





**COMMERCIAL SALTWATER DISPOSAL WELL PERMIT  
APPLICATION PROCEDURES FOR  
FORM UIC-2 COM SWD**

**PERMITTING PROCESS**

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- Upon receipt of the original submittal, an Initial Application Review letter will be sent out by the Injection and Mining Division (IMD) noting missing or incorrect information.
- Additional revisions to the application may be requested as the application progresses through the technical review process. Please include the 'Application No.' assigned by IMD on the upper right corner of each page of the revisions. The 'Application No.' can be found on your receipt letter, which you should receive within two weeks of receipt of your Application by IMD.
- 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 (witnessed by a IMD inspector), 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".

**PUBLIC NOTICE**

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▪ **For a proposed COM SWD WELL at a NEW FACILITY:**

Refer to LAC 43:XIX.519.B for public notice guidance for proposed Commercial SWD Wells at a New Commercial Facility.

▪ **For a proposed COM SWD WELL at an EXISTING FACILITY:**

Refer to LAC 43:XIX.529.B for public notice guidance for proposed Commercial SWD Wells at an Existing Commercial Facility.

**APPLICATION GUIDELINES**

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- These procedures are intended to provide applicants with a checklist to ensure all information is provided. Depending on the given well, additional items may be required.
- This list applies to new wells to be drilled and those to be converted, re-drilled, or re-permitted for injection.
- Supporting documentation is required in the form of attachments. Label each of the attachments by number in the lower right-hand corner; example: "Attachment 2A".
- Any Orders pertaining to the permitting of this well should also be attached.
- Items 30 through 33 of the Form UIC-2 COM SWD Application should be certified with an original signature from an associate of the operating company. The associate may be an officer; manager; general partner; proprietor; operator of the well, field or facility; or any direct employee of the operating company employed in a decision-making role. This Division will not accept a signature from an agent or consultant of the operating company to certify the application.
- If the surface casing is not set 100 feet below the base of the Underground Source of Drinking Water (USDW), please contact a Geologist with this Division for guidelines pertaining to surface casing variances.

SUBMIT THE APPLICATION IN THE FOLLOWING ORDER:

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

- **For a NEW DRILL or RE-DRILL**, two copies of completed form MD-10-R (Yellow Card)
- **For a CONVERSION or RE-PERMIT**, two copies of completed form MD-10-R-A (Pink Card)
- Both cards must have original signatures. The information provided must match items 3 to 11 on the Form UIC-2 COM SWD Application.

▪ **Filing Fee**

Check made payable to "Office of Conservation". Please refer to LAC 43:XIX.Chapter 7 for the current fee schedule or contact the IMD at (225) 342-5515.

▪ **Nonrefundable Hearing Fee**

- **For a NEW DRILL or CONVERSION at a NEW FACILITY**, make check payable to "Office of Conservation". Please refer to LAC 43:XIX.Chapter 7 for the current fee schedule or contact the IMD at (225) 342-5515.
- **For a NEW DRILL or CONVERSION at an EXISTING FACILITY**, not applicable unless a hearing is requested, and is subsequently approved by the Commissioner of Conservation.

▪ **APPLICATION – Commercial Saltwater Disposal Well Permit Application**

- Form UIC-2 COM SWD with an original signature from an officer with the operating company authorized to certify the application.
- All items must be answered or noted "N/A"--not applicable.

▪ **ATTACHMENT 1 -- Location Plat**

- **For a NEW DRILL, RE-DRILL, or RE-PERMIT**, 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. The IMD requires that the Location Plat contains geographic coordinates in GCS- Latitude, Longitude (NAD27 and NAD 83) and State Plane- X,Y (Lambert, NAD27 and NAD83) for the proposed COM SWD well. The location plat must reflect, at a minimum, a Class D Survey as defined by the Professional and Occupational Standards for Professional Engineers and Land Surveyors in LAC 46:LXI.2905.A.4. A Class D Survey requires a degree of accuracy to the nearest foot.
- **For a CONVERSION**, include the drilling location plat, labeled "Attachment 1." It may be a photocopy if the correct State Plane- X,Y (Lambert, NAD27) coordinates are available in the DNR database (SONRIS). If State Plane- X,Y coordinates are missing or are incorrect in SONRIS, an original certified location plat must be submitted. This plat may be combined with Attachment 2 and must meet the same requirements as those defined for a new drill, re-drilled, or re-permitted wells.

▪ **ATTACHMENT 2 -- Area of Review**

**2A. Area of Review (AOR) Map (Attachment 2A)**

The AOR map must identify, within a one-quarter-mile (1320-ft.) radius of the proposed injection well, the locations for the following:

- The proposed injection well
- All producing wells
- All 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.

## **2B. AOR Well List (Attachment 2B)**

The AOR Well List must identify all wells in the AOR except for the freshwater wells. A diligent search must be attempted to locate all wells within the AOR of the proposed injection well. The search must include:

- Conducting a foot-search of the AOR to identify any wells in the field;
- Searching SONRIS for wells in the DNR database; **AND**
- Researching field maps and company files.

The search should identify the following types of wells: all producing wells, all injection wells, all shut-in wells, all plugged and abandoned wells, all dry holes, and all source water wells (for enhanced recovery).

Applicants must complete the Area of Review Well List that is included in this application package. IMD will not accept printouts of the SONRIS database search in lieu of the Area of Review List. If no wells are found within the AOR, then type "No Wells Found" on "Attachment 2B".

## **2C. Freshwater Well List (Attachment 2C)**

The Freshwater Well List must identify all the freshwater wells within the AOR. A diligent search must be attempted to locate all freshwater wells within the AOR of the proposed injection well. The search must include:

- Conducting a foot-search of the AOR to identify any freshwater wells in the field;
- Searching the Department of Transportation and Development's (DOTD) database of Registered Water Wells in the state of Louisiana (<http://www.dotd.state.la.us/intermodal/wells/disclaimer.asp>). A printout of the DOTD database search must be included with the application package; **AND**
- Researching company files for Rig Supply wells.

Applicants must complete the Freshwater Well List that is included in the Form UIC-2 SWD Application package. IMD will not accept printouts of the DOTD database search in lieu of the Freshwater Well List. All wells listed on the Freshwater Well List must be plotted on the Area of Review Map and/or the Location Plat.

## **2D. Include a printout of the DOTD database search of the AOR and label the list "Attachment 2D."**

## **2E. Laboratory Analyses (Attachment 2E)**

Include a laboratory analysis of a water sample from EACH freshwater well listed on "Attachment 2C." Identify each sample using the DOTD Well ID of the well that was sampled. If the well is not registered with the DOTD database, identify the sample using the well name that used to identify the well on the Freshwater Well List (Attachment 2C). The laboratory analysis must be a **signed original** from a LDEQ LELAP accredited laboratory. A PDF list of Accredited Laboratories can be found on the LDEQ website, <http://www.deq.louisiana.gov>, under **Divisions >> Laboratory Services >> Laboratory Accreditation**. 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**

The diagram should be to scale (or reasonably close) and labeled, "Attachment 3." A surface facility diagram that shows the following, where applicable:

- Proposed well
- Storage tanks
- Containment levees
- Flow lines entering and leaving the facility
- Filters
- Treatment system/equipment
- Other Class II wells
- Access roads
- Buildings
- Unloading areas
- Barges
- Containers (including design capacities)
- All other equipment and operational features of the storage, treatment and/or disposal system

▪ **ATTACHMENT 4 -- Well Schematic Diagram**

**For a NEW DRILL**, 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, RE-DRILL, or RE-PERMIT**, 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 Form UIC-2 COM SWD Application and show the following:

**Surface equipment:**

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

**Subsurface equipment:**

- All casing strings:
  - Diameter
  - Weight (per foot)
  - Depth set (top and bottom).

**Surface casing must extend at least 100 feet below the USDW.**

- Hole (drill bit) diameters
- Cement specifications:
  - Type of class
  - Number of sacks
  - Tops of cement (indicate whether calculated, logged, or to be logged)
- Proposed cement squeeze(s), if any:
  - Type or class
  - Number of sacks
  - Calculated top of cement (to be logged)
- Injection tubing:
  - Diameter
  - Type or material
  - Depth
- Packer:
  - Type
  - Depth

**The packer must be set at or below the cement in the wellbore that is bonded to the first isolation shale formation immediately above the top of the proposed injection zone. But in no case, should the packer be set higher than 150 feet above the top of the proposed injection zone. Proof of isolation (bonded cement) must be provided by a cement bond log (CBL).**

- Proposed injection zone (see notes for Attachment 7):
  - Top
  - Bottom
- Proposed initial perforated, open-hole, or screened interval:
  - Top
  - Bottom
- Depths:
  - Total Depth
  - Drilled-out depth (where applicable)
  - Plugged-back depth (where applicable)

▪ **ATTACHMENT 5 -- Injection Fluid Analysis**

A laboratory analysis of a representative sample of the fluid to be injected in the proposed well, labeled "Attachment 5". The laboratory analysis must be a **signed original** from a LDEQ LELAP accredited laboratory. A PDF list of Accredited Laboratories can be found on the LDEQ website, <http://www.deq.louisiana.gov>, under Divisions>>Laboratory Services>>Laboratory Accreditation.

The analysis sheet must indicate the source of the sample and IMD should be able to track the sample to the fluid source wells. At a minimum, the analysis should include measurement of:

- |   |  |
|---|--|
| ○ Chloride (mg/l)                           | ○ Total Dissolved Solids (mg/l)                            |
| ○ Specific gravity or density (g/cc or ppg) | ○ Temperature of sample when specific gravity was measured |

▪ **ATTACHMENT 6 – MASIP Calculation Request**

The Maximum Surface Injection Pressure (MASIP) can be calculated **based on the fracture gradient of the injection formation**, or **based on the fracture gradient of the confining formation**. Applicants must request how the MASIP should be calculated for the proposed well. Please refer to Attachment 6- MASIP Calculation Request (included in this application package) for additional information regarding each calculation's requirements. Complete, sign, and submit the request, with any other necessary information, as Attachment 6 of the Form UIC-2 SWD Application.

▪ **ATTACHMENT 7 -- Electric Logs**

**For a NEW DRILL**, please include electric logs (e-log) of the closest well to the proposed well location which show the proposed injection zone and USDW. E-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 e-log within one mile of the proposed well. If an e-log can not be located within one mile, a search may be extended up to two miles. If an e-log is not available, use a sheet of paper labeled, "Attachment 7" which states, "No e-logs are available from wells within a two-mile radius of the proposed well location".

**For a CONVERSION, RE-DRILL, or RE-PERMIT**, please include a duplicate of the original e-log or a photocopy of the e-log from the well proposed for conversion. If the lowermost USDW was not logged, please include an e-log from a well within a one-mile radius that shows the lowermost USDW.

**Please apply the guidelines below and mark the following information on the e-logs:**

○ **The Serial Number of the Well**

Mark with e-log with the serial number of the well, and ensure that the complete e-log, from the header to the bottom logged interval, is submitted. The 5-inch/100-ft-scale portion is not necessary.

○ **The Base of the Lowermost Underground Source of Drinking Water (USDW)**

Conduct a one-mile search from the proposed well location to locate the closest well with an e-log that shows the lowermost USDW. The USDW can be determined from the deep induction curve, generally the dotted curve, on the e-log. Resistivity changes with temperature and depth, therefore the guidelines below are used to approximate the lowermost USDW in sands at the following depths:

- **Ground surface to 1,000 feet: 3 ohms or higher is considered USDW;**
- **1,000 feet to 2,000 feet: 2 ½ ohms or higher is considered USDW; and**
- **2,000 feet and deeper: 2 ohms or higher is considered USDW.**

Clay or shale intervals with resistivities higher than these are not considered USDW's. Please provide an e-log from the search area that shows there is at least 100 feet of net shale between the top of the proposed injection zone and the base of the USDW.

○ **The Top and Bottom of the Proposed Injection Zone**

- An injection zone consisting of multiple sands may be permitted, provided that the USDW and sands capable of hydrocarbon production are isolated. Permitting a zone of multiple sand units will allow for future perforations within the permitted injection zone by applying for a work permit (Form UIC-17).
- Cement isolation confining the top of the proposed injection zone must be confirmed by a Cement Bond Log (CBL). The CBL must show cement in the wellbore bonded to the first isolating shale formation immediately above the approved injection zone.
- The packer must be set at or below the cement isolation confining the top of the proposed injection zone, but no more than 150 feet above the top of zone.
- Conduct a one-mile search from the proposed well location to locate productive wells. Ensure that there is at least 100 feet of net shale between the proposed injection zone and any productive intervals.

○ **The Proposed Perforated Interval**

▪ **ATTACHMENT 8 -- Geologic Cross Sections**

Provide strike and dip geologic cross sections in the north-south and east-west directions, which intersect at the location of the proposed injection well. These cross sections must include, at a minimum:

- Available log control: label the serial number, well name, and well number of each e-log
- Geologic units
- Lithology from the surface to the lower confining bed below the proposed injection zone
- Local geology in at least a two-mile radius from the proposed injection well
- Base of the Underground Sources of Drinking Water
- Vertical and Lateral limits of the proposed injection zone (reservoir)
- Vertical and Lateral limits of the upper and lower confining beds
- Location of faults or other geologic structures
- Vertical and horizontal scales

▪ **ATTACHMENT 9 – Commercial Saltwater Disposal Well Closure Plan and Cost Estimate**

Provide a closure plan for plugging and abandoning the proposed well and a cost estimate to implement the closure plan.

▪ **ATTACHMENT 10 -- Public Notice**

An original copy of proof of publication of each legal notice. Please check for accuracy of serial number; well name and number; section, township, and range; etc. If these are not correct, the publication will not be acceptable. You will be billed by each journal for the publication.

Complete the legal notice attachment and send the notice to:

- The state journal: ***The Advocate*, Legal Ad Department, P.O. Box 588, Baton Rouge, LA 70821, (225) 388-0128.**
- The parish journal. Contact the Louisiana Secretary of State-Publication Division for a list of the parish journals at **(225) 922-0309** or view the list on-line at <http://www.sos.louisiana.gov/pubs/pubs-opj.htm>.
- The journal of general circulation.

The journal will send you a notarized “Proof of Publication”, which is to be labeled, “Attachment 10”, and included as part of the Application. If the Proof of Publication is not received when the Application is sent to the IMD, it may be sent later provided you also write the Application No. on the Public Notice. The “Application No.” can be found on your receipt letter, which you should receive within two weeks after your Application reaches the IMD.

▪ **ATTACHMENT 11 -- Well History and Work Resume Report**

- **For a CONVERSION or RE-PERMIT**, 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 RE-DRILL**, a photocopy of the previously filed WH-1 that documents the plugging and abandonment of the well.
- **For a NEW DRILL**, there is no Attachment 11.

▪ **DUPLICATE COPY**

Please include a photocopy of the **complete application and attachments**. Both the “original” and the “photocopy” must be included to be considered a complete Application.





### MASIP CALCULATION REQUEST

(Check the box next to the appropriate request and complete the requested information.)

- The applicant requests to calculate the Maximum Authorized Surface Injection Pressure (MASIP) **based on the fracture gradient of the injection formation**. As described in Intra-Office Policy Statement No. IMD 1999-03, the MASIP will be calculated not to exceed 90% of the calculated fracture pressure of the injection zone based on Eaton's Correlation of 9 ppg formation fluid. The following information has been provided:
- The specific gravity of the injection fluid is \_\_\_\_\_, as reported in Attachment 6 - Fluid Source Analyses.
  - The top of the proposed perforations is \_\_\_\_\_ feet, as given in Item No. 21 of the Form UIC-2 SWD application.
  - An area of review of **one-quarter (1/4) mile** (1,320 feet) has been conducted and all of the wells located within the radius have been identified in Attachment 2B. Each well in the AOR will be evaluated for deficiencies. If deficiencies exist, the well(s) will be properly plugged and abandoned or remediated using another approved corrective action to protect the USDW.

The signature provided at the bottom of this page certifies the applicant understands this requirement.

- The applicant requests to calculate the MASIP **based on the fracture gradient of the confining formation**. As described in Intra-Office Policy Statement No. IMD-GS-09, the MASIP will be calculated by limiting the pressure at the depth of injection to 75% the pressure needed to fracture the confining formation. The following information has been provided:

- The specific gravity of the injection fluid is, \_\_\_\_\_, as reported in the fluid source analyses (Attachment 6).
- The top of the proposed perforations, \_\_\_\_\_ feet, as given in Item No. 21 of the Form UIC-2 SWD application.
- The geomechanical data of the confining zone above the proposed injection zone  has been or  will be derived from one of the following methods:
  - Subsurface acquisition and testing of the confining beds,
  - Wireline logging to generate mechanical properties,
  - Leak-off testing of the confining beds using fluid with timed velocity, or
  - Other acceptable procedure: \_\_\_\_\_

The results of the proposed procedure  have been submitted as Attachment 7A, or  will be submitted prior to issuance of a permit to inject for the proposed well.

- An area of review of **one-half (1/2) mile** (2,640 feet) has been conducted and all of the wells located within the radius have been identified in Attachment 2B. Each well in the AOR will be evaluated for deficiencies. If deficiencies exist, the well(s) will be properly plugged and abandoned or remediated using another approved corrective action to protect the USDW.
- The proposed top of the injection zone is approximately \_\_\_\_\_ feet from the base of the USDW. If the difference between the top of the proposed injection zone and the base of the USDW is less than 1,000 feet, then the MASIP will be based on a surface pressure gradient not to exceed 0.25 psi/ft, calculated with respect to the top of the proposed perforations or the top of the open-hole completion.
- The surface casing is set at least 100 feet below the base of the USDW.
- A groundwater monitoring plan has been submitted as Attachment 7B and includes all of the following provisions:
  - Installation of a monitoring well or wells that is screened or perforated at the base of the USDW.
  - Collection of fluid from the monitoring well or wells, which will be sampled by a third party and analyzed by a LDEQ, LELAP accredited laboratory on a quarterly basis for:
    - Chlorides
    - Total dissolved solids
    - BTEX
    - Specific gravity
    - Temperature
    - pH
  - Collection of a fluid level in the monitoring well or wells on a monthly basis.
  - Submission of a quarterly report, which includes all laboratory analytical data and fluid level measurements. The report will be submitted to the Injection and Mining Division within 30 days of the end of the quarter in which the sampling and measurements were performed. It is understood that failure to file reports or delinquent filings will result in enforcement actions.

The signature provided below certifies the applicant understands this requirement.

\_\_\_\_\_  
OPERATOR'S SIGNATURE

\_\_\_\_\_  
DATE

**PUBLIC NOTICE**

In accordance with the laws of the State of Louisiana and the particular reference to the provisions of LA R. S. 30:4, and the provisions of Statewide Order No. 29-B as amended and adopted by the Office of Conservation of the State of Louisiana

is applying to the Injection and Mining Division of the Office of Conservation for a permit to dispose of \_\_\_\_\_ by means of an injection well, which is identified as

\_\_\_\_\_ SWD Well No. \_\_\_\_\_  
Serial Number \_\_\_\_\_ with the injection zone at an approximate  
(Conversion or Re-Permit Only)  
depth of \_\_\_\_\_ ft. to \_\_\_\_\_ ft. The well location is  
Section \_\_\_\_\_ Township \_\_\_\_\_ Range \_\_\_\_\_  
\_\_\_\_\_ Field, \_\_\_\_\_ Parish, Louisiana.

All interested parties are hereby given an opportunity to submit written comments no later than thirty (30) days from the date of this publication. Identify the well when corresponding. Direct comments to:

Office of Conservation  
Injection & Mining Division  
P.O. Box 94275  
Baton Rouge, LA 70804-9275  
Re: Comments for SWD Application