

## **Texas Brine Company, LLC Daily Update – 7/15/13**

Fifth Amendment to the Declaration of Emergency and Directive dated 12/7/12 and Amended Fifth Amendment issued on 1/14/13

Per the requirement in the Fifth Amendment, the daily update on progress in implementing all Directives is provided below:

1. Directive 1:
  - a. The temporary geophone installed on 12/14/12 continues to work and generate data which is being reported as required. The work plan required by the Directive was submitted on 12/15/12 with additional information being provided on 12/19/12 in response to DNR's follow up question.
  - b. The vibro-seismic study at the TBC facility with U. of Houston's mini-vibe unit area seismic activity has been completed; The U. of Texas' "T-Rex" vibe truck work is also completed; the temporary geophone array was reinstalled in the 480' geophone well on 1/19/13.
  - c. A permanent geophone plan was submitted to DNR by MEQ on 1/4/13. DNR has approved the permanent geophone array design and it was installed on 2/13/13 and is functioning well as it reports data to the data collection system provided by Nanometrics; A website is operational to provide information from Nanometrics review.
2. Directive 2a-e (Amended Fifth Amendment): Given DNR's issuance of an amended Fifth Amendment on 1/14/13, the requirements of this Directive have changed. TBC has work underway to address the requirements of Directive 2 a-e.
  - a. 3D seismic work continues. Survey and drilling work began 02/08/13 and is 100% (Survey) and 100% (Drilling) completed to date; Geophone layout began 3/13/2013 and 2651 stations were laid out. Progress is on schedule with data acquisition having begun 3/17/13 and is 100% complete as of 3/24/13. The data has been harvested and is being processed with data acquisition looking good. Final results were delivered on schedule by the 04/21/2013 deadline set by DNR. A GoToMeeting web conference was held on 04/22/2013 with DNR, CB&I, and APOEP and other State officials to present the findings. Fugro, a leading data collection and interpretation company, has been retained to perform an electromagnetic (EM) survey of the MRAA in the Bayou Corne community in order to map the shallow subsurface. The EM survey was performed on 5/4/2013; A review of preliminary and partial results from data processing done to-date was held on 05/14/2013; TBC will provide a review of results when they are ready.
  - b. OG 1 hanging strings were removed on 1/12/13 & 1/13/13; A cement bond log (CBL) and variable density log (VDL) were completed on 1/15/13; The design of the temporary geophone has been approved by DNR, Shaw, and Itasca and was installed on 2/13/13; The permanent geophone design is underway; The pack-off gland for the cable to the geophone array has a slight seep at the wellhead that ESG is working to resolve; The temporary geophone array in OG 1 was removed this past week and a 4-1/2" hanging tubing installed; Continuous pressure monitoring was resumed on 3/30/13 and cavern pressure has shown a steady increase (as expected) since then; TBC reps are designing a long term micro-seismic monitoring system for the TBC facility that should satisfy DNR, CB&I and Itasca's

requirements; A conference call with stakeholders on the proposed plan for the permanent design was held on 4/12/13; The final plan and design for this geophone well was submitted to DNR on 4/18/13 for approval; Planning work to locate a drill rig and design the well pad are underway; Work on building the well pad for this well, G-01, next to OG 2 wellhead location is complete; Pile driving of 20" surface casing was completed on 5/15/2013 to a depth of 280'; The drill rig has begun to arrive on site 5/15/2013. Drilling has commenced and is currently at a depth of 626'; Comments from the BRC's regarding G-01 core sampling and analysis and geophone array were received on 5/20/13 and responses are being developed. On 5/21/2013 began to set and grout the 16" casing; will begin drill out of cement plug on 5/24/2013. The 10" casing was installed and cemented with drilling resuming on 6/1/13; The first coring sample was taken on 6/2/13 from 1498' to 1558'; Second coring sample completed between 2228'-2288' on 6/4/13; Drilling continued from 2611' to 3132'; The top drive is currently undergoing maintenance and the final 60' core run will begin once the rig is back operational; Drilling and sampling continues with a sample taken from the shale shaker every 10'; Drilled the final core sample on 6/6/2013 from 3132' to 3192', Borehole opening was completed on 6/9/13; Drilling mud was displaced from the bore hole on 6/10/2013; Rig demobilization began 6/11/2013 and is now complete; CBL and Caliper logs conducted on 6/10/2013; DNR granted approval to proceed with ordering the geophone arrays on 6/11/13 with the geophone arrays being placed on order shortly thereafter; The well will be secured until geophone array installation can occur; On Monday, 7/1/13, the well pressure was relieved from 300 psig by venting a small amount of gas that had collected at the wellhead; Going forward this wellhead pressure will be kept in the 150-300 psig range; With geophone equipment delivery expected in the first half of September, the installation and commissioning of the geophone arrays is planned for the second half of September

c. Approval of the EUA from Office of Coastal Management (OCM) was received on 1/15/13 to allow work to upgrade and raise the Rig Road as needed for multiple reasons; Construction of the location for G-03 (1000' geophone well) was completed; Conductor casing was installed on 1/31/13; The 13-3/8" casing was cemented in on 2/6/13; Drilling of the well was completed to a depth of 1100 feet on 2/13/13; The 7" casing was installed and cemented in place on 2/14/13 and a CBL was performed on 2/20, a PDK log was performed 3/5/13; A proposed work plan for the permanent geophone array was submitted on 2/20/13 for review by DNR, CB&I, and Itasca and was approved on 2/27/13; Ardaman (a Tt company) continues to work on core sample analysis from this well; Installation of the geophone array in Geophone #3 began 04/08/2013, the first sensor has been placed 50' off the floor and sanded in. The second sensor has been installed at a depth of 610'; both sensors are now recording data on the CERI website as LA 17 location NW of the sinkhole.

d. Modifications to the pressure monitoring systems for OG 1, OG 2, OT 9, and OT 10 brine wells have been made and cavern pressures were reported to DNR and AP OEP starting 1/15/13 and will continue.

e. OG 2-VSP was completed on 1/14/13 and is being analyzed; The sonar survey was conducted on this well on 1/10/13; A CBL was done on this well on 1/15/13; The work-over on this well has been completed; OCC and DNR agreed to return the well to service which was done on 1/25/13

### 3. Directive 3:

- a. TBC and its consultant submitted the work plan for the additional MRAA monitor wells on 12/28/12; Comments were received from DNR on 1/5/13 and are being reviewed. A revised work plan was submitted on 1/10/13. DNR responded with comments on Installation of the additional monitor wells on 1/12/13.
  - b. Installation of the MRAA 03 D&M wells began on 1/14/13 and for location MRAA 01 D&M wells on 1/16/13; MRAA 03 was plugged on 1/21/13 as a result the changes on OG 3 well pad on 1/18/13 and 1/19/13; An engineering assessment on the stability of the OG 3 well pad was completed; MRAA 01 D&M wells have been installed and are now ready to be developed and sampled; MRAA 02D casing was grouted in and is being developed, MRAA 02M casing and screen was set on 2/27/13, first stage of grout has been set and is now being developed; MRAA 03D was drilled to a depth of 347' on 3/10/13, logged on 3/11/2013, had the screen set 3/12/2013; MRAA 01-03 D&M wells have been developed and sampled; Results have been submitted; Going forward, results will be submitted as they become available.
4. Directive 4:
- a. TBC and consultants submitted a work plan required by this Directive on 12/28/12.
  - b. The VSP on OG 3A was completed on 1/12/13; The VSP on OG 1 was completed on 1/16/13; Results from both were analyzed with results were presented to DNR, CB&I, Itasca, and AP OEP officials during the weekly collaborative conference call on 3/5/13. A depth survey was performed on OG 3A on 04/10; Results of this survey showed the cavern 97% filled with sediment; A sonar survey of the remaining cavern was conducted on 04/10/2013 with results pending. The bottom of OG 3A was tagged again on 04/19/2013 to determine total depth and 180' of tubing was cut from the well. Operations to draw down pressure on the well began 04/22/2013. Depressurization of OG 3A is currently on hold. A depth survey was performed on OG 3A on 5/3/2013; the wireline survey tagged the bottom of OG 3A at 3765' TMD (Total Measured Depth) with approximately 105' of unfilled cavern remaining. OG 3A had a wireline depth survey performed 5/10/2013 and a sample of the fill material from inside the cavern was collected and will be sent for testing. The last depth survey and sonar of OG3A was performed on 5/24/2013 and will be performed weekly on a planned basis going forward. As of 5/24/13 it appeared there was approximately 100' of space between the cavern roof and the sediment depth. Weekly depth survey and sonar was performed on 5/31/2013. Weekly depth survey was performed 6/7/2013. The weekly depth survey was performed 6/14/2013; A 12 hour pump test and water sampling was completed on Oxy #3 6/27/2013 in order to determine the viability of Oxy #3 for future use as a water well. A depth survey was conducted on 6/28/2013; Going forward the target is to perform weekly depth survey with results being submitted once finalized. The TD measurement taken on 7/5 encountered a soft bottom at a depth of 3863' and a hard bottom depth of 4088' with the cavern roof at a depth of approximately 3636'.
5. Directive 5:
- a. TBC submitted the first daily report on 12/12/12 for OG 1 pressure monitoring as required. These will be submitted daily going forward
6. Directive 6:
- a. TBC submitted the first daily report on 12/12/12 for OG 2 pressure monitoring as required. These will be submitted daily going forward.
7. Directive 7:
- a. The professional engineer's report was submitted 02/06/2013.

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