

**Title 43**  
**NATURAL RESOURCES**  
**Part XVII. Office of Conservation—Injection and Mining**  
**Subpart 5. Statewide Order No. 29-M-3**

**Chapter 33. Class III (Solution-Mining) Injection Wells**

**§3301. Definitions**

*Act*—Part I, Chapter 1 of Title 30 of the Louisiana Revised Statutes

*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 solution-mining 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 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 material typically consists of crude oil, diesel, mineral oil, or some fluid possessing similar noncorrosive, nonsoluble, low density properties. The blanket material is placed between the cavern's outermost hanging string and innermost cemented casing.

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

*Cap Rock*—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 or utter failure of the overlying strata caused by the removal or otherwise weakening of underlying sediments.

*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 of fluids into a 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 for the 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 of 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*—a valve that automatically closes to isolate a solution-mining 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 §3303.E.2.

*Existing Injection Well or project*—an injection well or project other than a new injection well or project.

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

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

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

*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.

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

*Injection Well*—a well into which fluids are being injection other than fluids associated with active drilling operations.

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

*Leaching*—the process whereby an undersaturated fluid is introduced into a cavern thereby dissolving additional salt and increasing the volume of the salt cavern.

*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.

*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 Well*—a wellbore permitted by the Office of Conservation after the effective date of these rules.

*Office of Conservation*—the Louisiana Office of Conservation within the Department of Natural Resources.

*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.

*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.

*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.

*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 dome includes 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). Cap rock 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-mined cavern*—a cavity created within the salt stock by dissolution with water.

*Solution-mining well*—a Class III well; a well which injects fluids for extraction of minerals or energy.

*State*—the state of Louisiana.

*Subsidence*—see *ground subsidence*.

*Surface Casing*—the first string of casing installed in a well, excluding conductor casing.

*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*—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.

*USDW*—see underground source of drinking water.

*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 movement of fluids.

*Well Stimulation*—several processes used to clean the well bore, enlarge channels, and increase pore space in the interval to be injected thus making it possible for injection fluids to move more readily into the formation, and includes:

1. urging;
2. jetting;
3. blasting;
4. acidizing; or
5. hydraulic fracturing.

*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.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

### §3303. General Provisions

#### A. Applicability

1. These rules and regulations shall apply to all applicants, owners and/or operators of solution-mining wells in the state of Louisiana.
2. Rules governing the permitting, drilling, constructing, operating, and maintaining of Class III solution-mining wells previously codified in applicable

sections of Statewide Order No. 29-N-1 (LAC 43:XVII, Subpart 1) or successor documents are now codified in Statewide Order No. 29-M-3 (LAC 43:XVII, Subpart 5) or successor documents.

3. An applicant, owner, and operator of a solution-mining well should become familiar with these rules and regulations to assure that the well and cavern shall comply with these rules and regulations.

#### B. Prohibition of Unauthorized Injection

1. Construction, conversion, or operation of a solution-mining well 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.

2. Any solution-mining well existing before the effective date of these rules must comply with the requirements of these rules and regulations unless a request for a variance is made under §3303.F no later than one (1) year after authorization of these rules and regulations.

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

1. No authorization by permit shall allow the movement of injected or disposed fluids into underground sources of drinking water or outside the salt stock. The owner or operator of the solution-mining 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 disposed 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 strictly 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 §3303.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 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

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 or variances to these rules and regulations. It shall be the obligation of the applicant, owner, or operator to show that the requested exception or variance shall not create an increased 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 or variance. 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 Class III well or project with less stringent requirements for area of review, construction, mechanical integrity, operation, monitoring, and reporting than required in this Subpart 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.

b. When reducing requirements under this Section the commissioner shall issue an order 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 at a public hearing 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 requester of the exception or variance shall be responsible for all costs associated with a public hearing.

G. Additional Requirements. The commissioner may prescribe additional requirements for Class III wells or projects in order to protect USDWs.

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

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

**§3305. Permit Requirements**

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

B. Application Required. Applicants for a solution-mining well, permittees with expiring permits, or any person required to have a permit shall complete, sign, and submit one original application form with required attachments and documentation and two copies of the same to the Office of Conservation. 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 principle 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 principle 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 solution-mining 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.

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

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

E. Signature Reauthorization. If an authorization under §3305.D is no longer accurate because a different individual or position has responsibility for the overall operation of a solution-mining well, 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 a document under §3305.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.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

**§3307. Application Content**

A. The following minimum information required in §3307 shall be submitted in a permit application for a solution-mining well. The applicant shall also refer to the appropriate application form for any additional information that may be required.

B. Administrative Information:

1. all required state application form(s);
2. the nonrefundable application fee(s) as per LAC 43:XIX.Chapter 7 or successor document;
3. the name and mailing address of the applicant and the physical address of the solution-mining well facility;
4. the operator's name, address, telephone number, and e-mail address;
5. ownership status as federal, state, private, public, or other entity;
6. a brief description of the nature of the business associated with the activity;
7. the 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. 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 Permit 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 Coastal Resources Program, the Louisiana Surface Mining Program or the Louisiana Natural and Scenic Streams System;

10. acknowledgment as to whether the facility is located on Indian 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 or documentation of the method by which proof of financial responsibility will be provided as required in §3309.B. Before making a final permit decision, final (official) documentation of financial responsibility must be submitted to and approved by the Office of Conservation;

12. names and addresses of all property owners within a 1320 feet radius of the property boundary of the solution-mined cavern.

C. Maps and Related Information—

1. a location plat of the solution-mining well prepared and certified by a registered civil engineer or registered land surveyor. The location plat shall be prepared according to standards of the Office of Conservation;
2. a topographic or other map extending at least 1 mile beyond the property boundaries of the facility in which the solution-mining well is located 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 solution-mining well is located and any parish, city or

municipality boundary lines within 1 mile of the facility location;

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

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 solution-mining well and the cavern being permitted, all surrounding caverns regardless of use and current status, conventional (room and pillar) mines, and all other bore holes and wells that penetrate the salt stock. Cross sections should be oriented to indicate the closest approach to surrounding caverns, bore holes, wells, etc., and shall extend at least 1-mile beyond the edge of the salt stock. Any faulting in the area shall be illustrated on the cross sections such that the displacement of subsurface formations is accurately depicted; and

9. any other information required by the Office of Conservation to evaluate the solution-mining well, cavern, project, and related surface facility.

D. Area of Review Information. Refer to §3315.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 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 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 cap rock 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 solution-mining well or cavern being the subject of the application:

a. a tabular listing of all 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, hydrocarbon storage, solution mining), current status of the cavern (active, shut-in, plugged and abandoned), date the solution-mining well was drilled, and the date the current solution-mining 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 solution-mining 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 a current cavern sonar survey and mechanical integrity pressure and leak tests;

2. corrective action plan required by §3315.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 and hydrogeological studies of §3315.B, C, and D. If such studies have already been done, submit the results obtained along with an interpretation of the results;

4. properly labeled schematic of the surface construction details of the solution-mining 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 solution-mining well and cavern, if applicable, to include borehole diameters (bit size or calipered); 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; and any other pertinent details;

6. surface site diagram(s) drawn to scale to include details and locations of the entire layout of the facility in which the solution-mining well is located (including but not limited to surface pumps, piping and instrumentation, controlled access roads, fenced boundaries, field offices, monitoring and safety equipment and location of such equipment, required curbed or other retaining wall heights would any of this be required, etc.);

7. a proposed formation testing program to obtain the information required below:

a. where the injection zone is a water bearing formation, the following information concerning the injection zone shall be determined or calculated for new Class III wells or projects:

- i. fluid pressure;
- ii. fracture pressure; and
- iii. physical and chemical characteristics of the formation fluids.

b. where the injection formation is not a water bearing formation, the information in §3307.E.7.a.ii;

8. a proposed stimulation program;

9. proposed injection procedures;

10. expected changes in pressure, native fluid displacement, and direction of movement of injection fluid;

11. detailed plans and procedures to operate the solution-mining well, cavern, and related surface facilities in accordance with the following requirements:

a. for new wells, the following minimum proposed operating data should also be provided. If the information is proprietary an applicant may, in lieu of the ranges in concentrations, choose to submit maximum concentrations which shall not be exceeded. In such a case the applicant shall retain records of the undisclosed concentrations and provide them upon request to the commissioner as part of any enforcement investigation;

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

ii. average and maximum injection pressure; and

iii. qualitative analysis and ranges in concentrations of all constituents of injected fluids. The applicant may request confidentiality.

b. the cavern and surface facility design requirements of §3317, including, but not limited to cavern spacing requirements and cavern coalescence;

c. the well construction and completion requirements of §3319, 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;

d. the operating requirements of §3321, including, but not limited to cavern roof restrictions, blanket material, remedial work, well recompletion, multiple well caverns, cavern allowable operating pressure and rates, and extracted cavern fluid management.

e. the safety requirements of §3323, 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, as well as contingency plans to cope with all shut-ins or well failures to prevent the migration of contaminating fluids into underground sources of drinking water;

f. the monitoring requirements of §3325, including, but not limited to equipment requirements such as pressure gauges, pressure sensors and flow sensors, continuous recording instruments, and subsidence monitoring, well as a description of methods that will be undertaken to monitor cavern growth due to undersaturated fluid injection;

g. the pre-operating requirements of §3327, specifically the submission of a completion report, and the information required therein;

h. the mechanical integrity pressure and leak test requirements of §3329, including, but not limited to frequency of tests, test methods, submission of pressure and leak test results, and notification of test failures;

i. the cavern configuration and capacity measurement procedures of §3331, including, but not limited to sonar caliper surveys, frequency of surveys, and submission of survey results;

j. the requirements for inactive caverns in §3333;

k. the reporting requirements of §3335, including, but not limited to the information required in monthly operation reports;

l. the record retention requirements of §3337;

m. the closure and post-closure requirements of §3339, including, but not limited to closure plan requirements, notice of intent to close, standards for closure, and post-closure requirements; and

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

F. "IT Decision" Questions. Consistent with the Class III Brine Extraction Well Permit Application Procedures for Form UIC-3 BR, the applicant shall provide sufficient information to answer the following questions.

1. Have the potential and real adverse environmental effects of the proposed operations been avoided to the maximum extent possible?

2. Does a cost benefit analysis of the environmental impact costs balanced against the social and economic benefits of the proposed facility demonstrate that the latter outweighs the former?

3. Are there alternative projects which would offer more protection to the environment than the proposed operations without unduly curtailing non-environmental benefits?

4. Are there alternative sites which would offer more protection to the environment than the proposed operations site without unduly curtailing non-environmental benefits?

5. Are there mitigating measures which would offer more protection to the environment than the facility as proposed without unduly curtailing non-environmental benefits?

G. Confidentiality of Information. Information obtained by any rule, regulations, order, or permit term or condition adopted or issued here-under, or by any investigation authorized thereby, shall be available to the public, unless nondisclosure is requested in writing and such information is determined by the commissioner to require confidentiality to protect trade secrets, processes, operations, style of work, apparatus, statistical data, income, profits, losses, or in order to protect any plan, process, tool, mechanism, or compound; provided that such nondisclosure shall not apply to information that is necessary for use by duly authorized officers or employees of state or federal government in carrying out their responsibilities under these regulations or applicable federal or state law. If no claim is made at the time of submission, the commissioner may make the information available to the public without further notice.

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.

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

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR\_\_\_\_\_.

### §3309. 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 §3305.D or §3305.E.

#### B. Financial Responsibility

1. Closure and Post-Closure. The owner or operator of a solution-mining well shall maintain financial responsibility and the resources to close, plug and abandon and, where necessary, for post-closure care of the solution-mining well, cavern, and related facility as prescribed by the Office of Conservation. Evidence of financial responsibility shall be by submission of a surety bond, a letter of credit, certificate of deposit, or other instruments 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 §3339.A and, if required, post-closure plan of §3339.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.

2. Renewal of Financial Responsibility. Any approved instrument of financial responsibility coverage shall be renewable yearly. Documentation of renewals shall be submitted to the Office of Conservation.

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. It shall be the duty of the operator to prove that continued operation of the solution-mining 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 the 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/cavern mechanical integrity), adequate funding, adequate operation, staffing and training, and adequate laboratory process controls including appropriate quality assurance procedures. 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 or due to the solution-mining well, cavern, or part thereof, 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 thought to have entered or has the possibility of entering an underground source of drinking water or otherwise poses a serious threat to the environment or public safety.

3. The Office of Conservation may immediately prohibit further operations if it determines that continued operations at a solution-mining 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 solution-mining 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 solution-mining well facility by Office of Conservation personnel shall be allowed as prescribed in R.S. of 1950, Title 30, Section 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 solution-mining 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 solution-mining 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 well or cavern 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 there has been no injection into a cavern for 30 consecutive days or more, the operator shall notify the Office of Conservation in writing within seven days following the thirtieth day of the cavern becoming inactive (out of service). The notification shall include the date on which the cavern was removed from service, the reason for taking the cavern out of service, and the expected date that the cavern shall be returned to service. See §3333 for additional requirements for inactive caverns.

4. The operator of a new or converted solution-mining well shall not begin mining 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 §3327;

b. a representative of the commissioner has inspected the well and/or facility within 10 working days of the notice of completion required in 3309.I.4.a 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 clearly stating solution-mining operations may begin.

5. Noncompliance or anticipated noncompliance (which may result from any planned changes in the permitted facility or activity) with the permit or applicable regulations including a failed mechanical integrity pressure and leak test of §3329.

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 of the permit (see §3311.K) 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, or any progress reports on, interim and final requirements contained in any compliance schedule in these regulations 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 becomes aware of the circumstances. A written submission shall also be provided within five days from when the operator becomes 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 of §3329) that suggests the solution-mining 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 of §3329) 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 solution-mining operations. Notification shall be given within seven days after concluding operations.

10. The operator shall give written notification before abandonment (closure) of the solution-mining 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 solution-mining well shall be valid for the life of the well, unless suspended, modified, revoked and reissued, or terminated for cause as described in §3311.K. The commissioner may issue, for cause, any permit for a duration that is less than the full allowable term under this Section.

2. Authorization to Drill, Construct, or Convert. Authorization by permit to drill, construct or convert a new solution-mining 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 §3309.J.2; however, the Office of Conservation shall approve the request only for extenuating circumstances. The

operator shall have the burden of proving claims of extenuating circumstances.

K. Compliance Review. The commissioner shall review each issued solution-mining well or area permit at least once every five years to determine whether it should be modified, revoked and reissued, terminated, or if a minor modification needs to be made. Commencement of the permit review process for each facility shall proceed as authorized by the commissioner. At a minimum, for purposes of the Compliance Review, the operator shall submit to the Office of Conservation at least once every five years the information required by §3315.A and B, based upon the most up to date data available. Upon receipt of this information the Commissioner shall either request additional information from the Operator or shall initiate the Compliance Review. If after sixty days following commencement of the Compliance Review, the permit is not modified, revoked and reissued, or terminated, then the permit shall remain valid pursuant to §3309.J.1.

L. Schedules of Compliance. The permit may, when appropriate, 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 §3309.L.2.b, 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. The commissioner may issue a permit on an area basis, rather than for each well individually, provided that the permit is for injection wells:

a. described and identified by location in permit application(s) if they are existing well, except that the commissioner may accept a single description of wells with substantially the same characteristics;

b. within the same well field, facility site, reservoir, project, or similar unit in the state;

- c. operated by a single owner or operator; and
- d. used to inject other than hazardous waste.

2. Area permits shall specify:

a. the area within which underground injections are authorized; and

b. the requirements for construction, monitoring, reporting, operation, and abandonment, for all wells authorized by the permit.

3. The area permit may authorize the operator to construct and operate, convert, or plug and abandon wells within the permit area provided:

a. the operator notifies the commissioner at such time as the permit requires;

b. the additional well satisfies the criteria in §3309.M.1 and meets the requirements specified in the permit under §3309.M.2; and

c. the cumulative effects of drilling and operation of additional injection wells are considered by the commissioner during evaluation of the area permit application and are acceptable to the commissioner.

4. If the commissioner determines that any well constructed pursuant to §3309.M.3 does not satisfy any of the requirements of §3309.M.3.a and b, the commissioner may modify the permit under §3311.K.3, terminate under §3311.K.6, or take enforcement action. If the commissioner determines that cumulative effects are unacceptable, the permit may be modified under §3311.K.3.

N. Additional Conditions. The Office of Conservation may, 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.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

**§3311. Permitting Process**

A. Applicability. This Section contains procedures for issuing and transferring permits to operate a solution-mining well. Any person required to have a permit shall apply to the Office of Conservation as stipulated in §3305. 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 completed 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 is to be filed with the Office of Conservation. A notice of intent shall be published at least 30 days but not

more than 120 days before filing the permit application with the Office of Conservation. The applicant shall publish a new notice of intent if the application is not received by the Office of Conservation within the filing period.

2. The notice shall be published once in the official state journal and the official journal of the parish of the proposed project location. The cost for publishing the notice of intent shall be 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 before the application will be deemed complete.

C. Application Submission and Review

1. The applicant shall complete, sign, and submit one original application form, with required attachments and documentation, and two copies 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.

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

D. Public Hearing Requirements. A public hearing may be requested for new applications and 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 give public notice that the following actions have occurred:

i. a draft permit has been prepared under §3311.E; and

ii. a hearing has been scheduled under §3311.D.

b. No public notice is required when a request for permit modification, revocation and reissuance, or termination is denied under §3311.K.

## 2. Notice by Applicant

a. Public notice of a hearing shall be published by the Office of Conservation in the legal ad 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.

b. The applicant shall file at least one copy of the complete permit application with the local governing authority of the parish of the proposed project location at least 30 days before the scheduled public hearing to be available for public review.

c. One additional copy of the complete permit application shall be filed by the applicant in a public library in the parish of the proposed project location.

3. 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 §3311.E;

g. a brief description of the public comment procedures;

h. a brief statement of procedures to request a hearing (unless a hearing has already been scheduled) and other procedures by which the public may participate in the final permit decision;

i. the time, place, and a brief description of the nature and purpose of the public hearing, if one has already been scheduled;

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

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

## E. Draft Permit.

1. Once an application is complete, the Office of Conservation shall prepare a draft permit (Order) or deny the application. Draft permits shall be accompanied by a fact sheet, be publicly noticed, and made available for public comment.

2. The applicant may appeal the decision to deny the application in a letter to the commissioner who may then call a public hearing through §3311.D.

3. If the commissioner prepares a draft permit, it shall contain the following information where appropriate:

a. all conditions under §3307 and §3309;

b. all compliance schedules under §3309.L; and

c. all monitoring requirements under applicable Paragraphs in §3325.

F. Fact Sheet. 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.

1. The fact sheet may include:

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 of §3311.H, the address where comments shall be received, and any other procedures whereby the public may participate in the final decision. The public notice shall allow 30 days for public comment;

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.

2. The fact sheet shall be distributed to the permit applicant, all persons identified in §3311.D.1.b, and, on request, to any interested person.

## G. Public Hearing

1. If a public hearing has been requested, the Office of Conservation shall fix a time, date, and location for a public hearing. The public hearing shall be held in the parish of the proposed project location. The cost of the public hearing shall be set by LAC 43:XIX.Chapter 7 (Fees, as amended) and is the responsibility of the applicant.

2. The Office of Conservation shall provide notice of a scheduled hearing by forwarding a copy of the notice to the applicant, property owners immediately adjacent to the proposed project, operators of existing projects located on or within the salt stock of the proposed project; United States Environmental Protection Agency; Louisiana Department of Wildlife and Fisheries; Louisiana Department of Environmental Quality; Louisiana Office of Coastal Management; Louisiana Office of Conservation, Pipeline Division, Louisiana Department of Culture, Recreation and Tourism, Division of Archaeology; the governing authority for the parish of the proposed project; and any other interested parties.

3. 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.

4. 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 comment period by so stating before the close of the hearing.

5. 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 during any hearing.

3. The Office of Conservation may issue a final permit decision within 90 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. Approval or the granting of a permit to construct or convert a solution-mining well shall be valid for a period of one year and if not begun in that time, the permit shall be null and void. The permittee may request an extension of this one-year requirement; however, the commissioner shall approve the request for extenuating circumstances only.

#### 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 a permit 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 permit 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 read that the permit has been transferred. It is a violation of these rules and regulations to operate a solution-mining well without a permit or other authorization if a person attempting to acquire a permit transfer allows operation of the solution-mining 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 §3311.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 §3305.D and E along with the appropriate filing fee.

e. The new operator shall submit evidence of financial responsibility under §3309.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 §3309.K.3.b the transfer is effective on the date specified in the agreement mentioned in §3311.J.2.b.iii.

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 notification, or public participation is not required for minor permit modifications defined in §3311.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 §§3311.K.2, 3, 4, 5, and 6. All requests shall be in writing and shall contain facts or reasons 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 hearings.

e. If the Office of Conservation decides to suspend, modify, or revoke and reissue a permit under §3311.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 solution-mining well 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 environment, or the health, safety and welfare of the public which was unknown at the time of permit issuance. If the solution-mining well location is no longer suitable for its intended purpose, it shall be 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 solution-mine until violations are corrected. If violations are corrected, the Office of Conservation may lift the suspension. Suspension of a permit and/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 of violations of the permit or these regulations that list the specific violations. 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 to 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 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, or 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 §3311.K.6, 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 (3311.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 which 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 solution-mining 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 (see 3311.J);

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 of the solution-mining well, cavern, or surface facility before 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 which follows the same procedures as any draft permit prepared under §3311.E. The Office of Conservation may alternatively decide to modify or revoke and reissue a permit for the causes in §3311.K.7.

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

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

**§3313. Location Criteria**

A. No physical structure at a solution-mining well facility shall be located within 500 feet of a residential, commercial, or public building. Adherence to this requirement may be waived by the owner of the building. For a public building, the waiver shall be provided by the responsible administrative body. Any such waiver shall be in writing and be made part of the permit application. Examples of physical structures include, but are not limited to, the wellhead of the solution-mining well, onsite buildings, pumps, etc. An exception to the 500-foot restriction may be granted upon request for the placement of instruments or equipment required for safety or environmental monitoring.

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

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

**§3315. Site Assessment**

A. Applicability. This Section applies to all applicants, owners or operators of solution-mining wells. The applicant, owner or operator shall be responsible for showing that the

solution-mining operation shall be accomplished using good engineering and geologic practices for solution-mining 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 subsection 3309.J, the commissioner may require any owner or operator of a solution-mining 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 geological, geomechanical, geochemical, geophysical properties of the salt stock;

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

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

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

B. Geological Studies and Evaluations. The applicant shall do a thorough geological, geophysical, geomechanical, and geochemical evaluation of the salt stock to determine its suitability for solution-mining, 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. The applicant shall provide a listing of data or information used to characterize the structure and geometry of the salt stock.

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

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

b. geologic history of salt movement;

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

d. deformation of the cap rock and strata overlying the salt stock;

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

f. cap rock formation and any non-vertical salt movement.

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

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

4. The proximity of all solution-mining caverns to the periphery of the salt stock shall be demonstrated to the Office of Conservation at least once every five years by providing the following:

a. an updated structure contour map of the salt on a scale no smaller than one (1) inch to 500 feet. 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 cavern's 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. Cross-sections should be oriented to indicate the closest approach of the salt cavern wall to the periphery of the salt stock. The outline of the salt cavern should be based on the most recent sonar caliper survey.

#### C. Core Sampling

1. At least one well at the site of the solution-mining well (or the salt dome) 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 cap rock. 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 may be used instead of actual core sampling provided the data is specific to the salt dome of interest. If site-specific data is unavailable, data may be obtained from sources that are not specific to the area as long as the data can be shown to closely approximate the properties of the salt dome of interest. It shall be the responsibility of the applicant to make a satisfactory demonstration that data obtained from other sources are applicable to the salt dome 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, 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.

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 solution-mining well or project area that may influence the integrity of the salt stock, solution-mining well, and cavern, or contribute to the

movement of injected fluids outside the cavern, wellbore, or salt stock.

1. Surface Delineation. The area of review for an individual solution-mining well shall be a fixed radius around the wellbore of not less than 1320 feet. The area of review for wells in a solution-mining project, shall be the project area plus a circumscribing area the width of which is not less than 1320 feet. Exception shall be noted as shown in §§3315.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 cap rock or salt stock;

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

c. all caverns within the salt stock regardless of usage, depth of penetration, or distance to the proposed solution-mining 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 solution-mining well or cavern.

#### F. Corrective Action

1. For manmade structures identified in the area of review that 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, 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 solution-mining well for which corrective action is required shall include a schedule of compliance for complete fulfillment of the approved corrective action procedures as soon as possible. If the required corrective action is not completed as prescribed in the schedule of compliance, the permit shall be suspended, modified, revoked and possibly reissued, or terminated according to these rules and regulations.

3. No permit shall be issued for a new solution-mining 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 solution-mining 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 §3325 shall be designed to verify the validity of such determination.

6. In determining the adequacy of corrective action proposed by the applicant under §3315.F above 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.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

**§3317. Cavern and Surface Facility Design Requirements**

A. This Section provides general standards for design of caverns to assure that project development can be conducted in a reasonable, prudent, and a systematic manner and shall stress physical and environmental safety. The cavern design shall be modified where necessary to conform to good engineering and geologic practices.

**B. Cavern Spacing Requirements**

1. Property Boundary. The wellhead and borehole shall be located such that the cavern at its maximum diameter shall not extend closer than 100 feet to the property

boundary of the facility in which the solution-mining well is located.

2. Adjacent Structures within the Salt. As measured in any direction, the minimum separation between walls of adjacent caverns or between the walls of the cavern and any manmade structure within the salt stock shall not be less than 200 feet.

3. Salt Periphery. 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 be less than 300 feet in a newly permitted cavern. Owners/operators with an existing cavern(s) with less than 300 feet between the walls and the periphery of the salt stock shall provide a monitor plan to the Office of Conservation with provisions for ongoing monitoring of structural stability of the cavern through methods which may include, but are not limited to: sonar caliper surveys, vertical seismic profiles, micro-seismic monitoring, or continuous cavern pressure data monitoring. A combination of the above methods shall be proposed where appropriate.

C. Cavern Coalescence. The Office of Conservation may permit the use of coalesced caverns for solution-mining. It shall be the duty of the applicant, owner or operator to demonstrate that operation of coalesced caverns under the proposed cavern operating conditions can be accomplished in a physical and environmentally safe manner. The intentional subsurface coalescing of adjacent caverns must be requested by the applicant, owner or operator in writing and be approved by the Office of Conservation before beginning or resumption of solution-mining operations. Approval for cavern coalescence shall only be considered upon a showing by the applicant, owner or operator that the stability and integrity of the cavern and salt stock shall not be compromised and that solution-mining operations can be conducted in a physically and environmentally safe manner. If the design of adjacent caverns should include approval for the subsurface coalescing of adjacent caverns, the minimum spacing requirement of §3317.B.2 above shall not apply to the coalesced caverns.

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

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

**§3319. Well Construction and Completion**

**A. General Requirements**

1. All materials and equipment used in the construction of the solution-mining well and related appurtenances shall be designed and manufactured to 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, hole size, anticipated ranges and extremes of operating conditions, subsurface temperatures and pressures, type and grade of cement, and projected life of the solution-mining well.

2. All solution-mining 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.

a. Where injection is into a formation which contains water with less than 10,000 mg/l TDS, monitoring wells shall be completed into the injection zone and into any underground sources of drinking water above the injection zone which could be affected by the mining operation. These wells shall be located in such a fashion as to detect any excursion of injected fluids, process by-products, or formation fluids outside the mining area or zone. If the operation may be affected by subsidence or catastrophic collapse the monitoring wells shall be located so that they will not be physically affected.

b. Where injection is into a formation which does not contain water with less than 10,000 mg/l TDS, no monitoring wells are necessary in the injection stratum.

c. Where the injection well penetrates a 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.

d. In determining the number, location, construction and frequency of monitoring of the monitoring wells the following criteria shall be considered:

- i. the population relying on the USDW affected or potentially affected by the injection operation;
- ii. the proximity of the injection 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 injection well density.

#### B. Open Borehole Surveys

1. Open hole wireline surveys that delineate subsurface lithologies, formation tops (including top of cap rock and salt), formation fluids, formation porosity, and fluid resistivities shall be done on wells from total well depth to either ground surface or base of conductor pipe. Wireline surveys 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. 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. Where practicable, caliper logging to determine borehole size for cement volume calculations shall be done before running casings.

C. Casing and Cementing. Except as specified below, the wellbore of the solution-mining well shall be cased, completed, and cemented according to rules and regulations of the Office of Conservation and good petroleum 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 §3327.

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 or disposed 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 to the injection zone;
- b. injection pressure, external pressure, internal pressure, axial loading, etc.;
- c. hole size;
- d. size and grade of all casing strings (wall thickness, diameter, nominal weight, length, joint specification, and construction material);
- e. corrosiveness of injected fluids and formation fluids;
- f. lithology of injection and confining zones; and
- 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. Surface casing shall be cemented to surface where practicable.

4. All solution-mining wells shall be cased with a minimum of two casings cemented into the salt. The surface casing shall not be considered one of the two casings of this Subparagraph.

5. New wells drilled into an existing cavern shall have an intermediate casing and a final cemented casing set 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 and are being used for solution-mining. 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.

7. The intermediate and final casings shall be cemented from their respective casing seats to the surface when practicable.

D. Casing and Casing Seat Tests. When doing tests under this paragraph, 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 shall be hydrostatically pressure tested to verify casing integrity and the absence of leaks. For surface casing, the stabilized test pressure applied at the surface shall be a minimum of 500 pounds per square inch gauge (PSIG). The stabilized test pressure applied at the surface for all other casings shall be a minimum of 1,000 PSIG. All casing test pressures shall be maintained for one hour after stabilization. Allowable pressure loss is limited to five percent of the test pressure over the stabilized test duration.

2. Casing Seat. The casing seat and cement of intermediate and production casings shall each be hydrostatically pressure tested after drilling out the casing shoe. At least 10 feet of formation below the respective casing shoes shall be drilled before the test. The test pressure applied at the surface shall be the greater of 1,000 PSIG or 125 percent of the maximum predicted cavern operating pressure. The appropriate test pressure shall 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.

3. Casing or casing seat test pressures shall never exceed a pressure gradient equivalent to 0.90 PSI per foot 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) and a temperature log shall be run on all casings. The Office of Conservation may consider requests for allowances 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 solution-mining well and other subsurface zones cannot be demonstrated.

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

F. Hanging Strings. Without exception or variance to these rules and regulations, all solution-mining wells shall be completed with at least two hanging strings. One hanging string shall be for injection; the second hanging string shall be for displacing fluid out of the cavern from below the blanket material. Hanging strings shall be designed with a collapse, burst, and tensile strength rating conforming to all expected operating conditions, including flow induced vibrations. The design shall also consider the physical and chemical characteristics of fluids placed into and/or withdrawn from the cavern.

G. Wellhead Components and Related Connections. All wellhead components, valves, flanges, fittings, flowlines, 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. Selection and design criteria for components shall consider the physical and chemical characteristics of fluids placed into and/or withdrawn from the cavern under the specific range of operating conditions, including flow induced vibrations. The fluid withdrawal side of the wellhead (if applicable) shall be rated for the same pressure as the waste injection side. All components and related connections shall be maintained in good working order and shall be periodically inspected by the operator.

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

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

**§3321. Operating Requirements**

A. Cavern Roof. Without exception or variance to these rules and regulations, no cavern shall be used if the cavern roof has grown above the top of the salt stock. The operation of an already permitted 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 solution-mining well and cavern closed according to an approved closure and post-closure plan.

B. **Blanket Material.** Before beginning solution-mining operations, a blanket material shall be placed into the cavern to prevent unwanted leaching of the cavern roof. The blanket material shall consist of crude oil, diesel, mineral oil, or other fluid possessing similar noncorrosive, nonsoluble, low-density properties. The blanket material shall be placed between the outermost hanging string and innermost cemented casing of the cavern and shall be of sufficient volume to coat the entire cavern roof. The cavern roof and level of the blanket material shall be monitored at least once every five years by running a density interface survey or using an alternative method approved by the Office of Conservation.

C. **Remedial Work.** No remedial work or repair work of any kind shall be done on the solution-mining 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 and sonar caliper surveys. The owner or 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, to zero pounds per square inch as measured at the surface.

D. **Well Recompletion—Casing Repair.** The following applies to solution-mining wells where remedial work results from well upgrade, casing wear, or similar condition. For each paragraph below, a casing inspection log shall be done 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 solution-mining well that cannot be repaired or upgraded shall be properly closed according to §3339.

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.

E. **Multiple Well Caverns.** No newly permitted well shall be drilled into an existing cavern until the cavern pressure has been relieved, as practicable, to zero pounds per square inch as measured at the surface.

F. **Cavern Allowable Operating Pressure.**

1. The maximum allowable cavern injection pressure shall be calculated at a depth referenced to the well's deepest cemented casing seat. The injection pressure at the well-head shall be calculated so as to assure that the pressure in the injection zoned during injection does not initiate new fractures or propagate existing fractures in the injection zone. In no case shall injection pressure initiate fractures in the confining zone or cause the migration of injection or formation fluids into an underground source of drinking water. When measured at the surface and calculated with respect to the appropriate reference depth, the maximum allowable cavern injection pressure shall never exceed a pressure gradient of 0.90 PSI per foot of vertical depth.

2. The solution-mining well shall never be operated at pressures over 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.

3. The maximum injection pressure for a solution-mining well shall be determined after considering the properties of all injected fluids, the physical properties of the salt stock, well and cavern design, neighboring activities within and above the salt stock, etc.

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

**HISTORICAL NOTE:** Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

### **§3323. Safety**

A. **Emergency Action Plan.** A plan outlining procedures for personnel at the facility to follow in case of an emergency shall be prepared and submitted as part of the permit application. The plan shall contain emergency contact telephone numbers, procedures and specific information for facility personnel to respond to a release, upset, incident, accident, or other site emergency. A copy of the plan shall be kept at the facility and shall be reviewed and updated as needed.

B. **Controlled Site Access.** All operators of solution-mining caverns shall install and maintain fencing of at least 6 feet in height around the entire facility property in which the cavern is located. All points of entry into the facility shall be through by a lockable gate system.

C. **Personnel.** Trained and competent personnel shall be on duty and stationed as appropriate at the solution-mining well during all hours and phases of facility operation.

D. **Wellhead Protection and Identification**

1. A protective barrier shall be installed and maintained around wellheads, pipings, and above ground structures that may be vulnerable to physical or accidental damage by mobile equipment or trespassers.

2. An identifying sign shall be placed at the wellhead of each solution-mining well and shall include at a minimum the operator's name, well/cavern name and number, well

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 waste injection, fluid withdrawal, and any other flowlines shall be designed to prevent pressures over maximum operating pressure from being exerted on the solution-mining 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 of the solution-mining well shall be equipped with remotely operated shut-off valves and shall also 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 §3323.H.

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 always 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 overflow, 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 flowline going into or out from each solution-mining wellhead. All emergency shutdown valves shall be fail-safe and shall be tested and inspected according to §3323.H.

1. Manual controls for emergency shutdown valves shall be designed for operation from a local control room, at the solution-mining well, any remote monitoring and control location, and at a location that is likely to be accessible to emergency response personnel.

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

H. Systems Test and Inspection

1. 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, and/or hydraulic circuits. Tests results shall be documented and kept onsite for inspection by an agent of the Office of Conservation.

2. Visual Facility Inspections. Visual inspections of the entire 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.

I. Retaining Walls and Spill Containment

1. Retaining walls, curbs, or other spill containment systems shall be designed, built, and maintained around appropriate areas of the facility to collect, retain, and/or otherwise prevent the escape of waste or other materials that may be released through facility upset or accidental spillage. Retaining walls shall be constructed of reinforced concrete. All retaining walls shall be built to a level that will provide sufficient capacity for holding at least 110 percent of the volume of each tank. All storage areas shall be kept free of debris, trash, or other materials that may constitute a fire hazard.

2. At a minimum, the following areas shall be protected by retaining walls and/or spill containment:

- a. brine storage areas;
- b. curbed area around the wellhead of each solution-mining well; and
- c. any area where blanket material is stored.

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

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

**§3325. Monitoring Requirements**

A. Pressure Gauges, Pressure Sensors, Flow Sensors

1. Pressure gauges that show pressure on the fluid injection string, fluid withdrawal string, and any annulus of the well, including the blanket material annulus, shall be installed at each wellhead. Gauges shall be designed to read gauge pressure in 10 PSIG increments. All gauges 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 automatically close all emergency shutdown valves in response to a preset pressure (high/low) shall be installed and properly maintained for all fluid injection and fluid withdrawal strings, and blanket material annulus.

3. Flow sensors designed to automatically close all emergency shutdown valves in response to abnormal increases in cavern injection and withdrawal flow rates shall be installed and properly maintained on each solution-mining well.

B. Continuous Recording Instruments. Continuous recording instrumentation shall be installed and properly maintained for each solution-mining well. Continuous recordings may consist of circular charts, digital recordings, or similar type. 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 both the fluid injection and fluid withdrawal strings;
2. wellhead pressure on the blanket material annulus;
3. volume and flow rate of fluid injected;
4. volume of fluid withdrawn;
5. salinity of injected material including the carrier fluid; and
6. density of injected material.

C. Casing Inspection. A casing inspection log shall be done on the entire length of the innermost cemented casing in each well at least once every five years.

D. Vapor Monitoring and Leak Detection. All detection devices or systems identified in the monitoring plan shall include their integration into the facility's automatic alarm system. Activation of a detection device or system alarm shall cause a cessation of all injection until the reason for the alarm activation has been determined and corrected.

E. Subsidence Monitoring. The owner or operator shall prepare and carry out a plan to monitor ground subsidence at and in the vicinity of the solution-mining cavern(s). Frequency of subsidence monitoring shall be scheduled to occur annually during the same period. A monitoring report shall be prepared and submitted to the Office of Conservation after completion of each monitoring event.

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

G. Monitor Wells. Quarterly monitoring of the monitor wells required by 3319.A.2.a.

H. All Class III wells may be monitored on a field or project basis rather than an individual well basis by manifold monitoring. Manifold monitoring may be used in cases of facilities consisting of more than one injection well,

operating with a common manifold. Separate monitoring systems for each well are not required provided the owner/operator demonstrates that manifold monitoring is comparable to individual well monitoring.

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

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

**§3327. Pre-Operating Requirements—Completion Report**

A. The operator of a solution-mining well shall not begin injection until all required information has been submitted to the Office of Conservation and the operator has received written authorization from the Office of Conservation clearly stating operations may begin.

B. The operator shall submit a report to the Office of Conservation that describes, in detail, the work performed resulting from any approved permitted activity. A 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, installation and completion of the surface portion of the facility and information on the construction, conversion, or workover of the solution-mining well or cavern.

C. 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 solution-mining well and/or cavern including a daily chronology of such activities;
6. revised certified location plat of the solution-mining well if the actual location of the well differs from the location plat submitted with the solution-mining well application;
7. as-built subsurface diagram of the solution-mining well and cavern labeled with appropriate construction, completion, or conversion information, i.e., depth and diameter of all tubulars, depths of top of cap rock and salt, and top and bottom of the cavern;
8. as-built diagram of the surface wellhead labeled with appropriate 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 and/or cased hole logs, the most recent cavern sonar survey, and mechanical integrity test;

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

13. the proposed operating data;

14. the proposed injection procedures; and

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.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

**§3329. Well and Cavern Mechanical Integrity Pressure and Leak Tests**

A. The operator of the solution-mining 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.

B. Frequency of Tests. Without exception or variance to these rules and regulations, all solution-mining wells shall be tested for and satisfactorily prove mechanical integrity before beginning injection activities. After the initial test, all subsequent tests shall include testing the solution-mining well and cavern for mechanical integrity and shall occur at least once every five years. Additionally, mechanical integrity testing shall be done for the following reasons regardless of test frequency:

1. after any alteration to any cemented casing or cemented liner;

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

3. before suspending injection operations for reasons other than a lack of well/cavern mechanical integrity if it has been more than three years since the last mechanical integrity test;

4. before well/cavern closure;

5. before any attempt of permit transference; or

6. whenever the Office of Conservation believes 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. Tests shall be conducted using the nitrogen-brine interface method with density interface and temperature logging. 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. Stabilization shall be reached when the rate of cavern pressure change is no more than 10 PSIG during 24 hours.

4. The stabilized test pressure applied at the surface shall be a minimum of 125 percent of the maximum cavern surface operating pressure or 500 PSIG whichever is greater. However, at no time shall the test pressure calculated with respect to the shallowest occurrence of either the cavern roof or deepest cemented casing seat and as measured at the surface exceed a pressure gradient of 0.90 PSI per foot of vertical depth. The solution-mining well or cavern shall never be subjected to pressures over the 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 may be 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.

D. Submission of Pressure and Leak Test Results. One complete copy of the mechanical integrity pressure and leak test results shall be submitted to the Office of Conservation within 30 days of 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. copies 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. In conducting and evaluating the tests enumerated in this Section or others to be allowed by the commissioner, the

owner or operator and the commissioner shall apply methods and standards generally accepted in the industry; 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 solution-mining 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 §3309.H. The owner or operator shall investigate the reason for the failure and shall take appropriate steps to return the solution-mining well or cavern to a full state of mechanical integrity. A solution-mining 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 nitrogen-brine interface levels according to standards applied in the cavern storage industry; or
- c. fluids are determined to have escaped from the solution-mining well or cavern during waste disposal operations.

2. Written procedures for rehabilitation of the solution-mining well or cavern, extended cavern monitoring, or abandonment (closure and post-closure) of the solution-mining well or cavern shall be submitted to the Office of Conservation within 30 days of mechanical integrity test failure.

3. Upon reestablishment of mechanical integrity of the solution-mining well or cavern and before returning either to service, a new mechanical integrity pressure and leak test shall be performed that demonstrates mechanical integrity of the solution-mining well or cavern. The owner or operator shall submit the new test results to the Office of Conservation for written approval before resuming injection operations.

4. If a solution-mining 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 within six months according to an approved closure and post-closure plan.

5. If a cavern fails mechanical integrity and where rehabilitation cannot be accomplished within six months, the Office of Conservation may waive the six-month closure requirement 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.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

**§3331. Cavern Configuration and Capacity Measurements**

A. Sonar caliper surveys shall be performed on all 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 Surveys. A sonar caliper survey shall be performed at least once every five years. Additional surveys shall be done for any of the following reasons regardless of frequency:

- 1. before commencing cavern closure operations;
- 2. whenever leakage into or out of the cavern is suspected;
- 3. after performing any remedial work to reestablish solution-mining well or cavern integrity;
- 4. before any attempt of permit transference; or
- 5. whenever the Office of Conservation believes a survey is warranted.

C. Submission of Survey Results. One complete copy of each survey shall be submitted to the Office of Conservation within 30 days of survey completion.

1. Survey readings shall be taken a minimum of every 10 feet of vertical depth. Sonar reports 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. vertical cross section overlays comparing results of current survey and previous surveys;
- h. (optional)-isometric or 3-D shade profile of the cavern at various azimuths and rotations.

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.

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

### §3333. Inactive Caverns

A. The operator shall comply with the following minimum requirements when there has been no injection into a salt cavern for 30 consecutive days or more, regardless of the reason:

1. notify the Office of Conservation as per the requirements of §3309.H.3;

2. disconnect all flowlines for injection to the solution-mining well;

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

4. maintain and demonstrate solution-mining well and cavern mechanical integrity if mining 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 solution-mining well and cavern shall not endanger the environment, or the health, safety and welfare of the public during the period of cavern inactivity.

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

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

### §3335. Monthly Operating Reports

A. The operator shall submit monthly operation reports to the Office of Conservation. Monthly reports are due no later than 15 days following the end of the reporting month.

B. Monthly reports shall be submitted electronically on Form UIC 33/34 or successor document and contain the following minimum information:

1. name and location of the solution-mining well;
2. wellhead pressures (PSIG) on the injection string;
3. wellhead pressure (PSIG) on the blanket material annulus;
4. volume in gallons of injected material;
5. results of any monitoring program required by permit or compliance action;
6. summary of any test of the solution-mining well or cavern;

7. summary of any workover performed during the month including minor well maintenance;

8. description of any event which triggers an alarm or shutdown device and the response taken;

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

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

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

### §3337. Record Retention

A. The owner or operator shall retain copies of all records, data, and information concerning the design, permitting, construction, and operation of the solution-mining well, cavern, and related surface facility. Records shall be retained throughout the operating life of the solution-mining well 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, monitoring records, well/cavern mechanical integrity tests, cavern capacity and configuration surveys, surface construction, post-closure activities, corrective action, sampling data, etc. All documents shall be available for inspection by agents of the Office of Conservation at any time.

B. Should there be a change in the owner or operator of the solution-mining well, copies of all records identified in the previous paragraph 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. If so, the records shall be retained at a location designated by the Office of Conservation.

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

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.

### §3339. Closure and Post-Closure

A. Closure. The owner or operator shall close the solution-mining well, cavern, surface facility or parts thereof as approved by the Office of Conservation. Closure shall not begin without written authorization from the commissioner or his designee.

1. Closure Plan. Plans for closure of the solution-mining 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 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 mining 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.

2. Plugging and Abandonment. The well/cavern to be abandoned shall be in a state of static equilibrium prior to plugging.

a. A continuous column of cement shall fill the deepest cemented casing from shoe to surface via a series of balanced cement plugs and shall be accomplished as follows:

i. a balanced cement plug shall be placed across the shoe of the deepest cemented casing and tagged to verify the top of cement; and

ii. subsequent balanced cement plugs shall be spotted immediately on top of the previously-placed balanced cement plug. Each plug shall be tagged to verify the top of cement and pressure tested before the next plug is placed.

b. After placing the top plug, the operator shall be required on all land locations to cut and pull the casings a minimum of five feet below ground level. A half-inch thick steel plate shall be welded across the top of all casings. The plate shall be inscribed with the plug and abandonment date and the well serial number on top. On all water locations, the casings shall be cut and pulled a minimum of 15 feet below the mud line.

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

d. Within 20 days of the completion of plugging work, the operator shall file one original and one copy of Form UIC-P&A or its successor document with the Office of Conservation.

3. Closure Plan Requirements. The owner or operator shall review the closure plan annually to determine if the conditions for closure are still applicable to the actual conditions of the solution-mining well, cavern, or surface facility. 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 §3309.B.1. All instruments of financial responsibility shall be reviewed each year before its renewal date according to the following process:

i. a detailed cost estimate for adequate closure (plugging and abandonment) of the entire solution-mining well (solution-mining well, cavern, surface appurtenances, etc.) shall be prepared by a qualified, independent third party and submitted to the Office of Conservation by the date specified in the permit;

ii. the closure plan and cost estimate shall include provisions for closure acceptable to the Office of

Conservation and shall reflect the costs for the Office of Conservation to complete the approved closure of the facility;

iii. after reviewing the closure cost estimate, the Office of Conservation may increase, decrease or allow the amount to remain the same;

iv. 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 solution-mining 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) if such equipment and structures will not be used for another purpose at the same disposal facility;

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 solution-mining well;

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

#### 4. 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 solution-mining well, cavern, or surface 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 as shown in the subparagraph below.

b. The operator shall notify the Office of Conservation in writing at least 30 days before the expected closure of a solution-mining 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.

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

a. After permanently concluding mining operations into the cavern but before closing the solution-mining 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 (5) 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 solution-mining 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 solution-mining well, cavern, or any seal of the system.

b. Before closure, the owner or operator shall do mechanical integrity pressure and leak tests to ensure the integrity of both the solution-mining well and cavern.

c. Before closure, the owner or operator shall remove and properly dispose of any free oil or blanket material remaining in the solution-mining well or cavern.

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

6. Closure Report. The owner or operator shall submit a closure report to the Office of Conservation within 30 days after closure of the solution-mining well, cavern, surface 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. all state regulatory reporting forms relating to the closure activity; and

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

B. Post-Closure. Plans for post-closure care of the solution-mining well, cavern, and related surface 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 mining 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 annually 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 §3309.B.1. All instruments of financial responsibility shall be reviewed each year before its renewal date according to the following process:

i. a detailed cost estimate for adequate post-closure care of the entire solution-mining well shall be prepared by a qualified, independent third party and submitted to the Office of Conservation by the date specified in the permit;

ii. the post-closure care plan and cost estimate shall include provisions acceptable to the Office of Conservation and shall reflect the costs for the Office of Conservation to complete the approved post-closure care of the facility;

iii. after reviewing the post-closure cost estimate, the Office of Conservation may increase, decrease or allow the amount to remain the same;

iv. 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 ten (10) years after closure of the facility;

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

c. conduct any groundwater monitoring by the permit until pressure in the cavern displays a trend of behavior that can be shown to pose no threat to cavern integrity, underground sources of drinking water, or other natural resources of the state;

d. complete any site restoration.

3. The owner or operator shall retain all records as required in §3337 for five years following conclusion of post-closure requirements.

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

HISTORICAL NOTE: Promulgated by the Department of Natural Resources, Office of Conservation, LR \_\_\_\_\_.