

RECENT CHANGES TO LOUISIANA'S UNDERGROUND INJECTION CONTROL PROGRAM



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Introduction and Background

The Louisiana Underground Injection Control (UIC) program is administered by the Injection and Mining Division of the Office of Conservation within the Louisiana Department of Natural Resources (DNR). The program was delegated to Louisiana by the United States Environmental Protection Agency (EPA) in 1982 pursuant to provisions of the Safe Drinking Water Act of 1974. Through the delegation, Louisiana was given full permitting and enforcement authority, or primacy, over the state's UIC Program, subject to semi-annual EPA oversight.

The goal of the program is to protect Underground Sources of Drinking Water (USDW) and other state natural resources by regulating subsurface injection through the use of well injection. A USDW is defined by the EPA as: (1) an aquifer or its portion which supplies any public water system; or (2) an aquifer or its portion which contains a sufficient quantity of groundwater to supply a public water system and also either (a) currently supplies drinking water for human consumption; or (b) contains fewer than 10,000 mg/l total dissolved solids and which is not an exempted aquifer.

Under the Louisiana UIC Program, there are six different classes of injection wells:

- Class I: Industrial (hazardous or nonhazardous) or Municipal Waste
- Class II: Oil and Gas Waste, Enhanced Recovery of Hydrocarbons, or Hydrocarbon Storage in a Salt Cavern
- Class III: Mineral Solution Mining
- Class IV: Wells injecting Hazardous or Radioactive Waste into or above a USDW (banned unless authorized as an RCRA or CERCLA cleanup)
- Class V: Wells not covered under any other Class (aquifer remediation, heat pump/ac return flow well, for example)
- Class VI: Carbon Dioxide Sequestration

The regulations of the Office of Conservation are codified in the Louisiana Administrative Code at Title 43, which was recently amended substantially with respect to solution-mining and storage in salt domes -- or Class III and Class II UIC wells. These amendments are the main focus of this paper and the associated presentation.

The Napoleonville Salt Dome and the Bayou Corne Sinkhole

In August of 2012, a large area of wooded swamp in the Bayou Corne area began to subside, ultimately resulting in the formation of a sinkhole which is currently approximately 26 acres in size. After investigation by the DNR and other government agencies, it was determined that there had been an apparent sidewall collapse of an underlying cavern in the Napoleonville Salt Dome. The cavern in question had been used exclusively for solution mining operations, not for storage or disposal. The State of Louisiana has stated in litigation pleadings that the cavern was solution-mined too close to the edge of the salt dome, causing cavern instability.

Recent Statutory and Regulatory Amendments Regarding Class II and Class III UIC Wells

Primarily in response to the Bayou Corne sinkhole, three bills increasing state regulations related to salt dome solution mining and storage obtained legislative approval during the 2013 Louisiana state legislative session and became effective on June 12, 2013. The new laws required the Louisiana Commissioner of Conservation to create stricter guidelines for monitoring and assessing the geology and stability of the area around salt dome caverns and solution mining wells and provide for significant penalties for violations. The laws also impose new public notification requirements for operators and require sellers of property to disclose to buyers any known salt dome caverns within a half mile of their property. The new laws are summarized below.

Representative Karen St. Germain authored HB 493, which required the Louisiana Commissioner of Conservation (the Commissioner) to implement new regulations regarding solution mining injection wells and the resulting solution mined caverns. Pursuant to HB 493, the new regulations had to include requirements for, among other things: submission of the locations of caverns in relation to other caverns and the periphery of the salt stock every five years, setback distances for new caverns from the edge of the salt stock, enhanced monitoring of existing caverns, and site assessments and updates on the stability of the salt stock and surrounding sediment.

Representative St. Germain also authored HB 494, which imposes new requirements on sellers of property located near salt dome caverns, as well as salt dome owners and operators. Sellers of property are now required to disclose to buyers whether a salt dome cavity is located within a half mile of the property being sold. Additionally, owners or operators of salt dome caverns are required to provide public notice of the location of their caverns by filing the survey plats of their cavern well locations in the parish mortgage and conveyance records. The failure of an owner to file, or to ensure that the operator has filed, the required public notice may constitute grounds for an action of redhibition by a purchaser of the owner's property.

Senator Rick Ward, III authored SB 139, which authorizes the Commissioner to assess substantial penalties for noncompliance with regulations for salt dome storage caverns or solution mining. The new law allows for a penalty of up to \$32,500 per day for each violation. However, an additional penalty of \$1 million is authorized for intentional, willful, or knowing violations that result in discharges or disposals which (a) cause severe environmental damage, or (b) endanger human life or health. Under the new law, noncompliance with regulations can also result in revocation or suspension of a permit, license, or variance. Additionally, failure to timely correct noncompliance with a compliance or cease-and-desist order could result in an additional penalty of up to \$50,000 per day for each day of continued noncompliance. The law provides criteria for assessing the amount of the penalties, including:

- history of previous violations;
- nature and gravity of the violation;
- degree of culpability, recalcitrance, defiance, or indifference;
- monetary benefits realized through noncompliance;
- degree of risk to human health or property;
- whether the noncompliance or violation was immediately reported to the Commissioner or whether there was attempted concealment;
- whether there was an attempt to mitigate damages; and
- costs of prosecuting an enforcement action.

Pursuant to the new laws, revised DNR regulations (also referred to as Office of Conservation “Statewide Orders”) were published for public comment in October of 2013 and became effective in February of 2014. Some of the key elements of the new regulations include the following:

- Statewide Order 29-M-3 applies to salt dome solution-mining wells, and Statewide Order 29-M applies to salt dome storage caverns.
- The applicant, owner or operator is responsible for showing that the operation will be accomplished using good engineering and geologic practices for solution-mining or storage operations to preserve the integrity of the salt stock and overlying sediments. In addition to all applicants showing this in their applications and as part of periodic compliance review, the Commissioner must require any owner or operator of a solution-mining or storage cavern to provide the same or similar information, including information regarding the following:
 - engineering, geological, geomechanical, geochemical, and geophysical properties of the salt stock;

- stability of the salt stock and overlying and surrounding sediments;
 - stability of the cavern design;
 - amount of separation between the cavern of interest and adjacent caverns and structures within the salt stock;
 - amount of separation between the outermost cavern wall and the periphery of the salt stock; and
 - well information and oil and gas activity within the vicinity of the salt dome.
- Applicants must perform a thorough hydrogeological study on strata overlying the salt stock to determine the occurrence of the lowermost underground source of drinking water immediately above and in the vicinity of the salt stock.
 - Applicants must investigate regional tectonic activity and the potential impact (including ground subsidence) of the project on surface and subsurface resources.
 - Minimum separation between walls of adjacent caverns or between the walls of the cavern and any adjacent cavern or any other manmade structure within the salt stock must not be less than 200 feet. Caverns permitted prior to the effective date of the new regulations, and which are already within 200 feet of any other cavern or manmade structure within the salt stock, may be approved by the Commissioner for continued operation upon a proper showing by the operator that the cavern is capable of continued safe operations.
 - No newly permitted cavern may be within 300 feet away from the periphery of the salt stock.
 - If an existing cavern has less than 300 feet of salt separation at any point between the cavern walls and the periphery of the salt stock, the operator must provide the Office of Conservation with an enhanced monitoring plan that has provisions for ongoing monitoring of the structural stability of the cavern and the salt through methods which may include, but are not limited to:
 - increased frequency of sonar caliper studies;
 - vertical seismic profiles; and
 - increased frequency of subsidence monitoring, mechanical integrity testing, and continuous cavern pressure data monitoring.

- Without exception or variance to the new rules, an existing cavern with cavern walls 100 feet or less from the periphery of the salt stock must be removed from service immediately and permanently.
- Without exception or variance to the new rules, no cavern may be used for solution-mining or storage if the cavern roof has grown above the top of the salt stock.
- The proximity of all existing and proposed caverns to the periphery of the salt stock and to manmade structures within the salt stock must be demonstrated every five years.
- Operators must agree to the following:
 - assistance to residents of areas deemed to be at immediate potential risk in the event of a sinkhole or other incident that requires evacuation where the potential risk of evacuation is associated with the operation of the well or cavern; and
 - reimbursement to the state or any political subdivision of the state for reasonable and extraordinary costs incurred in responding to or mitigating a disaster or emergency due to a violation of the new rules.
- The operator must report any noncompliance that may endanger the environment, or the health, safety and welfare of the public within 24 hours of becoming aware of the circumstances. The 24-hour reporting requirement specifically includes:
 - monitoring or other information (including a failed mechanical integrity test) that suggests the operations may cause an endangerment to underground sources of drinking water, oil, gas, other commercial mineral deposits (excluding the salt), neighboring salt operations of any kind, or movement outside the salt stock or cavern; and
 - any noncompliance with the regulatory or permit condition or malfunction of the injection/withdrawal system (including a failed mechanical integrity test) that may cause fluid migration into or between underground sources of drinking water or outside the salt stock or cavern.
- Plans for closure to wells and caverns and related surface facilities must be submitted as part of any permit application. Any closure plan must be approved by the Commissioner. The owner and operators must review closure plans annually to determine if the conditions for closure are still applicable to the actual conditions at the site. Any revision to the closure plan must be submitted to the Office of Conservation for approval.
- Post-closure plans for wells and caverns and the related surface facilities must also be submitted as part of a permit application and must be approved by the Commissioner.

The obligation to implement the post-closure plan survives the termination of a permit or the termination of operations. The post-closure plan must also be reviewed annually by the owner or operator and any revisions to the plan must be submitted to the Office of Conservation for approval.

- The Commissioner must review each permit at least once every five years to determine whether it should be modified, revoked and reissued, terminated, or whether a minor modification needs to be made.
- Existing solution-mining wells or storage caverns that were in compliance with the prior regulations, but are not in compliance with the new regulations, may continue to operate for a year under the provisions of the prior regulations. However, within that year, the operator must submit an alternative means of compliance or a request for a variance, or present a corrective action plan to meet the requirements of the new regulations.
- Additionally, any operators that had been granted variances under the prior rules must submit documentation for review regarding the previously granted variance within one year of the effective date of the new regulations. Based on the Commissioner's review of the variance documentation, he may terminate, modify, or revoke and reissue the existing permit with the variance if he determines that continued operations cannot be conducted safely with the variance. If the Commissioner does not terminate, modify, or revoke and reissue the existing permit, the operator may continue to operate in compliance with the variance.
- Except where specifically noted otherwise in the new regulations, exceptions or variances to the regulations may be allowed on a case-by-case basis. In order to obtain an exception or variance, the applicant must show that the requested exception or variance does not result in an unacceptable increase of endangerment to the environment, or the health, safety and welfare of the public. Granting of exceptions or variances may only be considered upon a proper showing by the applicant that the exception or variance is reasonable, justified by the particular circumstances, and consistent with the intent of the regulations.
- Solution-mining wells or storage caverns in existence as of the effective date of the new regulations, or those with approved applications containing information submitted pursuant to these rules, may operate in accordance with "alternative means of compliance," which is defined as operations that are capable of demonstrating a level of performance, which meets or exceeds the standards contemplated by the new regulations. Operators of caverns existing at the time of the new rules may submit alternative means of compliance for approval, and the Commissioner may approve the alternative means of compliance upon finding that the alternative means of compliance meet, ensure and comply with the purpose of the regulations and ensure comparable or greater safety of personnel and property, protection of the environment and public, quality of operations and maintenance, and protection of USDW.

A more detailed breakdown and analysis of the new regulations will be provided in the presentation.