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GOVERNOR

State of Louisiana
DEPARTMENT OF NATURAL RESOURCES
OFFICE OF CONSERVATION

STEPHEN CHUSTZ
INTERIM SECRETARY

JAMES H. WELSH
COMMISSIONER OF CONSERVATION

SIXTH AMENDMENT TO DECLARATION OF EMERGENCY AND DIRECTIVE

Pursuant to the authority granted to the Commissioner of Conservation and Assistant Secretary of the Louisiana Department of Natural Resources (LDNR) under La. R.S. 30:1, et seq., particularly La. R.S. 30:6.1, this SIXTH AMENDMENT TO THE DECLARATION OF EMERGENCY AND DIRECTIVE is hereby issued;

It is hereby declared that the Third Amendment to Declaration of Emergency and Directive effective October 11, 2012, required Texas Brine Company LLC (T149) to install and monitor direct push wells to monitor water quality and pressures in the Bayou Corne community, to cease water production from the OXY GEISMAR No. 3 water well (Oxy 3) (Serial No. 007-95) and begin use of this well for periodic water level determination and water quality sampling and testing, and to provide the Office of Conservation, Louisiana Department of Natural Resources ("Conservation") with a plan to evaluate alluvial aquifer water production, groundwater flow, sinkhole chlorides, TDS and hydrocarbon migration and to mitigate adverse impacts to aquifer sustainability from use of Texas Brine Company LLC's ("TBCs") water wells.

It is hereby declared that the Third Directive of the Fifth Amendment to Declaration of Emergency and Directive ("Fifth Amendment") effective December 7, 2012, ordered Texas Brine Company LLC (T149) to install three cluster wells, MRAA-01, MRAA-02, and MRAA-03 to monitor for salt-water migration into the Mississippi River Alluvial Aquifer ("MRAA"). At each location, wells were to be installed at the bottom and middle of the alluvium. Since issuance of the Third Amendment to Declaration of Emergency and Directive effective October 11, 2012 and Fifth Amendment effective December 7, 2012, to Texas Brine Company LLC (T149) concerning a sinkhole that formed immediately adjacent to OXY GEISMAR NO. 3 well site (Serial Number 180708) and the associated salt cavern, the following facts have been found to exist:

1) RESPEC, a sub-contractor for Texas Brine Company LLC ("TBC"), provided work plans dated October 22, 2012, November 8, 2012 (Revision 1), and November 14, 2013 (Revision 2) to Conservation, in response to Directive 2 in the Third Amendment to the Declaration of Emergency and Directive ("Third Amendment") issued by Conservation on October 11, 2012. Work plans addressed the installation of geoprobe monitoring wells in the shallow water-bearing sand in the aquitard, installation of survey benchmarks, installation of pressure-monitoring wells in the top of MRAA, well monitoring and maintenance, and well closure/plugging and abandonment. A total of

five pressure-monitor wells were proposed for installation in the top of the MRAA; TBC-1, TBC-2 and TBC-3 to be located to the east of the sink hole on TBC property and BC-1 and BC-2 to be located in the Bayou Corne community. Field data collection (pressure gauging, percent methane readings, and water level measurements) was proposed for the first 4–week period. Plans for continued monitoring would be developed after Conservation and TBC evaluation of the data, if necessary.

2) According to the RESPEC Well Installation Report, produced in response to the Second Directive of the Third Amendment dated January 22, 2013, three pressure monitoring wells (TBC-1, TBC-2 and TBC-3) were completed at the top of the MRAA at the TBC facility near the sink hole and one pressure monitoring well (BC-2) was completed in the Bayou Corne community. The second proposed pressure monitoring well in the community (BC-1) was not installed due to accessibility issues. The wells were completed in November and December 2012.

3) Michael Pisani & Associates ("Pisani"), as a sub-contractor for TBC, provided work plans on October 9, 2012 and November 9, 2012 (Revision) to Conservation in response to Seventh Directive of the Third Amendment. The work plan addressed groundwater evaluations and the proposed installation of two additional shallow MRAA groundwater monitoring wells (MW-1 and MW-2) to the west of the sink hole and one deep monitoring well (DMW-1). MW-1 and MW-2 along with TBC-1, TBC-2 and TBC-3 were proposed to be used for groundwater flow and quality monitoring during pumping of Oxy 3 and during static conditions. MW-1, MW-2, and DMW-1 were proposed to be monitored on an every other week basis. Initially, groundwater levels were proposed to be measured once or twice weekly.

4) Pisani provided work plans on December 28, 2012 and January 10, 2013 (Revision) to Conservation in response to the Third Directive of the Fifth Amendment. These work plans addressed the proposed installation of three monitoring well clusters (MRAA-1, MRAA-2, and MRAA-3) screened in the middle and bottom of the MRAA. The three clusters were proposed to be located east of the sink hole at the respective Oxy 1, 2, and 3 pads. Subsequent comments on the January 10, 2013 (Revision) work plan changed the proposed location of MRAA-2 cluster to the west side of the sink hole. The wells were proposed to be used for groundwater flow and quality monitoring to occur on an every other week basis.

5) According to the Pisani Letter Report Documenting Installation, Geophysical Logging, Development, Sampling and Pneumatic Slug Testing of MRAA Well Clusters dated June 5, 2013:

a. MW-1 and MW-2 were completed at the top of the MRAA on the west side of the sink hole. DMW-1 was not installed due to the relocation of MRAA-02 cluster, in response to Third Directive of the Fifth Amendment to the western side of the sink hole.

b. MRAA-1, MRAA-2, and MRAA-3 were completed at the middle and bottom of the MRAA. MRAA-1 and MRAA-3 clusters were completed on the east side of the sinkhole and MRAA-2 cluster was completed on the western side of the sink hole. The original MRAA-3 cluster was abandoned due to the instability of Pad 3 and was replaced by MRAA-3R cluster. Each well is monitored every other week beginning March 28, 2013 for water level and water quality parameters. This monitoring includes MW-1 and MW-2 located west of the sink hole.

6) Groundwater samples have been collected from the MRAA wells (MRAA-01M and D through MRAA-03M and D) every two weeks since late March 2013. Groundwater quality data from the wells from March and April 2013 indicate the following:

a. The chloride concentration in the three wells screened in the middle portion of the MRAA range from approximately 917 at MRAA-02M to 3,500 milligrams per liter (mg/L) at MRAA-01M. The chloride concentration from the three wells screened in the deep portion of the MRAA range from approximately 8,110 mg/L at MRAA-01D to 11,100 mg/L at MRAA-03RD, with one exception. The groundwater chloride concentration for MRAA-02D on 4/12/13 was 20,430 mg/L; however, the split sample from Pisani was 10,700 mg/L, so there appears to be a discrepancy with these results. Overall, there do not appear to be any significant trends based on the available chloride concentration data from March and April 2013. All the wells are showing relatively consistent results with relatively minor variations between sampling events.

b. Analytical results for petroleum hydrocarbons constituents for the middle and deep MRAA wells from March and April 2013 indicate detections of total petroleum hydrocarbons-gasoline range organics (TPH-GRO) (maximum of 0.19 mg/L) and/or total petroleum hydrocarbons-diesel range organics (TPH-DRO) (maximum of 1.8 mg/L) in MRAA-02M and D and MRAA-03RM and RD. No petroleum hydrocarbons constituents were detected in MRAA-01M and D.

7) Three water-supply wells located on the eastern side of the sinkhole that are or have been used to provide water for TBC's brining operations, including Oxy 1, Oxy 2, and Oxy 3, are screened in intervals of sands and gravels of the MRAA. Groundwater quality data based on CB&I split samples indicates the following:

a. The chloride concentration for Oxy 1 (screened in the mid portion of the MRAA from 202 to 263 feet below ground surface (ft bgs)) has more than doubled in concentration from approximately 1,600 mg/L in August 2012 to a maximum of 3,700 mg/L in May 2013. Concentrations of TDS at Oxy 1 have shown a similar increase from approximately 3,600 mg/L to 6,600 mg/L over this same time frame.

b. The chloride concentrations for Oxy 2 (screened in the upper portion of the MRAA from 157 to 220 ft bgs) show no apparent trend. The chloride concentrations have fluctuated between approximately 1,800 to 2,800 mg/L from August 2012 to May 2013, with current chloride concentrations around 2,300 mg/L. Concentrations of TDS at Oxy 2 show a similar pattern with a slight increasing trend from approximately 3,500 mg/L in February 2013 to 5,000 mg/L in May 2013; however, this increase is within historical fluctuations for this parameter.

c. The chloride concentrations for Oxy 3 (screened in the upper to lower portion of the MRAA from 180 to 280 ft bgs) show an increasing trend from approximately 1,900 mg/L in August to about 3,350 mg/L in October 2012. The next sampling event was part of a pump test completed in November 2012 at which time the chloride concentration was 2,300 mg/L. Concentrations of TDS at Oxy 3 show a similar pattern with an increase from approximately 4,900 mg/L in August 2012 to 7,000 mg/L in October 2012 to 3,900 mg/L during the pump test in November 2012.

d. Analytical results for petroleum hydrocarbons constituents in Oxy 1, Oxy 2 and Oxy 3 indicate detections of TPH-GRO and hydrocarbon fractions in Oxy 2 in February 2013 and an increase in the frequency of the detection of benzene (0.0091 to 0.012 mg/L), TPH-GRO, and TPH fractions in Oxy 2 from January to May 2013. Benzene concentrations in Oxy 2 exceed the Risk Evaluation Corrective Action Program (RECAP) screening standard of 0.005 mg/L. There has only been one detection of benzene in Oxy 3 based on the limited sampling history for this well. This was from the Pisani split sample on October 18, 2012.

8) The proposed field data collection program for the three pressure monitoring wells (TBC-1, TBC-2 and TBC-3) located on the east side of the sink hole has not been implemented to date . due to the large amount of gas encountered in TBC-1 and TBC-2 and due to questions regarding TBC-3's communication with the MRAA, no reliable samples can be

obtained f rom these wells screened at the top of the MRAA located on the east side of the sink hole to determine the effect of pumping Oxy 3.

9) To date, TBC has not been able to obtain reliable samples from the MRAA top of aquifer east of the sinkhole to complete the necessary initial comprehensive evaluation of migration of methane, produced water (saltwater), and liquid hydrocarbons from the sinkhole into the top, middle, and bottom of the MRAA near the sinkhole.

10) The sinkhole associated with the collapse of the Oxy-Geismar No. 3 cavern still shows the presence of elevated chlorides and liquid hydrocarbons, which rise to the surface following documented "burp" events. Based upon the continued appearance of liquid hydrocarbons in the sinkhole and the recent detection of total petroleum hydrocarbon constituents and benzene in the Oxy 2 industrial water well suggests contaminants from the sinkhole may be migrating into the MRAA.

Therefore, it is determined that the requirements for declaring an emergency pursuant to La. R.S. 30:6.1 are met and an emergency is therefore declared and continues to exist due to the incidents which have occurred or threaten to occur imminently at the OXY GEISMAR NO. 3 well (Serial Number 180708) site, the associated cavern, and adjacent/nearby sites, and properties.

It is hereby declared that in response to the emergency, Texas Brine Company LLC (T149) is **hereby ordered** to undertake any and all necessary actions to assess for and abate any associated threats to human life and the environment, including but not limited to the following:

1) On or before noon, Monday, July 8, 2013, provide to the Office of Conservation its plan to monitor for and mitigate against the spread of methane, produced water (saltwater), liquid hydrocarbons, or other contaminants from the sinkhole into the MRAA. Specifically, TBC's plan shall include monitoring and mitigation of at least the same constituents so far detected in the monitoring and industrial wells identified in the findings of this emergency declaration and directive. Additionally, this plan shall fully delineate the vertical and horizontal extent of migration of these constituents into the MRAA and define hydrogeology, including aquifer characteristics and direction of groundwater flow in the top, middle and bottom of the MRAA. This plan shall address the proper handling in accordance with all applicable laws, rules, and regulations, of any waste encountered in the implementation of the plan or in the production of water from TBC's industrial water wells. Finally, the plan shall specifically address why the continued production of TBCs industrial water wells for brining operations

will not lead to further migration of contaminants from the sinkhole into the MRAA and should therefore be allowed to continue operating.

In the event TBC believes it is aggrieved by this action, then within 20 days of receipt of this letter, Texas Brine may make a written request for a public hearing. A public hearing request must be accompanied by a check or money order in the non-refundable amount of $755 as provided by LAC43:XIX.Chapter 7, or the request for hearing will be denied. Be advised that pursuant to La. R.S. 30:6.1.D, "any request for a hearing, appeal, or request for review of this emergency declaration and directive] shall not suspend the implementation of the action ordered."

Texas Brine Company LLC's (T149) failure to request a hearing, or to file an appeal, or the withdrawal of a request for hearing on this directive shall not preclude Texas Brine Company LLC (T149) from contesting the commissioner's findings of all facts in any subsequent administrative or judicial proceeding or action.

SO DECLARED, ORDERED AND DONE this 25th day of June 2013 at Baton Rouge, Louisiana

JAMES H. WELSH
COMMISSIONER OF CONSERVATION