Enhanced Oil Recovery Well Permit Application
Office of Conservation
Injection & Mining Division
P.O. Box 94275
Baton Rouge, LA 70804-9275

UIC-2 EOR

TYPE ONLY

1. Application to: ☐ Drill New Injection Well ☐ Convert to Injection Well	Conservation Order No._____
2. EOR Type: ☐ Gas ☐ Water ☐ Other	3. Operator Code:
4. Operator's Name and Address: 5. Phone ( )	

WELL INFORMATION

6. Proposed Well Name and Number:		7. Serial No. (Conversion)		
8. Field:	9. Parish: .	10. Sec	Twp.	Rng.
11. Location Description:				
12. Latitude:_____ Longitude:_____		Louisiana Lambert Coordinates (NAD 27) (Check One Coordinate Zone) ☐ North Zone ☐ South Zone X:_____ Y:_____		

WELL CONSTRUCTION INFORMATION

13. Casing Size	Hole Size	Casing Weight	Depth Set		Sacks Cement	Type Cement	Top of Cement
			Top	Bottom			

14. Tubing ☐ Steel ☐ Other (Identify)_____		Size	Depth
15. Packer: ☐ Tensional ☐ Compressional ☐ Permanent	Make	Model	Depth Set
16. Plugged-Back Depth:	17. Drilled-Out Depth:	18. Total Depth:	
19. Depth of Proposed Injection Sand: Top:_____ Bottom:_____	20. Formation Name(s):		

21. Injection through: ☐ Open Hole ☐ Perforations ☐ Screen	22. Proposed Perforated Interval (s): Top:_____ Bottom:_____
23. Mechanical Integrity Requirments for Casing, Tubing and Packer will be met by: ☐ Pressure Testing ☐ Annulus Pressure Monitoring	

PRESSURE CALCULATION DATA

24. Injection Rate (gallons/minute): Normal:_____ Maximum:_____	25. Injection Fluid Expected Temp (F): Summer:_____ Winter:_____

26. Depth to Uppermost Perforation: (from #21)_____ Ft.	27. Tubing Length (from #): _____ Ft.	28. Injection Fluid Density _____ PPG

OTHER INFORMATION

29. Were water wells located in the area of review? (A diligent search must have been made) If "yes", attach copies of Freshwater well analyses for wells.	☐ Yes ☐ No
30. Is the injection well located on Indian lands under the jurisdiction or protection of the federal government?	☐ Yes ☐ No
31. Is the injection well located on State water bottoms or other lands owned by or under jurisdiction of the State?	☐ Yes ☐ No

32. Agent or contact authorized to act for the operator during processing of this Application

Name:_____

Address:_____

Phone (____) _____

The signature below authorizes this agent or contact to submit additional information as requested and to give oral statements in support of this application.

CERTIFICATION BY OPERATOR

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on my personal knowledge or inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment

33. Name	34. Title
35. Signature	36. Date

ENHANCED OIL RECOVERY WELL PERMIT
APPLICATION PROCEDURES FOR
FORM UIC-2 EOR

- These procedures are intended to provide applicants a checklist to be sure all information is provided.

- This list applies both to new wells to be drilled as well as those to be converted for injection -- check all appropriate boxes.

  Supporting documentation will be required in the form of attachments. Label each of the attachments by number in the lower right-hand corner; example: "Attachment 2A"

- Attachment 8 (Office of Conservation Order - Signed by the Commissioner) is the only attachment that does not need to be submitted with the application; it must, however, be submitted before the permit is approved.

  The permitting process is a two-step procedure:

1st Step: After the Application is reviewed and found to be complete and to meet the requirements of Statewide Order 29-B, an **"Approval to Construct"** letter will be issued. This will allow the well to be drilled and completed or to be converted as described in the Application, **but not to inject**. A list describing the "Reporting Requirements" will be included with the "Approval to Construct" letter. The "Reporting Requirements" will tell you what you need to file with the Injection & Mining Division (IMD) after completion of the well and before issuance of the final well PERMIT TO INJECT.

2nd Step: The Well History, mechanical integrity test results, and logs are reviewed. If found adequate, a final "Permit" letter to inject fluids will be issued. If not adequate, the IMD will tell you what remedial action, if any, can be taken to obtain a "PERMIT TO INJECT".

OFFICE OF CONSERVATION ORDER

An order creating a Secondary Recovery or Enhanced Oil Recovery (EOR) project, signed by the Commissoner of Conservation, must exist before a permit can be issued to have an EOR well.

Interim approval may be issued for the drilling and completion of a new EOR well, or recompletion of an existing well, if the operator of the unit has scheduled and advertised for a Public Hearing to create an EOR project.

The operator wanting to drill or recomplete, prior to the signing of the Order, will drill or recomplete at his own risk.

In no case will the operator seeking a permit for the EOR well start injection prior to the issuance of a signed Office of Conservation Order for the EOR unit and a permit issued for the EOR well.

SUBMIT THE FOLLOWING IN ORDER:

- **Application for Permit or to Amend Permit to Drill for Minerals**

  ☐ **For a NEW WELL**, two copies of completed form MD-10-R (Yellow Card)

  ☐ **For a CONVERSION,** two copies of completed form MD-10-R-A (Pink Card)

  ☐ Both cards must have original signatures. The information provided must match items 1 to 12 ☐ on the Application (Form UIC-2 EOR).

- **Filing Fee**

☐ Check made payable to “Office of Conservation”,

☐ a. New Well $ 252

☐ b. Conversion $ 252 (Fee will be $378.00 if you are amending well name)

- **APPLICATION -- EOR Injection Well Permit Application**

☐ Form UIC-2 EOR with original ☐ signature. All items must be answered or noted “N/A”--not applicable. **Include pages 1 to 11 as part of the Application.**

ATTACHMENT 1 -- Location Plat

☐ **For a NEW WELL,** include an **original** certified drilling location plat, labeled “Attachment 1.” This plat may be combined with Attachment 2, as long as it is a certified plat. This plat must contain the latitude and longitude and the Lambert-X & Y coordinates for the NAD 27 and the NAD 83.

☐ **For a CONVERSION,** include the drilling location plat, labeled “Attachment 1.” It may be a photocopy. This plat may be combined with Attachment 2.

ATTACHMENT 2 -- Area of Review

☐ A. An Area of Review (AOR) map, labeled “Attachment 2A.” The AOR map must identify, within a one-quarter-mile (1320-ft.) radius of the proposed disposal well, the locations for the following:

- ☐ The proposed disposal well
- ☐ All producing wells
- ☐ All disposal/injection wells
- ☐ All shut-in wells
- ☐ All plugged and abandoned wells
- ☐ All dry holes
- ☐ All source water wells (for enhanced recovery)
- ☐ All freshwater wells
- ☐ Include a legend to identify each well and to otherwise clarify the AOR map. Except for freshwater wells, only information on file with the Office of Conservation and pertinent information known to the applicant is required to be included on this map.

☐ B. An “Area of Review Well List” (Attachment 2B) that identifies all wells in the AOR **except freshwater wells**. Use the enclosed Attachment 2B or you may make up your own list, as long as all the information is included; label the list, “Attachment 2B”. If no wells are found within the AOR indicate with “no wells found” on “Attachment 2B”.

☐ C. A “Freshwater Well List” (Attachment 2C) identifying the freshwater wells within the AOR. Each freshwater well shall be identified by owner, type of well, and status of well. If unclear on the AOR map (Attachment 2A), also describe how each freshwater well can be located in the field. Use the enclosed Attachment 2C or you may make up your own list, as long as all the information is included; label the list, “Attachment 2C”. If no fresh water wells are found within the AOR, indicate with “No wells found” on “Attachment 2C”. **A DILIGENT SEARCH MUST BE ATTEMPTED TO LOCATE ALL FRESHWATER WELLS WITHIN THE AOR.**

☐ D. Include a laboratory analysis of a water sample from **EACH** freshwater well, if obtainable, labeled

"Attachment 2D", "Attachment 2E", "Attachment 2F", etc. for each freshwater well. **The analysis sheet(s) must identify ☐ the freshwater well sampled, and, at a minimum, include measurement of:**

- ☐ Chloride (mg/l)
- ☐ Total Dissolved Solids (mg/l)

Provide an explanation if samples are not obtainable.

ATTACHMENT 3 -- Facility Diagram

☐ A surface facility diagram that shows the following, where applicable:

- ☐ Proposed well
- ☐ Tanks
- ☐ Pits
- ☐ Containment levees
- ☐ Flow lines entering and leaving the facility
- ☐ Rig supply well
- ☐ Pertinent buildings
- ☐ Landmarks and other significant structures or features

The diagram should be to scale or reasonably close, preferably on 8 ½" x 11" paper, and labeled, "Attachment 3".

ATTACHMENT 4 -- Well Schematic Diagram

☐ **For a NEW WELL**, two attachments are required: A schematic diagram of the proposed well, labeled "Attachment 4A".

☐ A work prognosis describing the sequence of work to be performed, labeled "Attachment 4B",

☐ **For a CONVERSION,** three attachments are required:

☐ A schematic diagram of the well as it currently exists (before conversion to injection), labeled "Attachment 4A".
☐ A schematic diagram of the well as it is proposed to be completed, labeled "Attachment 4B".
☐ A work prognosis describing the sequence of work to be performed, labeled "Attachment 4C".
If a cement bond log (CBL) has been run prior to submission of the application, please submit a copy with the application.

The schematic diagram(s) must match items 13 ☐ to 22 ☐ on the Application (Form UIC-2 EOR) and show the following:

☐ A. Surface equipment:

- ☐ Well head
- ☐ Pressure gauges
- ☐ Flow line diameters at wellhead
- ☐ Monitoring equipment, if used

☐ B. Subsurface equipment:

1. All casing strings:

- ☐ Diameter
- ☐ Weight (per foot)
- ☐ Depth set (top and bottom) Surface casing must extend at least 100 feet below the USDW.

2. ☐ Hole (drill bit) diameters

3. Exist cement specifications:
   - ☐ Type of class
   - ☐ Number of sacks
   - ☐ Tops of cement (indicate whether calculated/logged, or to be logged)

4. Proposed cement squeeze(s), if any:
   - ☐ Type or class
   - ☐ Number of sacks
   - ☐ Calculated top of cement (to be logged)

5. Injection tubing:
   - ☐ Diameter
   - ☐ Type or material
   - ☐ Depth

6. Packer:
   - ☐ Type
   - ☐ Depth set: Packer must be set no higher than 150 feet above the top of the injection zone. **Proof of isolation (bonded cement) of the Top of Injection Zone must be at or above the packer.**

7. Proposed Injection zone (see notes for Attachment 7):
   - ☐ Top
   - ☐ Bottom

8. Proposed initial perforated interval:
   - ☐ Top
   - ☐ Bottom

9. Depths (where applicable):
   - ☐ Total Depth
   - ☐ Drilled-out depth
   - ☐ Plugged-back depth

ATTACHMENT 5 -- Sources of Produced Water

☐ A list of all sources of injection fluid that is to be injected in the proposed well. Use the enclosed Attachment 5 or you may make up your own list, as long as all the information on the enclosed list is included on it and is labeled, “Attachment 5".

ATTACHMENT 6 -- Injection Fluid Analysis

☐ A laboratory analysis of a representative sample of the fluid to be injected into the proposed well, labeled “Attachment 6". The analysis sheet must indicate the source ☐ of the sample and, at a minimum, include measurement of :

- ☐ Chloride (mg/l)
- ☐ Total Dissolved Solids (mg/l)

- ☐ Specific gravity or density (g/cc or ppg)
- ☐ Temperature or sample when specific gravity was measured

ATTACHMENT 7 -- Electric Logs

☐ A copy or continuous folded photocopy of an electrical log. The log must be complete from the log heading to depth logged: the 5-inch/100-ft-scale portion is not necessary.

☐ The Serial Number of the well must be written on the log.

- **For a NEW WELL,** the log should be of a nearby well if available. The log should **be shallow enough** to show the base of the USDW and **deep enough** to show the proposed injection zone. Logs of more than one well may be included, if necessary, to show both the lowermost USDW and proposed injection zone. A diligent search must be made to locate at least one log within two miles of the proposed well. If a log is not available, use a sheet of paper labeled, "Attachment 7" which states, "No well logs are available within a two-mile radius of the proposed well".

- **For a CONVERSION,** the log should be of the proposed well itself. If the lowermost USDW was not logged, include a log of a nearby well that shows the lowermost USDW.

Indicate the following **<u>on each</u>** log:

☐ A. The base of the lowermost Underground Source of Drinking Water (USDW).

The USDW can be determined by the deep induction curve, generally the dotted curve, on the electric log. Since resistivity changes with temperature and, therefore, depth, **an approximate rule** that can be followed to determine the lowermost USDW is:

3 ohms from surface to 1000 feet;
2 ½ ohms from 1000 feet to 2000 feet;
2 ohms below 2000 feet.

That is, all sands that indicate higher resistivities than these are considered to be USDW's. Clay or shale intervals with resistivities higher than these are not considered USDW's.

☐ B. The top and bottom of the injection zone.

The zone requested must be <u>completely isolated</u> above and below by cement outside the perforated casing. **<u>In the instance of constructing a well having casing within the injection casing, in order to comply with the two string casing requirement, cement bond must be proven (Cement Bond Log) on the outer casing string prior to running the inner string of casing.</u>**

☐ C. The proposed initial perforated interval.

☐ D. The packer setting.

ATTACHMENT 8 -- Office of Conservation Order

☐ A copy of the signed Order creating the EOR project.

A copy of the type log used in the Office of Conservation Hearing to identify the formation, marked to identify the formation top and base.

ATTACHMENT 9 -- Well History and Work Resume Report

- ☐ **For a CONVERSION**, a photocopy of each Well History and Work Resume Report (Form WH-1) that have previously been filed with the Office of Conservation.

- ☐ **For a NEW WELL,** there is no Attachment 9, unless the "NEW" well is a reentry of a well that has been plugged and abandoned. In this case the WH-1 of the P & A'd well must be submitted as Attachment 9.

The above constitutes an "original" application. Also include a photocopy of all of the above. Both the "original" and the "photocopy" must be included to be considered a complete Application.

AREA OF REVIEW WELL LIST

Operator____Well Status*:______________

Well Name:____Serial No.:___________________

Total Depth:______________feet, Perforated Interval:_______________________to____________________

Operator____Well Status*:______________

Well Name:____Serial No.:_________________________

Total Depth:______________feet, Perforated Interval:_______________________to____________________

Operator____Well Status*:______________

Well Name:____Serial No.:_________________________

Total Depth:______________feet, Perforated Interval:_______________________to____________________

Operator____Well Status*:______________

Well Name:____Serial No.:_________________________

Total Depth:______________feet, Perforated Interval:_______________________to____________________

Operator____Well Status*:______________

Well Name:____Serial No.:_________________________

Total Depth:______________feet, Perforated Interval:_______________________to____________________

Operator____Well Status*:______________

Well Name:____Serial No.:_________________________

Total Depth:______________feet, Perforated Interval:_______________________to____________________

*Well Status: Producing, SWD, EOR Injection, Shut-in (future utility) P&A's, etc.

FRESHWATER WELL LIST

☐ **A diligent search was made to all freshwater wells within a 1/4 mile of the proposed well and no wells were located.**

☐ **A diligent search was made to all freshwater wells within a 1/4 mile of the proposed well and the following wells were located.**

Owner:_____

Type:*_____Status:**_____Depth:_____

Location:_____

_____

Owner:_____

Type:*_____Status:**_____Depth:_____

Location:_____

Owner:_____

Type:*_____Status:**_____Depth:_____

Location:_____

_____

Owner:_____

Type:*_____Status:**_____Depth:_____

Location:_____

_____

*Type of Well: PUBLIC SUPPLY, DOMESTIC (supplies one or a few homes), INDUSTRIAL (including commercial), LIVESTOCK, IRRIGATION (including catfish & crawfish farming), MONITORING, RIG SUPPLY, HEAT PUMP SUPPLY, OBSERVATION (by a qualified agency or company), AQUIFER DEWATERING, RECOVERY (of contaminants), other (describe).

**Status of Well: ACTIVE (used at least once a month), STANDBY, INACTIVE (but useable with minor work or effort), PLUGGED & ABANDONED, etc.

INJECTION FLUID SOURCE WELL LIST

Operator_____ Operator Code:_____

Well Name:_____ Serial No.:_____

Field:_____ Formation:_____

Perforated Interval:_____ to _____

Operator_____ Operator Code:_____

Well Name:_____ Serial No.:_____

Field:_____ Formation:_____

Perforated Interval:_____ to _____

Operator_____ Operator Code:_____

Well Name:_____ Serial No.:_____

Field:_____ Formation:_____

Operator_____ Operator Code:_____

Well Name:_____ Serial No.:_____

Field:_____ Formation:_____

Perforated Interval:_____ to _____

Operator_____ Operator Code:_____

Well Name:_____ Serial No.:_____

Field:_____ Formation:_____

Perforated Interval:_____ to _____