

STATE OIL AND GAS BOARD OF MISSISSIPPI

RE: BY DIRECTION OF THE STATE OIL AND GAS BOARD TO CONSIDER THE ADOPTION OF A STATEWIDE RULE FOR PERMITTING THE CREATION AND CONTINUED OPERATION OF ARTIFICIALLY FORMED UNDERGROUND LIQUEFIED COMPRESSED GASES STORAGE SPACES WHERE SUCH CAVITIES ARE DISSOLVED IN SALT BEDS, AND FOR THE PREVENTION OF WASTE AS DEFINED BY MISSISSIPPI STATUTES.

DOCKET NO. 138-74

ORDER NO. 228-74

ORDER

This day this cause came on for hearing by direction of the State Oil and Gas Board to consider the adoption of a statewide rule for permitting the creation and continued operation of artificially formed underground liquefied compressed gases storage spaces where such cavities are dissolved in salt beds, and for the prevention of waste as defined by Mississippi statutes;

WHEREAS, due, proper and legal notice of the meeting of the Board for the purpose of considering and taking action with respect to such statewide rule was given in the manner and time provided by law and the rules and regulations of this Board, and due, legal and sufficient proofs of publication are on file with the Board, and the Board has full jurisdiction of the subject matter to hear and determine this matter; and

WHEREAS, pursuant to said notice given, public hearing was held by said Board in the Second Floor Auditorium of the Woolfolk State Office Building, Jackson, Mississippi, commencing on September 18, 1974, at 9:30 o'clock a. m., at which hearing all persons who desired to be heard on said matter were heard and all testimony and evidence were duly considered by those present at said meeting; and

WHEREAS, at said September, 1974, meeting of the Board, this docket and cause was taken under advisement by the Board and continued to the October, 1974, meeting of the Board; and

WHEREAS, after numerous conferences, hearings and discussions had with representatives of the oil and gas industry, members of the staff of the Board, and others, proposed rules and regulations were compiled and filed with the Board and with other interested parties, including counsel; and

WHEREAS, the Board has now fully considered said matter and the evidence and recommendations made in said hearing and the proposed rules and regulations filed with the Board, and in recognition of the jurisdiction of the Motor Vehicle Comptroller in administering the Liquefied Compressed Gas Equipment Inspection Law of Mississippi (Sections 75-57-1 et seq., Mississippi Code of 1972) and of the duties and responsibilities imposed upon this Board by Section 75-57-13, supra, and Section 53-1-1 et seq., and especially, Section 53-1-17(c)(1), (6), (7), and (15) and Section

53-1-3(k)(7) and 53-1-3(o), Mississippi Code of 1972, is of the opinion and so finds that the rules and regulations hereinafter set out should be adopted by this Board:

NOW, THEREFORE, IT IS HEREBY ORDERED that the following rules and regulations for the creation and continued operation of artificially formed underground liquefied compressed gases storage spaces, where such cavities are dissolved in salt beds, be and the same are hereby adopted:

UNDERGROUND STORAGE WELLS OF  
LIQUEFIED COMPRESSED GASES  
IN RESERVOIRS DISSOLVED IN SALT BEDS

1.

Permits for the drilling, development and continued operation of artificially formed underground liquefied compressed gases storage spaces, where such cavities are dissolved in salt beds, may be issued only after notice and hearing by the State Oil and Gas Board, in the form and manner required by statutes and rules of this Board.

2.

Each salt dome solution cavern well drilled and developed after the adoption of these rules shall be washed to its initial design capacity, such capacity shall be verified by a method approved by the Board, and such information shall be filed with the Board prior to the utilization of the solution cavern well for storage of liquefied compressed gases. Subsequent to such utilization, the well may be enlarged to a capacity equal to the maximum size approved by the Board. All solution cavern wells in use at the time these rules are adopted shall have the capacity verified at the earliest practicable time. In any event, each solution cavern well shall have the capacity verified at least once every ten (10) years. A copy of any and all surveys or tests run to verify capacity shall be filed with the Board.

3.

Fresh water used for displacing liquefied compressed gases from a solution cavern well shall be used in such manner that the washing of the cavern will not result in uncontrolled increase of the cavern size or capacity.

4.

Metal tanks and impervious containers other than earthen pits used for storage or holding of brine water solutions shall be completely surrounded by a dike (or firewall) or retaining wall of sufficient height and size so that the volume enclosed shall be equal to one hundred fifty (150) percent of the capacity of the largest tank or container inside the firewall; provided, however, that in areas where such dikes (or firewalls) or retaining walls would be impractical or impossible to construct and the operator has devised a plan which serves the same purposes, the Supervisor of the State Oil and Gas Board (hereinafter referred to as the "Supervisor") may, upon proper written application, waive in whole or in part the requirement of the construction of such walls.

5.

Each flowline connected to the wellhead shall be equipped with a manually operated positive shut-off valve located on the wellhead. The wellhead, flowlines, valves, and all related connections shall have a test pressure rating at least equivalent to 125% of the maximum pressure which could be exerted at the surface. All valves shall be periodically inspected and maintained in good working order.

6.

The flowlines used to discharge brine solutions from the well when liquefied compressed gas is injected into the storage cavern shall be equipped with an automatic shut-in safety valve located in close proximity to and downstream of the positive shut-off manual valve. The safety valve shall be equipped with fail-safe devices which will automatically shut in the well due to (1) electrical control signals failures, loss of control gases or hydraulic oil pressure, or (2) the escape of liquefied compressed gases in excess of 1/2 of 1% of the volume of brine flowing in the brine discharge line. The automatic safety valve shall meet the same pressure rating and maintenance requirements of manual valves. All automatic safety valves and devices shall be approved by the Supervisor.

7.

All valves installed on brine discharge flowlines shall be back-washed with fresh water immediately following every usage and shall be backwashed no less than once each twenty-four (24) hours during continuous operations.

8.

An adequate alarm or sounding device shall be installed to alert personnel whenever an automatic shut-in on any well occurs.

9.

Competent personnel shall be present at either the well or other control sites to monitor the operation at all times liquefied compressed gases are being injected into or withdrawn from any storage well. When the well is within 5% of fill-up, a man shall be present at the well site during all injections.

10.

A continuous flare system shall be installed at or near each brine pit or at any other location where the uncontrollable escape of liquefied compressed gases are likely to occur. The flare system design and location shall be approved by the Supervisor.

11.

Warning signs shall be displayed in hazardous areas.

12.

A chain link fence at least six (6) feet in height, or any other protective method approved by the Supervisor, shall be installed around each wellhead to prevent trespassing of unauthorized persons and/or accidental physical damage to the wellhead.

13.

Each company operating a solution cavern storage well shall conduct a semi-annual safety inspection of such facility and file with the Board a written report consisting of the inspection procedure and results within thirty (30) days following the inspection. Such inspections shall be conducted during the months of January and July of each year. The operator shall notify the Board at least five (5) days prior to such inspections so that a representative of the Board may be present to witness the inspections. Inspections shall include, but not be limited to, the following:

- A. Operation of all manual valves.
- B. Operation of all automatic shut-in safety valves including sounding or alarm devices.
- C. Flowline system installation.
- D. Earthen brine pits, tanks, firewalls, and related equipment.
- E. Flowlines, manifolds, and related equipment.
- F. Warning signs, safety fences, etc.

Additional inspections shall be made by representatives of the Board at any time.

14.

The surface location measured from the wellhead of a solution cavern well shall be no less than 100 feet from the nearest property line.

15.

Cavern extremities shall be no less than 50 feet from the nearest property line or the side wall of any other cavern.

16.

The maximum operating pressure of a solution cavern well shall not exceed one psig per foot of overburden. In no case shall the minimum depth of overburden be less than 350 feet.

17.

The vapor pressure of the liquefied compressed gases to be stored, determined at the maximum well temperature, shall not exceed the maximum design and operating pressure of the solution cavern well.

18.

Upon completion of a solution cavern well and prior to liquefied compressed gas injection for storage, a hydrostatic test shall be applied. The test pressure measured at the wellhead, shall be equivalent to the vapor pressure of the gas (plus 100 psig). The test shall be deemed successful if the shut-in pressure remains constant for one hour after fluid in the hole has reached equilibrium.

19.

Casing and cementing programs shall be approved by the Board. Casing tests shall comply with the appropriate provisions of Statewide Rules 11 and 12.

20.

In addition to the above, the following Statewide Rules with amendments or special requirements noted shall be in force and effect:

- (a) Statewide Rule 4. Application to Drill
- (b) Statewide Rule 5. Transfer of Permit
- (c) Statewide Rule 6. Identification of Well
- (d) Statewide Rule 16. Fire Hazards
- (e) Statewide Rule 17. Fires, Leaks and Blowouts
- (f) Statewide Rule 23. Well Completion and Recompletion
- (g) Statewide Rule 25. Rework and Recompletion

An application to rework, Form No. 2, stating thereon the exact workover procedure, shall be filed and approved by the Supervisor prior to any remedial or workover operations necessitating a workover rig to perform the workover operations. A Completion Report, Form No. 3, shall be filed within thirty (30) days following completion of the well work.

- (h) Statewide Rule 27. Application to Plug

Prior to commencement of plugging operations, an Application to Plug, Form No. 6, shall be filed with and approved by the Supervisor. The Application to Plug shall state the exact method proposed to plug the well. If the proposed method to plug does not meet requirements at the discretion of the Supervisor, then the Supervisor shall specify the method in which the well shall be plugged.

- (i) Statewide Rule 33. Procedure for Plugging

This Rule applies only in respect to the proper filing of Form No. 7, Plugging Record.

- (j) Statewide Rule 47. Fluid Injection Reports

Form No. 14 shall be filed each month stating the following information for each individual well:

- A. Salt Water Disposal Wells:
  - (1) Amount of salt water (brine) injected during the month.
  - (2) Injection pressure, reservoir and depth data.

3. **Liquefied Compressed Gas Storage Wells:**
- (1) Type of product stored.
  - (2) Amount (barrels) of product injected into the well during the month.
  - (3) Amount (barrels) of product removed from the well during the month.
  - (4) Total amount (barrels) of product stored in the well at the end of the month.
  - (5) The cavern capacity (barrels) calculated from sonic logging device and also determined from fill-up measurements if available.

- (k) Statewide Rule 54. Organization Report
- (l) Statewide Rule 55. Identification of Facilities
- (m) Statewide Rule 56. Records
- (n) Statewide Rule 63. Waste by Pollution of Air, Fresh Waters and Soils Prohibited.

21.

**Suspension of Operations:** Should the Supervisor of the State Oil and Gas Board determine that the continued operation of a liquefied compressed gas storage well or associated wellhead facilities (wellhead, valves, brine tanks or pits and flares) would cause unsafe operating conditions, waste, pollution or contamination to air, fresh water or soil, he may immediately prohibit further operation of the well or associated wellhead facilities until such time as it is determined by the Supervisor that the operator is in compliance with all rules and regulations of the Board.

22.

**Effective Date:** These rules and regulations shall take effect and be in force from and after November 1, 1974, except where otherwise provided.

23.

**Penalty:** Any person, firm or corporation violating any of these rules and regulations shall be punished as provided by law.

24.

**Exceptions:** The Board expressly reserves the right, after notice and hearing, to alter, amend, repeal, or grant exceptions to any and all of the foregoing rules and regulations.

SO ORDERED AND ADJUDGED, on this the 16th day of October, 1974.

STATE OIL AND GAS BOARD

By

  
Chairman