

The applicant certifies that the information provided here and in all supporting documentation is correct and in accordance with all regulatory requirements or as directed by the Alberta Energy Regulator.

SUBMISSION STATUS _____ SUBMISSION ID _____ CREATION DATE _____

1. APPLICATION TYPE

1. Type of ER scheme being proposed or amended:

- Waterflood
- Immiscible gas / Solvent flood
- Miscible flood
- Gas cycling
- CO2 EOR storage
- Other

2. Is this application for a new ER scheme or an amendment to an existing ER scheme approval?

New Amendment

3. What is the existing AER approval number proposed for amendment?

4. Type of amendment:

- Add injection well location(s)
- Amend approval area
- Amend approval conditions
- Scheme termination

2. OWNERSHIP AND NOTIFICATION INFORMATION

5. The primary applicant must

- a) be the proposed approval holder for a new scheme or the current approval holder for an existing scheme, and
- b) represent all well licensees in the proposed approval area.

Have these requirements been met?

Yes No

6. An ER scheme application cannot be submitted until notification of all well licensees has been completed in accordance with *Directive 065*.

Has notification been completed in accordance with *Directive 065* ?

Yes No

7. Are there outstanding concerns from well licensees?

Yes No

If yes, the Licensee Concerns attachment must be submitted as part of the application, in accordance with *Directive 065*.

3. PROPOSED INJECTION WELL LOCATIONS AND INJECTION

8. An ER scheme application cannot be submitted unless the proposed injection wells have been drilled.

Have the proposed injection wells been drilled? Yes No

9. An ER scheme application cannot be submitted unless the source of the proposed injection fluid has been secured.

Has the source of the proposed injection fluid has been secured? Yes No

10. Provide the following for the proposed injection well locations:

Well Licence Number	Unique Well Identifier (UWI)	Injection Interval (TVD mKB)		Porosity Interval (TVD mKB)		Fluid Interface (TVD mKB) if applicable	
		Top	Base	Top	Base	Gas/Oil	Oil/Water

11. What type of injection fluid, as indentified by Directive 051, will

- Class II - produced water (brine) without H₂S
- Class II - produced water (brine) with H₂S
- Class III - hydrocarbons or other gases without H₂S
- Class III - hydrocarbons or other gases with H₂S
- Class IV - non-saline water

11a. If an injection fluid contains H₂S and an emergency response plan (ERP) is required, the AER must ensure that an up-to-date ERP is in place prior to commencement of injection.

Have *Directive 071* requirements been met with respect to the proposed scheme? Yes No

If no, a discussion addressing the status of the ERP must be included in the Application attachment, in accordance with *Directive 065*.

12. Will injection commence in all proposed injection wells within twelve months of receipt of approval?

Yes No

If no, a discussion addressing the anticipated commencement of injection and the reason for the delay must be included in the Application attachment, in accordance with *Directive 065*.

4. PROPOSED APPROVAL AREA

13. Is the entire proposed approval area within the AER's Pool Order boundary for the subject pool?

Yes No

14. Does your interpretation of pool extent correspond to the AER's Pool Order boundary for the subject pool?

Yes No

15. Is the difference in pool delineation interpretation pertinent to the proposed ER scheme, in accordance with *Directive 065* ?

Yes No

Provide a discussion on the difference in pool delineation and the pertinence to the proposed ER scheme in the Application attachment, in accordance with *Directive 065*.

5. SCHEME DETAILS

16. Is the scheme area currently administered under good production practice (GPP)?

Yes No

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17. Will produced gas from the ER scheme area be conserved, in accordance with Directive 060 requirements? Yes No

18. What is the proposed voidage replacement ratio (VRR), on a monthly basis, for the scheme?

The AER normally specifies a cumulative VRR of 1.0 from production initiation as the upper bound, and a monthly VRR greater than a level chosen by the applicant as the lower bound. A technical justification is required if the elected cumulative VRR is greater than 1.0 or the monthly VRR target is lower than 0.2.

19. Is or will any gas cap gas be produced from the subject pool during the operation of the ER scheme? Yes No

If yes, include a discussion on the potential for fluid migration into the gas cap in the Application attachment, in accordance with *Directive 065*.

20. Is gas cap gas currently being produced from the scheme area? Yes No

20a. Has the appropriate concurrent production (CCP) approval been issued? Yes No

20b. An application for CCP is required.
Has an application for CCP been registered? Yes No

20c. If yes, provide the CCP application number.

6. WELL DETAILS

21. How many wells are being applied for?

22. Are there any changes to the voidage replacement ratio clause being requested? Yes No

22a. If yes:

Does the VRR on the basis of cumulative production and injection volumes following the commencement of production exceed 1.0? Yes No

Is the minimum monthly VRR less than 0.2 on a twelve-month rolling average basis? Yes No

A technical justification is required if you answered YES to any part of 22a.

23. Is the maximum wellhead injection pressure (MWHIP) being requested based on the default given in *Directive 065*, appendix O, table 1? Yes No

23a. If no, is the requested MWHIP based on a conclusive step-rate injectivity or in situ stress test as per *Directive 065*, appendix O, or *Directive 040*, section 4.7? Yes No

23b. If no, is the requested MWHIP based on 8x TVD? Yes No

24. Does the injection fluid contain hydrogen sulphide (H₂S) or carbon dioxide (CO₂)? Yes No
If yes, answer the following subquestions.

24a. Is the maximum CO₂ and H₂S concentrations disclosed in the application? Yes No

24b. Is the water analysis included with the application? Yes No

24c. If involving gas injection, is the gas analysis report included with the application for ER Schemes that include gas injection? Yes No

Note that clauses limiting the maximum concentrations of CO₂ and H₂S will be added to any approval.

25. Are there open hole abandoned wells penetrating the injection zone within an 800 m Yes No

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radius of the proposed injection wells?

- 25a. If yes, is cement plug information provided for the open hole abandoned wells? Yes No
- 25b. If yes, do the cement plugs in the open hole abandoned wells cover the entirety of the zone into which injection will occur? Yes No
26. Are there wells penetrating the injection zone within 50 m of the proposed injection wells? Yes No
- 26a. If yes, does the casing collapse rating of all wells within 50 m of the proposed injection wells exceed the sandface equivalent MWHIP proposed? Yes No
27. Are the injection completions in the proposed injection wells assigned by the AER to the pool for which enhanced recovery will occur? Yes No
28. Are the propose injection wells on freehold land? Yes No
- 28a. If yes, has a copy of the Crown indemnification letter been included with the application? Yes No
29. Will the proposed injection occur into a formation above the BGWP? Yes No
30. Are there active producing wells within the scheme area? Yes No

If you have any questions or comments, please contact the EAS Administrator.

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