# RULE

Department of Natural Resources

Office of Conservation

Class V Storage Wells in Solution-Mined Salt Dome Cavities
(LAC 43:XVII.Chapter 37)

The Department of Natural Resources, Office of Conservation has promulgated LAC 43:XVII.Chapter 37 in accordance with the provisions of the Administrative Procedure Act, R.S. 49:950 et seq., and pursuant to the power delegated under the laws of the state of Louisiana. The action adopts Statewide Order No. 29-M-5, which provides comprehensive regulations for storage wells containing hydrogen, nitrogen, ammonia, compressed air, or noble (inert and nonreactive) gases whether liquid, liquefied, or gaseous in salt dome cavities.

Title 43

NATURAL RESOURCES

Part XVII. Office of Conservation⎯Injection and Mining

Subpart 7. Statewide Order No. 29-M-5

Chapter 37. Storage Wells in Solution-Mined Salt Dome Cavities

§3701. Definitions

*Act—*Part I, chapter 1 of title 30 of the *Louisiana Revised Statutes*.

*Active Cavern Well—*a storage well or cavern that is actively being used or capable of being used to store liquid, liquefied, or gaseous substances, including standby wells. The term does not include an inactive cavern well.

*Application*―the filing on the appropriate Office of Conservation form(s), including any additions, revisions, modifications, or required attachments to the form(s), for a permit to operate a storage well or parts thereof.

*Aquifer*―a geologic formation, groups of formations, or part of a formation that is capable of yielding a significant amount of water to a well or spring.

*Blanket Material*―sometimes referred to as a "pad." The blanket material is a fluid or gas placed within a cavern that is lighter than the water in the cavern and will not dissolve the salt or any mineral impurities that may be contained within the salt. The function of the blanket is to prevent unwanted leaching of the cavern roof, prevent leaching of salt from around the cemented casing, and to protect the cemented casing from internal corrosion. Blanket materialtypically consists of crude oil, diesel, mineral oil, or some fluid or gas possessing similar noncorrosive, non-solvent, low-density properties. The blanket material is placed against the cavern roof, within the cavern neck, and between the cavern's outermost hanging string and innermost cemented casing.

*Brine*―water within a salt cavern that is saturated partially or completely with salt.

*Caprock*―the porous and permeable strata immediately overlying all or part of the salt stock of some salt structures typically composed of anhydrite, gypsum, limestone, and occasionally sulfur.

*Casing*―metallic pipe placed and cemented in the wellbore for the purpose of supporting the sides of the wellbore and to act as a barrier preventing subsurface migration of fluids out of or into the wellbore.

*Catastrophic Collapse*―the sudden failure of the overlying strata caused by the removal or otherwise weakening of underlying sediments.

*Cavern Neck*—the uncased wellbore between the deepest casing shoe and the cavern roof, if present.

*Cavern Roof*―the uppermost part of a cavern being just below the neck of the wellbore. The shape of the salt cavern roof may be flat or domed.

*Cavern Well*―a well extending into the salt stock to facilitate the injection and withdrawal of fluids into and from a salt cavern.

*Cementing*―the operation (either primary, secondary, or squeeze) whereby a cement slurry is pumped into a drilled hole and/or forced behind the casing.

*Circulate to the Surface*―the observing of actual cement returns to the surface during the primary cementing operation.

*Commissioner*―the *commissioner* of conservation forthe state of Louisiana.

*Contamination*―the introduction of substances or contaminants into a groundwater aquifer, a USDW or soil in such quantities as to render them unusable for their intended purposes.

*Discharge*―the placing, releasing, spilling, percolating, draining, pumping, leaking, mixing, migrating, seeping, emitting, disposing, by-passing, or other escaping of pollutants on or into the air, ground, or waters of the state. A discharge shall not include that which is allowed through a federal or state permit.

*Effective Date*―the date of final promulgation of these rules and regulations.

*Emergency Shutdown Valve*―for the purposes of these rules, a valve that automatically closes to isolate a salt cavern well from surface piping in the event of a specified condition that, if uncontrolled, may cause an emergency.

*Exempted Aquifer*―an aquifer or its portion that meets the criteria of the definition of underground source of drinking water but which has been exempted according to the procedures set forth in §3703.E.2.

*Existing Cavern Well* or *Storage Project*―a well, salt cavern, or project permitted to store liquid, liquefied, or gaseous substances before the effective date of these regulations.

*Facility* or *Activity*—any facility or activity, including land or appurtenances thereto, that is subject to these regulations

*Fluid*―any material or substance that flows or moves whether in a semisolid, liquid, sludge, gas or any other form or state.

*Groundwater Aquifer*―water in the saturated zone beneath the land surface that contains less than 10,000 mg/l total dissolved solids.

*Groundwater Contamination*―the degradation of naturally occurring groundwater quality either directly or indirectly as a result of human activities.

*Hanging String*―casing whose weight is supported at the wellhead and hangs vertically in a larger cemented casing or another larger hanging string.

*Improved Sinkhole*—a naturally occurring karst depression or other natural crevice found in volcanic terrain and other geologic settings which have been modified by man for the purpose of directing and emplacing fluids into the subsurface.

*Inactive Cavern Well—*a storage well or cavern that is capable of being used to store liquid, liquefied, or gaseous substances but is not being so used, as evidenced by the filing of a written notice with the Office of Conservation in accordance with §3709.I.3 and §3731.

*Incidental Constituents--* secondary substances collected as an unavoidable consequence of the separation or production processes yielding the primary substance.

*Injection and Mining Division*―the Injection and Mining Division of the Louisiana Office of Conservation within the Louisiana Department of Natural Resources.

*Injection Well—*a well into which fluids are injected, excepting fluids associated with active drilling operations.

*Injection Zone*—a geological formation, group of formations or part of a formation receiving fluids through an injection well.

*Leaching*―See solution-mining.

*Mechanical Integrity*—an injection well has mechanical integrity if there is no significant leak in the casing, tubing, or packer and there is no significant fluid movement into an underground source of drinking water through vertical channels adjacent to the injection well bore.

*Mechanical Integrity Pressure and Leak Test (also called Mechanical Integrity Test)*-a test performed to determine whether a cavern or well has mechanical integrity.

*Migrating*―any movement of fluids by leaching, spilling, discharging, or any other uncontained or uncontrolled manner, except as allowed by law, regulation, or permit.

*New Cavern Well*―a storage well or cavern permitted by the Office of Conservation after the effective date of these regulations.

*Office of Conservation*―the Louisiana Office of Conservationwithin the Department of Natural Resources.

*Open Borehole—*the portion of the drilled well bore that is uncased at any point in time.

*Operator*―the person recognized by the Office of Conservation as being responsible for the physical operation of the facility or activity subject to regulatory authority under these rules and regulations.

*Owner*―the person recognized by the Office of Conservation as owning the facility or activity subject to regulatory authority under these rules and regulations.

*Permit*—an authorization, license, or equivalent control document issued by the commissioner to implement the requirements of these regulations. Permit includes, but is not limited to, area permits and emergency permits. Permit does not include UIC authorization by rule or any permit which has not yet been the subject of final agency action, such as a draft permit.

*Person*―an individual, association, partnership, public or private corporation, firm, municipality, state or federal agency and any agent or employee thereof, or any other juridical *person*.

*Post-Closure Care*—the appropriate monitoring and other actions (including corrective action) needed following cessation of a storage project to ensure that USDWs are not endangered.

*Previously Closed Cavern Well—* a storage well or cavern that is no longer used or capable of being used to store liquid, liquefied, or gaseous hydrocarbons and was closed prior to the effective date of these regulations.

*Produced Water*―liquids and suspended particulate matter that is obtained by processing fluids brought to the surface in conjunction with the recovery of oil and gas from underground geologic formations, with underground storage of hydrocarbons, or with solution-mining for brine.

*Project*―a group of wells or salt caverns used in a single operation.

*Public Water System*―a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or regularly serves at least 25 individuals. Such term includes:

1. any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system; and

2. any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system.

*Release*―the accidental or intentional spilling, pumping, leaking, pouring, emitting, leaching, escaping, or dumping of pollutants into or on any air, land, groundwater, or waters of the state. A release shall not include that which is allowed through a federal or state permit.

*Qualified Professional Appraiser*―for the purposes of these rules, any licensed real estate appraiser holding current certification from the Louisiana Real Estate Appraisers Board and functioning within the rules and regulations of their licensure.

*Salt Dome*―a diapiric, typically circular structure that penetrates, uplifts, and deforms overlying sediments as a result of the upward movement of a salt stock in the subsurface. Collectively, the salt domeincludes the salt stock and any overlying uplifted sediments.

*Salt Stock*―a typically cylindrical formation composed chiefly of an evaporite mineral that forms the core of a salt dome. The most common form of the evaporite mineral is halite known chemically as sodium chloride (NaCl). Caprock shall not be considered a part of the salt stock.

*Schedule of Compliance—*a schedule or remedial measures included in a permit, including an enforceable sequence of interim requirements (for example, actions, operations, or milestone events) leading to compliance with the act and these regulations.

*Site*—the land or water area where any facility or activity is physically located or conducted including adjacent land used in connection with the facility or activity.

*Solution-Mining*—The process of dissolving salt by means of circulating water from the surface, through a well to the subsurface where the salt is dissolved, and returning the fluid to the surface as brine.

*Solution-Mined Cavern*―a cavity or cavern created within the salt stock by dissolution with water.

*Solution-Mining Well—*a well which injects for extraction of minerals including:

1. Mining of sulfur by the Frasch process;
2. In situ production of uranium or other metals.

 3. Solution mining of salts or potash.

*Solution-mining under gas (SMUG)*—A technique allowing the storage of product while simultaneously solution-mining the cavern for the purpose of cavern enlargement.

*State*―the *state* of Louisiana.

*Storage Cavern*—a salt cavern created within the salt stock by solution-mining and used to store liquid, liquefied, or gaseous substances.

*Subsidence*― the downward settling of the earth's surface with little or no horizontal motion in response to natural or manmade subsurface actions.

*Surface Casing*― steel pipe placed inside the conductor casing in the borehole which extends below, and is protective of, the USDW and other shallow geologic formations.

*UIC*—the Louisiana State Underground Injection Control Program.

*Unauthorized Discharge*―a continuous, intermittent, or one-time discharge, whether intentional or unintentional, anticipated or unanticipated, from any permitted or unpermitted source which is in contravention of any provision of the Louisiana Environmental Quality Act (R.S. 30:2001 et seq.) or of any permit or license terms and conditions, or of any applicable regulation, compliance schedule, variance, or exception of the commissioner of conservation.

*Underground Source of Drinking Water (USDW)*―an aquifer or its portion:

1. which supplies any public water system; or

2. which contains a sufficient quantity of groundwater to supply a public water system; and

a. currently supplies drinking water for human consumption; or

b. contains fewer than 10,000 mg/1 total dissolved solids; and which is not an exempted aquifer.

*Waters of the State*―both surface and underground waters within the state of Louisiana including all rivers, streams, lakes, groundwaters, and all other water courses and waters within the confines of the state, and all bordering waters, and the Gulf of Mexico.

*Well*—a bored, drilled, or driven shaft whose depth is greater than the largest surface dimension; or, a dug hole whose depth is greater than the largest surface dimension; or an improved sinkhole; or, a subsurface fluid distribution system.

*Well Plug*—a fluid-tight seal installed in a borehole or well to prevent the movement of fluids.

*Workover*—to perform one or more of a variety of remedial operations on an injection well, such as cleaning, perforation, changing tubing, deepening, squeezing, plugging back, etc.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3703. General Provisions

A. Applicability

1. These rules and regulations shall apply to applicants, owners, or operators of any solution-mined salt cavern to store hydrogen, carbon dioxide, nitrogen, ammonia, compressed air, or noble (inert and nonreactive) gases whether liquid, liquefied, or gaseous.

2. No project to develop or use a salt dome in the state of Louisiana for the injection, storage and withdrawal of liquid, liquefied, or gaseous substances shall be allowed until the commissioner has issued an order following a public hearing after 30-day notice, under the rules covering such matters, which order shall include the following findings of fact:

a. that the area of the salt dome sought to be used for the injection, storage, and withdrawal of liquid, liquefied, or gaseous substances is suitable and feasible for such use as to area, salt volume, depth and other physical characteristics;

b. that the use of the salt dome cavern for the storage of liquid, liquefied, or gaseous substances will not contaminate other formations containing fresh water, oil, gas, or other commercial mineral deposits, except salt;

c. that the proposed storage, including all surface pits and surface storage facilities incidental thereto which are used in connection with the salt dome cavern storage operation, will not endanger lives or property and is environmentally compatible with existing uses of the salt dome area, and which order shall provide that:

 i. liquid, liquefied, or gaseous substances, which are injected and stored in a solution-mined salt dome cavern, shall at all times be deemed the property of the injector, his successors or assigns, subject to the provisions of any contract with the affected land or mineral owners; and

 ii. in no event shall the owner of the surface of the lands or water bottoms or of any mineral interest under or adjacent to which the storage cavern may lie, or any other person, be entitled to any right of claim in or to such liquid, liquefied, or gaseous substances stored unless permitted by the injector;

d. that temporary loss of jobs caused by the storage of liquid, liquefied, or gaseous substances will be corrected by compensation, finding of new employment, or other provisions made for displaced labor.

3. That in presenting evidence to the commissioner to enable him to make the findings described above, the applicant shall demonstrate that the proposed storage of liquid, liquefied, or gaseous substances enumerated in §3703.A.1 will be conducted in a manner consistent with established practices to preserve the integrity of the salt stock and the overlying sediments. This shall include an assessment of the stability of the proposed cavern design, particularly with regard to the size, shape and depth of the cavern, the amount of separation among caverns, the amount of separation between the outermost cavern wall and the periphery of the salt stock, and any other requirements of this Rule.

4. That these regulations shall apply to all liquid, liquefied, or gaseous solution-mined salt cavern storage projects begun before October 1, 1976, as specified in §3703.A.2, except for the requirements under §3707 and §3711.A-H. Any liquid, liquefied, or gaseous substance storage projects begun before October 1, 1976 shall fulfill the requirements of §3709.K within one year of the effective date of these regulations.

B. Prohibition of Unauthorized Injection

1. The construction, conversion, or operation of a storage well or salt cavern without obtaining a permit from the Office of Conservation is a violation of these rules and regulations and applicable laws of the state of Louisiana.

C. Prohibition on Movement of Fluids into Underground Sources of Drinking Water

1. No authorization by permit shall allow the movement of injected or stored fluids into underground sources of drinking water or outside the salt stock. The owner or operator of the storage well shall have the burden of showing that this requirement is met.

2. The Office of Conservation may take emergency action upon receiving information that injected or stored fluid is present in or likely to enter an underground source of drinking water or may present an imminent and substantial endangerment to the environment, or the health, safety and welfare of the public.

D. Prohibition of Surface Discharges. The intentional, accidental, or otherwise unauthorized discharge of fluids, wastes, or process materials into manmade or natural drainage systems or directly into waters of the state is prohibited.

E. Identification of Underground Sources of Drinking Water and Exempted Aquifers

1. The Office of Conservation may identify (by narrative description, illustrations, maps, or other means) and shall protect as an underground source of drinking water, except where exempted under §3703.E.2 all aquifers or parts of aquifers that meet the definition of an underground source of drinking water. Even if an aquifer has not been specifically identified by the Office of Conservation it is an underground source of drinking water if it meets the definition.

2. After notice and opportunity for a public hearing, the Office of Conservation may identify (by narrative description, illustrations, maps, or other means) and describe in geographic and/or geometric terms (such as vertical and lateral limits and gradient) that are clear and definite, all aquifers or parts thereof that the Office of Conservation proposes to denote as exempted aquifers if they meet the following criteria:

a. the aquifer does not currently serve as a source of drinking water; and

b. the aquifer cannot now and shall not in the future serve as a source of drinking water because:

 i. it is mineral, hydrocarbon, or geothermal energy producing or can be demonstrated to contain minerals or hydrocarbons that when considering their quantity and location are expected to be commercially producible;

 ii. it is situated at a depth or location that makes recovery of water for drinking water purposes economically or technologically impractical;

 iii. it is so contaminated that it would be economically or technologically impractical to render said water fit for human consumption; or

 iv. it is located in an area subject to severe subsidence or catastrophic collapse; or

c. the total dissolved solids (TDS) content of the groundwater is more than 3,000 mg/l and less than 10,000 mg/l and it is not reasonably expected to supply a public water system.

F. Exceptions/Variances/Alternative Means of Compliance

1. Except where noted in specific provisions of these rules and regulations, the Office of Conservation may allow, on a case-by-case basis, exceptions, variances, or alternative means of compliance to these rules and regulations. It shall be the obligation of the applicant, owner, or operator to show that the requested exception, variance, or alternative means of compliance and any associated mitigating measures shall not result in an unacceptable increase of endangerment to the environment, or the health, safety and welfare of the public. The applicant, owner, or operator shall submit a written request to the Office of Conservation detailing the reason for the requested exception, variance, or alternative means of compliance. No deviation from the requirements of these rules or regulations shall be undertaken by the applicant, owner, or operator without prior written authorization from the Office of Conservation.

a. When injection does not occur into, through, or above an underground source of drinking water, the commissioner may authorize a storage well or project with less stringent requirements for area-of-review, construction, mechanical integrity, operation, monitoring, and reporting than required herein to the extent that the reduction in requirements will not result in an increased risk of movements of fluids into an underground source of drinking water or endanger the public.

b. When reducing requirements under this Section, the commissioner shall issue a fact sheet in accordance with §3711.F explaining the reasons for the action.

2. Granting of exceptions or variances to these rules and regulations shall only be considered upon proper showing by the applicant, owner, or operator that such exception or variance is reasonable, justified by the particular circumstances, and consistent with the intent of these rules and regulations regarding physical and environmental safety and the prevention of waste. The commissioner may require public notice and a public hearing prior to granting any exception or variance if he determines it to be in the public interest or otherwise appropriate. The requester of the exception or variance shall be responsible for all costs associated with any public notice or public hearing.

3. Operators of Class V Storage wells and/or caverns may request to operate in accordance with alternative means of compliance previously approved by the commissioner of conservation. Alternative means of compliance shall mean operations that are capable of demonstrating a level of performance, which meets or exceeds the standards contemplated by these regulations. Owners or operators of caverns existing at the time of these rules may submit alternative means of compliance to be approved by the commissioner of conservation. The commissioner may review and approve upon finding that the alternative means of compliance meet, ensure, and comply with the purpose of the rules and regulations set forth herein provided the proposed alternative means of compliance ensures comparable or greater safety of personnel and property, protection of the environment and public, quality of operations and maintenance, and protection of the USDW.

G. Additional Requirements.

 1. All tests, reports, logs, surveys, plans, applications, or other submittals whether required by these rules and regulations or submitted for informational purposes are required to bear the Louisiana Office of Conservation serial number of any solution-mining or storage well associated with the submittal.

 2. All applications, reports, plans, requests, maps, cross-sections, drawings, opinions, recommendations, calculations, evaluations, or other submittals including or comprising geoscientific work as defined by La. R.S. 37.711.1. et seq. and required by the Office of Conservation must be prepared, sealed, signed, and dated by a licensed Professional Geoscientist (P.G.) authorized to practice by and in good standing with the Louisiana Board of Professional Geoscientists.

 3. All applications, reports, plans, requests, designs, specifications, details, calculations, drawings, opinions, recommendations, evaluations or other submittals including or comprising the practice of engineering as defined by La. R.S. 37.681. et seq. and required by the Office of Conservation must be prepared, sealed, signed, and dated by a licensed Professional Engineer (P.E.) authorized to practice by and in good standing with the Louisiana Professional Engineering and Land Surveying Board.

 4. The commissioner may prescribe additional requirements for storage wells or projects in order to protect USDWs and the health, safety, and welfare of the public.

5. Class V storage caverns may encompass a broad range of storage substances and the commissioner may prescribe additional requirements as necessary to protect the USDW and health, safety, and welfare of the public.

6. For additional requirements specific to the stored media identified in §3703.A.1, see §3739 et seq.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3705. Permit Requirements

A. Applicability. No person shall construct, convert, or operate a storage well or cavern without first obtaining written authorization (permit) from the Office of Conservation.

B. Application Required. Applicants for a storage well or cavern, permittees with expiring permits, or any person required to have a permit shall complete, sign, and submit one original application form and one electronic copy with all required attachments and documentation to the Office of Conservation. The commissioner may request additional paper copies of the application if it is determined that they are necessary. The complete application shall contain all information necessary to show compliance with applicable state laws and these regulations.

C. Who Applies. It is the duty of the owner or proposed owner of a facility or activity to submit a permit application and obtain a permit. When a facility or activity is owned by one person and operated by another, it is the duty of the operator to file and obtain a permit.

D. Signature Requirements. All permit applications shall be signed as follows.

1. Corporations. By a principal executive officer of at least the level of vice-president, or duly authorized representative of that person if the representative performs similar policy making functions for the corporation. A person is a duly authorized representative only if:

a. the authorization is made in writing by a principal executive officer of at least the level of vice-president;

b. the authorization specifies either an individual or position having responsibility for the overall operation of a storage facility, such as the position of plant manager, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and

c. the written authorization is submitted to the Office of Conservation.

2. Limited Liability Company (LLC). By a member if the LLC is member-managed, by a manager if the LLC is manager-managed, or by a duly authorized representative only if:

a. the authorization is made in writing by an individual who would otherwise have signature authority as outlined in this Paragraph;

b. the authorization specifies either an individual or position having responsibility for the overall operation of a storage well, such as the position of plant manager, superintendent, or position of equivalent responsibility. A duly authorized representative may thus be either a named individual or any individual occupying a named position; and

c. the written authorization is submitted to the Office of Conservation.

3. Partnership or Sole Proprietorship. By a general partner or proprietor, respectively; or

4. Public Agency. By either a principal executive officer or a ranking elected official of a municipality, state, federal, or other public agency.

E. Signature Reauthorization. If an authorization under §3705.D is no longer accurate because a different individual or position has responsibility for the overall operation of a storage facility, a new authorization satisfying the signature requirements must be submitted to the Office of Conservation before or concurrent with any reports, information, or applications required to be signed by an authorized representative.

F. Certification. Any person signing an application under §3705.D shall make the following certification on the application.

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that based on my 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/or imprisonment."

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3707. Application Content

A. The following minimum information shall be required for each permit application. The applicant shall also refer to the appropriate application form for any additional information that may be required.

 1. For Class V storage wells being dually permitted for Class III solution-mining, a single consolidated submittal containing both applications may be accepted.

B. Administrative information:

1. all required state application form(s);

2. nonrefundable application fee(s) as per LAC 43:XIX.Chapter 7 or successor document;

3. name and mailing address of the applicant and the physical address of the storage facility;

4. operator's name, address, telephone number, and e-mail address;

5. ownership status as federal, state, private, public, or other entity;

6. brief description of the nature of the business associated with the activity;

7. activity or activities conducted by the applicant which require the applicant to obtain a permit under these regulations;

8. up to four SIC codes which best reflect the principal products or services provided by the facility;

9. a listing of all permits or construction approvals that the applicant has received or applied for under any of the following programs and which specifically affect the legal or technical ability of the applicant to undertake the activity or activities to be conducted by the applicant under the permit being sought:

a. the Louisiana Hazardous Waste Management;

b. this or any other Underground Injection Control Program;

c. National Pollutant Discharge Elimination System (NPDES) Program under the Clean Water Act;

d. Prevention of Significant Deterioration (PSD) Program under the Clean Air Act;

e. Nonattainment Program under the Clean Air Act;

f. National Emission Standards for Hazardous Pollutants (NESHAPS) preconstruction approval under the Clean Air Act;

g. ocean dumping permits under the Marine Protection Research and Sanctuaries Act;

h. dredge or fill permits under Section 404 of the Clean Water Act; and

i. other relevant environmental permits including, but not limited to any state permits issued under the Louisiana Office of Coastal Management, the Louisiana Surface Mining Program, or the Louisiana Natural and Scenic Streams System;

10. acknowledgment as to whether the facility is located on Native American or tribal lands or other lands under the jurisdiction or protection of the federal government, or whether the facility is located on state water bottoms or other lands owned by or under the jurisdiction or protection of the state of Louisiana;

11. documentation of financial responsibility for closure and post-closure, or documentation of the method by which proof of financial responsibility for closure and post-closure shall be provided as required in §3709.B. Before making a final permit decision, the official instrument of financial responsibility for closure and post-closure must be submitted to and approved by the Office of Conservation;

12. a map with accompanying tabulation identifying names and addresses of all property owners within the area-of-review of the solution-mined storage cavern.

C. Maps and related information:

1. certified location plat of the storage well and/or area permit boundary prepared and certified by a registered land surveyor licensed and in good standing with the Louisiana Professional Engineering and Land Surveying Board. The location plat shall be prepared according to standards of the Office of Conservation;

2. topographic or other map(s) extending at least one mile beyond the property boundaries of the storage facility depicting the facility and each well where fluids are injected underground, and those wells, springs, or surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant in the map area;

3. the section, township, and range of the area in which the storage well is located and any parish, city or municipality boundary lines within one mile of the facility boundary;

4. map(s) showing the storage well for which the permit is sought, the project area or property boundaries of the facility in which the storage well is located, and the applicable area of review. Within the area of review, the map(s) shall show the well name, well number, well state serial number, and location of all existing producing wells, injection wells, abandoned wells and dry holes, public water systems, and water wells. The map(s) shall also show surface bodies of water, mines (surface and subsurface), quarries, and other pertinent surface features including residences and roads. Only information of public record and pertinent information known to the applicant is required to be included on the map(s);

5. maps and cross-sections indicating the vertical limits of all underground sources of drinking water within the area of review, their position relative to the injection formation, and the direction of water movement, where known, in every underground source of drinking water which may be affected by the proposed injection;

6. generalized maps and cross-sections illustrating the regional geologic setting;

7. structure contour mapping of the salt stock on a scale no smaller than 1 inch to 500 feet;

8. maps and vertical cross-sections detailing the geologic structure of the local area. The cross-sections shall be structural (as opposed to stratigraphic cross-sections), be referenced to sea level, show the storage well and the cavern being permitted, all adjacent salt caverns regardless of use and current status, conventional (room and pillar) mines, and all other boreholes and wells that penetrate the salt stock. Cross-sections should be oriented to indicate the closest approach to adjacent caverns, boreholes, wells, the edge of the salt stock, etc., and shall extend at least one mile beyond the edge of the salt stock unless the edge of the salt stock and any existing oil and gas production can be demonstrated in a shorter distance and is administratively approved by the Office of Conservation. Salt caverns shall be depicted on the cross-sections using data from the most recent sonar caliper survey. Known faulting in the area shall be illustrated on the cross-sections such that the displacement of subsurface formations is accurately depicted;

9. sufficient information, including data and maps, to enable the Office of Conservation to identify oil and gas activity in the vicinity of the salt dome which may affect the proposed well; and

10. any other information required by the Office of Conservation to evaluate the storage well, salt cavern, storage project, and related surface facility.

D. Area of Review Information. Refer to §3713.E for area of review boundaries and exceptions. Only information of public record or otherwise known to the applicant need be researched or submitted with the application, however, a diligent effort must be made to identify all wells and other manmade structures that penetrate or are within the salt stock in response to the area of review requirements. The applicant shall provide the following information on all wells or structures within the defined area of review:

1. a discussion of the protocol used by the applicant to identify wells and manmade structures that penetrate or are within the salt stock in the defined area of review;

2. a tabular listing of all known water wells in the area of review to include the name of the operator, well location, well depth, well use (domestic, irrigation, public, etc.) and current well status (active, abandoned, etc.);

3. a tabular listing of all known wells (excluding water wells) in the area of review with penetrations into the caprock or salt stock to include at a minimum:

a. operator name, well name and number, state serial number (if assigned), and well location;

b. well type and current well status (producing, disposal, storage, solution-mining, shut-in, plugged and abandoned), date the well was drilled, and the date the current well status was assigned;

c. well depth, construction, completion (including completion depths), plug and abandonment data; and

d. any additional information the commissioner may require;

4. the following information shall be provided on manmade structures within the salt stock regardless of use, depth of penetration, or distance to the storage well or cavern being the subject of the application:

a. a tabular listing of all salt caverns to include:

 i. operator name, well name and number, state serial number, and well location;

 ii. current or previous use of the cavern (waste disposal, storage cavern, solution-mining), current status of the cavern (active, shut-in, plugged and abandoned), date the well was drilled, and the date the current well status was assigned;

 iii. cavern depth, construction, completion (including completion depths), plug and abandonment data;

b. a tabular listing of all conventional (dry or room and pillar) mining activities, whether active or abandoned. The listing shall include the following minimum items:

 i. owner or operator name and address;

 ii. current mine status (active, abandoned);

 iii. depth and boundaries of mined levels;

 iv. the closest distance of the mine in any direction to the storage well and cavern.

E. Technical Information. The applicant shall submit, as an attachment to the application form, the following minimum information in technical report format:

1. for existing caverns, the results of the latest cavern sonar caliper survey and mechanical integrity pressure and leak tests;

2. corrective action plan required by §3713.F for wells or other manmade structures within the area of review that penetrate the salt stock but are not properly constructed, completed, or plugged and abandoned;

3. plans for performing the geological, geomechanical, geochemical, engineering, and other site assessment studies of §3713 to assess the stability of the salt stock and overlying and surrounding sediments based on past, current, and planned well and cavern operations. If such studies are complete, submit the results obtained along with an interpretation of the results;

4. properly labeled schematic of the surface construction details of the storage well to include the wellhead, gauges, flowlines, and any other pertinent details;

5. properly labeled schematic of the subsurface construction and completion details of the storage well and cavern to include borehole diameters; all cemented casings with cement specifications, casing specifications (size, depths, etc.); all hanging strings showing sizes and depths set; total depth of well; top, bottom, and diameter of cavern; the depth datum; and any other pertinent details;

6. surface site diagram(s) of the facility in which the storage well is located, including but not limited to surface pumps, piping and instrumentation, controlled access roads, fenced boundaries, field offices, monitoring and safety equipment, required curbed or other retaining wall heights, etc.;

7. unless already obtained, a proposed formation testing program to obtain the geomechanical properties of the salt stock;

8. proposed injection and withdrawal procedures;

9. plans and procedures for operating the storage well, cavern, and related surface facility to include at a minimum:

a. average and maximum daily rate and volume of fluid to be injected;

b. average and maximum injection pressure; and

c. the cavern design requirements of §3715, including, but not limited to cavern spacing requirements;

d. enhanced monitoring plan implementation for any existing cavern within the mandatory setback distance location of §3715.B.3;

e. the well construction and completion requirements of §3717, including, but not limited to open borehole surveys, casing and cementing, casing and casing seat tests, cased borehole surveys, hanging strings, and wellhead components and related connections;

f. the operating requirements of §3719, including, but not limited to cavern roof restrictions, blanket material, remedial work, well recompletion, multiple well caverns, cavern allowable operating pressure and rates, and disposition of extracted cavern fluid for pressure management.

g. the safety requirements of §3721, including, but not limited to an emergency action plan, controlled site access, facility identification, personnel, wellhead protection and identification, valves and flowlines, alarm systems, emergency shutdown valves, systems test and inspections, and surface facility retaining walls and spill containment, contingency plans to cope with all shut-ins as a result of noncompliance with these regulations or well failures to prevent the migration of contaminating fluids into underground sources of drinking water;

h. the monitoring requirements of §3723, including, but not limited to equipment requirements such as pressure gauges, pressure sensors and flow sensors, continuous recording instruments, and subsidence monitoring, as well as a description of methods that will be undertaken to monitor cavern growth;

i. the pre-operating requirements of §3725, specifically the submission of a completion report, and the information required therein;

j. the mechanical integrity pressure and leak test requirements of §3727, including, but not limited to frequency of tests, test methods, submission of pressure and leak test results, and notification of test failures;

k. the cavern configuration and capacity measurement procedures of §3729, including, but not limited to sonar caliper surveys, frequency of surveys, and submission of survey results;

l. the requirements for inactive caverns in §3731;

m. the reporting requirements of §3733, including, but not limited to the information required in quarterly operation reports;

n. the record retention requirements of §3737;

o. the closure and post-closure requirements of §3737, including, but not limited to closure plan requirements, notice of intent to close, standards for closure, and post-closure requirements;

p. any other information pertinent to the operation of the storage well, including, but not limited to any waiver for surface siting, monitoring equipment and safety procedures.

F. If an alternative means of compliance has previously been approved by the commissioner of conservation within an area permit, applicants may submit means of compliance for new applications for wells and/or storage caverns within the same area permit in order to meet the requirements of E.9.f, g, and h of this Section.

G. Confidentiality of Information. In accordance with R.S. 44.1 et seq., any information submitted to the Office of Conservation pursuant to these regulations may be claimed as confidential by the submitter. Any such claim must be asserted at the time of submission in the manner prescribed on the application for, or instructions or, in the case of other submissions, by stamping the words "Confidential Business Information" on each page containing such information. If no claim is made at the time of submission, the Office of Conservation may make the information available to the public without further notice. If a claim is asserted, the information will be treated in accordance with the procedures in R.S. 44.1 et seq. (Public Information).

1. Claims of confidentiality for the following information will be denied:

a. the name and address of any permit applicant or permittee; and

b. information which deals with the existence, absence, or level of contaminants in drinking water or zones other than the approved injection zone.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3709. Legal Permit Conditions

A. Signatories. All reports required by permit or regulation and other information requested by the Office of Conservation shall be signed as in applications by a person described in §3705.D or §3705.E.

B. Financial Responsibility

1. Closure and Post-Closure. The owner or operator of a Class V storage well shall maintain financial responsibility and the resources to close, plug and abandon and where necessary, conduct post-closure care of the storage well, cavern, and related facilities as prescribed by the Office of Conservation. The related facilities shall include all surface and subsurface constructions and equipment exclusively associated with the operation of the storage cavern including but not limited to Class II Saltwater Disposal Wells and any associated equipment or pipelines whether located inside or outside of the permitted facility boundary. Evidence of financial responsibility shall be by submission of a surety bond, a letter of credit, certificate of deposit, or other instrument acceptable to the Office of Conservation. The amount of funds available shall be no less than the amount identified in the cost estimate of the closure plan of §3737.A and post-closure plan of §3737.B. Any financial instrument filed in satisfaction of these financial responsibility requirements shall be issued by and drawn on a bank or other financial institution authorized under state or federal law to operate in the state of Louisiana. In the event that an operator has previously provided financial security pursuant to LAC 43: XVII.309, such operator shall provide increased financial security if required to remain in compliance with this Section, within 30 days after notice from the commissioner.

2. Renewal of Financial Responsibility. Any approved instrument of financial responsibility coverage shall be renewable yearly. Financial security shall remain in effect until release thereof is granted by the commissioner pursuant to written request by the operator. Such release shall only be granted after plugging and abandonment and associated site restoration is completed and inspection thereof indicates compliance with applicable regulations or upon transfer of such well approved by the commissioner.

3. Assistance to Residents. The operator shall provide assistance to residents of areas deemed to be at immediate potential risk in the event of a sinkhole developing or other incident that leads to issuance of a mandatory or forced evacuation order pursuant to R.S. 29:721 et seq. if the potential risk or evacuation is associated with the operation of a storage well or cavern.

 a. Unless an operator of a Class V storage well or cavern submits a plan to provide evacuation assistance, acceptable to the commissioner, within 5 days of the issuance of a mandatory or forced evacuation order pursuant to R.S. 29:721 et seq. associated with the operation of a storage well or cavern, the commissioner of conservation shall:

 i. call a public hearing as soon as practicable to take testimony from any interested party including the authority which issued the evacuation order and local governmental officials for the affected area to establish assistance amounts for residents subject to the evacuation order and identify the operator(s) responsible for providing assistance, if any. As soon as practicable following the public hearing the commissioner shall issue an order identifying any responsible operator(s) and establishing evacuation assistance amounts. The assistance amounts shall remain in effect until the evacuation order is lifted or until a subsequent order is issued by the commissioner in accordance with Clause ii of this Subparagraph below;

 ii. upon request of an interested party, call for a public hearing to take testimony from any interested party in order to consider establishing or modifying evacuation assistance amounts and/or consider a challenge to the finding of a responsible operator(s). The public hearing shall be noticed and held in accordance with R.S. 30:6. The order shall remain in effect until the evacuation is lifted or the commissioner’s order is modified, supplemented, or revoked and reissued, whichever occurs first.

 b. Assistance to Residents payments shall not be construed as an admission of responsibility or liability for the emergency or disaster.

4. Reimbursement. The operator shall provide the following:

a. 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 this Chapter or any rule, regulation or order promulgated or issued pursuant to this Chapter. Such costs shall be subject to approval by the director of the Governor’s Office of Homeland Security and Emergency Preparedness prior to being submitted to the permittee or operator for reimbursement. Such payments shall not be construed as an admission of responsibility or liability for the emergency or disaster.

i. The commissioner shall have authority to ensure collection of reimbursement(s) due pursuant to R.S 30:4.M.6.b and this Subparagraph.

ii. Upon petition by the state or any political subdivision of the state that is eligible for reimbursement under this Subparagraph, the commissioner shall issue an order to the permittee or operator to make payment within 30 days for the itemized costs.

iii. Failure to make the required payment(s) shall be a violation of the permit and these rules.

iv. Should any interested party dispute the amount of reimbursement, they may call for a public hearing to take testimony from all interested parties. The public hearing shall be noticed and held in accordance with R.S. 30:6.

b. Reimbursement to any person who owns noncommercial residential immovable property located within an area under a mandatory or forced evacuation order pursuant to R.S. 29:721 et seq. for a period of more than one hundred eighty (180) days, without interruption due to a violation of this Chapter, the Permit or any Order issued pursuant to this Chapter. The offer for reimbursement shall be calculated for the replacement value of the property based upon an appraisal by a qualified professional appraiser. The replacement value of the property shall be calculated based upon the estimated value of the property prior to the time of the incident resulting in the declaration of the disaster or emergency. The reimbursement shall be made to the property owner within thirty 30 days after notice by the property owner to the permittee or operator indicating acceptance of the offer and showing proof of continuous ownership prior to and during the evacuation lasting more than one hundred and eighty 180 days, provided that the offer for reimbursement is accepted within thirty 30 days of receipt, and the property owner promptly transfers the immovable property free and clear of any liens, mortgages, or other encumbrances to the permittee or operator. Such payments shall not be construed as an admission of responsibility or liability.

C. Duty to Comply. The operator must comply with all conditions of a permit. Any permit noncompliance is a violation of the act, the permit and these rules and regulations and is grounds for enforcement action, permit termination, revocation and possible reissuance, modification, or denial of any future permit renewal applications if the commissioner determines that such noncompliance endangers underground sources of drinking water. If the commissioner determines that such noncompliance is likely to endanger underground sources of drinking water, it shall be the duty of the operator to prove that continued operation of the storage well shall not endanger the environment, or the health, safety and welfare of the public.

D. Duty to Halt or Reduce Activity. It shall not be a defense for an owner or operator in an enforcement action to claim it would have been necessary to halt or reduce the permitted activity to maintain compliance with the conditions of this Rule or permit.

E. Duty to Mitigate. The owner or operator shall take all reasonable steps to minimize or correct any adverse impact on the environment such as the contamination of underground sources of drinking water resulting from a noncompliance with the permit or these rules and regulations.

F. Proper Operation and Maintenance

1. The operator shall always properly operate and maintain all facilities and systems of injection, withdrawal, and control (and related appurtenances) installed or used to achieve compliance with the permit or these rules and regulations. Proper operation and maintenance include effective performance (including well and cavern mechanical integrity), adequate funding, adequate operation, staffing and training, and adequate process controls. This provision requires the operation of back-up, auxiliary facilities, or similar systems when necessary to achieve compliance with the conditions of the permit or these rules and regulations.

2. The operator shall address any unauthorized escape, discharge, or release of any material from the storage well, or part thereof that is in violation of any state or federal permit or which is not incidental to normal operations, with a corrective action plan. The plan shall address the cause, delineate the extent, and determine the overall effects on the environment resulting from the escape, discharge, or release. The Office of Conservation shall require the operator to formulate a plan to remediate the escaped, discharged, or released material if the material is believed to have entered or has the possibility of entering an underground source of drinking water.

3. The Office of Conservation may immediately prohibit further operations if it determines that continued operations at a storage well, or part thereof, may cause unsafe operating conditions, or endanger the environment, or the health, safety and welfare of the public. The prohibition shall remain in effect until it is determined that continued operations can and shall be conducted safely. It shall be the duty of the operator to prove that continued operation of the storage well, or part thereof, shall not endanger the environment, or the health, safety and welfare of the public.

G. Inspection and Entry. Inspection and entry at a storage well facility by Office of Conservation personnel shall be allowed as prescribed in R.S. 30:4.

H. Property Rights. The issuance of a permit does not convey any property rights of any sort, or any exclusive privilege or servitude.

I. Notification Requirements. The operator shall give written, and where required, verbal notice to the Office of Conservation concerning activities indicated in this Subsection.

1. Any change in the principal officers, management, owner or operator of the storage well shall be reported to the Office of Conservation in writing within 10 days of the change.

2. Planned physical alterations or additions to the storage well, cavern, surface facility or parts thereof that may constitute a modification or amendment of the permit. No mechanical integrity tests, sonar caliper surveys, remedial work, well or cavern abandonment, or any test or work on a cavern well (excluding an interface survey not associated with a mechanical integrity test) shall be performed without prior authorization from the Office of Conservation. The operator must submit the appropriate work permit request form (Form UIC-17 or subsequent document) for approval.

3. Whenever a storage cavern is removed from service and the cavern is expected to remain out of service for one year or more, the operator shall notify the Office of Conservation in writing within seven days of the cavern becoming inactive (out-of-service). The notification shall include the date the cavern was removed from service, the reason for taking the cavern out of service, and the expected date, if known, when the cavern may be returned to service. See §3731 for additional requirements for inactive caverns.

4. The operator of a new or converted storage well shall not begin storage operations until the Office of Conservation has been notified of the following:

a. well construction or conversion is complete, including submission of a notice of completion, a completion report, and all supporting information (e.g., as-built diagrams, records, sampling and testing results, well and cavern tests, logs, etc.) required in §3725;

b. a representative of the commissioner has inspected the well and/or facility and finds it is in compliance with the conditions of the permit; and

c. the operator has received written approval from the Office of Conservation indicating storage operations may begin.

5. Noncompliance or anticipated noncompliance with the permit or applicable regulations (which may result from any planned changes in the permitted facility or activity) including a failed mechanical integrity pressure and leak test of §3727.

6. Permit Transfer. A permit is not transferable to any person except after giving written notice to and receiving written approval from the Office of Conservation clearly stating that the permit has been transferred. This action may require modification or revocation and re-issuance (see §3711.K) of the permit to change the name of the operator and incorporate other requirements as may be necessary, including but not limited to financial responsibility.

7. Compliance Schedules. Report of compliance or noncompliance with interim and final requirements contained in any compliance schedule in these regulations, or any progress reports, shall be submitted to the commissioner no later than 14 days following each schedule date.

8. Twenty-Four Hour Reporting

a. The operator shall report any noncompliance that may endanger the environment, or the health, safety and welfare of the public. Any information pertinent to the noncompliance shall be reported to the Office of Conservation by telephone at (225) 342-5515 within 24 hours from when the operator became aware of the circumstances. In addition, a written submission shall be provided within five days from when the operator became aware of the circumstances. The written notification shall contain a description of the noncompliance and its cause, the periods of noncompliance including exact times and dates, and if the noncompliance has not been corrected, the anticipated time it is expected to continue, and steps taken or planned to reduce, eliminate and prevent recurrence of the noncompliance.

b. The following additional information must also be reported within the 24-hour period:

 i. monitoring or other information (including a failed mechanical integrity test) that suggests the storage operations may cause an endangerment to underground sources of drinking waters, oil, gas, other commercial mineral deposits (excluding the salt), neighboring salt operations of any kind, or movement outside the salt stock or cavern;

 ii. any noncompliance with a 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 waters or outside the salt stock or cavern.

9. The operator shall give written notification to the Office of Conservation upon permanent conclusion of storage operations. Notification shall be given within seven days after concluding storage operations. The notification shall include the date on which storage activities were concluded, the reason for concluding the storage activities, and a plan to meet the minimum requirements as per §3731. See §3737 for additional requirements to be conducted after concluding storage activities but before closing the storage well or cavern. Storage caverns that are not in an inactive status as of the date written notification of permanent conclusion of storage operations is submitted to the Office of Conservation will be immediately placed in an inactive status.

10. The operator shall give written notification before abandonment (closure) of the storage well, related surface facility, or in the case of area permits before closure of the project. Abandonment (closure) shall not begin before receiving written authorization from the Office of Conservation.

11. When the operator becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the Office of Conservation, the operator shall promptly submit such facts and information.

J. Duration of Permits

1. Authorization to Operate. Authorization by permit to operate a Class V storage well and salt cavern shall be valid for a fixed term not to exceed ten years. Any Class V storage permit may be suspended, modified, revoked and reissued, or terminated for cause as described in §3711.K. The commissioner may issue for cause any permit for a duration that is less than the full allowable term under this Section. Conversion of a Class III solution-mining well and cavern to storage does not nullify or void the existing Class III solution-mining permit unless expressly ordered by the commissioner.

2. Authorization to Drill, Construct, or Convert. Authorization by permit to drill, construct, or convert a storage well shall be valid for one year from the effective date of the permit. If drilling or conversion is not completed in that time, the permit shall be null and void and the operator must obtain a new permit.

3. Extensions. The operator shall submit to the Office of Conservation a written request for an extension of the time of Paragraph 2 above; however, the Office of Conservation shall approve the request only for just cause and only if the permitting conditions have not changed. The operator shall have the burden of proving claims of just cause.

4. Duty to Reapply. If the permittee wishes to continue an activity regulated by a permit after the expiration date of this permit, the permittee must apply for and obtain a new permit.

i**.** The conditions of an expired permit may continue in force until the effective date of a new permit if the permittee has submitted a timely and a complete application for a new permit no less than 6 months prior to permit expiration, and the commissioner, through no fault of the permittee, does not issue a new permit with an effective date on or before the expiration date of the previous permit (e.g., when issuance is impracticable due to time or resource constraints).

K. Compliance Review. The commissioner shall review each Class V storage well permit, area permit, and cavern at least once every five years to determine whether any permit should be modified, revoked and reissued, terminated, whether minor modifications are needed, or if remedial action or additional monitoring is required for any cavern. Commencement of the compliance review process for each facility shall proceed as authorized by the commissioner of conservation.

1. As a part of the five-year compliance review, pursuant to R.S. 30:4.M.2, the operator shall submit the following minimum information to the Office of Conservation, based upon the best available information.

 a. Structural map. A structural map of the top of salt including an aerial view of the maximum extent outline(s) of the operator’s caverns and any other adjacent solution-mining caverns, disposal caverns, storage caverns, or room and pillar mines. The maximum cavern outlines shall be based upon the latest sonar survey for each cavern.

 b. Cross-sections.

 i. Cross-sections illustrating the closest approach between an operator’s caverns, between an operator’s caverns and any adjacent solution-mining caverns, disposal caverns, storage caverns, or room and pillar mines if indicated to be proximal to adjacent caverns or mines.

 ii. Cross-sections illustrating the closest approach between the operator’s caverns and the edge of salt stock, if the edge of the cavern, based upon the best available information, is indicated to be less than 500 feet from the edge of salt stock.

 iii. All cross-sections shall be based upon the latest sonar survey for each cavern and the latest structural map of the top of salt based upon the best available information.

c. a tabulation of each of the operator’s caverns with minimum offset distances listed to adjacent caverns, the edge of salt, and adjacent property boundaries.

2. As a part of the five year compliance review process, the well operator shall review the closure and post-closure plan and associated cost estimates of §3737 to determine if the conditions for closure are still applicable to the actual conditions.

3. As a part of the five year compliance review process, the operator shall submit any other information required by the commissioner.

L. Schedules of Compliance. The permit may specify a schedule of compliance leading to compliance with the act and these regulations.

1. Time for Compliance. Any schedules of compliance under this Section shall require compliance as soon as possible but not later than three years after the effective date of the permit.

2. Interim Dates. Except as provided in Subparagraph b below, if a permit establishes a schedule of compliance which exceeds one year from the date of permit issuance, the schedule shall set forth interim requirements and the dates for their achievement.

a. The time between interim dates shall not exceed one year.

b. If the time necessary for completion of any interim requirements (such as the construction of a control facility) is more than one year and is not readily divisible into stages for completion, the permit shall specify interim dates for submission of reports of progress toward completion of the interim requirements and indicate a projected completion date.

3. The permit shall be written to require that progress reports be submitted no later than 30 days following each interim date and the final date of compliance.

M. Area or Project Permit Authorization

1. A newly permitted Class V storage well and associated cavern may be constructed within the footprint of an existing Class II HSW or Class III BR area-wide permit boundary, but the operator must conform to all requirements set forth in this Chapter.

N. Recordation of Notice of Existing Storage Caverns. The owner or operator of an existing Class V storage cavern shall record a certified as-drilled survey plat of the well location for the cavern in the mortgage and conveyance records of the parish in which the property is located. Such notice shall be recorded no later than six months after the construction of the storage well and the owner or operator shall furnish a date/file -stamped copy of the recorded notice to the Office of Conservation within 15 days of its recording. If an owner or operator fails or refuses to record such notice, the commissioner may, if he determines that the public interest requires, and after due notice and an opportunity for a hearing has been given to the owner and operator, cause such notice to be recorded.

O. Additional Conditions. The Office of Conservation shall, on a case-by-case basis, impose any additional conditions or requirements as are necessary to protect the environment, the health, safety and welfare of the public, underground sources of drinking waters, oil, gas, or other mineral deposits (excluding the salt), and preserve the integrity of the salt dome.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3711. Permitting Process

A. Applicability. This Section has procedures for issuing and transferring permits to operate a Class V storage well and cavern. Any person required to have a permit shall apply to the Office of Conservation as stipulated in §3705. The Office of Conservation shall not issue a permit before receiving an application form and any required supplemental information showing compliance with these rules and regulations, and that is administratively and technically complete to the satisfaction of the Office of Conservation.

B. Notice of Intent to File Application

1. The applicant shall make public notice that a permit application for a storage cavern or caverns or an area permit, is proposed for filing with the Office of Conservation. A notice of intent shall be published at least 30 days but not more than 180 days before filing the permit application with the Office of Conservation. Without exception, the applicant shall publish a new notice of intent if the application is not received by the Office of Conservation within the filing period. If the applicant is dually permitting a well for both Class III solution-mining and Class V storage the public notice of intent for both applications may be combined.

2. The notice shall be published once in the legal advertisement sections in the official state journal and in the official journal of the parish of the proposed project location. The cost for publishing the notices is the responsibility of the applicant and shall contain the following minimum information:

a. name and address of the permit applicant and, if different, the facility to be regulated by the permit;

b. the geographic location of the proposed project;

c. name and address of the regulatory agency to process the permit action where interested persons may obtain information concerning the application or permit action; and

d. a brief description of the business conducted at the facility or activity described in the permit application.

3. The applicant shall submit the proof of publication of the notice of intent when submitting the application.

C. Application Submission and Review

1. The applicant shall complete, sign, and submit one original paper application form, with required attachments and documentation, and one copy of the same to the Office of Conservation. The complete application shall contain all information to show compliance with applicable state laws and these rules and regulations. In addition to submitting the application on paper, the applicant shall submit an exact duplicate of the paper application in an electronic format approved by the commissioner. The commissioner may request additional paper copies of the application, either in its entirety or in part, as needed. The electronic version of the application shall contain the following certification statement.

"This document is an electronic version of the application titled (Insert Document Title) dated (Insert Application Date). This electronic version is an exact duplicate of the paper copy submitted in (Insert the Number of Volumes Comprising the Full Application) to the Louisiana Office of Conservation."

2. The applicant shall be notified if a representative of the Office of Conservation decides that a site visit is necessary for any reason in conjunction with the processing of the application. Notification may be either oral or written and shall state the reason for the visit.

3. If the Office of Conservation deems an application to be incomplete, deficient of information, or requires additional data, a notice of application deficiency indicating the information necessary to make the application complete shall be transmitted to the applicant.

4. The Office of Conservation shall deny an application if an applicant fails, refuses, is unable to respond adequately to the notice of application deficiency, or if the Office of Conservation determines that the proposed activity cannot be conducted safely.

a. The Office of Conservation shall notify the applicant by certified mail of the decision denying the application.

b. The applicant may appeal the decision to deny the application in a letter to the commissioner who may call a public hearing through §3711.D.

D. Public Hearing Requirements. A public hearing for new well applications shall not be scheduled until administrative and technical review of an application has been completed to the satisfaction of the Office of Conservation.

1. Public Notice of Permit Actions

a. Upon acceptance of a permit application as complete and meeting the administrative and technical requirements of these rules and regulations, the commissioner shall require the applicant to give public notice that the following actions have occurred:

 i. an application has been received;

 ii. a draft permit has been prepared under §3711.E; and

 iii. a public hearing has been scheduled under §3711.D.

b. No public notice or public hearing is required for additional wells drilled or for conversion under an approved area permit or when a request for permit modification, revocation and reissuance, or termination is denied under §3711.K.

2. Public Notice by Applicant

a. Public notice shall be published by the applicant in the legal advertisement section of the official state journal and the official journal of the parish of the proposed project location not less than 30 days before the scheduled hearing. If the applicant is dually permitting a well for both Class III solution-mining and Class V storage the public notice of a hearing for both applications may be combined.

b. The applicant shall provide notice of the scheduled public hearing by forwarding a copy of the notice by mail or e-mail to:

 i. the Office of Conservation, Injection and Mining Division;

 ii. all property owners within 1320 feet of the storage facility's property boundary;

 iii. operators of existing projects located on or within the salt stock of the proposed project;

 iv. United States Environmental Protection Agency;

 v. Louisiana Department of Wildlife and Fisheries;

 vi. Louisiana Department of Environmental Quality;

 vii. Louisiana Office of Coastal Management;

 viii. Louisiana Office of Conservation, Pipeline Division;

 ix. Louisiana Department of Culture, Recreation and Tourism, Division of Archaeology;

 x. the governing authority for the parish of the proposed project; and

 xi. any other interested parties.

3. Public Notice Contents. Public notices shall contain the following minimum information:

a. name and address of the permit applicant and, if different, the facility or activity regulated by the permit;

b. name and address of the regulatory agency processing the permit action;

c. name, address, and phone number of a person within the regulatory agency where interested persons may obtain information concerning the application or permit action;

d. a brief description of the business conducted at the facility or activity described in the permit application;

e. a statement that a draft permit has been prepared under §3711.E;

f. a brief description of the public comment procedures;

g. a brief statement of procedures whereby the public may participate in the final permit decision;

h. the time, place, and a brief description of the nature and purpose of the public hearing;

i. a reference to the date of any previous public notices relating to the permit;

j. any additional information considered necessary or proper by the commissioner.

4. Application Availability for Public Review

a. The applicant shall file at least one copy of the complete permit application with:

 i. the local governing authority of the parish of the proposed project location; and

 ii. in a public library in the parish of the proposed project location.

b. The applicant shall deliver copies of the application to the aforementioned locations before the public notices are published in the respective journals.

c. A duplicate of the complete permit application in electronic format shall be submitted to the Office of Conservation.

E. Draft Permit. The Office of Conservation shall prepare a draft permit after an application is determined to be complete. Draft permits shall be publicly noticed and made available for public comment.

F. Fact Sheet

1. The Office of Conservation shall prepare a fact sheet for every draft permit. It shall briefly set forth principal facts and significant factual, legal, and policy questions considered in preparing the draft permit.

2. The fact sheet shall include, when applicable:

a. a brief description of the type of facility or activity that is the subject of the draft permit or application;

b. the type and proposed quantity of material to be injected;

c. a brief summary of the basis for the draft permit conditions including references to applicable statutory or regulatory provision;

d. a description of the procedures for reaching a final decision on the draft permit or application including the beginning and ending date of the public comment period, the address where comments shall be received, and any other procedures whereby the public may participate in the final decision;

e. reasons why any requested variances or alternative to required standards do or do not appear justified;

f. procedures for requesting a hearing and the nature of that hearing; and

g. the name and telephone number of a person within the permitting agency to contact for additional information;

h. that due consideration has been given to alternative sources of water for the leaching of cavities.

3. The fact sheet shall be distributed to the permit applicant and to any interested person on request.

G. Public Hearing

1. The Office of Conservation shall fix a time, date, and location for a public hearing. The cost of the public hearing is set by LAC 43:XIX.Chapter 7 (Fees, as amended) and is the responsibility of the applicant. If the applicant is dually permitting a well for both Class III solution-mining and Class V storage, both applications may be considered at the same public hearing

2. The public hearing shall be fact finding in nature and not subject to the procedural requirements of the Louisiana Administrative Procedure Act. All public hearings shall be publicly noticed as required by these rules and regulations.

3. At the hearing, any person may make oral statements or submit written statements and data concerning the application or permit action being the basis of the hearing. Reasonable limits may be set upon the time allowed for oral statements; therefore, submission of written statements may be required. The hearing officer may extend the public comment period by so stating before the close of the hearing.

4. A transcript shall be made of the hearing and such transcript shall be available for public review.

H. Public Comments, Response to Comments, and Permit Issuance

1. Any interested person may submit written comments concerning the permitting activity during the public comment period. All comments pertinent and significant to the permitting activity shall be considered in making the final permit decision.

2. The Office of Conservation shall issue a response to all pertinent and significant comments as an attachment to and at the time of final permit decision. The final permit with response to comments shall be made available to the public. The response shall:

a. specify which provisions, if any, of the draft permit have been changed in the final permit decision, and the reasons for the change; and

b. briefly describe and respond to all significant comments on the draft permit or the permit application raised during the public comment period or hearing.

3. The Office of Conservation may issue a final permit decision within 30 days following the close of the public comment period; however, this time may be extended due to the nature, complexity, and volume of public comments received.

4. A final permit decision shall be effective on the date of issuance.

5. The owner or operator of a solution-mined storage cavern permit shall record a certified survey plat and final permit, which shall include any orders, permits to construct, and permits to store, in the mortgage and conveyance records of the parish in which the property is located. A date/file stamped copy of the plat and final permit is to be furnished to the Office of Conservation within 15 days of its recording. If an owner or operator fails or refuses to record such notice, the commissioner may, if he determines that the public interest requires, and after due notice and an opportunity for a hearing has been given to the owner and operator, cause such notice to be recorded.

6. Approval or the granting of a permit to operate a Class V storage well shall be valid for a term specified by the commissioner not to exceed ten years from its effective date and if not completed in that time, the permit shall be null and void.

I. Permit Application Denial

1. The Office of Conservation may refuse to issue, reissue, or reinstate a permit or authorization if an applicant or operator has delinquent, finally determined violations of the Office of Conservation or unpaid penalties or fees, or if a history of past violations demonstrates the applicant's or operator's unwillingness to comply with permit or regulatory requirements.

2. If an application is denied, the applicant may request a review of the Office of Conservation's decision to deny the permit application. Such request shall be made in writing and shall contain facts or reasons supporting the request for review.

3. Grounds for application denial review shall be limited to the following reasons:

a. the decision is contrary to the laws of the state, applicable regulations, or evidence presented in or as a supplement to the permit application;

b. the applicant has discovered since the permit application public hearing or permit denial, evidence important to the issues that the applicant could not with due diligence have obtained before or during the initial permit application review;

c. there is a showing that issues not previously considered should be examined so as to dispose of the matter; or

d. there is other good ground for further consideration of the issues and evidence in the public interest.

J. Permit Transfer

1. Applicability. A permit may be transferred to a new owner or operator only upon written approval from the Office of Conservation. Written approval must clearly show that the permit has been transferred. It is a violation of these rules and regulations to operate a storage well without a permit or other authorization if a person attempting to acquire a permit transfer allows operation of the storage well before receiving written approval from the Office of Conservation.

2. Procedures

a. The proposed new owner or operator must apply for and receive an operator code by submitting a completed organization report (Form OR-1), or subsequent form, to the Office of Conservation.

b. The current operator shall submit an application for permit transfer at least 30 days before the proposed permit transfer date. The application shall contain the following:

 i. name and address of the proposed new owner or operator;

 ii. date of proposed permit transfer; and

 iii. a written agreement between the existing and new owner or operator containing a specific date for transfer of permit responsibility, financial responsibility, and liability between them.

c. If no agreement described in §3711.J.2.b.iii. above is provided, responsibility for compliance with the terms and conditions of the permit and liability for any violation will shift from the existing operator to the new operator on the date the transfer is approved.

d. The new operator shall submit an application for a change of operator using Form MD-10-R-A, or subsequent form, to the Office of Conservation containing the signatories of §3705.D and E, along with the appropriate filing fee.

e. The new operator shall submit evidence of financial responsibility under §3709.B.

f. If a person attempting to acquire a permit causes or allows operation of the facility before approval by the commissioner, it shall be considered a violation of these rules for operating without a permit or other authorization.

g. If the commissioner does not notify the existing operator and the proposed new owner or operator of his intent to modify or revoke and reissue the permit under §3711.K.3.b, the transfer is effective on the date specified in the agreement mentioned in §3711.J.2.b.iii. above.

h. Any additional information as may be required to be submitted by these regulations or the Office of Conservation.

K. Permit Suspension, Modification, Revocation and Reissuance, Termination. This subsection sets forth the standards and requirements for applications and actions concerning suspension, modification, revocation and reissuance, termination, and renewal of permits. A draft permit must be prepared and other applicable procedures must be followed if a permit modification satisfies the criteria of this subsection. A draft permit, public notice, or public participation is not required for minor permit modifications defined in §3711.K.6.

1. Permit Actions

a. The permit may be suspended, modified, revoked and reissued, or terminated for cause.

b. The operator shall furnish the Office of Conservation within 30 days, any information that the Office of Conservation may request to determine whether cause exists for suspending, modifying, revoking and reissuing, or terminating a permit, or to determine compliance with the permit. Upon request, the operator shall furnish the Office of Conservation with copies of records required to be kept by the permit.

c. The Office of Conservation may, upon its own initiative or at the request of any interested person, review any permit to determine if cause exists to suspend, modify, revoke and reissue, or terminate the permit for the reasons specified in §3711.K.2, 3, 4, 5, and 6. All requests by interested persons shall be in writing and shall contain only factual information supporting the request.

d. If the Office of Conservation decides the request is not justified, the person making the request shall be sent a brief written response giving a reason for the decision. Denials of requests for suspension, modification, revocation and reissuance, or termination are not subject to public notice, public comment, or public hearing.

e. If the Office of Conservation decides to suspend, modify, or revoke and reissue a permit under §3711.K.2, 3, 4, 5, and 6, additional information may be requested and, in the case of a modified permit, may require the submission of an updated permit application. In the case of revoked and reissued permits, the Office of Conservation shall require the submission of a new application.

f. The suitability of an existing well or salt cavern location shall not be considered at the time of permit modification or revocation and reissuance unless new information or standards suggest continued operation at the site endangers the USDW, environment, or the health, safety and welfare of the public that was unknown at the time of permit issuance. If the storage well location is no longer suitable for its intended purpose, it may be ordered closed according to applicable sections of these rules and regulations.

2. Suspension of Permit. The Office of Conservation may suspend the operator's right to store until violations are corrected. If violations are corrected, the Office of Conservation may lift the suspension. Suspension of a permit or subsequent corrections of the causes for the suspension by the operator shall not preclude the Office of Conservation from terminating the permit, if necessary. The Office of Conservation shall issue a notice of violation (NOV) to the operator that lists the specific violations of the permit or these regulations. If the operator fails to comply with the NOV by correcting the cited violations within the date specified in the NOV, the Office of Conservation shall issue a compliance order requiring the violations be corrected within a specified time and may include an assessment of civil penalties. If the operator fails to take corrective action within the time specified in the compliance order, the Office of Conservation shall assess a civil penalty, and shall suspend, revoke, or terminate the permit.

3. Modification or Revocation and Reissuance of Permits. The following are causes for modification and may be causes for revocation and reissuance of permits.

a. Alterations. There are material and substantial alterations or additions to the permitted facility or activity which occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.

b. Information. The Office of Conservation has received information pertinent to the permit. Permits may be modified during their terms for this cause only if the information was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of issuance. Cause shall include any information indicating that cumulative effects on the environment, or the health, safety and welfare of the public are unacceptable.

c. New Regulations

 i. The standards or regulations on which the permit was based have been changed by promulgation of new or amended standards or regulations or by judicial decision after the permit was issued and conformance with the changed standards or regulations is necessary for the protection of the USDW, environment, or the health, safety and welfare of the public. Permits may be modified during their terms when:

 (a). the permit condition to be modified was based on a promulgated regulation or guideline;

 (b). there has been a revision, withdrawal, or modification of that portion of the regulation or guideline on which the permit condition was based; or

 (c). an operator requests modification within 90 days after *Louisiana Register* notice of the action on which the request is based.

 ii. The permit may be modified as a minor modification without providing for public comment when standards or regulations on which the permit was based have been changed by withdrawal of standards or regulations or by promulgation of amended standards or regulations which impose less stringent requirements on the permitted activity or facility and the operator requests to have permit conditions based on the withdrawn or revised standards or regulations deleted from his permit.

 iii. For judicial decisions, a court of competent jurisdiction has remanded and stayed Office of Conservation regulations or guidelines and all appeals have been exhausted, if the remand and stay concern that portion of the regulations or guidelines on which the permit condition was based and a request is filed by the operator to have permit conditions based on the remanded or stayed standards or regulations deleted from his permit.

d. Compliance Schedules. The Office of Conservation determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, materials shortage, or other events over which the operator has little or no control and for which there is no reasonable available remedy.

4. Causes for Modification or Revocation and Reissuance. The following are causes to modify or, alternatively, revoke and reissue a permit.

a. Cause exists for termination under §3711.K.7, and the Office of Conservation determines that modification or revocation and reissuance is appropriate.

b. The Office of Conservation has received notification of a proposed transfer of the permit and the transfer is determined not to be a minor permit modification. A permit may be modified to reflect a transfer after the effective date as per §3711.J.2.b.ii but will not be revoked and reissued after the effective date except upon the request of the new operator.

5. Facility Siting. Suitability of an existing facility location will not be considered at the time of permit modification or revocation and reissuance unless new information or standards indicate that continued operations at the site pose a threat to the health or safety of persons or the environment that was unknown at the time of the permit issuance. A change of injection site or facility location may require modification or revocation and issuance as determined to be appropriate by the commissioner.

6. Minor Modifications of Permits. The Office of Conservation may modify a permit to make corrections or allowances for changes in the permitted activity listed in this subsection without issuing a draft permit and providing for public participation. Minor modifications may only:

a. correct administrative or make informational changes;

b. correct typographical errors;

c. amend the frequency of or procedures for monitoring, reporting, sampling, or maintenance activities;

d. change an interim compliance date in a schedule of compliance, provided the new date does not interfere with attainment of the final compliance date requirement;

e. allow for a change in ownership or operational control of a storage well where the Office of Conservation determines that no other change in the permit is necessary, provided that a written agreement containing a specific date for transfer of permit responsibility, coverage, and liability between the current and new permittees has been submitted to the Office of Conservation;

f. change quantities or types of fluids injected which are within the capacity of the facility as permitted and, in the judgment of the commissioner, would not interfere with the operation of the facility or its ability to meet conditions prescribed in the permit, and would not change its classification;

g. change construction requirements or plans approved by the Office of Conservation provided that any such alteration is in compliance with these rules and regulations. No such changes may be physically incorporated into construction or conversion of the storage well or cavern without written approval from the Office of Conservation; or

h. amend a closure or post-closure plan.

7. Termination of Permits

a. The Office of Conservation may terminate a permit during its term for the following causes:

 i. noncompliance by the operator with any condition of the permit;

 ii. the operator's failure in the application or during the permit issuance process to fully disclose all relevant facts, or the operator's misrepresentation of any relevant facts at any time; or

 iii. a determination that continued operation of the permitted activity cannot be conducted in a way that is protective of the environment, or the health, safety and welfare of the public.

b. If the Office of Conservation decides to terminate a permit, he shall issue a notice of intent to terminate. A notice of intent to terminate is a type of draft permit that follows the same procedures as any draft permit prepared under §3711.E. The Office of Conservation may alternatively decide to modify or revoke and reissue a permit for the causes in §3711.K.7.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3713. Site Assessment

A. Applicability. This Section applies to all applicants, owners, or operators of Class V storage wells and caverns. The applicant, owner, or operator shall be responsible for showing that the storage operation shall be accomplished using good engineering and geologic practices for storage operations to preserve the integrity of the salt stock and overlying sediments. In addition to all applicants showing this in their application, as part of the compliance review found in §3709.K, the commissioner may require any owner or operator of a storage well to provide the same or similar information required in this Section. This shall include, but not be limited to:

1. an assessment of the engineering, geological, geomechanical, geochemical, geophysical properties of the salt stock;

2. stability of salt stock and overlying and surrounding sediments;

3. stability of the cavern design (particularly regarding its size, shape, depth, and operating parameters);

4. the amount of separation between the cavern of interest and adjacent caverns and structures within the salt stock; and

5. the amount of separation between the outermost cavern wall and the periphery of the salt stock;

6. an assessment of well information and oil and gas activity within the vicinity of the salt dome which may affect the storage cavern.

B. Geological Studies and Evaluations. The applicant, owner, or operator shall do a thorough geological, geophysical, geomechanical, and geochemical evaluation of the salt stock to determine its suitability for Class V storage, stability of the cavern under the proposed set of operating conditions, and where applicable, the structural integrity of the salt stock between an adjacent cavern and salt periphery under the proposed set of operating conditions. A listing of data or information used to characterize the structure and geometry of the salt stock shall be included.

1. Where applicable, the evaluation shall include, but should not be limited to:

 a. geologic mapping of the structure of the salt stock and any caprock;

 b. geologic history of salt movement;

 c. an assessment of the impact of possible anomalous zones (salt spines, shear planes, etc.) on the storage well or cavern;

 d. deformation of the caprock and strata overlying the salt stock;

 e. investigation of the upper salt surface and adjacent areas involved with salt dissolution;

 f. caprock formation and any non-vertical salt movement.

2. The applicant shall perform a thorough hydrogeologic study on strata overlying the salt stock to determine the occurrence of the lowermost underground source of drinking water immediately above and near the salt stock.

3. The applicant shall investigate regional and local tectonic activity and the potential impact (including ground subsidence) of the project on surface and subsurface resources.

4. The proximity of all existing and proposed storage caverns to the periphery of the salt stock and to manmade structures within the salt stock shall be demonstrated to the Office of Conservation at least once every five years (see §3709.K) by providing the following:

a. an updated structure contour map of the salt stock. The updated map should make use of all available data. The horizontal configuration of the salt cavern should be shown on the structure map and reflect the caverns’ maximum lateral extent as determined by the most recent sonar caliper survey; and

b. vertical cross-sections of the salt caverns showing their outline and position within the salt stock.

C. Core Sampling

1. Each newly permitted well shall be cored at intervals approved by the commissioner, but at a minimum, coring shall include the shoe of the deepest casing set into the salt, the proposed cavern roof, and the midpoint of the proposed cavern, unless exempted by the commissioner. The cavern shall be or shall have been cored over sufficient depth intervals to yield representative samples of the subsurface geologic environment. This shall include coring of the salt stock and may include coring of overlying formations, including any caprock. Cores should be obtained using the whole core method. Core acquisition, core handling, and core preservation shall be done according to standard field sampling practices considered acceptable for laboratory tests of recovered cores.

2. Data from previous coring projects that meet modern analytical industry standards may be used instead of actual core sampling provided the data is specific to the salt dome of interest. It shall be the responsibility of the applicant to make a satisfactory demonstration that data are applicable to the salt dome and cavern location(s) of interest.

D. Core Analyses and Laboratory Tests. Analyses and tests shall consider the characteristics of the injected materials and should provide data on the salt's geomechanical, geophysical, geochemical, mineralogical properties, x-ray diffraction analysis, microstructure, and where necessary, potential for adjacent cavern connectivity, with emphasis on cavern shape and the operating conditions. All laboratory tests, experimentation, and numeric modeling shall be conducted using methods that simulate the proposed operating conditions of the cavern. Test methods shall be selected to define the deformation and strength properties and characteristics of the salt stock under cavern operating conditions. Test results, analyses, and operating recommendations shall be summarized in an interpretive report.

E. Area of Review. A thorough evaluation shall be undertaken of both surface and subsurface activities in the defined area of review of the individual storage well or project area (area permit) that may influence the integrity of the salt stock, storage well, and cavern, or contribute to the movement of injected fluids outside the cavern, wellbore, or salt stock.

1. Surface Delineation

a. The area of review for individual storage wells shall be a fixed radius around the wellbore of not less than 1320 feet.

b. The area of review for wells in a storage project area (area permit), shall be the project area plus a circumscribing area the width of which is not less than 1320 feet. The area of review for new storage wells within an existing area permit shall be the project area plus a circumscribing area the width of which is not less than 1320 feet. Only information outlined in §3713.E.2, not previously assessed as part of the area permit application review or as part of the review of an application for a subsequent storage well located within the approved area permit, shall be considered.

c. Exception shall be noted as in §3713.E.2.c and d below.

2. Subsurface Delineation. At a minimum, the following shall be identified within the area of review:

a. all known active, inactive, and abandoned wells within the area of review with known depth of penetration into the caprock or salt stock;

b. all known water wells within the area of review;

c. all salt caverns within the salt stock regardless of use, depth of penetration, or distance to the proposed storage well or cavern;

d. all conventional (dry or room and pillar) mining activity either active or abandoned occurring anywhere within the salt stock regardless of distance to the proposed Class V storage well or cavern;

e. all producing formations either active or depleted

3. Water Samples. A representative number of water wells identified under §3713.E.2.b shall be sampled and analyzed by an accredited laboratory for chloride and total dissolved solids.

F. Corrective Action

1. For manmade structures identified in the area of review that penetrate the salt stock and are not properly constructed, completed, or plugged and abandoned, the applicant shall submit a corrective action plan consisting of such steps, procedures, or modifications as are necessary to prevent the movement of fluids outside the cavern or into underground sources of drinking water.

a. Where the plan is adequate, the provisions of the corrective action plan shall be incorporated into the permit as a condition.

b. Where the plan is inadequate, the Office of Conservation shall require the applicant to revise the plan, or prescribe a plan for corrective action as a condition of the permit, or the application shall be denied.

2. Any permit issued for an existing storage well for which corrective action is required shall include a schedule of compliance for complete fulfillment of the approved corrective action procedures. If the required corrective action is not completed as prescribed in the schedule of compliance, the permit shall be suspended, modified, revoked and reissued, or terminated according to these rules and regulations.

3. No permit to inject shall be issued for a new storage well or repermitted storage well until all required corrective action obligations have been fulfilled.

4. The commissioner may require as a permit condition that injection pressure be so limited that pressure in the injection zone does not cause the movement of fluids into a underground source of drinking water through any improperly completed or abandoned well within the area of review. This pressure limitation shall satisfy the corrective action requirement. Alternatively, such injection pressure limitation can be part of a compliance schedule and last until all other corrective action has been taken.

5. When setting corrective action requirements for storage wells, the commissioner shall consider the overall effect of the project on the hydraulic gradient in potentially affected underground sources of drinking water, and the corresponding changes in potentiometric surface(s) and flow direction(s) rather than the discrete effect of each well. If a decision is made the corrective action is not necessary, the monitoring program required in §3723 shall be designed to verify the validity of such determination.

6. In determining the adequacy of proposed corrective action and in determining the additional steps needed to prevent fluid movement into underground sources of drinking water, the following criteria and factors shall be considered by the commissioner:

a. nature and volume of injection fluid;

b. nature of native fluids or by-products of injection;

c. potentially affected population;

d. geology;

e. hydrology;

f. history of the injection operation;

g. completion and plugging records;

h. abandonment procedures in effect at the time the well was abandoned; and

i. hydraulic connections with underground sources of drinking water.

7. The Office of Conservation may prescribe additional requirements for corrective action beyond those submitted by the applicant.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3715. Cavern Design and Spacing Requirements

A. This Section provides general standards for design of caverns to ensure that project development can be conducted in a reasonable, prudent, and a systematic manner and shall stress physical and environmental safety. The owner or operator shall continually review the design throughout the construction and operation phases taking into consideration pertinent additional detailed subsurface information and shall include provisions for protection from damage caused by hydraulic shock. If necessary, the original development and operational plans shall be modified to conform to good engineering practices.

B. Cavern Spacing Requirements

1. Property Boundary

a. Existing Storage Caverns. No part of a storage cavern permitted as of the date these regulations are promulgated shall extend closer than 100 feet to the property of others without consent of the owner(s). Continued operation without this consent of an existing storage cavern within 100 feet of the property of others may be allowed as follows.

 i. The operator of the cavern shall make a good faith effort to provide notice in a form and manner approved by the commissioner to the adjacent property owner(s) of the location of its cavern.

 ii. The commissioner shall hold a public hearing at Baton Rouge if a non-consenting adjacent owner whose property line is within 100 feet objects to the cavern's continued operation. Following the public hearing the commissioner may approve the cavern's continued operation upon a determination that the continued operation of the cavern has no adverse effects to the rights of the adjacent property owner(s).

 iii. If no objection from a non-consenting adjacent property owner is received within 30 days of the notice provided in accordance with §3715.B.1.a.i above, then the commissioner may approve the continued operation of the cavern administratively.

b. New Class V Storage Caverns. No part of a newly permitted storage cavern shall extend closer than 100 feet to the property of others without the consent of the owner(s).

2. Adjacent Structures within the Salt. As measured in any direction, and excepting that which is provided in §3739, the 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 shall not be less than 200 feet. Caverns must be operated in a manner that ensures the walls between any cavern and any other manmade structure maintain the minimum separation of 200 feet.

3. Salt Periphery

a. Without exception or variance to these rules and regulations, at no time shall the minimum separation between the cavern walls at any point and the periphery of the salt stock for a Class V storage cavern be less than 300 feet.

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§3717. Well Construction and Completion

A. General Requirements

1. All materials and equipment used in the construction of the Class V storage well and related appurtenances shall be designed and manufactured for compatibility with the stored material and shall meet or exceed the operating requirements of the specific project. Consideration shall be given to depth and lithology of all subsurface geologic zones, corrosiveness of formation fluids, corrosiveness of the stored material, compatibility of downhole construction materials, compatibility of wellhead components, hole size, anticipated ranges and extremes of operating conditions, subsurface temperatures and pressures, type and grade of cement, and the projected life of the storage well, etc.

2. All storage wells and caverns shall be designed, constructed, completed, and operated to prevent the escape of injected materials out of the salt stock, into or between underground sources of drinking water, or otherwise create or cause pollution or endanger the environment or public safety. All phases of design, construction, completion, and testing shall be prepared and supervised by qualified personnel.

 3. Where the storage well penetrates an underground source of drinking water in an area subject to subsidence or catastrophic collapse, an adequate number of monitoring wells shall be completed into the USDW to detect any movement of injected fluids, process by-products or formation fluids into the USDW. The monitoring wells shall be located outside the physical influence of the subsidence or catastrophic collapse.

a. The following criteria shall be considered in determining the number, location, construction, and frequency of monitoring of any monitor wells:

 i. the population relying on the USDW affected or potentially affected by the injection operation;

 ii. the proximity of the storage operation to points of withdrawal of drinking water;

 iii. the local geology and hydrology;

 iv. the operating pressures and whether a negative pressure gradient is being maintained;

 v. the nature and volume of the injected fluid, the formation water, and the process by-products; and

 vi. the injected fluid density.

B. Open Borehole Surveys

1. Open hole wireline surveys that delineate subsurface lithologies, formation tops (including top of caprock and salt), formation fluids, formation porosity, and fluid resistivities shall be performed on all new wells from total well depth to either ground surface or base of conductor pipe. Wireline surveys shall include, at a minimum, density, neutron, sonic, and caliper logs and shall be presented with gamma-ray and, where applicable, spontaneous potential curves. All surveys shall be presented on a scale of 1 inch to 100 feet and a scale of 5 inches to 100 feet and all logs must include the depth datum. A descriptive report interpreting the results of such logs and tests shall be prepared and submitted to the commissioner.

2. Gyroscopic multi-shot surveys of the borehole shall be taken at intervals not to exceed every 100 feet of drilled borehole.

3. Caliper logging to determine borehole size for cement volume calculations shall be performed before running casings.

4. The owner or operator shall submit all wireline surveys as one paper copy and an electronic version in a format approved by the commissioner.

C. Casing and Cementing. Except as specified below, and inclusive of the additional requirements which may be found in §3739, the wellbore of the storage well shall be cased, completed, and cemented according to rules and regulations of the Office of Conservation and good industry engineering practices for wells of comparable depth that are applicable to the same locality of the cavern. Design considerations for casings and cementing materials and methods shall address the nature and characteristics of the subsurface environment, the nature of injected materials, the range of conditions under which the well, cavern, and facility shall be operated, and the expected life of the well including closure and post-closure.

1. Cementing shall be by the pump-and-plug method or another method approved by the Office of Conservation and shall be circulated to the surface. Circulation of cement may be done by staging.

a. For purposes of these rules and regulations, circulated (cemented) to the surface shall mean that actual cement returns to the surface were observed during the primary cementing operation. A copy of the cementing company's job summary or cementing ticket indicating returns to the surface shall be submitted as part of the pre-operating requirements of §3725.

b. If returns are lost during cementing, the owner or operator shall have the burden of showing that sufficient cement isolation is present to prevent the upward movement of injected material into zones of porosity or transmissive permeability in the overburden along the wellbore and to protect underground sources of drinking water.

2. In determining and specifying casing and cementing requirements, the following factors shall be considered:

a. depth of the storage zone;

b. injection pressure, external pressure, internal pressure, axial loading, etc.;

c. borehole size;

d. size and grade of all casing strings (wall thickness, diameter, nominal weight, length, joint specification, construction material, etc.);

e. corrosiveness of injected fluids and formation fluids;

f. lithology of subsurface formations penetrated;

g. type and grade of cement.

3. Surface casing shall be set to a depth into a confining bed below the base of the lowermost underground source of drinking water and shall be cemented to ground surface.

4. At a minimum, all Class V storage wells shall be cased with a minimum of two casings cemented into the salt. One casing string shall be an intermediate string, the other being the final cemented string. The surface casing will not be considered one of the two casings extending into the salt.

 a. All cemented casings in contact with the injected substances shall be constructed of compatible materials with sufficient strength and collapse resistance.

5. The intermediate cemented casing shall be set at a minimum of 100 feet into the salt. The final cemented casing shall be set a minimum distance of 300 feet into the salt and shall make use of a sufficient number of casing centralizers.

6. The following applies to wells existing in caverns before the effective date of these rules and regulations. If the design of the well or cavern precludes having distinct intermediate and final casing seats cemented into the salt, the wellbore shall be cased with two concentric casings run from the surface of the well to a minimum distance of 300 feet into the salt. The inner casing shall be cemented from its base to surface. Alternatively, a packer and tubing completion may be substituted for the inner casing string. The packer shall be considered the effective casing seat and must be set a minimum distance of 300 feet into the salt and within 50 feet of the deepest cemented casing seat.

7. All cemented casings shall be cemented from their respective casing seats to the surface when practicable; however, in every case, casings shall be cemented a sufficient distance to prevent migration of the stored products into zones of porosity or permeability in the overburden.

D. Casing and Casing Seat Tests. When performing tests under this subsection, the owner or operator shall monitor and record the tests by use of a surface readout pressure gauge and a chart or a digital recorder. All instruments shall be properly calibrated and in good working order. If there is a failure of the required tests, the owner or operator shall take necessary corrective action to obtain a passing test.

1. Casing. After cementing each casing, but before drilling out the respective casing shoe, all casings will be hydrostatically pressure tested to verify casing integrity and the absence of leaks. The stabilized test pressure applied at the well surface will be calculated such that the pressure gradient at the depth of the respective casing shoe will not be less than 0.7 PSI/FT of vertical depth or greater than 0.9 PSI/FT of vertical depth. All casing test pressures will be maintained for one-hour after stabilization. Allowable pressure loss is limited to 5 percent of the test pressure over the stabilized test duration. Test results will be reported as part of the pre-operating requirements.

2. Casing Seat. The casing seat and cement of the intermediate and production casings will each be hydrostatically pressure tested after drilling out the casing shoe. At least 10 feet of formation below the respective casing shoes will be drilled before the test.

a. For all casings below the surface casing -- excluding the casing string(s) set into the salt -- the stabilized test pressure applied at the well surface will be calculated such that the pressure at the casing shoe will not be less than the 85 percent of the predicted formation fracture pressure at that depth. The test pressures will be maintained for one hour after pressure stabilization. Allowable pressure loss is limited to 5 percent of the test pressure over the stabilized test duration. Test results will be reported as part of the pre-operating requirements.

b. For casing strings set within the salt, the test pressure applied at the surface will be the greater of the maximum predicted salt cavern operating pressure or a pressure gradient of 0.85 PSI/FT of vertical depth calculated with respect to the depth of the casing shoe. The test pressures will be maintained for one hour after pressure stabilization. Allowable pressure loss is limited to 5 percent of the test pressure over the stabilized test duration. Test results will be reported as part of the pre-operating requirements.

3. Casing or casing seat test pressures shall never exceed a pressure gradient equivalent to 0.90 PSI/FT of vertical depth at the respective casing seat or exceed the known or calculated fracture gradient of the appropriate subsurface formation. The test pressure shall never exceed the rated burst or collapse pressures of the respective casings.

E. Cased Borehole Surveys. A cement bond with variable density log (or similar cement evaluation tool) shall be run on all casing strings. When practicable, a temperature log shall be run on all casing strings. The Office of Conservation may consider requests for alternative means of compliance for wireline logging in large diameter casings or justifiable special conditions. A descriptive report interpreting the results of such logs shall be prepared and submitted to the commissioner.

1. It shall be the duty of the well applicant, owner or operator to prove adequate cement isolation on all cemented casings. Remedial cementing shall be done before proceeding with further well construction, completion, or conversion if adequate cement isolation between the storage well and subsurface formations cannot be demonstrated.

2. A casing inspection log (or similar approved log or method of casing evaluation) shall be run on the final cemented casing.

3. When submitting wireline surveys, the owner or operator shall submit one paper copy and an electronic copy in a format approved by the commissioner.

F. Hanging Strings. All Class V storage wells shall be completed with at least one hanging string unless specifically exempted by the Commissioner. Hanging strings shall be designed with collapse, burst, and tensile strength ratings conforming to all expected operating conditions. The design shall also consider the compatibility of the material used with the physical and chemical characteristics of fluids placed into and withdrawn from the cavern.

G. Wellhead Components and Related Connections. All wellhead components, valves, flanges, fittings, flowlines, and related connections shall be manufactured of material compatible with the stored products and any incidental substances. All components shall be designed with a test pressure rating of at least 125 percent of the maximum pressure that could be exerted at the surface. Selection and design criteria for components shall consider the physical and chemical characteristics of fluids placed into and withdrawn from the cavern under the specific range of operating conditions, including flow induced vibrations. The fluid withdrawal side of the wellhead shall be rated for the same pressure as the fluid injection side. All components and related connections shall be periodically inspected by the well operator and maintained in good working order.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3719. Operating Requirements

A. Cavern Roof. Without exception or variance to these rules and regulations, no cavern shall be used for storage if the cavern roof has grown above the top of the salt stock. The operation of an already permitted storage cavern shall cease and shall not be allowed to continue if information becomes available that shows this condition exists. The Office of Conservation may order the storage well and cavern removed from storage service according to an approved closure and post-closure plan.

B. Remedial Work. No remedial work or repair work of any kind shall be performed on the storage well or cavern without prior authorization from the Office of Conservation. The provision for prior authorization shall also extend to doing mechanical integrity pressure and leak tests, sonar caliper surveys, and all logs, and all logs, including casing inspection logs and through tubing logs; however, a work permit is not required in order to conduct routine interface surveys. The owner, operator, or its agent shall submit a valid work permit request form (Form UIC-17 or successor). Before beginning well or cavern remedial work, the pressure in the cavern shall be relieved, as practicable.

C. Well Recompletion―Casing Repair. The following applies to storage wells where remedial work results from well upgrade, casing wear, or similar conditions. For each paragraph below, a casing inspection log shall be performed on the entire length of the innermost cemented casing in the well before doing any casing upgrade or repair. Authorization from the Office of Conservation shall be obtained before beginning any well recompletion, repair, upgrade, or closure. A storage well that cannot be repaired or upgraded shall remain out-of-service and be closed according to an approved closure and post-closure plan.

1. Liner. A liner may be used to recomplete or repair a well with severe casing damage. The liner shall be run from the well surface to the base of the innermost cemented casing. The liner shall be cemented over its entire length and shall be successfully pressure tested.

2. Casing Patch. Internal casing patches shall not be used to repair severely corroded or damaged casing. Casing patches shall only be used for repairing or covering isolated pitting, corrosion, or similar localized damage. The casing patch shall extend a minimum of 10 feet above and below the area being repaired. The entire casing shall be successfully pressure tested.

D. Multiple Well Caverns. No newly permitted well shall be drilled into an existing cavern until the cavern pressure has been relieved, as practicable, to 0 PSI measured at the surface.

E. Cavern Allowable Operating Pressure

1. The maximum and minimum allowable surface injection pressures shall be calculated at a depth referenced to the well's deepest effective cemented casing seat. The injection pressure at the wellhead shall be calculated to ensure that the pressure induced within the salt cavern during injection does not initiate fractures or propagate existing fractures in the salt. In no case shall the injection pressure initiate fractures in the confining zone or cause the migration of injected fluids out of the salt stock or into an underground source of drinking water.

2. When measured at the surface and calculated with respect to the appropriate reference depth, the maximum allowable cavern injection pressure shall not exceed a pressure gradient of 0.90 PSI/FT of vertical depth.

3. The storage well shall not be operated at pressures above the maximum allowable injection pressure defined above, exceed the maximum allowable pressure as may be established by permit, or exceed the rated burst or collapse pressure of all well tubulars (cemented or hanging strings) even for short periods, including pressure pulsation peaks, abnormal operating conditions, well or cavern tests, etc.

5. No storage cavern shall be converted to store a material described in §3703.A.1 without prior approval by the Office of Conservation. Conversion to alternate material storage may require additional geomechanical modeling to establish allowable operating pressures.

F. Solution Mining Under Gas (Smugging)..

1. Within 30 days of a planned cavern enlargement while storing product, the operator shall submit written notice to the Injection and Mining Division with a description and timeline of the planned event.

2. Unless specifically exempted by the commissioner, after the completion of the smugging period, a sonar survey shall be conducted of the cavern and submitted to the Injection and Mining Division in accordance with §3729.B.4.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3721. Safety

A. Emergency Action Plan. An Emergency Action Plan containing emergency contact telephone numbers, procedures and specific information for facility personnel to respond to a release, upset, incident, accident, or other site emergency shall be kept at the facility and shall be reviewed and updated as needed. An outline of the plan, including emergency contact telephone numbers, shall be prepared and submitted as part of the permit application or compliance review.

B. Controlled Site Access. Access to storage facilities shall be controlled by fencing or other means around the facility property. All points of entry into the facility shall be through by a lockable gate system.

C. Personnel. Personnel shall be on duty at the storage facility 24 hours a day. During periods of stored product injection or withdrawal, trained personnel shall be stationed at the storage well, facility's onsite local control room, or other facility control location at the storage site. If the storage facility chooses to use an offsite monitoring and control automated telemetry surveillance system, approved by the commissioner, provisions shall be made for trained personnel to be on-call at all times and 24-hours-a-day staffing of the facility may not be required.

D. Wellhead Protection and Identification

1. A barrier shall be installed and maintained around the storage wellhead as protection from physical or accidental damage by mobile equipment or trespassers.

2. An identifying sign shall be placed at the wellhead of each storage well and, at a minimum, shall include the operator's name, well/cavern name and number, well's state serial number, section-township-range, and any other information required by the Office of Conservation. The sign shall be of durable construction with all lettering kept in a legible condition.

E. Valves and Flowlines

1. All valves, flowlines, flanges, fittings, and related connections shall be manufactured of steel. All components shall be designed with a test pressure rating of at least 125 percent of the maximum pressure that could be exerted at the surface. All components and related connections shall be maintained in good working order and shall be periodically inspected by the operator.

2. All valves, flowlines for injection and withdrawal, and any other flowlines shall be designed to prevent pressures over maximum operating pressure from being exerted on the storage well and cavern and prevent backflow or escape of injected material. The fluid withdrawal side of the wellhead shall have the same pressure rating as the injection side.

3. All flowlines for injection and withdrawal connected to the wellhead shall be equipped with remotely operated shut-off valves and shall have manually operated positive shut-off valves at the wellhead. All remotely operated shut-off valves shall be fail-safe and tested and inspected according to §3721.I.

F. Alarm Systems. Manual and automatically activated alarms shall be installed at all cavern facilities. All alarms shall be audible and visible from any normal work location within the facility. The alarms shall be maintained in proper working order. Automatic alarms designed to activate an audible and a visible signal shall be integrated with all pressure, flow, heat, fire, cavern overfill, leak sensors and detectors, emergency shutdown systems, or any other safety system. The circuitry shall be designed such that failure of a detector or sensor shall activate a warning.

G. Emergency Shutdown Valves. Manual and automatically actuated emergency shutdown valves shall be installed on all systems of cavern injection and withdrawal and any other flowlines going into or out from each storage wellhead. All emergency shutdown valves shall be fail-safe and shall be tested and inspected according to §3721.I.

1. Manual controls for emergency shutdown valves shall be designed to isolate a single well and to operate from a local control room, at each storage wellhead, any remote monitoring and control location, and at a location that is accessible to emergency response personnel.

2. Automatic emergency shutdown valves shall be designed to actuate on detection of abnormal pressures of the injection system, abnormal increases in flow rates, responses to any heat, fire, cavern overfill, leak sensors and detectors, loss of pressure or power to the well, cavern, or valves, or any abnormal operating condition.

H. Vapor Detection. The operator shall develop and implement a plan as required in §3723.D to detect the presence of combustible gases or any potentially ignitable substances in the atmosphere resulting from the storage operation.

1. Installation of a safety system at or near each brine pit or any other location where the uncontrollable release of liquefied gases may occur may be required by the commissioner.

I. Safety Systems Test. The operator shall function-test all critical systems of control and safety at least once every six months. This includes testing of alarms, test tripping of emergency shutdown valves ensuring their closure times are within design specifications, and ensuring the integrity of all electrical, pneumatic, or hydraulic circuits. Tests results shall be documented and kept onsite for inspection by an agent of the Office of Conservation.

J. Safety Inspections

1. The operator shall conduct twice-yearly safety inspections and file with the commissioner a written report consisting of the inspection procedures and results within 30 days following the inspection. Such inspections shall be conducted during the winter and summer months of each year. The operator shall notify the commissioner at least five days prior to such inspections so that his representative may be present to witness the inspections. Inspections shall include, but not be limited to, the following:

a. operations of all manual wellhead valves;

b. operation of all automatic shut-in safety valves, including sounding or alarm devices;

c. safety system;

d. brine pits, tanks, firewalls, and related equipment;

e. flowlines, manifolds, and related equipment;

f. warning signs, safety fences, etc.

 2. Visual inspections of the cavern facility shall be conducted each day the facility is operating. At a minimum, this shall include inspections of the wellhead, flowlines, valves, signs, perimeter fencing, and all other areas of the facility. Problems discovered during the inspections shall be corrected timely.

3. Representatives of the Office of Conservation may inspect the storage well and facility at any time during the storage facility regular working hours.

K. Spill Containment. Levees, booms, or other containment devices suitable to retain liquids released by accidental spillage shall surround the wellheads of caverns.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3723. Monitoring Requirements

A. Pressure Gauges, Pressure Sensors, Flow Sensors

1. Pressure gauges or pressure sensors/transmitters that show pressure on the fluid injection string, fluid withdrawal string, and any other string in the well shall be installed at each wellhead. Gauges or pressure sensors/transmitters shall be designed to read gauge pressure in 25 PSIG increments. All gauges or pressure sensors/transmitters shall be properly calibrated and shall always be maintained in good working order. The pressure valves onto which the pressure gauges are affixed shall have 1/2 inch female fittings.

2. Pressure sensors designed to actuate the automatic closure of all emergency shutdown valves in response to a preset pressure (high/low) shall be installed and properly maintained for all fluid injection, withdrawal, and any other appropriate string in the well.

3. Flow sensors designed to actuate the automatic closure of all emergency shutdown valves in response to abnormal changes in cavern injection and withdrawal flow rates shall be installed and properly maintained on each storage well.

B. Continuous Recording Instruments. Continuous recording instrumentation shall be installed and properly maintained for each storage well. Continuous recordings may consist of circular charts, digital recordings, or similar type. Unless otherwise specified by the commissioner, digital instruments shall record the required information at no greater than one minute intervals. Mechanical charts shall not exceed a clock period of 24-hour duration. The chart shall be selected such that its scaling is of sufficient sensitivity to record all fluctuations of pressure or any other parameter being monitored. The chart shall be scaled such that the parameter being recorded is 30 percent to 70 percent of full scale. Instruments shall be housed in weatherproof enclosures when located in areas exposed to climatic conditions. All fluid volumes shall be determined by metering or an alternate method approved by the Office of Conservation. Minimum data recorded shall include the following:

1. wellhead pressures on the fluid injection, fluid withdrawal, and any other string in the well;

2. volume and flow rate of fluid injected;

3. volume of fluid withdrawn.

C. Casing Inspection

1. A casing inspection log or approved alternative method of evaluation shall be run on the entire length of the innermost cemented casing in each well at least once every 10 years, with the exception of that which is provided in §3739 for Class V storage caverns. Casing inspection logs shall be submitted to the Office of Conservation and shall include an interpretive report

2. Equivalent alternate monitoring programs to ensure the integrity of the innermost, cemented casing may be approved by the Office of Conservation in place of §3723.C.1.

D. Vapor Detection. Unless specifically exempted by the commissioner, the operator shall develop a robust monitoring plan designed to detect the presence of a buildup of combustible gases or any potentially ignitable substances in the atmosphere resulting from the Class V storage operation. Variations in surface topography, atmospheric conditions typical to the area, characteristics of the stored product, proximityof the facility to homes, schools, commercial establishments, other wells or injection wells, etc., should be considered in developing the monitoring plan. The plan shall be submitted as part of the permit application and updated as needed but no less than every five years, and may be included within the submittal required in §3709.K. The monitoring plan should include provisions for strategic placement of stationary detection devices at various areas of the facility, portable monitoring devices, downhole monitoring devices, or any other appropriate system acceptable to the commissioner.

1. Any stationary detection devices or systems identified in the monitoring plan shall include their integration into the facility's automatic alarm system.

2. Detection of a buildup of combustible gases or any potentially ignitable substances in the atmosphere or system alarm shall cause an immediate investigation by the operator for reason of and correction of the detection.

E. Subsidence Monitoring and Frequency. The owner or operator shall prepare and carry out a plan approved by the commissioner to monitor ground subsidence at and in the vicinity of the storage cavern(s). A monitoring report shall be prepared and submitted to the Office of Conservation after completion of each monitoring event.

1. The frequency of conducting subsidence-monitoring surveys for storage caverns shall be scheduled to occur annually during the same period each year. If there are multiple operators on the same salt dome, a collaborative effort to conduct a joint subsidence survey is required.

F. Wind Sock. At least one windsock shall be installed at all storage cavern facilities. The windsock shall be visible from any normal work location within the facility.

G. Monitor Wells. Quarterly monitoring of any monitor wells required by §3717.A.2.a.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3725. Pre-Operating Requirements―Completion Report

A. The operator shall submit a report describing, in detail, the work performed resulting from the approved permitted activity. The report shall include all information relating to the work and information that documents compliance with these rules and the approved permitted activity. The report shall be prepared and submitted for any approved work relating to the construction, conversion, completion, or workover of the storage well or cavern. Product storage shall not commence until all required information has been submitted to the Office of Conservation and the operator has received written authorization from the Office of Conservation stating storage operations may begin. Preauthorization pursuant to this Subsection is not required for workovers.

B. Where applicable to the approved permitted activity, information in a completion report shall include:

1. all required state reporting forms containing original signatures;

2. revisions to any operation or construction plans since approval of the permit application;

3. as-built schematics of the layout of the surface portion of the facility;

4. as-built piping and instrumentation diagram(s);

5. copies of applicable records associated with drilling, completing, working over, or converting the well and cavern including a daily chronology of such activities;

6. if not already submitted, a certified, as-drilled location plat of the storage well, accompanied by proof of filing of the plat in the parish conveyance and mortgage records;

7. as-built subsurface diagram of the storage well and cavern labeled with the appropriate depth datum, construction, completion, or conversion information, i.e., depth and diameter of all tubulars, depths of top of caprock and salt, and top and bottom of the cavern;

8. as-built diagram of the wellhead labeled with the appropriate depth datum, construction, completion, or conversion information, i.e., valves, gauges, and flowlines;

9. results of any core sampling and testing;

10. results of well or cavern tests such as casing and casing seat tests, well/cavern mechanical integrity pressure and leak tests;

11. copies of any wireline logging such as open hole logs, cased hole logs, the most recent cavern sonar survey, and mechanical integrity test;

12. the status of corrective action on wells in the area of review;

13. the proposed operating data, if different from proposed in the application;

14. the proposed injection procedures, if different from proposed in the application;

15. any additional data documenting the work performed for the permitted activity, information requested by the Office of Conservation, or any additional reporting requirements imposed by the approved permit.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3727. Well and Cavern Mechanical Integrity Pressure and Leak Tests

A. The operator of the storage well and cavern shall have the burden of meeting the requirements for well and cavern mechanical integrity. The Office of Conservation shall be notified in writing at least seven days before any scheduled mechanical integrity test. The test may be witnessed by Office of Conservation personnel, but must be witnessed by a qualified third party. Generally accepted industry methods and standards shall apply when conducting and evaluating the tests required in this Rule.

B. Frequency of Tests

1. Without exception or variance to these rules and regulations, all Class V storage wells and caverns shall be tested for and demonstrate mechanical integrity before beginning storage activities.

2. All subsequent mechanical integrity pressure tests shall occur at least once every five years. Additionally, mechanical integrity testing shall be performed for the following reasons regardless of test frequency:

a. after physical alteration to any cemented casing or cemented liner;

b. after performing any remedial work to reestablish well or cavern integrity;

c. before returning the cavern to storage service after a period of salt solution-mining or washing to purposely increase storage cavern size or capacity;

d. before well closure, except when the cavern has experienced mechanical failure;

e. whenever leakage into or out of the cavern system is suspected;

f. whenever the commissioner determines a test is warranted.

C. Test Method

1. All mechanical integrity pressure and leak tests shall demonstrate no significant leak in the cavern, wellbore, casing seat, and wellhead and the absence of significant fluid movement. Test schedules and methods shall consider neighboring activities occurring at the salt dome to reduce any influences those neighboring activities may have on the cavern being tested.

2. When practicable, tests shall be conducted using an approved interface method with density interface and temperature logging using test materials having the same or comparable leak off qualities as the stored product. An alternative test method may be used if the alternative test can reliably demonstrate well/cavern mechanical integrity and with prior written approval from the Office of Conservation.

3. The cavern pressure shall be stabilized before beginning the test. Pressure stabilization shall be when the rate of cavern pressure change is no more than 10 PSIG during 24 hours.

4. The stabilized test pressure to apply at the surface shall be calculated with respect to the depth of the shallowest occurrence of either the cavern roof or deepest cemented casing seat and shall not exceed a pressure gradient of 0.90 PSI per foot of vertical depth. However, the well or cavern shall never be subjected to pressures that exceed the storage well's maximum allowable operating pressure or exceed the rated burst or collapse pressure of all well tubulars (cemented or hanging strings) even for short periods during testing.

5. A mechanical integrity pressure and leak test shall be run for at least 24 hours after cavern pressure stabilization and must be of sufficient time duration to ensure a sensitive test. All pressures shall be monitored and recorded continuously throughout the test. Continuous pressure recordings may be achieved through mechanical charts or recorded digitally. Mechanical charts shall not exceed a clock period of 24-hour duration. The chart shall be scaled such that the test pressure is 30 percent to 70 percent of full scale. All charts shall be selected such that its scaling is of sufficient sensitivity to record all fluctuations of pressure, temperature, or any other monitored parameter.

6. The commissioner may require that a separate casing pressure test be included as part of the routine MIT.

7. Inactive caverns. The commissioner may approve hydrostatic brine pressure monitoring for inactive wells and caverns that are in pre-closure monitoring and will not be returned to service. For any cavern removed from pre-closure monitoring that has been subject to hydrostatic brine pressure testing, a MIT must be performed in accordance with §3727.C.1-6 above prior to resuming any injection activities.

D. Submission of Pressure and Leak Test Results. Submit one complete copy of the mechanical integrity pressure and leak test results to the Office of Conservation within 60 days after test completion. The report shall include the following minimum information:

1. current well and cavern completion data;

2. description of the test procedure including pretest preparation and the test method used;

3. one paper copy and an electronic version of all wireline logs performed during testing;

4. tabulation of measurements for pressure, volume, temperature, etc.;

5. interpreted test results showing all calculations including error analysis and calculated leak rates; and

6. any information the owner or operator of the cavern determines is relevant to explain the test procedure or results.

E. Mechanical Integrity Test Failure

1. Without exception or variance to these rules and regulations, a storage well or cavern that fails a test for mechanical integrity shall be immediately taken out of service. The failure shall be reported to the Office of Conservation according to the notification requirements of §3709.I.8. The owner or operator shall investigate the reason for the failure and shall take appropriate steps to return the storage well or cavern to a full state of mechanical integrity. A storage well or cavern is considered to have failed a test for mechanical integrity for the following reasons:

a. failure to maintain a change in test pressure of no more than 10 PSIG over a 24-hour period;

b. not maintaining interface levels according to standards applied in the cavern storage industry; or

c. stored or test materials are determined to have escaped from the storage well or cavern during storage operations.

2. Written procedures to rehabilitate the storage well or cavern, extended cavern monitoring, or abandonment (closure and post-closure) of the storage well or cavern shall be submitted to the Office of Conservation within 60 days of mechanical integrity test failure.

3. If a storage well or cavern fails to demonstrate mechanical integrity and where mechanical integrity cannot be reestablished, the Office of Conservation may require the owner or operator to begin closure of the well or cavern according to an approved closure and post-closure plan.

a. The Office of Conservation may waive implementation of closure requirements if the owner or operator is engaged in a cavern remediation study and implements an interim cavern monitoring plan. The owner or operator must seek written approval from the Office of Conservation before implementing a salt cavern monitoring program. The basis for the Office of Conservation's approval shall be that any waiver granted shall not endanger the environment, or the health, safety and welfare of the public. The Office of Conservation may establish a time schedule for salt cavern rehabilitation, cessation of interim cavern monitoring, and eventual cavern closure and post-closure activities.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3729. Cavern Configuration and Capacity Measurements

A. Sonar caliper surveys shall be performed on all storage caverns. With prior approval of the Office of Conservation, the operator may use another similar proven technology designed to determine cavern configuration and measure cavern capacity as a substitute for a sonar survey.

B. Frequency of Sonar Caliper Surveys. For Class V storage caverns, a sonar caliper survey shall be performed at least once every 5 years. The survey must include horizontal shots beginning just below the shoe of the deepest cemented casing within the salt as well as downward angled shots imaging the floor of the cavern unless excepted by the commissioner. At least once every 10 years a sonar caliper survey, or other similar and approved survey, shall be performed on the roof of the cavern using angled tilt shots For Class V storage caverns engaging in simultaneous storage and salt solution-mining or washing, a sonar caliper survey, or other approved survey, shall be performed in accordance with this article or in accordance with LAC 43:XVII.3329, whichever requires the more frequent survey. Additional surveys as specified by the Office of Conservation shall be performed for any of the following reasons regardless of frequency:

1. before commencing cavern closure operations;

2. whenever leakage into or out of the cavern system is suspected;

3. after performing any remedial work to re-establish cavern integrity or raise the deepest casing seat;

4. before returning the cavern to storage service after a period of salt solution-mining or washing to purposely increase storage cavern size or capacity;

5. after the completion of any additional solution-mining while simultaneously engaging in storage;

6. whenever the Office of Conservation determines a survey is warranted.

C. Submission of Survey Results. One complete paper copy and an electronic version of each survey shall be submitted to the Office of Conservation within 60 days of survey completion.

1. Survey readings shall be taken a minimum of every 10 feet of vertical depth. Sonar reports of the surveyed data shall contain the following minimum information and presentations:

a. tabulation of incremental and total cavern volume for every survey reading;

b. tabulation of the cavern radii at various azimuths for every survey reading;

c. tabulation of the maximum cavern radii at various azimuths;

d. graphical plot of cavern depth versus volume;

e. graphical plot of the maximum cavern radii;

f. vertical cross-sections of the cavern at various azimuths drawn to an appropriate horizontal and vertical scale;

g. cross-section overlays comparing results of current survey and at least two previous surveys, if available;

h. isometric or 3-D shade profile of the cavern at various azimuths and rotations;

i. any data collected from prior surveys shall be clearly identified if included in the submitted report.

2. The information submitted resulting from use of an approved alternative survey method to determine cavern configuration and measure cavern capacity shall be determined based on the method or type of survey.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3731. Inactive Caverns

A. The following minimum requirements apply when a storage cavern is removed from storage service and is expected to remain out of service for one year or more:

1. notify the Office of Conservation in writing within seven days of the well or cavern becoming inactive (out-of-service). The notification shall include the date the cavern was removed from service, the reason for taking the cavern out of service, and the expected date when the cavern may be returned to service (if known);

2. disconnect all flowlines for injection to the well;

3. maintain continuous monitoring of cavern pressures, fluid withdrawal, and other parameters required by the permit;

4. maintain and demonstrate well and cavern mechanical integrity if storage operations were suspended for reasons other than a lack of mechanical integrity;

5. maintain compliance with financial responsibility requirements of these rules and regulations;

6. any additional requirements of the Office of Conservation to document the storage well and cavern shall not endanger the environment, or the health, safety and welfare of the public during the period of cavern inactivity.

7. No inactive storage cavern may be returned to service without first submitting a written request with Form UIC-17 to the Office of Conservation to obtain approval from the commissioner.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

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§3733. Operating Reports

A. Operating reports shall be submitted quarterly to the Office of Conservation no later than 15 days following the end of the reporting period.

B. Reports shall be submitted electronically on the appropriate Form (Form UIC-50 or successor document) and reference the operator name, well name, well number, well state serial number, salt dome name, and contain the following minimum information acquired weekly during the reporting quarter:

1. maximum wellhead pressures (PSIG) on the hanging string;

2. maximum wellhead pressure (PSIG) on the hanging string/casing annulus;

3. description of any event resulting in non-compliance with these rules that triggered an alarm or shutdown device and the response taken;

4. description of any event that exceeds operating parameters for annulus pressure or injection pressure as may be specified in the permit;

5. volume, density and type of fluids released from inactive caverns due to pressure build-up.

C. Upon emergency declaration by the commissioner pursuant to R.S. 30:6 the inventory of stored productin the cavern shall be reported. Report volumes in:

1. barrels (42-gallon barrels) at standard temperature and pressure for liquid or liquefied storage; or

2. thousand cubic feet (MCF) at standard temperature and pressure for gas storage.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3737. Record Retention

A. The owner or operator shall retain copies of all records, data, and information concerning the design, permitting, construction, workovers, tests, and operation of the well and cavern. Records shall be retained throughout the operating life of the well and cavern and for five years following conclusion of any post-closure care requirements. Records, data, and information shall include, but shall not be limited to the permit application, cementing (primary and remedial), wireline logs, drill records, casing records, casing pressure tests, well recompletion records, well/cavern mechanical integrity tests, cavern capacity and configuration surveys, surface construction, closure, post-closure activities, corrective action, sampling data, etc. Unless otherwise specified by the commissioner, monitoring records obtained pursuant to §3723.B shall be retained by the owner or operator for a minimum of five years from the date of collection. All documents shall be available for inspection by agents of the Office of Conservation.

B. When there is a change in the owner or operator of the well and cavern, copies of all records shall be transferred to the new owner or operator. The new owner or operator shall then have the responsibility of maintaining such records.

C. The Office of Conservation may require the owner or operator to deliver the records to the Office of Conservation at the conclusion of the retention period.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3737. Closure and Post-Closure

A. Closure. The owner or operator shall close the storage well, cavern, and associated parts as approved by the Office of Conservation. Closure shall not begin without written authorization from the Office of Conservation.

1. Notice of Intent to Close

a. The operator shall review the closure plan before seeking authorization to begin closure activities to determine if the conditions for closure are still relevant to the actual conditions of the storage well, cavern, or facility. Revisions to the method of closure reflected in the plan shall be submitted to the Office of Conservation for approval no later than the date on which the notice of closure is required to be submitted.

b. The operator shall notify the Office of Conservation in writing at least 30 days before the expected closure of the storage well, cavern, or surface facility. Notification shall be by submission of a request for a work permit. At the discretion of the Office of Conservation, a shorter notice period may be allowed.

2. Closure Plan. Plans to close the storage well, cavern, and related surface facility shall be submitted as part of the permit application. The closure plan shall meet the requirements of these rules and regulations, shall use accepted industry practices, and be acceptable to the Office of Conservation. The obligation to implement the closure plan survives the termination of a permit or the cessation of storage operations or related activities. The requirement to maintain and implement an approved plan is directly enforceable regardless of whether the requirement is a condition of the permit. The Office of Conservation may modify a closure plan where necessary.

3. Closure Plan Requirements. The owner or operator shall review the closure plan at least every five years to determine if the conditions for closure are still applicable to the actual conditions. Any revision to the plan shall be submitted to the Office of Conservation for approval. At a minimum, a closure plan shall address the following:

a. assurance of financial responsibility as required in §3709.B.1. All instruments of financial responsibility shall be reviewed according to the following process:

 i. a detailed cost estimate for closure of the well and related appurtenances (well, cavern, surface appurtenances, etc.) as prepared by a qualified professional. The closure plan and cost estimate shall include provisions for closure acceptable to the Office of Conservation;

 ii. after reviewing the required closure cost estimate, the Office of Conservation may amend the required financial surety to reflect the estimated costs to the Office of Conservation to complete the approved closure of the facility;

 iii. documentation from the operator showing that the required financial instrument has been renewed shall be received each year by the date specified in the permit. When an operator is delinquent in submitting documentation of financial instrument renewal, the Office of Conservation shall initiate procedures to take possession of funds guaranteed by the financial instrument and suspend or revoke the operating permit. Permit suspensions shall remain in effect until renewal documentation is received and accepted by the Office of Conservation;

b. a prediction of the pressure build-up in the cavern following closure;

c. an analysis of potential pathways for leakage from the cavern, cemented casing shoe, and wellbore. Consideration shall be given to site specific elements of geology, salt cavern geometry and depth, cavern pressure build-up over time due to salt creep and other factors inherent to the salt stock and/or salt dome;

d. procedures for determining the mechanical integrity of the well and cavern before closure;

e. removal and proper disposal of any waste or other materials remaining at the facility;

f. closing, dismantling, and removing all equipment and structures located at the surface (including site restoration);

g. the type, number, and placement of each wellbore or cavern plug including the elevation of the top and bottom of each plug;

h. the type, grade, and quantity of material to be used in plugging;

i. a description of the amount, size, and location (by depth) of casing and any other well construction materials to be left in the well;

j. any proposed test or measurement to be made before or during closure.

4. Standards for Closure. The following are minimum standards for closing the storage well or cavern. The Office of Conservation may require additional standards prior to actual closure.

a. After permanently concluding storage operations with the cavern but before closing the well or cavern, the owner or operator shall:

 i. observe and accurately record the shut-in salt cavern pressures and cavern fluid volume for no less than five years or a time period specified by the Office of Conservation to provide information regarding the cavern's natural closure characteristics and any resulting pressure buildup;

 ii. using actual pre-closure monitoring data, show and provide predictions that closing the well or cavern as described in the closure plan will not result in any pressure buildup within the cavern that could adversely affect the integrity of the well, cavern, or any seal of the system.

b. Unless the well is being plugged and abandoned due to a failed mechanical integrity test and the condition of the casing and cavern are known, before closure, the owner or operator shall confirm the mechanical integrity of both the well and cavern by well/cavern test methods or analysis of the data collected during the period between the end of storage operations and well/cavern closure.

c. Before closure, the owner or operator shall remove and properly manage any stored product remaining in the well or cavern, with the exception of the materials included in the approved closure plan.

d. Upon permanent closure, the owner or operator shall plug the well with cement, resin, or other approved mechanical plugs in a way that will not allow the movement of fluids into or between underground sources of drinking water or outside the salt stock.

5. Plugging and Abandonment

a. The well and cavern shall be in a state of static equilibrium before plugging and abandoning.

b. A continuous column of cement or other approved material shall fill the deepest cemented casing from its shoe to the surface via a series of balanced cement plugs:

 i. each plug shall be tagged to verify the top of cement and pressure tested to at least 300 PSI for 30 minutes before setting the next plug;

 ii. an attempt shall be made to place a plug in the open borehole below the deepest cemented casing;

 iii. unless specifically exempted by the commissioner, a balanced cement plug, or other approved plug, shall be placed across the shoe of the deepest cemented casing; and

 iv. subsequent balanced cement plugs, or other approved plugs, shall be spotted immediately on top of the previously placed plug.

c. After placing the top plug, the operator shall:

 i. on land locations cut and pull the casings a minimum of 5 feet below ground level. A 1/2 inch thick steel plate shall be welded across the top of all casings. The well's plug and abandonment date and well serial number shall be inscribed on top of the steel plat.

 ii. on water locations cut and pulled the casings a minimum of 15 feet below the mud line.

d. The operator may alter the plan of abandonment if new or unforeseen conditions arise during the well work, but only after approval by the Office of Conservation.

6. Closure Report. The owner or operator shall submit a closure report to the Office of Conservation within 60 days after closing the storage well, cavern, facility, or part thereof. The report shall be certified as accurate by the owner or operator and by the person charged with overseeing the closure operation (if other than the owner or operator). The report shall contain the following information:

a. detailed procedures of the closure operation. Where actual closure differed from the plan previously approved, the report shall include a written statement specifying the differences between the previous plan and the actual closure;

b. one original of the appropriate Office of Conservation plug and abandon report form (Form UIC- P&A or successor); and

c. any information pertinent to the closure activity including test or monitoring data.

B. Post-Closure. Plans for post-closure care of the storage well, cavern, and related facility shall be submitted as part of the permit application. The post-closure plan shall meet the requirements of these rules and regulations and be acceptable to the Office of Conservation. The obligation to implement the post-closure plan survives the termination of a permit or the cessation of storage operations or related activities. The requirement to maintain and implement an approved post-closure plan is directly enforceable regardless of whether the requirement is a condition of the permit. The Office of Conservation may modify a post-closure plan where necessary.

1. The owner or operator shall review the post-closure plan at least every five years to determine if the conditions for post-closure are still applicable to actual conditions. Any revision to the plan shall be submitted to the Office of Conservation for approval. At a minimum, a post-closure plan shall address the following:

a. assurance of financial responsibility as required in §3709.B.1. All instruments of financial responsibility shall be reviewed according to the following process:

 i. detailed cost estimate for adequate post-closure care of the well and cavern shall be prepared by a qualified, independent third party. The post-closure care plan and cost estimate shall include provisions acceptable to the Office of Conservation;

 ii. after reviewing the closure cost estimate, the Office of Conservation may amend the amount to reflect the costs to the Office of Conservation to complete the approved closure of the facility;

 iii. documentation from the operator showing that the required financial instrument has been renewed must be received each year by the date specified in the permit. When an operator is delinquent in submitting documentation of financial instrument renewal, the Office of Conservation shall initiate procedures to take possession of the funds guaranteed by the financial instrument and suspend or revoke the operating permit. Any permit suspension shall remain in effect until renewal documentation is received and accepted by the Office of Conservation.

b. any plans for monitoring, corrective action, site remediation, site restoration, etc., as may be necessary.

2. Where necessary and as an ongoing part of post-closure care, the owner or operator shall continue the following activities:

a. conduct subsidence monitoring for a period of no less than 10 years after closure of the facility;

b. complete any corrective action or site remediation resulting from the operation of a storage well;

c. conduct any groundwater monitoring if required by the permit or approved corrective action plan;

d. complete any site restoration.

3. The owner or operator shall retain all records as required in §3737 for five years following conclusion of post-closure requirements.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

§3739. Additional Criteria Specific to Stored Media

 A. Hydrogen

1. Spacing.

a. Adjacent Structures Within the Salt. The minimum pillar spacing between a hydrogen storage cavern and any other adjacent structures within the salt shall be determined on a case-by-case basis, and based upon the depth and configuration of cavern, any geomechanical analyses, monitoring plan, etc. However, without exception or variance to these rules and regulations, as measured in any direction, the 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 shall not be less than 200 feet. Hydrogen storage caverns must be operated in a manner that ensures the walls between any cavern and any other manmade structure maintain the minimum separation of 200 feet.

b. Salt Periphery. The minimum separation between the outermost extent of the cavern and the periphery of the salt stock shall be determined on a case-by-case basis based upon the substances to be stored, the depth and configuration of the cavern, any geomechanical analyses, monitoring plan, etc. However, without exception or variance to these rules and regulations, at no time shall the minimum separation between the cavern walls at any point and the periphery of the salt stock for a Class V storage cavern be less than 300 feet.

3. Casing and Cementing.

a. The first casing string cemented into the salt stock shall have connections with seals approved by the commissioner.

b. Any cemented casing in contact with the hydrogen stream must have welded connections with integrity verified by a method approved by the commissioner.

4. Casing Inspection Logs. Unless specifically exempted by the commissioner, a casing inspection log or approved alternative method of evaluation shall be run on the entire length of the innermost cemented casing in each well at least once every 5 years for Class V hydrogen storage caverns. Casing inspection logs shall be submitted to the Office of Conservation and shall include an interpretive report.

5. Any storage of hydrogen into a solution-mined salt cavern shall require a Class V Hydrogen Storage permit pursuant to this Chapter unless:

a. The hydrogen is an incidental part of another permitted constituent stream, and

b. The hydrogen is compatible with the cavern, wellbore, and wellhead materials.

6. Any monitoring plan approved by the commissioner shall include the specific method(s) for detecting and controlling any hydrogen emissions.

 B. Nitrogen

 1. Nothing in this chapter shall require Class V permitting for the use of nitrogen as a blanket material or a test medium in a Class III solution-mined cavern or Class II hydrocarbon storage cavern.

 C. Helium

1. Spacing

a. Adjacent Structures. Within the Salt. The minimum pillar spacing between a helium storage cavern and any other adjacent structures within the salt shall be determined on a case-by-case basis, and based upon the depth and configuration of cavern, any geomechanical analyses, monitoring plan, etc. However, without exception or variance to these rules and regulations, as measured in any direction, the 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 shall not be less than 200 feet. Helium storage caverns must be operated in a manner that ensures the walls between any cavern and any other manmade structure maintain the minimum separation of 200 feet.

b. Salt Periphery. The minimum separation between the outermost extent of the cavern and the periphery of the salt stock shall be determined on a case-by-case basis based upon the substances to be stored, the depth and configuration of the cavern, any geomechanical analyses, monitoring plan, etc. However, without exception or variance to these rules and regulations, at no time shall the minimum separation between the cavern walls at any point and the periphery of the salt stock for a Class V storage cavern be less than 300 feet.

2. Casing and Cementing.

a. The first casing string cemented into the salt stock shall have connections with seals approved by the commissioner.

b. Any cemented casing in contact with the helium stream must have welded connections with integrity verified by a method approved by the commissioner.

AUTHORITY NOTE: Promulgated in accordance with R.S. 30:4 et seq. and R.S. 30:23 et seq.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Injection and Mining Division, LR 48: Department of Natural Resources - Office of Conservation

Richard P. Ieyoub

Commissioner

**Family Impact Statement**

 In compliance with Act 1183 of the 1999 Regular Session of the Louisiana Legislature, the impact of this proposed rule on the family has been considered. The proposed rule has a positive impact on family functioning, stability, or autonomy as described in R.S. 49:972.

**Poverty Impact Statement**

The proposed Rule should not have any known or foreseeable impact on any child, individual or family as defined by R.S. 973.B. In particular, there should be no known or foreseeable effect on:

 1. the effect on household income, assets, and financial security;

 2. the effect on early childhood development and preschool through postsecondary education development;

 3. the effect on employment and workforce development;

 4. the effect on taxes and tax credits;

 5. the effect on child and dependent care, housing, health care, housing, health care, nutrition, transportation, and utilities assistance.

**Small Business Analysis**

Pursuant to R.S. 49:965.6, methods for reduction of the impact on small business, as defined in the Regulatory Flexibility Act, have been considered when creating this proposed Rule.

This proposed Rule is not anticipated to have an adverse impact on small businesses; therefore, a Small Business Economic Impact Statement has not been prepared.

**Provider Impact Statement**

The proposed Rule is not anticipated to have an impact on providers of services funded by the state as described in HCR 170 of the 2014 Regular Legislative Session. In particular, there should be no known or foreseeable effect on:

1. the effect on the staffing level requirements or qualifications required to provide the same level of service;
2. the total direct and indirect effect on the cost to the providers to provide the same level of service; or
3. the overall effect on the ability of the provider to provide the same level of service.

**Public Comments**

Interested persons may submit written comments to Stephen Lee, Director of the Injection and Mining Division, Office of Conservation, Louisiana Department of Natural Resources, P.O. Box 94396, Baton Rouge, LA 70804-9396. Written comments will be accepted through the close of business, 5:00 p.m. on July 27, 2022.

**Public Hearing**

Interested persons may submit written comments to Stephen Lee, Director of the Injection and Mining Division, Office of Conservation, Louisiana Department of Natural Resources, P.O. Box 94396, Baton Rouge, LA 70804-9396. Written comments will be accepted through the close of business, 5:00 p.m. on July 27, 2022. A public hearing is not currently scheduled, but if requested will be held on the afternoon of Tuesday, July 26, 2022.

Richard P. Ieyoub

Commissioner of Conservation

I. ESTIMATED IMPLEMENTATION COSTS (SAVINGS) TO STATE OR LOCAL GOVERNMENTAL UNITS (Summary)

The proposed rule will result in an increase in costs to the Louisiana Department of Natural Resources (LDNR). The proposed rule expands the existing salt cavern storage program from the current limited scope of hydrocarbon storage only and adds oversight for the storage of certain non-hydrocarbon gasses and liquids. The proposed rule regulates Class V storage wells from inception to plugging and abandonment and site closure, ensuring the health, safety, and welfare of the public and the environment. This program will gradationally grow between FY 23 and FY 24, but is expected to be fully operational by the end of FY 24. Expected costs to the state total $165,000 in FY 23 and $326,000 in FY 24. After FY 24, the program costs will grow at a slower rate, which will be dependent on salary adjustments and inflation on purchased goods for the program.

II. ESTIMATED EFFECT ON REVENUE COLLECTIONS OF STATE OR LOCAL GOVERNMENTAL UNITS (Summary)

The proposed rule will result in an increase in revenue for the Department of Natural Resources. Revenue collections will begin in FY 23 and increase each year thereafter. Revenue sources for the program include both fees levied upon the applicant/operator as well as additional federal grant funding. Projected revenue for this program is expected to be $35,500 in FY 23 and grow to $80,000 in FY 24. The agency will fund this program with a combination of this collected revenue and from other injection well fees deposited in the Oil and Gas Regulatory Fund; no additional General Fund dollars will be needed.

III. ESTIMATED COSTS AND/OR ECONOMIC BENEFITS TO DIRECTLY AFFECTED PERSONS, SMALL BUSINESSES, OR NON-GOVERNMENTAL GROUPS (Summary)

Both individuals and non-governmental groups are predicted to incur positive economic benefits from this program. These projects will require leasing or purchase of the salt minerals that will be mined in order to store these non-hydrocarbon gasses. Additionally, the storage of hydrogen, helium, ammonia, and compressed air can be utilized to implement renewable or low-carbon energy projects, and hydrogen storage in particular will be used in conjunction with carbon sequestration for blue hydrogen projects in the state.

IV. ESTIMATED EFFECT ON COMPETITION AND EMPLOYMENT (Summary)

Construction of these new storage facilities is predicted to positively impact the industrial construction sector as well as the downstream energy sector. It is likely that the availability of construction and energy/technical jobs will increase in order to build or retrofit the energy facilities and the injection sites, but quantifiable predictions are not available at this time.