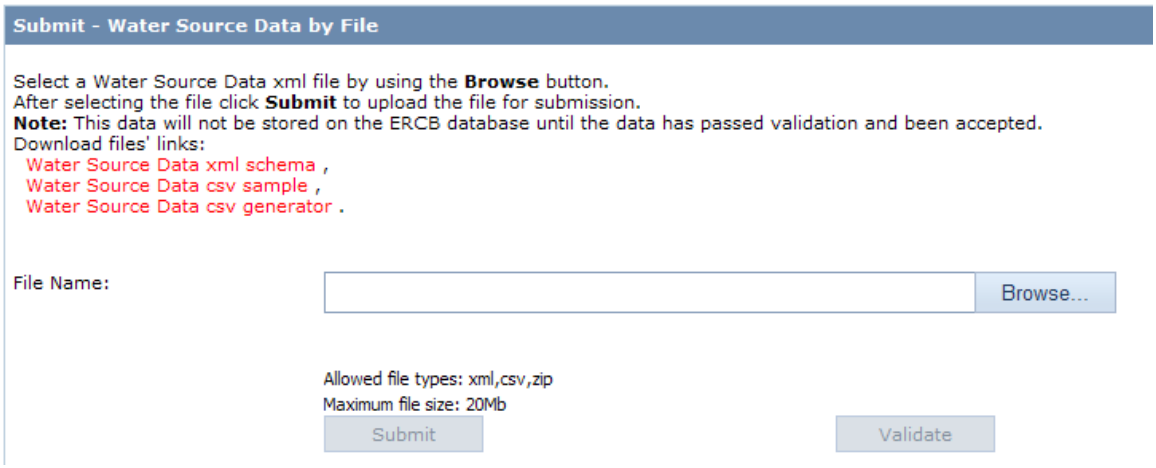
Part C. Fracture Fluid Water Source Data

C.1 Validate and Submit Water Source by File

Please note that this data is only required for well event sequences that have been fractured using water-based carrier fluids.

This functionality allows the user to do the following:

- Validate an XML file without submission
- Submit an XML file with automatic validation for errors



Process steps summary:

Step 1. Prepare the file to be uploaded.

If preparing an XML file, refer to **C.1.1 Preparing an XML File for Submission** on page 98.
If preparing a CSV file, refer to **C.1.2 Preparing a CSV File for Submission** on page 99.

Step 2. Using the **Browse** button, locate the XML or CSV file to be validated or submitted.

Step 3. If you are not planning to submit but wish to validate the file, click the **Validate** button.
If you want to submit the file, browse the file to be uploaded and click **Submit**.

Data that have errors will be displayed in red.

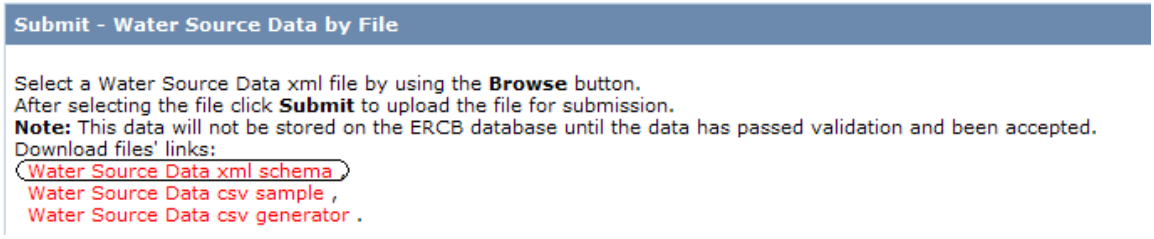
*For a list of business rules and edits, refer to the DDS homepage for **Fracture Fluid Water Source Data**. On the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink.*

There is no requirement to print the cover sheet and the submission report and send to the AER Core Research Centre,

C.1.1 Preparing an XML file for submission

The DDS submission system can accept data prepared in XML file format. The XML file must be in accordance with the AER prescribed format.

The XML template and schema can be downloaded from the ***DDS Well Drilling Completion Data submission system > Fracture Fluid Water Source Data > Validate and Submit Water Source by File***, see below:



The link **Water Source Data xml schema** brings up the AER XML schema and template. The data should be consistent with the constraints and the lookup list (refer to Appendix D. Fracture Fluid Water Source Data Submission Matrix).

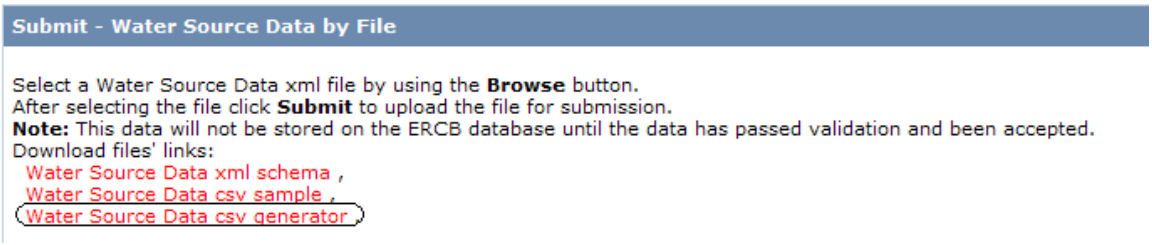
1. Create a new XML file from the downloaded AER XML template. This can either be done through an internal system that produces an AER compliant XML file or by manually entering the data within the XML tags.

2. After all data has been entered, save the file with an XML file extension. Files can only have data for one well licence. The XML file can also be prepared as a zip file for later submission. Zip files can only contain one file.

C.1.2 Preparing a CSV File for Submission

The DDS submission system can only accept data created within a spreadsheet if the file is in CSV file format. The CSV file must be in accordance with the AER prescribed format.

The CSV template can be downloaded from the ***DDS Well Drilling Completion Data submission system > Fracture Fluid Water Source Data > Validate and Submit Water Source by File***, see below:



The **Water Source Data csv generator** link brings up the CSV template. This template contains data sample as well as lookup lists as per to Appendix D. Fracture Fluid Water Source Data Submission Matrix. Please note that the csv generator works best with Excel 2010. Users use the csv generator at their own risk.

Please also note that data entered into the csv generator and saved as a csv file may be subject to Excel specific formatting which will render the file unacceptable to the AER validation. Examples include but are not restricted to the following:

- removal of leading zeroes from well licence numbers;
- reversion to a single 0 in the le column (this needs to be two zeroes (00);
- removal of trailing zeroes on data that requires a specific number of decimal places (e.g. maximumDiversionRate)

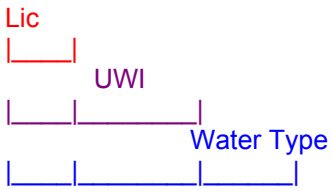
Through experience, it has been found that this happens if a csv file is saved, closed and then reopened in Excel. To avoid this, it is recommended to validate or submit the file while it is still open or to submit from a saved and closed state.

1. Copy a new CSV file from the downloaded AER supplied template.
   Please note the following:

   - The column sizes can be adjusted;
   - Additional columns cannot be inserted or added;
   - The order of the columns cannot be changed.
   - Note restrictions on number of UWIs

	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	#ERCB-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		0020970		1	00	1	1	1	1	W	4	0	Surface Water - River	49.637821

   Also note that the row must be duplicated up to the point where the data changes. As an example, the licence and UWI must be copied for each of the water types.



2. Enter the data in the row immediately after the data labels starting with row 3.

    - A series of numbers that start with a 0 should be entered with an apostrophe (e.g. licence 0401234 is entered as ‘0401234)
    - Data containing double quotes, and commas should be enclosed in double quotes (e.g. “Ali’s Alcohols, ethoxylated #22” is entered as ““Ali’s Alcohols, ethoxylated #22””)
    - Line fields within a data field are not allowed

    When preparing CSV file submission, there can only be one well licence number per CSV file submission. Each CSV file cannot have multiple worksheets or tabs.

3. After all data has been entered, 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.

C.1.3 Validation rules for batch submissions

1. File constraints

Each XML and CSV file submission 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 web form.
- Up to 50 water types for each UWI

2. Schema validation

*For a complete list of business rules and edits, refer to the DDS homepage for **Fracture Fluid Water Source Data**. On the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink.*

Data Element	Data Description	Schema Validation
	License	
licencePrefix	The alpha character at the beginning of the numeric licence number, if applicable, as assigned by the AER. Only exists for older licences.	Optional. String, 1 character. Value must be from A to Z except the following: E to H, T to W.
licenceNumber	A 7 digit number assigned by the AER for an approved well application.	Mandatory. Integer, 7 digits. **Include leading 0's**
licenceSuffix	The alpha character at the end of the numeric licence number, if applicable, as assigned by the AER. Only exists for older licences.	Optional. String, 1 character. Value must be from A to Z.
	UWI	
		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.	Mandatory. Value must be 1.
LE	Location Exception code of the UWI.	Mandatory. String value, 2 characters If string, value must be from AA to HZ except I or O. If numeric, value must be from 00 to 99 except for 01. Can also accept F, O, S or W as the first character. Second character is numeric 0 to 9 except 1.

Data Element	Data Description	Schema Validation
LSD	Legal Subdivision portion of the UWI.	Mandatory. Integer, 2 digits. Value must be from 1 to 16.
SEC	Section portion of the UWI.	Mandatory. Integer, 2 digits. Value must be from 1 to 36.
TWP	Township portion of the UWI.	Mandatory. Integer, 3 digits. Value must be from 1 to 126.
RGE	Range portion of the UWI.	Mandatory. Integer, 2 digits. 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.	Mandatory. Value must be W or w.
M	Meridian portion of the UWI.	Mandatory. Integer, 1 digit. Value must be 4, 5 or 6.
ES	Event sequence portion of the UWI.	Mandatory. Integer, 1 digit. Value must be 0 to 9 except 1.
Water Source Type		
waterType	Classification of source water	Mandatory. String enumeration. Value must exist in the Reference Table (refer to Appendix D)
latitude	Latitude of water source location	Mandatory. Decimal “99.999999” format.
longitude	Longitude of water source location	Mandatory. Decimal “999.999999” format.
waterBody	Name of water body	String, 80 characters. Mandatory for surface water river and lake only; NULL for the other water types.
geologicalZone	Name of geological zone	String enumeration. Mandatory for the 3 ground water types; NULL for the other water types.
supplierName	Name of water supplier	String, 30 characters. Mandatory for the 2 waste water types, municipal water and central water distribution; NULL for the water other types.
facilityName	Name of water source facility	String, 60 characters. Mandatory for the 2 waste water types and central water distribution; NULL for the other water types.

Data Element	Data Description	Schema Validation
diversionAuthorizationType	Water diversion authorization type	String enumeration. Optional for the 3 surface water types and the 2 non-saline groundwater types; NULL for the other water types.
diversionAuthorizationID	Water diversion authorization ID	String, 14 characters. Must follow “99999999-99-99” format (i.e. 8-2-2) except for surface dispositions. These follow “MSL999999”. Mandatory when Diversion Authorization Type is populated.
wellID	Source water well ID	Integer, 7 digits. Optional for the 2 non-saline groundwater types; NULL for the other water types.
wellUWI	Source water well AER UWI	String, AA/99-99-999-99W9/999. Mandatory for recycled frac water (wellsite), groundwater-non-saline > 150m deep and groundwater-saline; NULL for the other water types.
reportingFacilityID	Water source facility AER ID	String, 20 characters. Mandatory for oilfield produced water, oilfield waste water and recycled frac water (facility); NULL for the other water types.
diversionStartDate	Date water diversion was first started from the water source	Mandatory. Date format for XML YYYY-MM-DD. Date format for CSV 2008-03-01 1-MAR-2008 MAR 1 2008 1 MAR 2008 03/01/2008 2008/03/01.
diversionEndDate	Date water diversion was completed from the water source	Mandatory. Date format for XML YYYY-MM-DD. Date format for CSV 2008-03-01 1-MAR-2008 MAR 1 2008 1 MAR 2008 03/01/2008 2008/03/01

Data Element	Data Description	Schema Validation
averageDailyDiversionRate	Average daily water diversion rate from the water source in m^3	Must follow 999999 format Must be > 0 Mandatory for the 3 surface water types and 3 ground water types; NULL for the other water types.
maximumDiversionRate	Maximum water diversion rate from the water source in m^3	If Surface Water: - In m^3/s - Must follow 999.999 format If Ground Water: - Must follow 999999 format Mandatory for the 3 surface water types and 3 ground water types; NULL for the other water types.
totalVolume	Total volume diverted from the water source in m^3	Mandatory. Must follow 999999 format.
tdsContent	Total Dissolved Solids (TDS) of water source	Must follow 999999 format. Mandatory for the 3 ground water types; NULL for the other water types.

If the value to be submitted is not in the Reference Table (refer to Appendix D for the selections), follow the following process:

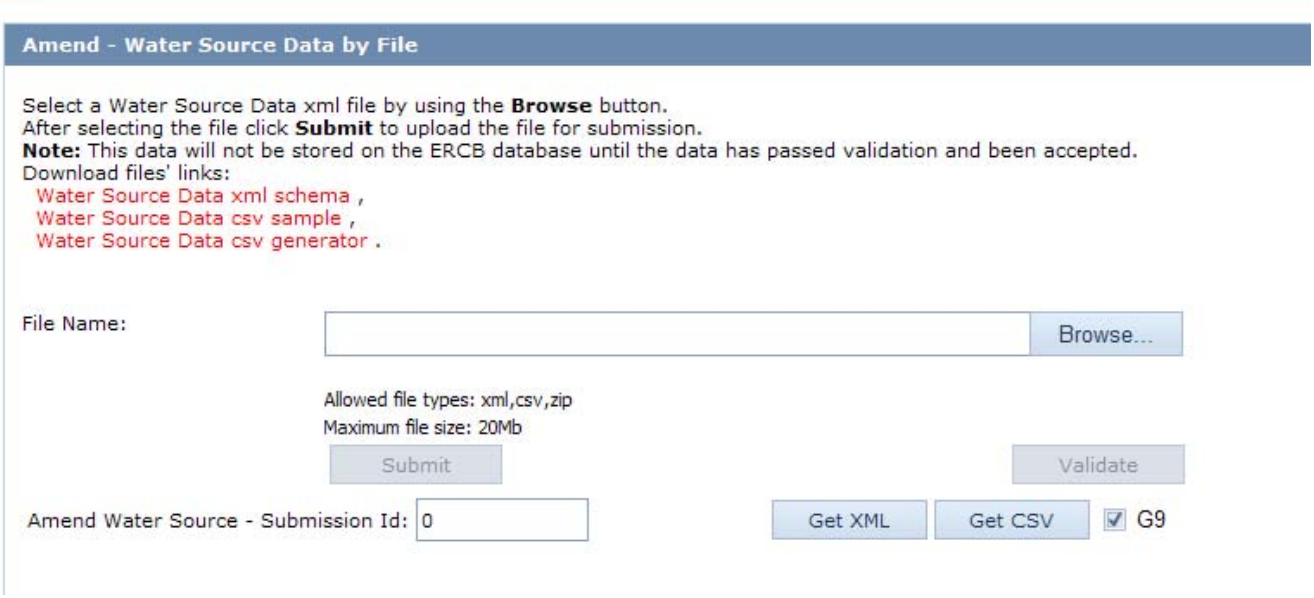
a. select a value close enough from the available options in Appendix D
b. if there is none, request the item to be added in the AER's Reference Table. Refer to **B.4 Adding an item to a Reference Table**.

C.2 Validate and Amend Water Source by File

Please note that this data amendment is only possible for well event sequences that have prior submissions for wells fractured using water-based carrier fluids.

This functionality allows the user to do the following:

- Validate an XML or CSV file without amending the previously submitted record
- Amend an XML or CSV file with automatic validation for errors



Process steps summary:

Step 1. Prepare the file to be uploaded.

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. Make edits as needed to the file and save, Proceed to step to 2 .
If amending an XML file, refer to **C.1.1 Preparing an XML File for Amendment** on page 98.
If amending a CSV file, refer to **C.1.2 Preparing a CSV File for Submission** on page 99.

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

Step 3. If you are not planning to amend but wish to validate the file, click the **Validate** button. If you want to submit the file, browse the file to be uploaded and click **Submit**.

Data that have errors will be displayed in red.

*For a list of business rules and edits, refer to the DDS homepage for **Fracture Fluid Water Source Data**. On the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink.*

Step 4. To insert or delete data on the CSV file, follow steps outlined for fracture composition data amendment outlined on page 72

Step 5. Print cover sheet, and submission reports for your records. It is not required to send the submissions to the AER Core Research Centre.

C.3 Save or Submit Water Source by Form

Please note that this data is only required for well event sequences that have been fractured using water-based carrier fluids.

This functionality allows the user to enter fracture fluid water source data through a web form and to do any of 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

Process steps summary:

Step 1. In the **Wells tab**, enter a valid well licence number and select the UWI to report.

Note that only wells with a previously submitted carrier fluid of water will be displayed for selection. Select the UWI to report water source data.

Click **Water Sources** hyperlink under the *Continue* column for the desired UWI to navigate to the next tab.

Step 2. In the **Water Source Data** tab, select the water type used in the fracture fluid and enter associated water source data required. The display changes to the fields applicable to each water type.

Step 2 is described in **C.2.1 Water Source Data tab: Enter Water Source Information** on page 107. Screenshots and instructions for each of the water types are given on pages 108 - 119.

Step 3. After water source data have been entered for all water types, validate and submit the report.

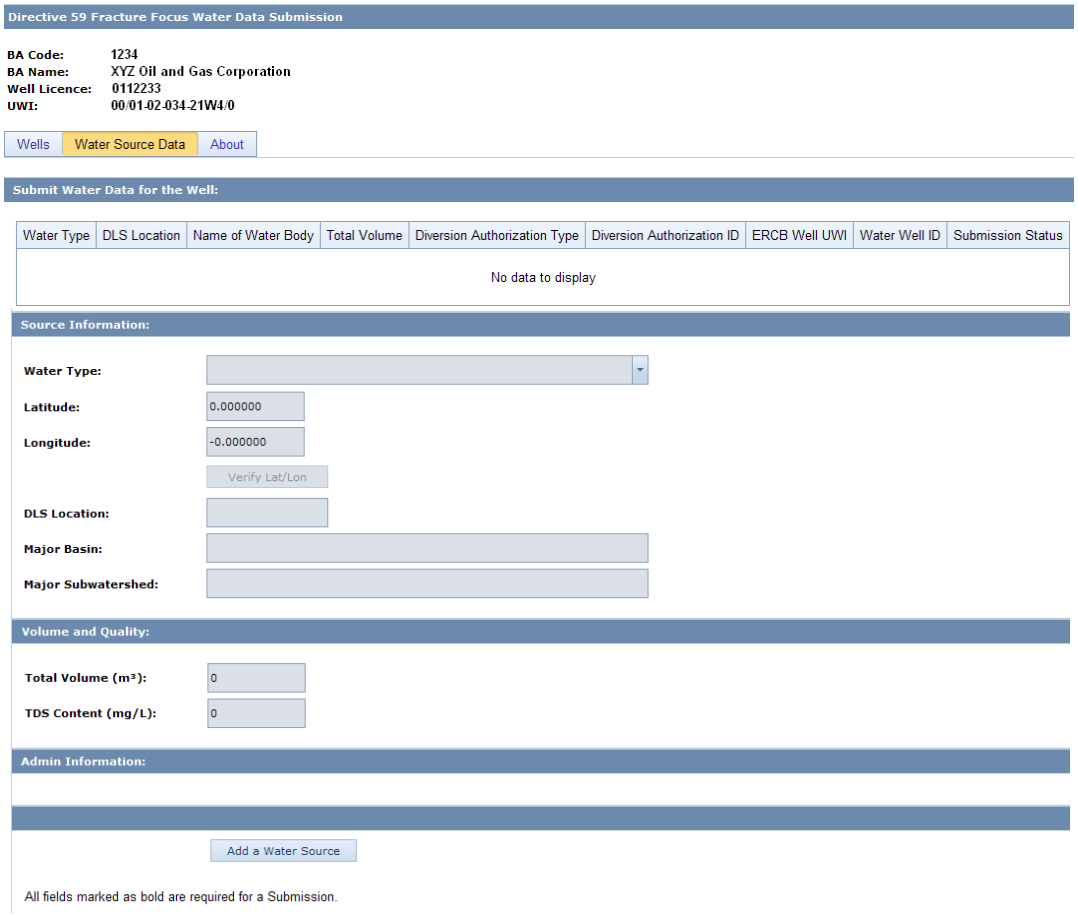
Step 3 is described in **C.2.2 Validate, Submit and Print** on page 120.

Step 4. The submission report can be printed and retained for company records. A copy of the water submission report and the cover sheet does not have to be printed and sent to the Core Research Centre..

C.3.1 Validate, Submit and Print

{Section 4, pages 27-30 of Directive 059}

The **Water Source Data tab** allows the user to report water source data for each water type used in the fracture fluid operation.



The top of the page displays the UWI details including well licence and UWI currently selected for water source submission. 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.

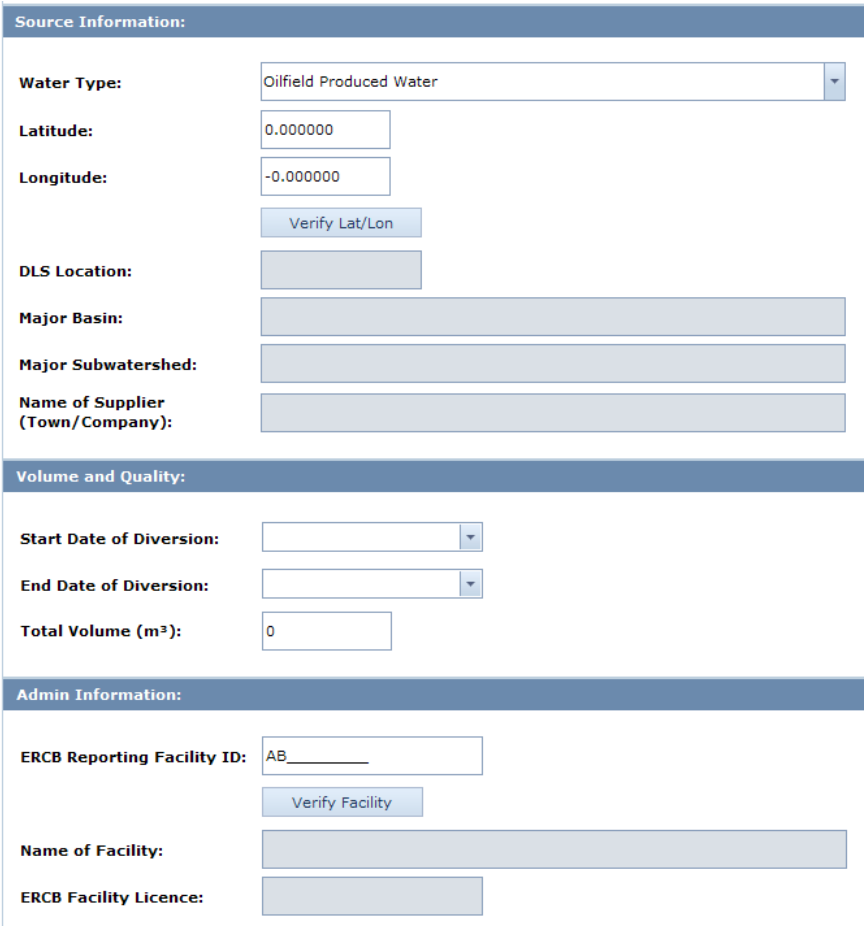
Note that the required water source data displayed under **Source Information**, **Volume and Quality** and **Admin Information** depends on the water type.

If the water type, name of geological zone or diversion authorization type is not on the drop down list, identify the closest value. If there is no value close enough, send an amendment to the AER Well Data Services to have the water type, name of geological zone or diversion authorization type added to AER's reference table. Refer to **B.4. Adding an item to a Reference Table** on page 94.

A. Oilfield Produced Water

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

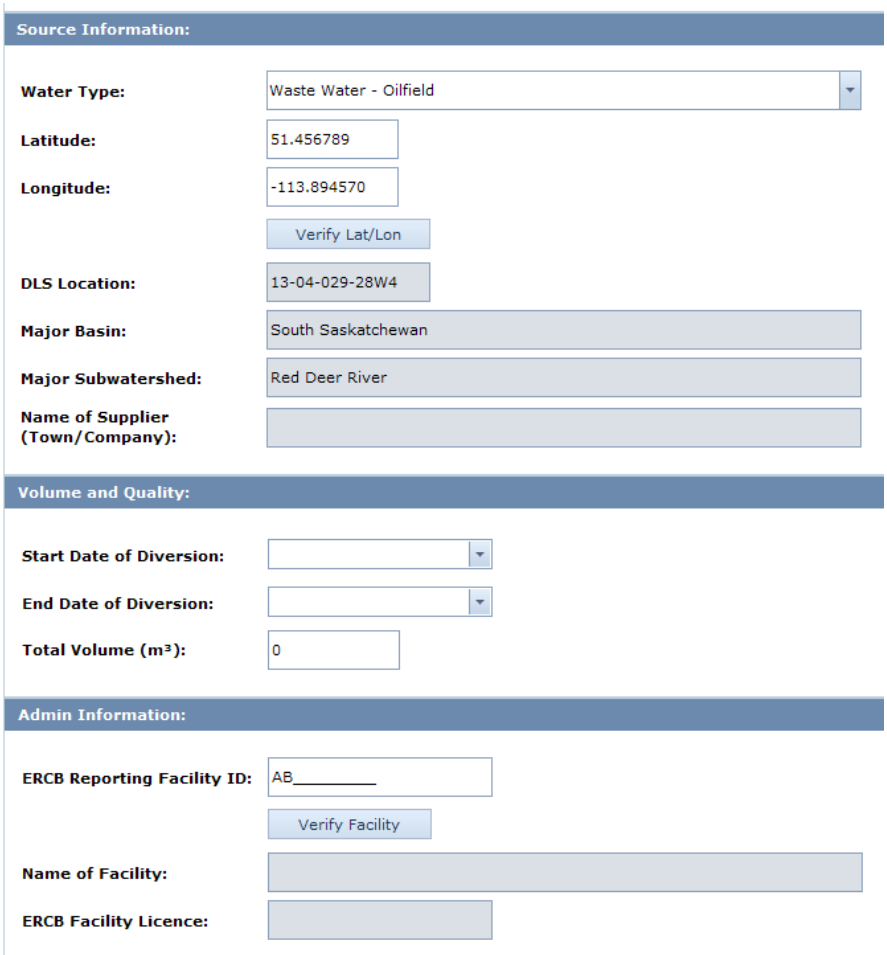
- Click “Add a Water Source” to add a water source and associated data. This will activate the data entry fields.
- Select **Oilfield Produced Water** as the water type. All required and optional fields will be displayed.
- Input the latitude and longitude of the water source to 6 decimal places and click the “Verify Lat/Lon” button. This will verify that the entered Lat/Long values are within Alberta. System will auto-populate the DLS Location, Major Basin and Major Subwatershed.
- Enter the Start Date of Diversion (i.e. the date water was first diverted from the source)
- Enter the End Date of Diversion (i.e. the date water diversion concluded)
- Enter the total volume of water obtained from the source in cubic metres.
- Enter the AER Reporting Facility ID (e.g. for the single or multi-well battery) and click the “Verify Facility” button. This will verify that the Facility ID is existing and valid. System will auto-populate the “Name of Facility”, “AER Facility Licence” and “Name of Supplier” fields.
- Click “Save” to save the data entered into the submission. This action will display the water type, DLS location and total volume that were entered in the **Submit Water Data for the Well** summary screen. Click “Cancel” to cancel water source addition.



B. Waste Water - Oilfield

Definition:
Wastewater—oilfield is wastewater sourced from oilfield facilities.

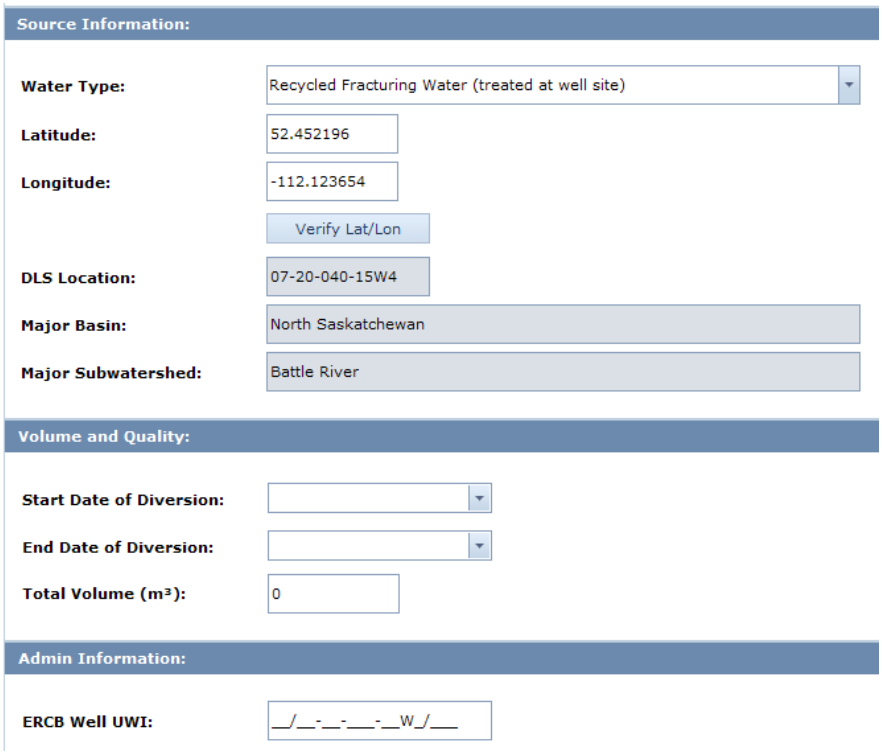
- Click “Add a Water Source” to add a water source and associated data. This will activate the data entry fields.
- Select Waste Water - Oilfield as the water type. All required and optional fields will be displayed.
- Input the latitude and longitude of the water source to 6 decimal places and click the “Verify Lat/Lon” button. This will verify that the entered Lat/Long values are within Alberta. System will auto-populate the DLS Location, Major Basin and Major Subwatershed.
- Enter the Start Date of Diversion (i.e. the date water was first diverted from the source)
- Enter the End Date of Diversion (i.e. the date water diversion concluded)
- Enter the total volume of water obtained from the source in cubic metres.
- Enter the AER Reporting Facility ID and click the “Verify Facility” button. This will verify that the Facility ID is existing and valid. System will auto-populate the “Name of Facility”, “AER Facility Licence” and “Name of Supplier” fields.
- Click “Save” to save the data entered into the submission. This action will display the water type, DLS location and total volume that were entered in the Submit Water Data for the Well summary screen. Click “Cancel” to cancel water source addition.



C. Recycled Fracturing Water (treated at well site)

Definition:
Recycled fracturing water (treated at well site) is fracture flowback water sourced directly from the well site where it was returned as flowback.

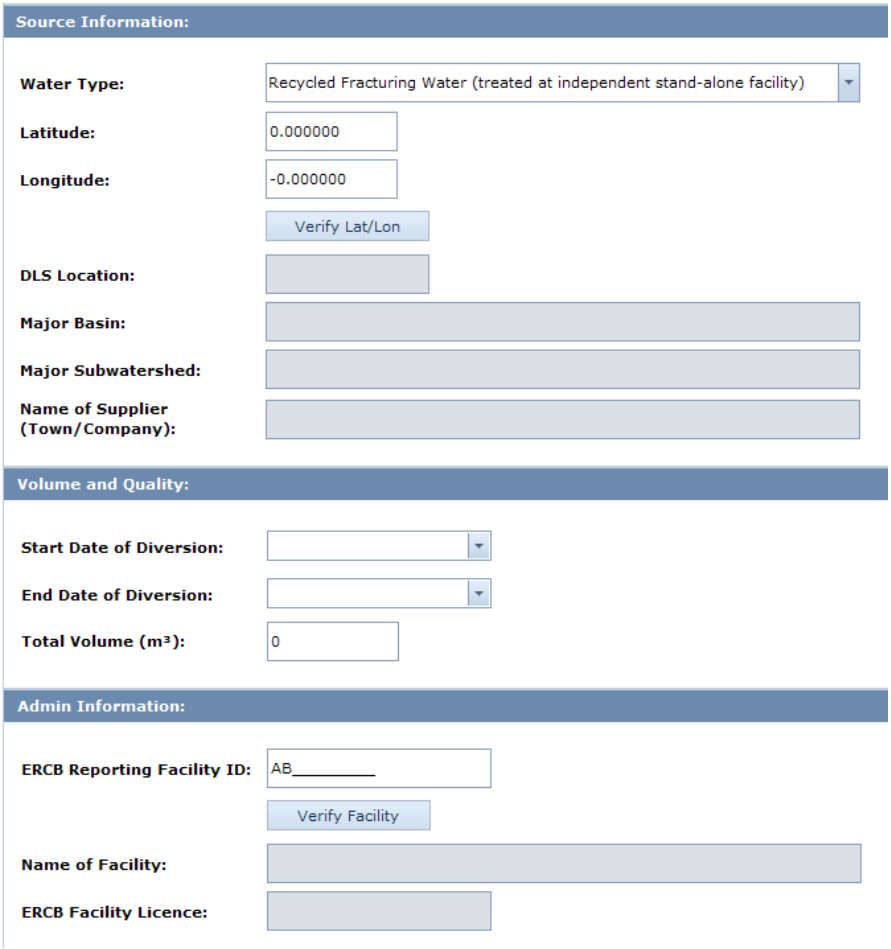
- Click "Add a Water Source" to add a water source and associated data. This will activate the data entry fields.
- Select Recycled Fracturing Water (treated at well site) as the water type. All required and optional fields will be displayed.
- Input the latitude and longitude of the water source to 6 decimal places and click the "Verify Lat/Lon" button. This will verify that the entered Lat/Long values are within Alberta. System will auto-populate the DLS Location, Major Basin and Major Subwatershed.
- Enter the Start Date of Diversion (i.e. the date water was first diverted from the source)
- Enter the End Date of Diversion (i.e. the date water diversion concluded)
- Enter the total volume of water obtained from the source in cubic metres.
- Enter the UWI of the source well (i.e. the well from which the water flowed back following a fracture operation) in the "AER Well UWI" field.
- Click "Save" to save the data entered into the submission. This action will display the water type, DLS location and total volume that were entered in the Submit Water Data for the Well summary screen. Click "Cancel" to cancel water source addition.



D. Recycled Fracturing Water (treated at independent stand-alone facility)

Definition:
Recycled fracturing water (treated at independent stand-alone facility is fracture flowback water sourced from a facility other than the well site where it was returned as flowback.

- Click “Add a Water Source” to add a water source and associated data. This will activate the data entry fields.
- Select Recycled Fracturing Water (treated at independent stand-alone facility) as the water type. All required and optional fields will be displayed.
- Input the latitude and longitude of the water source to 6 decimal places and click the “Verify Lat/Lon” button. This will verify that the entered Lat/Long values are within Alberta. System will auto-populate the DLS Location, Major Basin and Major Subwatershed.
- Enter the Start Date of Diversion (i.e. the date water was first diverted from the source)
- Enter the End Date of Diversion (i.e. the date water diversion concluded)
- Enter the total volume of water obtained from the source in cubic metres.
- Enter the AER Reporting Facility ID and click the “Verify Facility” button. This will verify that the Facility ID is existing and valid. System will auto-populate the “Name of Facility”, “AER Facility Licence” and “Name of Supplier” fields.
- Click “Save” to save the data entered into the submission. This action will display the water type, DLS location and total volume that were entered in the Submit Water Data for the Well summary screen. Click “Cancel” to cancel water source addition.

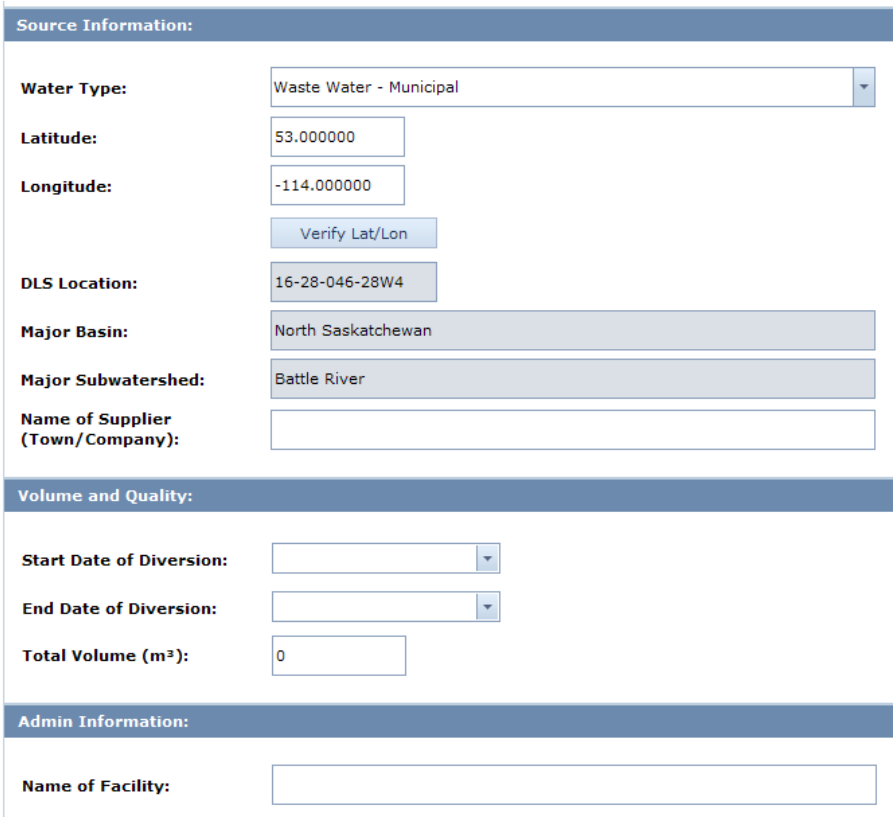


E. Waste Water – Municipal and Waste Water – Industrial (Non-oilfield)

Definitions:
Waste water—municipal is wastewater sourced from a municipal wastewater treatment facility.

Waste water—industrial (non-oilfield) is wastewater sourced from a non-oilfield industrial facility.

- Click "Add a Water Source" to add a water source and associated data. This will activate the data entry fields.
- Select either Waste Water – Municipal or Waste Water – Industrial (Non-oilfield) as the water type. All required and optional fields will be displayed.
- Input the latitude and longitude of the water source to 6 decimal places and click the "Verify Lat/Lon" button. This will verify that the entered Lat/Long values are within Alberta. System will auto-populate the DLS Location, Major Basin and Major Subwatershed.
- Enter the name of the supplier (Town or Company)
- Enter the Start Date of Diversion (i.e. the date water was first diverted from the source)
- Enter the End Date of Diversion (i.e. the date water diversion concluded)
- Enter the total volume of water obtained from the source in cubic metres.
- Enter the Name of Facility
- Click "Save" to save the data entered into the submission. This action will display the water type, DLS location and total volume that were entered in the Submit Water Data for the Well summary screen. Click "Cancel" to cancel water source addition.

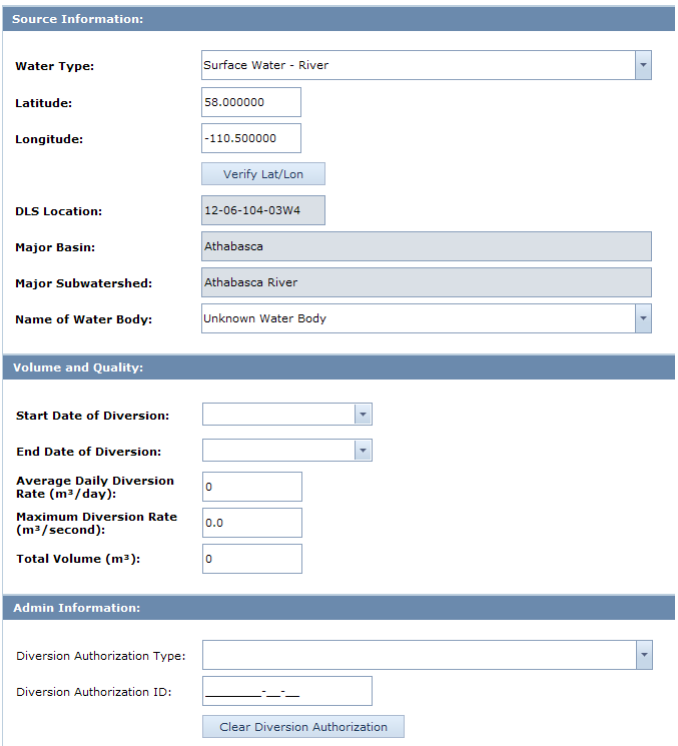


F. Surface Water - River and Surface Water - Lake

Definitions:
Surface water - River is surface water sourced directly from a river, stream, creek, canal, etc.

Surface water - Lake is surface water sourced directly from a lake, pond, reservoir, etc.

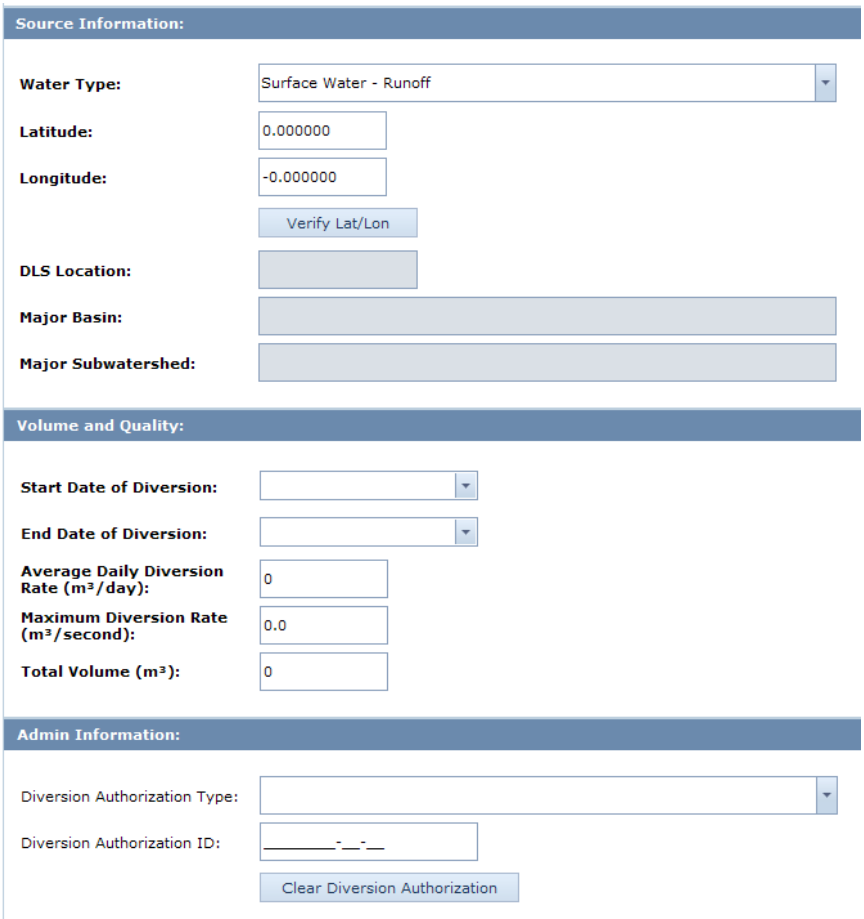
- Click “Add to Water Source” to add a water source and associated data. This will activate the data entry fields.
- Select Surface Water - River or Surface Water - Lake as the water type. All required and optional fields will be displayed.
- Input the latitude and longitude of the water source to 6 decimal places and click the “Verify Lat/Lon” button. This will verify that the entered Lat/Long values are within Alberta. System will auto-populate the DLS Location, Major Basin, Major Subwatershed and will populate the “Name of Water Body” drop down with water bodies within a 200m radius of the location indicated by the inputted latitude and longitude.
- Select name of water body from drop down list. In some cases, there only be one option on the drop down list
- Enter the Start Date of Diversion (i.e. the date water was first diverted from the source)
- Enter the End Date of Diversion (i.e. the date water diversion concluded)
- Enter the Average Daily Diversion Rate in cubic metres
- Enter the Maximum Diversion Rate in cubic metres per second
- Enter the total volume of water obtained from the source in cubic metres
- Select the Diversion Authorization Type from the drop down list and enter the Diversion Authorization ID in the correct format. Note that for a Water Act Temporary Diversion Licence, if you have an 8-digit number with no dashes (e.g. 12345678) please enter 2 zeroes after the two dashes (i.e. 12345678-00-00).
  (The “Clear Diversion Authorization” button will clear the entered diversion authorization type if required.)
- Click “Save” to save the data entered into the submission. This action will display the water type, DLS location, name of water body, total volume, diversion authorization type and diversion authorization ID that were entered in the Submit Water Data for the Well summary screen. Click “Cancel” to cancel water source addition.



G. Surface Water - Runoff

Definition:
Surface water—runoff is surface water collected as direct runoff from precipitation events (e.g., rain or snowmelt collected in depressions, dugouts, quarries, etc.).

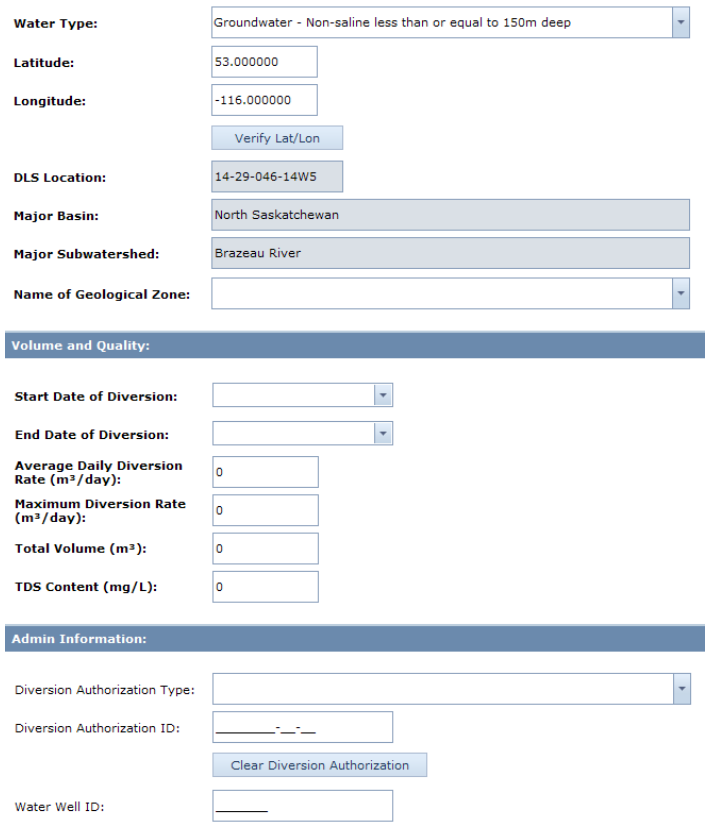
- Click “Add a Water Source” to add a water source and associated data. This will activate the data entry fields.
- Select Surface Water - Runoff as the water type. All required and optional fields will be displayed.
- Input the latitude and longitude of the water source to 6 decimal places and click the “Verify Lat/Lon” button. This will verify that the entered Lat/Long values are within Alberta. System will auto-populate the DLS Location, Major Basin and Major Subwatershed.
- Enter the Start Date of Diversion (i.e. the date water was first diverted from the source)
- Enter the End Date of Diversion (i.e. the date water diversion concluded)
- Enter the Average Daily Diversion Rate in cubic metres
- Enter the Maximum Diversion Rate in cubic metres per second.
- Enter the total volume of water obtained from the source in cubic metres.
- Select the Diversion Authorization Type from the drop down list and enter the Diversion Authorization ID in the correct format. Note that for a Water Act Temporary Diversion Licence, if you have an 8-digit number with no dashes (e.g. 12345678) please enter 2 zeroes after the two dashes (i.e. 12345678-00-00).
  (The “Clear Diversion Authorization” button will clear the entered diversion authorization type if required.)
- Click “Save” to save the data entered into the submission. This action will display the water type, DLS location, name of water body, total volume, diversion authorization type and diversion authorization ID that were entered in the Submit Water Data for the Well summary screen. Click “Cancel” to cancel water source addition.



H. Groundwater – Non-saline ≤150 m deep

Definition:
Groundwater—non-saline <150 m deep is non-saline groundwater (i.e., TDS <4,000 mg/L) from water wells less than 150m deep.

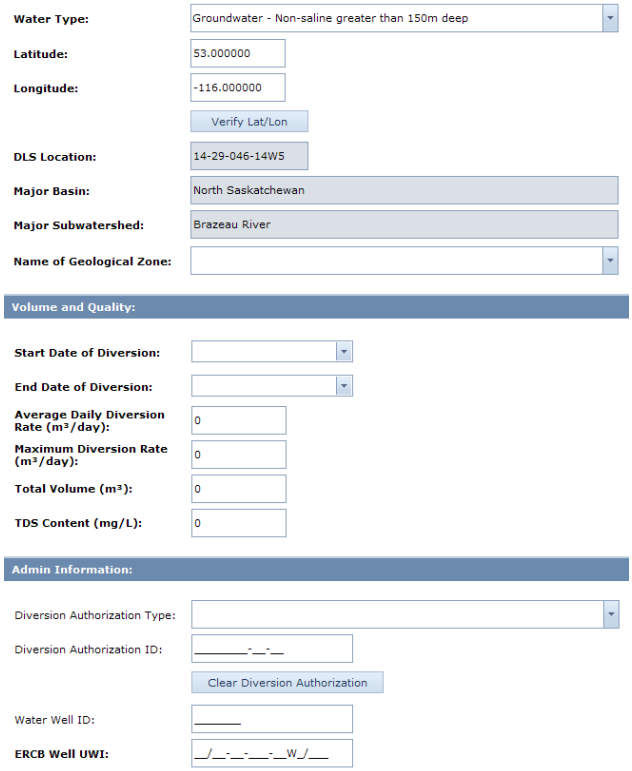
- Click "Add a Water Source" to add a water source and associated data. This will activate the data entry fields.
- Select Groundwater – Non-saline < 150m deep as the water type. All required and optional fields will be displayed.
- Input the latitude and longitude of the water source to 6 decimal places and click the "Verify Lat/Lon" button. This will verify that the entered Lat/Long values are within Alberta. System will auto-populate the DLS Location, Major Basin and Major Subwatershed.
- Select Name of Geological Zone from drop down list
- Enter the Start Date of Diversion (i.e. the date water was first diverted from the source)
- Enter the End Date of Diversion (i.e. the date water diversion concluded)
- Enter the Average Daily Diversion Rate in cubic metres
- Enter the Maximum Diversion Rate in cubic metres per day.
- Enter the total volume of water obtained from the source in cubic metres.
- Enter the Total Dissolved Solids (TDS) Content in milligrams per litre (mg/L)
- Select the Diversion Authorization Type from the drop down list and enter the Diversion Authorization ID in the correct format. Note that for a Water Act Temporary Diversion Licence, if you have an 8-digit number with no dashes (e.g. 12345678) please enter 2 zeroes after the two dashes (i.e. 12345678-00-00).
  (The "Clear Diversion Authorization" button will clear the entered diversion authorization type if required.)
- Click "Save" to save the data entered into the submission. This action will display the water type, DLS location, name of water body, total volume, diversion authorization type, diversion authorization ID and water well ID that were entered in the Submit Water Data for the Well summary screen. Click "Cancel" to cancel water source addition.



I. Groundwater – Non-saline >150 m deep

Definition:
Groundwater—non-saline >150 m deep is non-saline groundwater (i.e., TDS <4 000 mg/L) from water wells greater than 150 m deep.

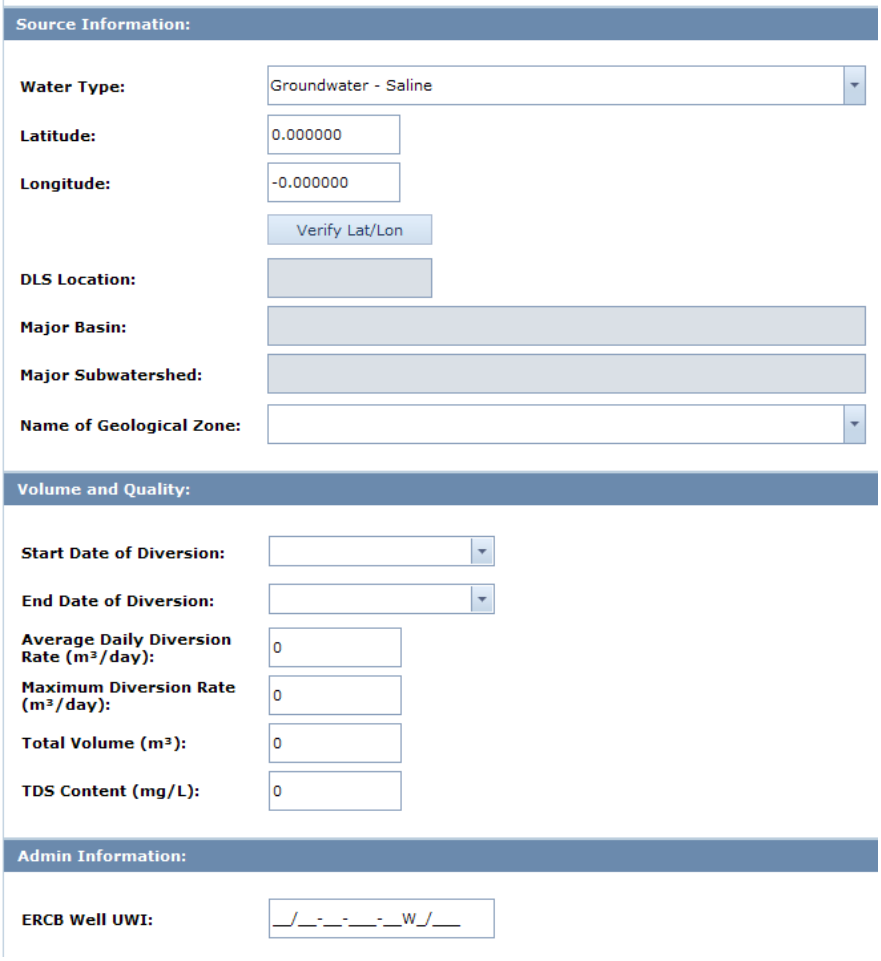
- Click “Add a Water Source” to add a water source and associated data. This will activate the data entry fields.
- Select Groundwater – Non-saline > 150m deep as the water type. All required and optional fields will be displayed.
- Input the latitude and longitude of the water source to 6 decimal places and click the “Verify Lat/Lon” button. This will verify that the entered Lat/Long values are within Alberta. System will auto-populate the DLS Location, Major Basin and Major Subwatershed.
- Select Name of Geological Zone from drop down list.
- Enter the Start Date of Diversion (i.e. the date water was first diverted from the source)
- Enter the End Date of Diversion (i.e. the date water diversion concluded)
- Enter the Average Daily Diversion Rate in cubic metres
- Enter the Maximum Diversion Rate in cubic metres per day.
- Enter the total volume of water obtained from the source in cubic metres.
- Enter the Total Dissolved Solids (TDS) Content in milligrams per litre (mg/L)
- Select the Diversion Authorization Type from the drop down list and enter the Diversion Authorization ID in the correct format. . Note that for a Water Act Temporary Diversion Licence, if you have an 8-digit number with no dashes (e.g. 12345678) please enter 2 zeroes after the two dashes (i.e. 12345678-00-00).
  (The “Clear Diversion Authorization” button will clear the entered diversion authorization type if required.)
- Enter the Water Well ID
- Enter the AER Well UWI (i.e. UWI of the source water well)
- Click “Save” to save the data entered into the submission. This action will display the water type, DLS location, name of water body, total volume, diversion authorization type, diversion authorization ID, AER well UWI and water well ID and that were entered in the Submit Water Data for the Well summary screen. Click “Cancel” to cancel water source addition.



J. Groundwater – Saline

Definition:
Groundwater—saline is saline groundwater (i.e., TDS >4,000mg/L) from water wells greater than 150 m deep.

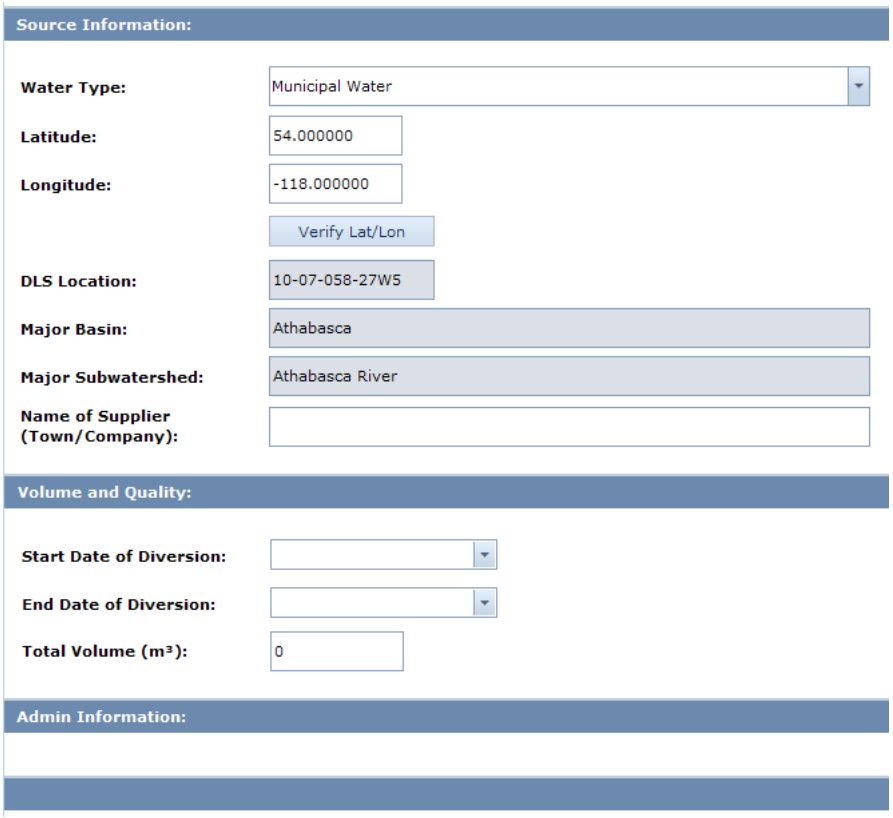
- Click “Add a Water Source” to add a water source and associated data. This will activate the data entry fields.
- Select Groundwater – Saline as the water type. All required and optional fields will be displayed.
- Input the latitude and longitude of the water source to 6 decimal places and click the “Verify Lat/Lon” button. This will verify that the entered Lat/Long values are within Alberta. System will auto-populate the DLS Location, Major Basin and Major Subwatershed.
- Select name of geological zone from drop down list.
- Enter the Start Date of Diversion (i.e. the date water was first diverted from the source)
- Enter the End Date of Diversion (i.e. the date water diversion concluded)
- Enter the Average Daily Diversion Rate in cubic metres
- Enter the Maximum Diversion Rate in cubic metres per day
- Enter the total volume of water obtained from the source in cubic metres.
- Enter the Total Dissolved Solids (TDS) Content in milligrams per litre (mg/L)
- Enter the AER Well UWI (i.e. UWI of the source water well)
- Click “Save” to save the data entered into the submission. This action will display the water type, DLS location, total volume and AER well UWI that were entered in the Submit Water Data for the Well summary screen. Click “Cancel” to cancel water source addition.



K. Municipal Water

Definition:
Municipal water is water source from a municipal water source.

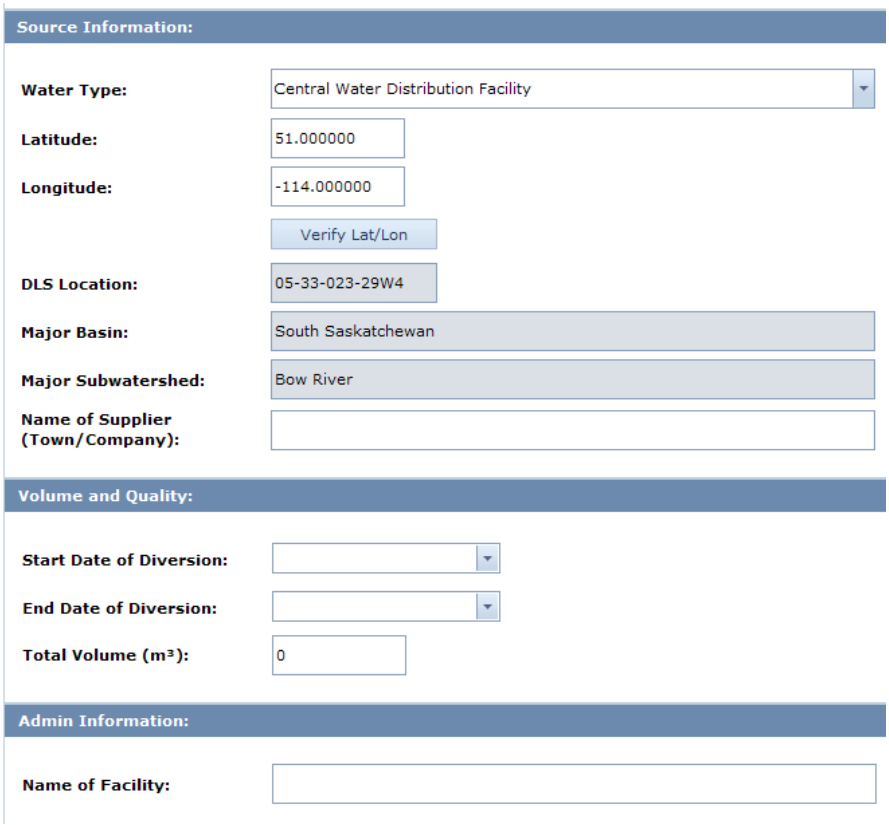
- Click “Add a Water Source” to add a water source and associated data. This will activate the data entry fields.
- Select Municipal Water as the water type. All required and optional fields will be displayed.
- Input the latitude and longitude of the water source to 6 decimal places and click the “Verify Lat/Lon” button. This will verify that the entered Lat/Long values are within Alberta. System will auto-populate the DLS Location, Major Basin and Major Subwatershed.
- Enter the name of the supplier (Town or Company)
- Enter the Start Date of Diversion (i.e. the date water was first diverted from the source)
- Enter the End Date of Diversion (i.e. the date water diversion concluded)
- Enter the total volume of water obtained from the source in cubic metres
- Click “Save” to save the data entered into the submission. This action will display the water type, DLS location, and total volume that were entered in the Submit Water Data for the Well summary screen. Click “Cancel” to cancel water source addition.



L. Central Water Distribution Facility

Definition:
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 pro-rate water volumes back to original sources. Pre-treated purchased water e.g. Methanol or KCL water would also be classified under this water source.

- Click "Add a Water Source" to add a water source and associated data. This will activate the data entry fields.
- Select Central Water Distribution Facility as the water type. All required and optional fields will be displayed.
- Input the latitude and longitude of the water source to 6 decimal places and click the "Verify Lat/Lon" button. This will verify that the entered Lat/Long values are within Alberta. System will auto-populate the DLS Location, Major Basin and Major Subwatershed.
- Enter the name of the supplier (Town or Company)
- Enter the Start Date of Diversion (i.e. the date water was first diverted from the source)
- Enter the End Date of Diversion (i.e. the date water diversion concluded)
- Enter the total volume of water obtained from the source in cubic metres
- Enter the Name of Facility
- Click "Save" to save the data entered into the submission. This action will display the water type, DLS location, and total volume that were entered in the Submit Water Data for the Well summary screen. Click "Cancel" to cancel water source addition.



C.3.2 Validate, Submit and Print

Whenever the **Save** button is clicked while proceeding through a submission by form the data is saved as part of a saved submission. The system automatically saves the submission for 14 calendar days from last modified date. Any saved submission that remains unsubmitted without being modified will be automatically deleted after 14 calendar days.

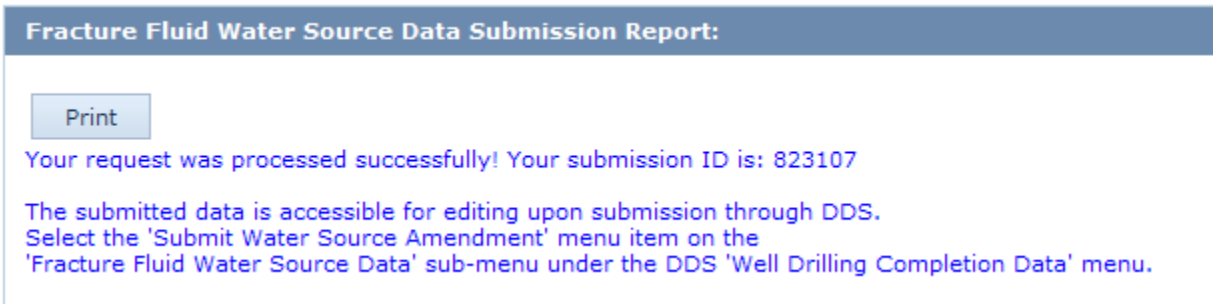
The page displays the following three buttons for selection:

Print	Displays a new window showing all the data under the saved submission. In order to print to a destination printer, click the browsers File > Print menu or print icon.
Validate	Validates data in the saved submission against business rules in the DDS system. **NOTE:** ERROR messages will be displayed when mandatory data has not been submitted or if business rules have been breached.
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 text to display the ERROR message.

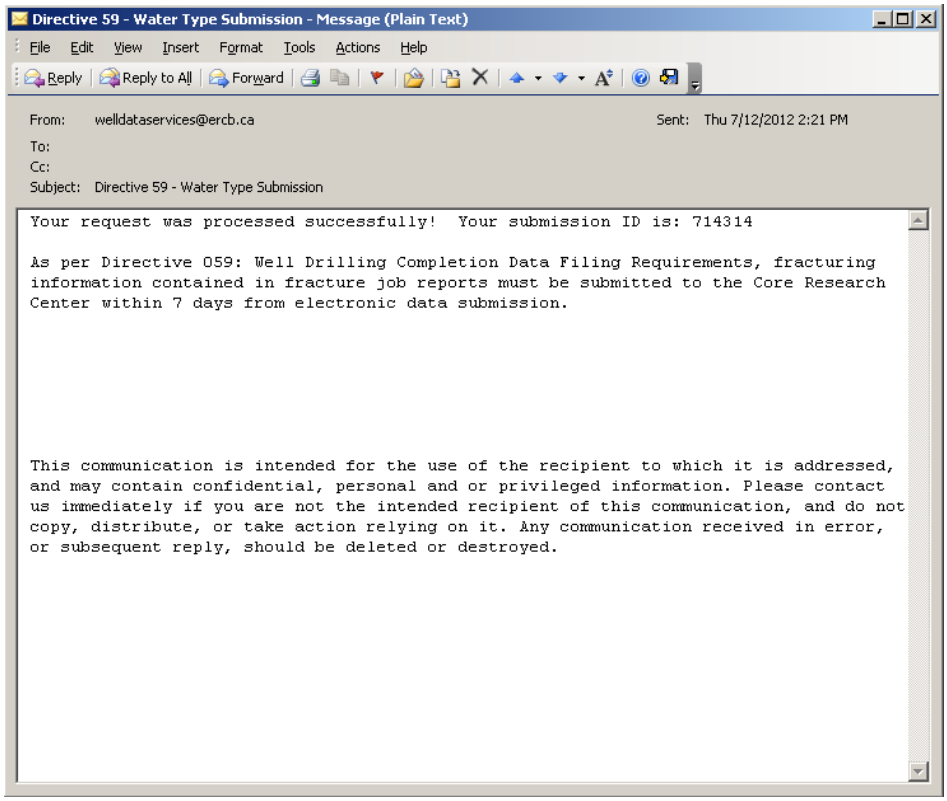
*For a complete list of business rules and edits, refer to the DDS homepage for **Fracture Fluid Water Source Data**. On the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink.*

On a successful submission, a confirmation message appears in the page with the submission ID.



Click on the Print button. The submission report is displayed in a new window. Print using the browsers File > Print menu or print button.

DDS generates an email notification to the submitter with the submission ID, as per below.



For water source data, there is no need to print out the cover page and the fracture fluid water source data submission report and submit to the Core Research Centre..

C.4.0 Amend Water Source by Form

This functionality allows the user to amend fracture fluid water source data through a web form and to do any of the following:

- Amend an existing submission via a web form
  - Submit (and Validate)
  - Save (and Validate) submission as a work in progress
  - Amend saved submission
- It does not allow you to add additional water sources. This can be done through the "Save or Submit Water Source By Form" menu item in DDS.

Process steps summary:

Step 1. In the **Wells tab**, enter a valid well licence number and select the UWI on which to amend data.

Note that only wells with a previously submitted carrier fluid of water will be displayed for selection. Select the UWI to amend water source data.

Click **Amend** hyperlink under the *Continue* column for the desired UWI to navigate to the next tab.

Step 2. In the **Water Source Data** tab, select the water type or types used in the fracture fluid and amend the water source data as required. The display changes to the fields applicable to each water type.

Step 2 is described below in **C.3.1 Water Source Data tab: Amend Water Source Information**.

Step 3. After water source data have been amended as required, validate and submit the amendment.

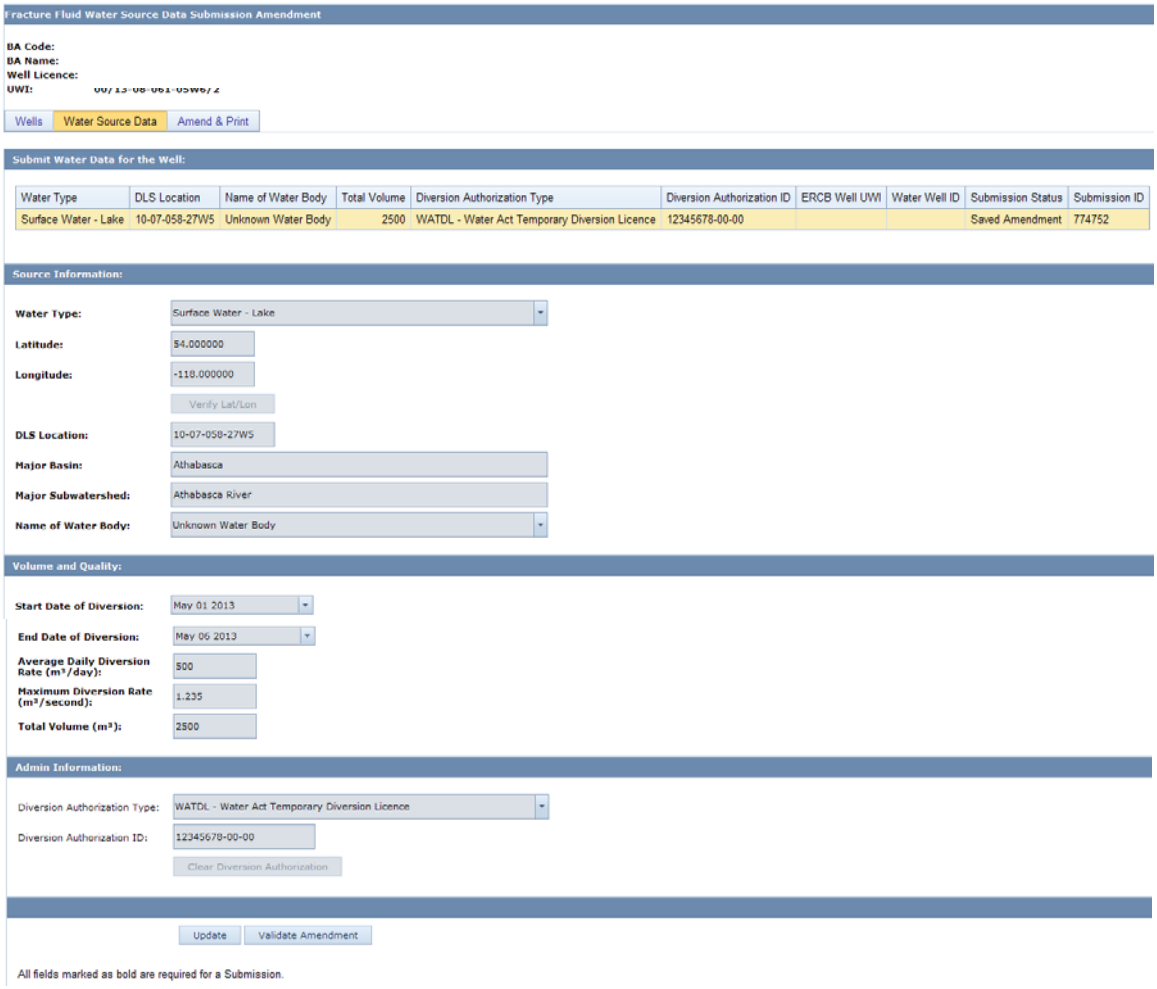
Step 3 is described in **C.3.2 Validate, Amend and Print** on page 124.

The submission report can be printed and retained for company records. A copy of the water submission report and the cover sheet does not have to be printed and sent to the Core Research Centre.

C.4.1 Water Source Data tab: Amend Water Source Information

{Section 4, pages 27-30 of Directive 059}

The **Water Source Data tab** allows the user to amend water source data for each water type used in the fracture fluid operation.



The top of the page displays the UWI details including well licence and UWI currently selected for water source data amendment. All water source information for the UWI as it is has been entered. The *Submission Status* on the right hand side indicates the water source amendment as either Saved Amendment or submitted.

Note that the required water source data displayed under **Source Information**, **Volume and Quality** and **Admin Information** depends on the water type.

If the water type, name of geological zone or diversion authorization type is not on the drop down list, identify the closest value. If there is no value close enough, send an amendment to the AER Well Data Services to have the water type, name of geological zone or diversion authorization type added to AER's reference table. Refer to **B.4. Adding an item to a Reference Table** on page 94.

C.4.2 Validate, Amend and Print

Whenever the **Save** button is clicked while proceeding through an amendment submission by form the data is saved as part of a saved amendment submission. The system automatically saves the amendment submission for 14 calendar days from last modified date. Any saved amendment submission that remains unsubmitted without being modified will be automatically deleted after 14 calendar days.

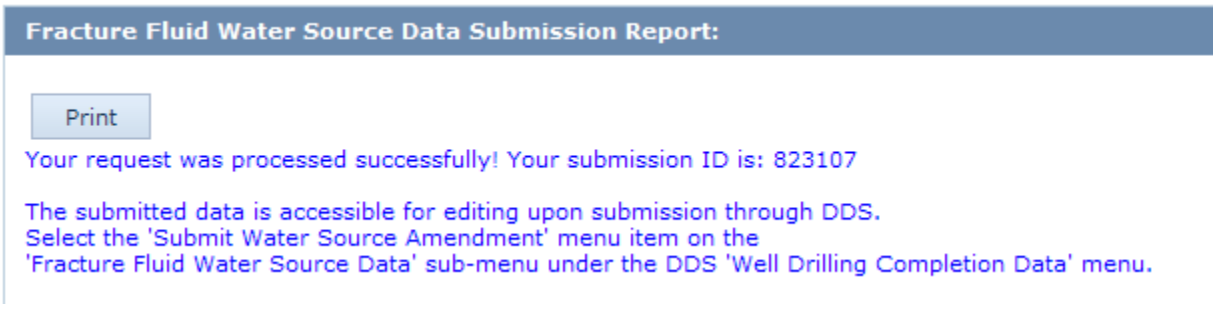
The page displays the following five buttons for selection:

Print	Displays a new window showing all the data under the saved submission. In order to print to a destination printer, click the browsers File > Print menu or print icon.
Validate	Validates data in the saved submission against business rules in the DDS system. **NOTE:** ERROR messages will be displayed when mandatory data has not been submitted or if business rules have been breached.
Amend	Validates and submits the data to the AER.
Cancel	Cancels all amendments to the dataset and reverts to the original data before any amendments were made.
Delete Submission	Permanently deletes all fracture fluid data.

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

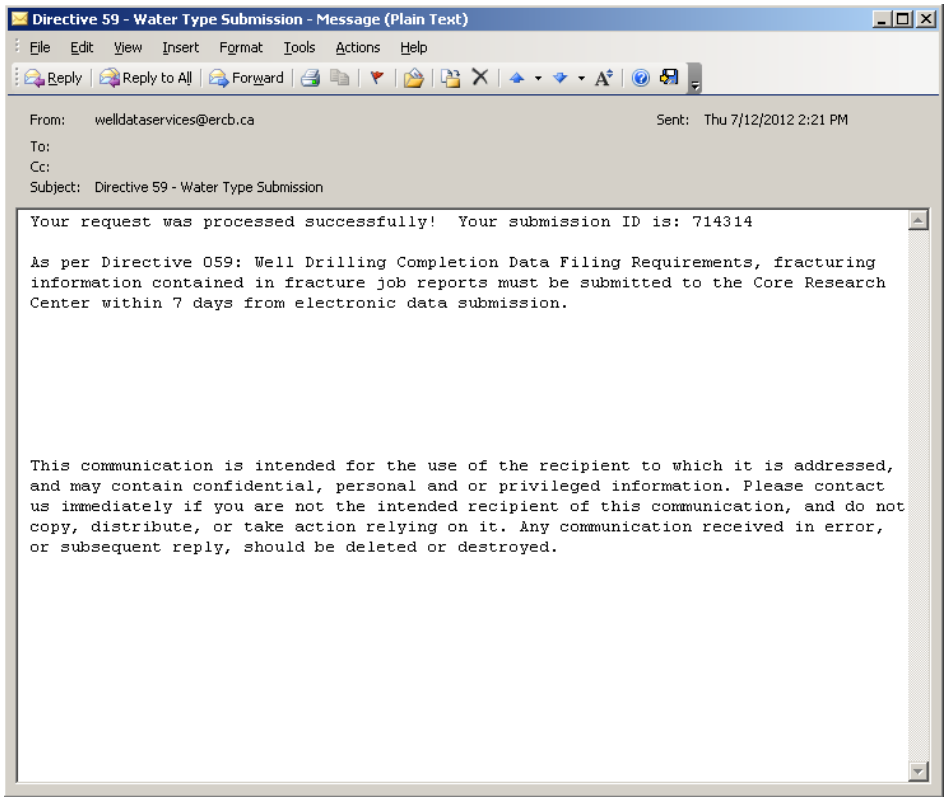
*For a complete list of business rules and edits, refer to the DDS homepage for **Fracture Fluid Water Source Data**. On the right hand pane under **Related Resources**, click on the **Business Rules** hyperlink.*

On a successful submission, a confirmation message appears in the page with the submission ID.



Click on the Print button. The submission report is displayed in a new window. Print using the browsers File > Print menu or print button.

DDS generates an email notification to the submitter with the submission ID, as per below.



For water source data, there is no need to print out the cover page and the fracture fluid water source data submission report and submit to the Core Research Centre.

C.4.3 Review a Submission

The **Save or Submit Water Source by Form** functionality allows all water source data under a well licence to be viewed (for previous submissions) or modified (for saved submissions).

1. To do this, enter a valid well licence number. The system will display all water source data submitted for wells under that well licence.

2. Click **Water Sources** hyperlink to navigate to the next tab.

3. On the **Water Source Data** tab, under the **Submit Water Data for the Well**, scroll to the right and locate the Submission Status. Status will display “Saved” if submission is a work in progress and is within 14 days from the last submission update date. Status will display “Submitted” if the data has been successfully submitted to the AER.

Submit Water Data for the Well:

Water Type	DLS Location	Name of Water Body	Total Volume	Diversion Authorization Type	Diversion Authorization	Submission Status
Oilfield Produced Water	15-08-107-08W6		89		12346879-22-22	Submitted
Surface Water - River	16-01-007-10W4	Unknown Water Body	500575	WALIC - Water Act Licence	45117678-12-12	Submitted
Surface Water - River	02-22-024-01W5	Bow River	150	WRLIC - Water Resources Li	13465598-88-88	Submitted
Surface Water - River	14-06-007-09W4	Unknown Water Body	500575	WALIC - Water Act Licence	45117678-12-12	Submitted
Waste Water - Municipal	03-02-039-16W4		12345			Saved

Saved submission(s)

Water source data that have been saved within 14 days from most recent update date will be displayed.

Saved data can be deleted or updated. Additional water source data can be added on the same saved submission.

Submitted data

Water source data that have been previously submitted will also be displayed. Note that 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.

Part D. Submit Paper Daily Reports Package to Core Research Centre (CRC)

Submitting Hard-Copy (Tour) Reports

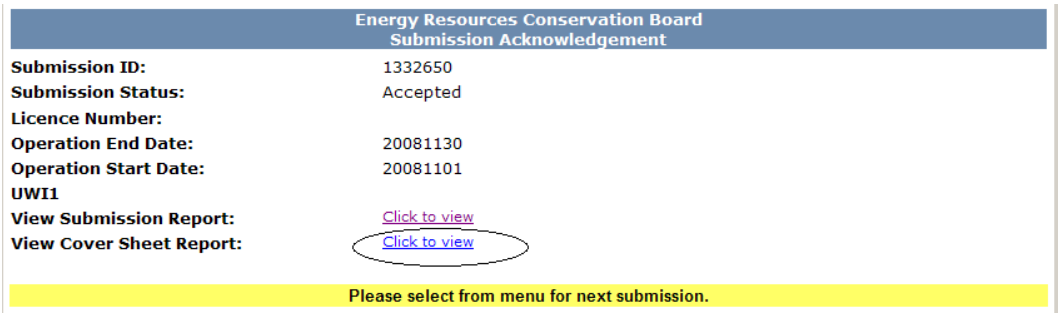
{Section 2.5, page 5 of Directive 059}

In addition to the electronic data submitted to the AER it is mandatory to send the paper copy of the daily reports from which the electronic submission was made. This applies to well drilling and completion data and fracture fluid composition data. It does not apply to fracture fluid water source data. This is only required for Accepted Submissions. The CRC will only accept reports that have the AER Cover Sheet attached to the papers. This is what is referred to as the package.

Process steps for Well Drilling and Completion Data:

Step 1. Print the Cover Sheet. There are different ways of retrieving the Cover Sheet and printing it.

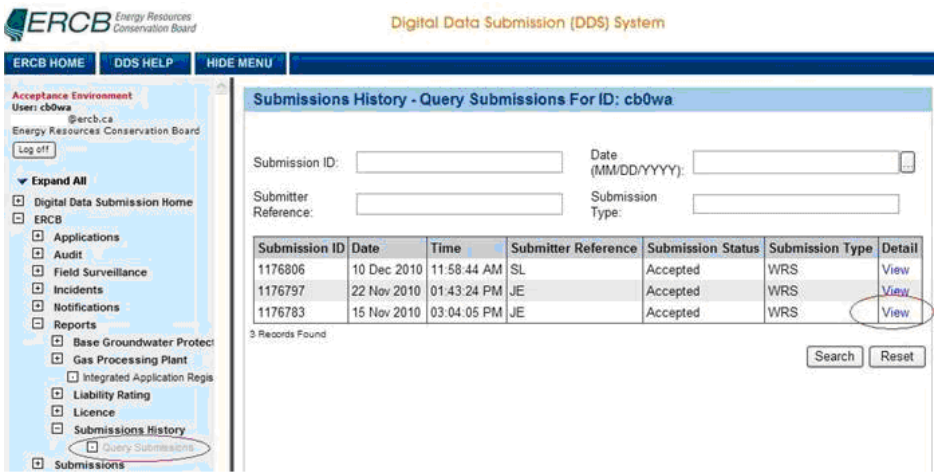
1.1 Submission Acknowledgement



From the Submission Acknowledgement, go to **View Cover Sheet Report** and click on the hyperlink **Click to View.**

1.2 Submissions History

This functionality is only available for Well Drilling and Completion submissions and not for Fracture Fluid and Water Source submissions.



a) From the **Reports Menu**, select **Submissions History**.

b) From the **Submissions History**, select **Query Submissions**

c) From the list of all the **Accepted** Submissions, select the submission number that you wish to submit the package for and click **View**

d) From the displayed Submission Acknowledgement, select the **View Cover Sheet**

Step 2. Print the Cover Sheet and attach it to the paper daily reports of operations from which the electronic submission data were derived. You can also print a copy of the Submission Report for the licensee's hard copy file.

Step 3. Sign and date the cover sheet to confirm that no personal information is contained in the report. Send the package to the following address within seven days of the electronic data submission:

Alberta Energy Regulator (AER)
Core Research Centre
3545 Research Way NW
Calgary, Alberta T2L 1Y7

Summary:
Digital Data Submission (DDS) Requirements:

- Digital Data Submission (via DDS) of Completion Operations data is required for all hydraulic fracturing operations.
- Digital Data Submission (via DDS) of Hydraulic Fracture Fluid Composition data is required for all hydraulic fracturing operations taking place on or after January 1, 2013.
- Digital Data Submission (via DDS) of Water Source data is required for all hydraulic fracturing operations taking place on or after January 1, 2013 where water is the carrier fluid.

Hard Copy Report Submissions to CRC:

- Records of daily operations are required for all hydraulic fracturing operations, including service company job reports and pressure treatment charts. These records must be submitted to the CRC in hard copy with the associated Completion Operation DDS cover sheet signed and attached to the front of the records.
- Submission of hard copy records for Hydraulic Fracture Fluid Composition data, with associated cover sheet, is required only when associated operations information has not already been submitted with the Completion Operations hard copy records.
- Submission of hard copy records for Hydraulic Fracture Water Source data, with associated cover sheet, is not required.
- Do not submit:
    - Duplicate hard copy records.
    - A print-out of the digital DDS submission.
    - A print-out of the csv or .xml file created to generate the DDS batch submission.
    - A cover sheet without supporting operations records.
    - Operations records without a DDS cover sheet.

  If received, these hard copy records, that replicate the data that has already been submitted, will be destroyed.

Part E. Appendices

Appendix A: Directive 059 Table Codes

Initial Status Code

VALUE	DESCRIPTION
1	Drilled and cased
2	Abandoned
3	Abandoned and whipstocked
4	Junked and abandoned
5	Drain
6	Preset

Casing Code

VALUE	DESCRIPTION
1	Conductor
2	Surface
3	Intermediate
4	Production
5	Liner

Cement Code

VALUE	DESCRIPTION
1	Class A
3	Class C
4	Class G
6	1:01:02
7	1:01:04
30	Thermal cements
31	Thixotropic cement
36	Foamed cement
40	Cap cement (capping foamed cement)
42	Lightweight
91	Uncemented slotted liner
92	Uncemented casing

Cement Unit Code

VALUE	DESCRIPTION
1	Cubic metres
2	Tonnes
3	Sacks
4	Litres
5	Metres

DST Test Type Codes

VALUE	DESCRIPTION
1	Bottomhole
2	Straddle
7	Closed chamber

Kick Off Reason Code

VALUE	DESCRIPTION
1	Deviate (>= 5 and < 80 degrees)
2	Sidetrack fish
4	Horizontal (>= 80 degrees)

Occurrence Type Code

VALUE	DESCRIPTION
10	Kick
30	Blowout
40	Lost circulation
99	No incident encountered

Operation In Progress Code (Occurrence)

VALUE	DESCRIPTION
1	Drilling
2	Circulating
3	Coring
4	Logging
5	Tripping in
6	Tripping out
7	Running casing
8	Testing

Plug Back Purpose Code

VALUE	DESCRIPTION
1	Abandon
3	Plug back and case
4	Plug back and whipstock
5	Plug back and sidetrack (fish)
6	Plug back and straighten
7	Lost circulation plug (not drilled out)

Method Code

VALUE	DESCRIPTION
3	Rerun plug
51	Cement plug
53	Packing device capped with cement
57	Packing device capped with resin-gypsum cement

Operation Type Code

VALUE	DESCRIPTION
2	Perforation
5	Hydra jet perforation (sand notching)
7	Slotted liner
8	Open hole/barefoot completion
9	Casing vent production
12	Acid treatment
23	Chemical squeeze
24	Alcohol squeeze
41	Fracture
42	Multi-stage Fracture
43	Multi-stage Fracture-Port Closed
51	Cement plug
52	Cement squeeze (only if successful)
53	Packing device capped with cement
54	Casing patch (only if covers a completed interval)
55	Packing device with no cement
56	Remedial casing cementing
57	Packing device capped with resin-gypsum cement

Abandonment Code

VALUE	DESCRIPTION
1	Abandon
2	Abandon zone
4	Plugback and whipstock

Log Tag Code

VALUE	DESCRIPTION
1	Log
2	Tag
3	Not logged or tagged

Packer Code

VALUE	DESCRIPTION
1	Packer
2	Bridge plug or whipstock packer
3	Cement retainer
4	Through tubing packer
5	Through tubing bridge plug

Appendix B: Electronic Well Drilling and Completion Data Submission Matrix

Key	
Mandatory	M
Possibly required (depending on submission)	P
Optional	O
Not required	-

Requirement number		Operation			
		Presetting	Drilling	Deepening	Completion
1)	Account details				
	a) Contact name	M	M	M	M
	b) Contact phone/fax/e-mail	M	M	M	M
	c) Acknowledge submissions by e-mail	M	M	M	M
2)	Licence operation				
	a) Licence number	M	M	M	M
	b) Operation start date	M	M	M	M
	c) Operation end date	M	M	M	M
	d) Submitter reference	O	O	O	O
3)	Well operation (check box)				
	a) Presetting surface casing	M	-	-	-
	b) Drilling operation	-	M	-	-
	c) Deepening operation	-	-	M	-
	d) Completion operation	-	-	-	M
	e) Surface abandonment operation	-	-	-	-
4)	Presetting surface casing				
	a) Spud date	M	-	-	-
	b) Casing	M	-	-	-
	c) Cementing	M	-	-	-
	d) Initial status code	M	-	-	-
5)	Drilling				
	a) Drilling contractor code	-	M	-	-
	b) Rig number	-	M	-	-
	c) Spud date	M	M	-	-
	d) Finished drilling date	-	M	M	-
	e) Rig release date	-	M	-	-
	f) Kelly bushing elevation	-	M	-	-
	g) Total depth	-	M	M	-
	h) Initial status code	M	M	-	-
6)	Deepening				
	a) Finished drilling date	-	-	M	-
	b) Total depth	-	-	M	-
7)	Casing				
	a) Casing date	M	M	-	-
	b) Casing code	M	M	-	-
	c) Casing liner outside diameter	M	M	-	-
	d) Casing grade steel process	M	M	-	-
	e) Casing grade yield strength	M	M	-	-
	f) Casing density	M	M	-	-

Requirement number		Operation			
		Presetting	Drilling	Deepening	Completion
	g) Shoe set depth	M	M	-	-
	h) Liner top depth	-	P	-	-
8)	Cementing				
	a) Cement code	M	M	-	-
	b) Cement amount	M	M	-	-
	c) Cement unit code	M	M	-	-
	d) Interval top	M	M	-	-
	e) Interval base	M	M	-	-
9)	Core				
	a) Core number	P	P	-	-
	b) Sidewall	P	P	-	-
	c) Interval top	P	P	-	-
	d) Interval base	P	P	-	-
10)	Drillstem test				
	a) Test number	-	P	-	-
	b) Test type code	-	P	-	-
	c) Interval top	-	P	-	-
	d) Interval base	-	P	-	-
11)	Kickoff point (Directional Drill Event (DDE))				
	a) Kickoff date	-	P	-	-
	b) Kickoff depth	-	P	-	-
	c) Kickoff reason code	-	P	-	-
13)	Plug back				
	a) Plug back date	-	P	-	P
	b) Plug back purpose code	-	P	-	P
	c) Interval top	-	P	-	P
	d) Interval base	-	P	-	P
	e) Cement amount	-	P	-	P
	f) Unit code	-	P	-	P
	g) Method code	-	P	-	P
	h) Log tag code	-	P	-	P
13)	Operation incident				
	a) Occurrence type code	M	M	M	P
	b) Operation in progress code	P	P	P	P
	c) Occurrence date	M	M	M	P
	d) Occurrence depth	P	P	P	P
	e) Occurrence mud density	P	P	P	P
	f) Controlled date	P	P	P	P
	g) Controlled depth	P	P	P	P
	h) Controlled mud density	P	P	P	P
	i) Lost circulation total fluid	P	P	P	P
14)	Completion				
	a) Completion date	-	-	-	M
	b) Operation type code	-	-	-	M
	c) Interval top	-	-	-	M
	d) Interval base	-	-	-	M
	e) Shots per metre	-	-	-	P
	f) Cement amount	-	-	-	P
	g) Cement unit code	-	-	-	P
	h) Abandonment code	-	-	-	P
	i) Log tag code	-	-	-	P

Requirement number	Operation			
	Presetting	Drilling	Deepening	Completion
15) Packer				
a) Packer date	-	-	-	P
b) Packer operation	-	-	-	P
c) Packer code	-	-	-	P
16) Surface Abandonment*				
a) Well type	-	-	-	-
b) Original surface abandonment date	-	-	-	-
c) Surface abandonment method	-	-	-	-
d) Oil sands area	-	-	-	-
e) H_2S	-	-	-	-
f) Routine abandonment	-	-	-	-
g) Groundwater base	-	-	-	-
h) Groundwater protection method	-	-	-	-
i) Re-abandonment	-	-	-	-
17) Amendment Request				
a) Licence number	M	M	M	M
b) Unique well identifier (UWI)	M	M	M	M
c) Details	M	M	M	M

* Submitted in DDS under Submissions/Licence Abandonment.

Appendix C. Fracture Fluid Composition Data Submission Matrix

Key	
Mandatory	M
Optional	O
Not required	-

Data requirement			Selections	Notes
1	Fracture Scenario	M	Vertical Single Stage Vertical Multi-Stage Directional Single Stage Directional Multi-Stage Horizontal Open Hole Horizontal Cased Hole Horizontal Liner Hole Horizontal Multi-Stage	CSV, XML & Form submission
2	Service Provider	M	Select from the list	CSV, XML & Form submission
3	Fracture Components	M	Carrier Fluid Proppant Additive	CSV, XML & Form submission
4	Carrier Fluid	M		CSV, XML & Form submission
	Fluid Type	M	Water Propane Oil Nitrogen (N_2) Natural Gas Distillate Diesel Condensate Carbon Dioxide (CO_2) Alcohol Acid Butane	-
	Proppant Type	-	-	-
	Trade Name	-	-	-
	Supplier	-	-	-
	Purpose	-	-	-
	Size	-	-	-
	Unit of Measure	-	-	-
	Volume	M	-	Enter the volume in cubic metres
5	Proppant	O		CSV, XML & Form submission
	Fluid Type	-	-	-
	Proppant Type	M	Bauxite Ceramic Coated Ceramic Sand, Uncoated Sand, Curable Resin Coat	-

			Sand, Cured Resin Coat	
	Trade Name	O	-	Enter the trade name of the proppant
	Supplier	M	-	Enter the supplier name of the proppant
	Purpose	-	-	-
	Size	M	100 Mesh 12/20 14/40 16/30 20/40 20/45 25/50 30/50 30/60 40/70 40/80 50/140	-
	Unit of Measure	-	-	-
	Weight	M		Enter the weight in metric tonnes
6	Additive	O		CSV, XML & Form submission
	Fluid Type	-	-	-
	Proppant Type	-	-	-
	Trade Name	M	-	Enter the trade name of the additive
	Supplier	M	-	Enter the supplier name of the additive
	Purpose	M	Acid Activator Bactericide/Biocide Breaker Buffer Clay Control Conductivity Enhancer Corrosion Inhibitor Crosslinker Defoamer Demulsifier Diverting agent Energizing Fluid Foamer Friction Reducer Gelling Agent Iron Control Oxygen Scavenger Scale Inhibitor Solvent Surfactant Tracer	-
	Size	-	-	-
	Volume/Weight	M	-	Enter the amount of additive used
	Unit of Measure	M	10^3m^3 kg/m^3	-

			Kg L/m^3 Litres m^3 sm^3 Metric Tonnes	
7	Ingredients	M		CSV, XML & Form submission
	Trade Secret	O	-	Check the box if ingredient details are proprietary
	Chemical Abstract Service Number (CAS #)/Hazardous Materials Information Review Commission Number (HMIRC #)	M	-	Enter the CAS #, HMIRC #, "Not Available" or "Trade Secret" for the ingredient
	Ingredient/Family Name	M	-	Enter the name of the ingredient or the chemical family name of the ingredient
	Maximum Concentration in component (% by mass)	M	-	Enter the maximum concentration of the ingredient in the fracture component
	Maximum Concentration In Hydraulic Fracturing Fluid (% by mass)	M	-	Enter the maximum concentration of the ingredient in the hydraulic fracturing fluid
8	Wells with greater than nine Event Sequences			Form submission only
	UWI greater than nine	M	-	Enter the UWI based on actual bottom hole location of drill leg
	Well Name	M	-	Enter the well name based on actual bottom hole location of drill leg
	Total Depth	M	-	Enter the Total Depth in metres kelly bushing for the event sequence
	Finish Drill Date	M	-	Enter the Finish Drill Depth for the event sequence
	Treatment Type	M	Fracture Multi-Stage Fracture	-
8a	**Fracture intervals**			CSV or XML submission only
	Top Depth	M	-	Enter the Top Depth of the fractured interval in metres kelly bushing
	Base Depth	M	-	Enter the Base Depth of the fractured interval in metres kelly bushing
	Treatment Date	M	-	Enter the date the fracture operation occurred

Appendix D. Fracture Fluid Water Source Data Submission Matrix

Key	
Mandatory	M
Optional	O
System populated (Not Required in submission)	S
Not Required	-

Data	Water types 1 – 7						
	Oilfield Produced Water	Waste Water - Oilfield	Recycled Frac Water (Wellsite)	Recycled Frac Water (ind. fac)	Waste Water - Municipal	Waste Water - Industrial (Non-oilfield)	Surface Water - River
Latitude	M	M	M	M	M	M	M
Longitude	M	M	M	M	M	M	M
DLS Location	S	S	S	S	S	S	S
Major Basin	S	S	S	S	S	S	S
Major SubWatershed	S	S	S	S	S	S	S
Name of Water Body	-	-	-	-	-	-	M
Name of Geological Zone	-	-	-	-	-	-	-
Name of Supplier	S	S	-	M	M	M	-
Start Date of Diversion	M	M	M	M	M	M	M
End Date of Diversion	M	M	M	M	M	M	M
Average Daily Diversion Rate	-	-	-	-	-	-	M
Maximum Diversion Rate	-	-	-	-	-	-	M
Total Volume	M	M	M	M	M	M	M
TDS Content	-	-	-	-	-	-	-
Diversion Authorization Type	-	-	-	-	-	-	O
Diversion Authorization ID	-	-	-	-	-	-	O
AER Reporting Facility ID	M	M	-	M	-	-	-
Name of Facility	S	S	-	S	M	M	-
AER Facility Licence	S	S	-	S	-	-	-
Water Well ID	-	-	-	-	-	-	-
AER Well UWI	-	-	M	-	-	-	-

Key	
Mandatory	M
Optional	O
System populated (Not Required in submission)	S
Not Required	-

Data	Water types 8 – 14						
	Surface Water - Lake	Surface Water - Runoff	Ground-Water - Non-saline ≤150m deep	Ground-Water - Non-saline >150m deep	Ground-Water - Saline	Municipal Water	Central Water Distribution. Facility
Latitude	M	M	M	M	M	M	M
Longitude	M	M	M	M	M	M	M
DLS Location	S	S	S	S	S	S	S
Major Basin	S	S	S	S	S	S	S
Major SubWatershed	S	S	S	S	S	S	S
Name of Water Body	M	-	-	-	-	-	-
Name of Geological Zone	-	-	M	M	M	-	-
Name of Supplier	-	-	-	-	-	M	M
Start Date of Diversion	M	M	M	M	M	M	M
End Date of Diversion	M	M	M	M	M	M	M
Average Daily Diversion Rate	M	M	M	M	M	-	-
Maximum Diversion Rate	M	M	M	M	M	-	-
Total Volume	M	M	M	M	M	M	M
TDS Content	-	-	M	M	M	-	-
Diversion Authorization Type	O	O	O	O	-	-	-
Diversion Authorization ID	O	O	O	O	-	-	-
AER Reporting Facility ID	-	-	-	-	-	-	-
Name of Facility	-	-	-	-	-	-	M
AER Facility Licence	-	-	-	-	-	-	-
Water Well ID	-	-	O	O	-	-	-
AER Well UWI	-	-	-	M	M	-	-

Water type

VALUE
Oilfield Produced Water
Waste Water - Oilfield
Recycled Fracturing Water (treated at well site)
Recycled Fracturing Water (treated at independent stand-alone facility)
Waste Water - Municipal
Waste Water - Industrial (Non-oilfield)
Surface Water - River
Surface Water - Lake
Surface Water - Runoff
Groundwater - Non-saline less than or equal to 150m deep
Groundwater - Non-saline greater than 150m deep
Groundwater - Saline
Municipal Water
Central Water Distribution Facility

Diversion Authorization Type

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

Name of Geologic Zone

VALUE
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