



Assumption Parish Operational Situation Summary

- Emergency Management:
 - Parish Emergency Declared – 19 June 2012
 - Extended 30 days on 19 July 2012
 - Extended 30 days on 17 August 2012
 - Extended 30 days on 14 September 2012
 - Extended 30 days on 12 October 2012
 - Extended 30 days on 9 November, 2012
 - Extended 30 days on 8 December, 2012
 - Extended 30 days on 4 January , 2013
 - Extended 30 days on 5 February, 2013
 - Extended 30 days on 1 March, 2013
 - Extended 30 days on 28 March, 2013
 - Extended 30 days on 26 April 2013
 - State Emergency Declared – 3 August 2012
 - LA Hwy 70 Open for traffic
 - Mandatory Evacuation still in effect
 - Security plans in place to secure slurry area
 - Parish continues blog to inform residents
 - Texas Brine issuing financial assistance for residents – Bayou Corne Incident Command Center - HOTLINE 1-877-281-7311
 - Facilitating the askGOHSEP@la.gov for questions
 - Texas Brine has now installed cameras to observe Oxy Pad 3 and the Sinkhole (1-29-2013)
 - A community meeting has been scheduled for 01 May @ 6:00pm at the Assumption Community Center (Introduction of the Blue Ribbon Commission Members)



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- **Public Safety:**

- LSP providing air craft support
- LSP providing HAZMAT support to parish as needed
- LDWF providing air boat support to parish as needed
- No market or recreational hunting or fishing in restricted area
- LSA Command Post on site
- An office trailer has replaced the GOHSEP vehicle and will serve as a consolidated command post for the Assumption Unified Command
- All state agencies currently involved with the event will continue to be in attendance.
- GOHSEP has added a notification widget to their website indicating the current alert level for OG-1 and Hwy 70



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- *The State Agency is responsible for oversight of the following activities. Texas Brine and its contractors are performing operational response activities.*

Department of Natural Resources:

- All pipelines shut in and empty; confirmed pipelines not source of bubbles
- Investigation of plugged and abandoned oil and gas wells in area performed
- Slurry area developed on 3 Aug 2012
- Slurry area 200' northwest of Texas Brine (OXY #3) pad
- DNR Ordered Texas Brine to drill investigatory well
- Office of Conservation issues permit for well to be drilled
- Slurry area approximately 600 feet in diameter
- Hydrocarbons and salt water present at slurry area
- DNR Staff has reviewed 23 hydrocarbon storage and 36 brine cavern wells and associated cavern files which represents 100% of the cavern wells on the dome
- DNR Continuing source investigation and file reviews
- EPA conducted over flight to detect gas and radiation via specialized imagery on Saturday, 25 August 2012—no significant detections—report posted to DNR website
- DNR Personnel on stand by to assist incident commander
- DNR providing information to science team



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- *The State Agency is responsible for oversight of the following activities. Texas Brine and its contractors are performing operational response activities.*

Department of Natural Resources (continued):

- DNR provided 24/7 oversight of drilling operations starting 1800 hours on 8/17/12
- Drilling Status: completed
- Observation wellhead assembly installed on well
- Snubbing unit moved off observation well site location
- As of 1 October 2012, Texas Brine is moving to daylight operations
- Texas Brine ran pulse-neutron log, gauge tool (to determine depth of cavern), and sonar of cavern
- Texas Brine supplied a split sample (solid material) to DNR (CB&I)
- Crosstex has discontinued entry of new product into their caverns and continues to move product from cavern 2 to cavern 1 or to market
- Chevron has started the injection of water into their natural gas cavern in order to move natural gas out of their caverns
- U.S. Department of Energy's Sandia National Lab has agreed to provide technical assistance through participation in our Science Work Group.



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Department of Natural Resources (continued):

- Science team confirms Commissioner of Conservation's decision requiring investigatory well is appropriate action based on information available and also raises no concerns regarding the stability of the Crosstex Caverns
- Natural gas detected at approximately 48' while installing geoprobe borehole -- observation well installed
- On Friday, September 14, 2012, contractor encountered gas at 90' while drilling the water observation well--- unable to complete as observation well so the wellbore was plugged and abandoned
- CB&I will be overseeing the evaluation & removal of natural gas from the aquifer
- Commissioner of Conservation issued an Order directing all Dome operators to immediately begin work to assess the presence of natural gas in both the ground water aquifer and the salt dome cap rock beneath their operations; capture, vent or flare any natural gas that is encountered; and analyze any potential impacts to ground water in the Mississippi River Alluvial Aquifer
- DNR has requested and received assistance in finding property owners to place geoprobes and/or vent wells
- LSU completed seismic noise test on the Dugas-LeBlanc and Triche property
- CB&I finalized their initial plan of action for natural gas evaluation and removal from the ground water aquifer and presented it to incident command and Bayou Corne Community
- Texas Brine completed tests on two water wells to determine the presence of natural gas
- CB&I's contractor has installed 18 observations wells (geoprobe boreholes) as of 10-15-12
- CB&I's contractor completed the installation of casing for 3 observation/relief wells (184' on ORW-1, 199' on ORW-2, & 200' on ORW-3)
- CB&I's contractor logged the active salt water disposal well located on Dugas-Leblanc property---no gas was found



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Department of Natural Resources (continued):

- PDK log of the ORW-1 detected 4 feet of free gas, well perforated
- PDK log of the ORW-2 detected 5 feet of free gas ---well perforated---shut in for 24 hours on 10-9-12
- PDK log of the ORW-3 detected no free gas in the alluvial aquifer on 10-9-12, well perforated
- Analytical results identified the hydrocarbon in the sink hole and cavern as formation hydrocarbon (crude oil)
- Based on isotopic signatures and other data the following have been eliminated as the probable sources for the gas:
 - Chevron natural gas cavern;
 - Acadian natural gas cavern;
 - Crosstex butane caverns; and
 - Residual gas from the 2003 Gulf South blowout.
- Probable source of gas and crude oil is from the oil and gas production zones that are the same elevation as the OXY GEISMAR NO. 3 cavern
- Dissolved gas found in Domestic water wells confirmed to be swamp gas (Brule St. Vincent)
- Bayou Drive bubbling site is confirmed to be swamp gas
- Commissioner of Conservation issued an Order dated 11 Oct 2012 to Texas Brine to take the following action:
 - Monitoring pressure in the failed cavern
 - Install monitoring wells in the Bayou Corne community to monitor water quality and pressures, as well as elevation benchmarks within the community for subsidence monitoring
 - Install pressure monitor at wellhead of the cavern re-entry well, designed to provide real-time data to parish emergency response agencies of any rapid pressure change
 - Upgrade and expand seismic monitoring array to cover a wider area and include real-time data processing and interpretation of micro-seismic data, with seismic data reported in real-time to parish emergency response agencies
 - Install continuous water level monitoring station at the sinkhole
 - Collect and interpret geophysical data to determine the exact structure of the zone of failure and its impact on the surface and subsurface
 - Cease water production for the OXY No. 3 water well and begin use of this well for periodic water level determination and water quality sample and testing
 - Install observation/vent well in the vicinity of the Texas Brine core-hole well
- CB&I collected data on 14 Oct 2012 to determine next steps in venting of the natural gas from the aquifer
- Working with DEQ to ensure integrity of the containment boom around the sink hole



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Department of Natural Resources (continued):

- Texas Brine conducted the following operations on their investigatory well:
 - Collected a total of 4367 bbls(cumulative total as of 22 FEB 2013) hydrocarbons from the Oxy 3A Cavern.
 - Conducted sonar survey and ran a PDK log on 1 November 2012
- CB&I collected gas and hydrocarbon samples for analysis from the Oxy 3A cavern
- Texas Brine contractor installed 14-inch observation/vent well – Perforated casing, 30 psi recorded as of 1 November 2012
- CB&I completed collection of water samples from the shallow water Geoprobes
- Flaring commenced 2 November, 2012 at the vent well located on Texas Brine's property.
- CB&I collected gas samples from the ORW-2 & Texas Brine sonic/core well
- CB&I contractor perforated ORW-3 (as of 17 November).
- Detected H2S in the Texas Brine Core/vent well --- well shut-in and area secured (19 Nov 2012)



Assumption Parish Operational Situation Summary

Gas Volumes as of 29 April

Vent Well Flare Data (Previous calendar day)																
Well	End Date	Start Time	End Time	Time/Hours	Choke Size (1/64")	Dishcharge Orifice (Inch)	Static (PSIG)	Diff. (PSIG)	Diff. (Inch)	Gas Rate (MCF/H)	Gas Rate (MCF/D)	Cumulative Gas Flared (MCF)	Previous Flared (MCF Total)	FWHP (PSI)	Water Produced (Bbls)	Comments
ORW-01	4/28/2013	12:00am	11:00pm	24	4	0.25	0.50	1.00	NA	0.065	1.56	1,087	1,086	11.0	0	
ORW-02	4/28/2013	12:00am	11:00pm	24	0	0.25	0.00	0.00	NA	0.000	0.00	1,682	1,682	0.0	0	Shut In - No Flow
ORW-04	4/28/2013	12:00am	11:00pm	24	3	0.25	0.50	0.40	11.17	0.212	5.09	610	605	45.5	0	Flare down 1 hour maintenance at 19:00
ORW-05	4/28/2013	12:00am	11:00pm	24	6	0.25	0.00	1.43	39.55	0.393	9.44	930	920	48.9	0	Flare down 1 hour maintenance at 20:00
ORW-06	4/28/2013	12:00am	11:00pm	24	3	0.50	0.00	0.00	0.11	0.084	2.01	800	798	22.5	0	
ORW-07	4/28/2013	12:00am	11:00pm	24	0	0.25	0.00	0.00	0.00	0.000	0.00	58	58	0.0	0	Shut In
ORW-08	4/28/2013	12:00am	11:00pm	24	0	0.25	0.50	0.00	0.00	0.000	0.00	151	151	0.0	0	Shut in no flow
ORW-09	4/28/2013	12:00am	11:00pm	24	3	0.25	0.00	0.06	1.69	0.082	1.98	1,004	1,002	30.3	0	
ORW-10	4/28/2013	12:00am	11:00pm	24	6	0.25	0.00	0.68	18.97	0.278	6.67	317	311	54.0	0	
ORW-11	4/28/2013	12:00am	11:00pm	24	0	0.25	0.00	0.00	0.00	0.000	0.00	112	112	0.0	0	Shut in
ORW-12	4/28/2013	12:00am	11:00pm	24	4	0.25	0.00	0.00	0.10	0.020	0.48	50	49	53.0	0	
ORW-14	4/28/2013	12:00am	11:00pm	24	7	0.25	0.00	1.66	45.96	0.432	10.38	864	854	54.2	0	
ORW-15	4/28/2013	12:00am	11:00pm	24	11	0.25	0.50	0.43	11.89	0.224	5.37	1,220	1,214	14.8	0	
ORW-16	4/28/2013	12:00am	11:00pm	24	0	0.25	0.00	0.00	0.00	0.000	0.00	198	198	0.0	0	Shut-in (no pressure/no flow)
ORW-17	4/28/2013	12:00am	11:00pm	24	0	0.25	0.00	0.00	0.00	0.000	0.00	58	58	0.0	0	Shut in/No flow
ORW-18	4/28/2013	12:00am	11:00pm	24	0	0.25	0.50	0.00	0.00	0.000	0.00	0.45	0.45	0.0	0	Shut-in (no flow)
ORW-19	4/28/2013	12:00am	11:00pm	24	4	0.25	0.00	0.06	1.75	0.085	2.03	116	114	11.8	0	

As of Tuesday, April 30, 2013



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Gas Volumes as of 29 April

ORW-22	4/28/20 13	12:00a m	11:00p m	24	3	0.25	0.00	0.25	6.95	0.168	4.04	845	841	25.2	0	
ORW-23	4/28/20 13	12:00a m	11:00p m	24	0	0.25	0.50	0.00	0.00	0.000	0.00	99	99	0.0	0	Shut in/No flow
ORW-24	4/28/20 13	12:00a m	11:00p m	24	0	0.25	0.00	0.00	0.00	0.000	0.00	190	190	0.0	0	Shut In
ORW-26	4/28/20 13	12:00a m	11:00p m	24	1.5	0.25	0.00	0.01	0.29	0.029	0.70	162	162	13.7	0	Flare down 1 hour maintenance at 19:00
ORW-28	4/28/20 13	12:00a m	11:00p m	24	0	0.25	0.00	0.00	0.00	0.000	0.00	25	25	0.0	0	Shut In
ORW-29	4/28/20 13	12:00a m	11:00p m	24	0	0.25	0.00	0.00	0.00	0.000	0.00	58	58	0.0	0	Shut In
ORW-30	4/28/20 13	12:00a m	11:00p m	24	2	0.25	0.50	0.03	0.70	0.053	1.3	10.5	9	29.7	0	Flare down 1 hour maintenance at 19:00
ORW-31	4/28/20 13	12:00a m	11:00p m	24	0	0.25	0.00	0.00	0.00	0.000	0.00	3	3	0.0	0	Shut in no flow
ORW-32	4/28/20 13	12:00a m	11:00p m	24	3	0.25	0.00	0.01	0.14	0.014	0.33	89	89	11.6	0	Open to Flare @ 14:00
TBC-RW-1/OGRW-1 *	4/28/20 13	12:00a m	11:00p m	24	5	0.25	0.00	0.01	0.24	0.029	0.70	3,087	3,086	3.0	0	

* Cumulative gas flared for OGRW-1 represents combined gas flow from ORW-12 and TBC-RW-1 for all dates preceding March 4, 2013. Cumulative gas flared after March 4, 2013 represents only OGRW-1 (formerly TBC-RW-1).



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Department of Natural Resources (continued):

- CB&I collected gas samples from the tubing and the casing of Texas Brine's core/vent well on 29 Nov.
- Office of Conservation fined Texas Brine \$100,000 for failure to comply with the emergency order directives (12/7/12).
- CB&I contractor reworked ORW-4 (9 December 2012)
- The drill rig used to install the geophone well near Oxy Geismar #3 well location was rigged down over the weekend and removed (9 December 2012)
- Office of Conservation issued the 5th Amendment to the emergency order directing Texas Brine to install two geophysical wells to a depth of approx. 6000 feet.
- CB&I collected gas and hydrocarbon samples to test for H₂S from Oxy 3A
- Office of Conservation fined Texas Brine \$160,000 for failure to comply with the emergency order directives (12/17/12).
- CB&I performed pressure step test on ORW – 1 & 2 (18 December)
- CB&I split gas sample with Texas Brine from OXY 3A (18 December)
- Texas Brine installed permanent geophone on 450' well on pad 3
- Texas Brine pulled the 4-inch pipe out of the Oxy 3A well (24 December)
- Texas Brine contractor completed pressure monitoring on Geoprobes (December 2012)
- PDK log was run on Texas Brine vent well #1 as of 26 December.
- Seismic equipment near the sinkhole detected the Alaska earthquake at approximately 3:00AM on Saturday, 5 January, 2013.
- Texas Brine has filed for injunctive relief from the directive to drill to 6,000ft. seismic wells.
- Texas Brine Contractor began VSP Surveying on January 9, 2013 on OXY 3A
- Texas Brine Contractor has complete four of the six Surface Seismic Casings as of January 9, 2013.
- VSP on OXY2 was completed on the 14th.
- VSP on OXY 1 began today (1-15-13)
- Texas Brine contractor completed installation of the casings for ORW 12 on 1/13/13
- Texas Brine contractor completed PDK log on ORW 12 on 1/14/13
- Texas Brine contractor began drilling MRAA #3 cluster well on 1/14/13
- Texas Brine contractor installed first in-home monitoring device on 16 January, 2013
- Texas Brine contractor began drilling MRAA #1 on 16 January, 2013.
- Texas Brine contractor began logging OXY 3A on 17 January, 2013.



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Department of Natural Resources (continued):

- Texas Brine Contractor has started building up rig road and 1000' well pad (started January 17)
- Texas Brine Contractor has completed the VSP on Oxy 3A on Tuesday January 15.
- Texas Brine Contractor has completed the VSP on Oxy 2 on Wednesday January 16.
- Texas Brine Contractor has completed the VSP on Oxy 1 on Thursday January 17.
- University of Austin Texas (T-Rex) started logging the deep Geophone on Friday January 18.
- On January 19 Oxy 3 well was evacuated due to seismic activity
- On Friday January 18, ORW 12 and TBC-2 was shut in on Oxy 3 pad.
- University of Houston started the Mini-Vib on January 21 on the Texas Brine facility.
- Texas Brine Drilling contractor started installing ORW 13 casing set at 160'
- Texas Brine contractor completed the installation of 96 pairs/45 properties (H2S & LEL) of in-home monitors as of 22 April
- PDK Log on ORW 13-14
 - (13 – 28 January/ perforated)
 - (14 – 25 January/perforated, 28 January/log)
 - (1,2,4 – 26 January)



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Department of Natural Resources (continued):

- Geotechnical Boring completed on 26 January on Oxy Pad 3 for stability review
- MRAA (1-M) has been installed
- Surface conductor casing (20") has been driven on Geophone 3 on 31 JAN
- Cased and Cemented to 420' on Geophone 3
- LA-15 and 16 seismic casings were installed 04 Feb
- Drilled Geophone 3 to 1100', 7in casing cemented to 1017'
- PDK's OR 15& 16 as of 06 Feb
- Installed casing on ORW-22 as of 05 Feb
- Installed casing on ORW-11 as of 06 Feb
- ORW 23 and 24 casing has been installed 10 FEB
- Boone has completed 100% of surveying activity for property with access granted and 100% of drilling for the 3D Seismic as of 22 MAR.
- ORW 16 began flaring on 15 FEB
- ORW 7 was PDK'd on 15 FEB
- 7' casing was cemented in Geophone 3
- MRAA 02 D began drilling on 15 FEB
- Reinstated debris removal from sinkhole 16 FEB
- ORW 26, 11, 4, 8, 7 began flaring as of 18 FEB
- ORW 09 casing has been completed as of 20 FEB
- MRAA 03 D had 10" casing installed as of 19 Feb
- MRAA 02 D was logged on 19 Feb
- CBL on Geophone 03 was performed 20 Feb
- As of 16 FEB 3685 barrels have been removed from sinkhole
- As of 08 April 237 roll off boxes of debris have been removed from the sinkhole

As of Tuesday, April 30, 2013



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•Department of Natural Resources (continued):

- PDK Log and perfed ORW 09 as of 22 of FEB
- PDK and perfed ORW 06 as of 23 FEB
- PDK and perfed ORW 18 as of 25 FEB
- Installed ORW 05 as of 25 FEB
- MRAA 02 (M) installed casing to 150' as of 25 FEB
- Began depressurizing Oxy 3A as of 22 FEB (12 Hr Shifts)
- 25 FEB continue to depressurize Oxy 3A but moved to 24 Hr shift. (31,167 barrels of brine removed as of 26 FEB)
- RW #01 was shut-in on 25 FEB
- Texas Brine halted depressurizing 3A on 27 FEB
- MRAA 02 (m) – set casing and screen on 27 FEB and set first stage of grout
- Installed ORW 27 on 27 FEB
- 13 FEB Texas Brine installed Geophone in Oxy 1
- TBC performed the PDK on ORW 27 on 28 FEB
- On 04 MAR CB&I sampled gas out of O-G 1
- On 04 MAR gas was sampled from ORW 05
- Due to pad 3 instability a request for an extension of the installation time period for MRAA 03 by Texas Brine was approved by DNR on 01 MAR
- Texas Brine installed ORW 28 on 06 MAR
- A PDK was performed on Geophone 03 on 04 MAR
- ORW 10 was installed on 10 MAR
- ORW 31 was installed on 11 MAR
- MRAA 03 RD was logged 11 MAR
- ORW 32 was completed on 11 MAR and logged on 11 MAR
- ORW 10 was logged on 12 MAR
- Orw 31 was logged on 12 MAR
- ORW 17 was logged on 13 MAR
- ORW 30 was logged on 12 MAR
- MRAA 2 D & M completed on 11 MAR



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•Department of Natural Resources (continued):

- MRAA 3DR logged and screen on 12 MAR
- 1010 seismic collection receiving points installed
- OGRW 2 plugged on 14 MAR
- MRAA 3MR completed on 21 Mar
- Pumps installed in ORW 7, 18, 27, 30, & 13
- Relocated boom surrounding sinkhole area
- MW 1 and 2 were completed on 23 MAR and 25 MAR
- 3D data collection was completed on 24 MAR
- Flare 4 has been replaced with an automatic flare
- DNR has announced the members of the Blue Ribbon Commission
- Install tubing in the MRAA and MW wells
- Pulled the array out of OG-1 on 27 MAR
- Finished sampling the MRAA wells on 30 MAR
- Installed tubing for OG-1 on 29 MAR
- Workover on OG-3A to a depth of 3797 on 30 MAR
- Removed the drill stem from OG-3A on 1 April
- Re-PDK'd OGRW 1, ORW 1,2,4
- Workover was completed for OG-3A on 02 April
- Snubbing Unit was demobed on 04 April
- re-PDK'd 22, 23, 24, 28, 29, 15, 32
- Re-perfed ORW 23 at 127' – 131' on 04 April
- Re-perfed ORW 15 at 123' – 127'



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•Department of Natural Resources (continued):

- Tubing was installed in ORW 11 on 03 April
- Tubing and pump was installed in ORW 23 on 04 April
- Blue Ribbon Commission held its Kickoff meeting in Baton Rouge on 05 April
- Under slab gas samples were taken from 3 locations in the Bayou Corne community
- Sampled gas from ORW 23 on 05 April
- Completed PDK of 27, 30, 31 on 11 April
- Completed ORW5 ROI core well to 163' on 11 April
- Collected 5 1' samples in the target zone to be sent for lab analysis on 10 April
- Tagged OG3A bottom at 3740' (approx 110' left to fill cavern)
- Sampled MRAA 1 and 3 on 10 April
- Sampled CB&I geoprobes for change in gas, samples have been sent to lab
- 1500' of north berm has been completed in first lift of berm finalization
- OG 2 gyro was completed on 12 April and sonar was completed 13 April
- ROI (radius of influence) GOW 05-01 was installed 15 April
- PDK's were completed for ORW 11, 8, 16, 26, 18 on 12 April
- PDK's for ORW 17, 19 were completed 13 April
- Echo sounders were installed in ORW 5, 15 on 13 April
- Echo sounder was installed in ORW 12 on 14 April
- Vapor screenings were performed on 7 residences 15 April
- MRAA 02 was sampled 12 April
- OG 1 collected gas sample from casing 16 April
- ORW 12 was shut in from flaring due to seismic activity since 14 April



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•Department of Natural Resources (continued):

- GOW 05-01 was completed on 16 April
- GOW 05-02 was completed on 17 April
- 2nd lift with clay on N. berm was completed on 18 April
- 5 homes were completed for under slab monitoring on 18 April
- OGRW 2 abandonment was completed on 18 April
- Industrial well samples were completed
- 300 linear feet of geotextile and gcl have been placed on the S. berm
- A total of approximately 1800 lineal feet of GCL and geotextile liners have been placed on the north berm and is being capped with a second lift of clay. North Levee final containment system installation is approximately 65% complete.
- GCL/geotextile and clay is being placed on the South Levee, with 1600 feet of GCL and clay placed so far. South Levee final containment system installation is approximately 40% complete.
- 3D Seismic Report was submitted to DNR on 04/21/2013
- GOW 09-01 cores were started 22 April and down to 78'
- reworked ORW 23 and removed 325 gallons of water and silt
- reworked ORW 11 tubing and gravel pack installed
- reperfed ORW 11, 30, 18, and 13
- OG3A suspended depressurization on 25 April
- Depth survey of sinkhole was completed on 19 April



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•Department of Natural Resources (continued):

- Installed pump in ORW-11 (23 April)
- Installed pump in ORW-29 (25 April)
- Completed ROI GWOW-9-1 on 25 April
- House Bills 493 and 494 passed Committee on 24 April
- North Levee final containment system installation is approximately 80% complete
- GCL/geotextile and clay is being placed on the South Levee, with 1650 feet of GCL and clay placed so far. South Levee final containment system installation is approximately 40% complete
- ORW 36 29 (APR) and 37 (27 APR) were installed
- GOW 09-01 was installed 28 APR
- GOW 09-02 was installed 27 APR
- GOW 05-03/04 were installed 29 APR
- GP-ORW 6 was installed 29 APR
- Nanometrics installed the second sensor in the 1000' geophone well on 27 APR
- Blue Ribbon Commission site visit occurred on 29 APR
- right of way was cleared for the western berm extension
- Completed first lift on southern berm 27 APR
- CPT pilot test at ORW 27 was completed



Assumption Parish Operational Situation Summary

- **DHH / Office of Public Health:**
 - Section for Environmental Epidemiology and Toxicology
 - Air Monitoring Sample Data
 - SEET has received and is analyzing community ambient air sampled 4/1-2/2013, 4/4-5/13, 4/8-9/13, 4/11-12/13, 4/15-16/13, **and 4/22 - 4/23/13.**(MultiRAE). SEET will issue a letter to the parish in reference to these findings once the review of the data has been completed.
 - SEET has received and is analyzing sample results for air at bubble sites collected 4/1/13, 4/4/13, 4/8/13, 4/11/13, 4/15/13, **and 4/22/13.**(MultiRAE). SEET will issue a letter to the parish in reference to these findings once the review of the data has been completed.



Assumption Parish Operational Situation Summary

- **DHH / Office of Public Health**
 - Section for Environmental Epidemiology and Toxicology
 - Industrial Water Well Sampling Data
 - No new water well data received during this operational period.



Assumption Parish Operational Situation Summary

- **DHH / Office of Public Health**
 - Section for Environmental Epidemiology and Toxicology
 - Slurry Water Sampling Data
 - No new slurry data received during this operational period.



Assumption Parish Operational Situation Summary

- **DHH / Office of Public Health**
 - Section for Environmental Epidemiology and Toxicology
 - Surface Water at Bubble Sites
 - No new surface water data received during this operational period.



Assumption Parish Operational Situation Summary

• **Department of Environmental Quality**

- Air monitoring for VOC's continues with no dangerous levels detected off site (1000' away).
- On going Water sampling/water quality monitoring in Bayou Corne and Grand Bayou indicates no water pollution associated with the incident to date.
- Water quality monitoring in Bayou Lafourche indicates no water pollution associated with the incident to date.
- To date outdoor air monitoring has been conducted in response to the receipt of 97 rights of passage.
- 57 indoor air monitoring inspections have been conducted in response to citizen requests.
- Private residence air monitoring is available for scheduling upon citizen completion of the Right of passage form. Please call (225) 219-3015 to notify DEQ if you desire monitoring..
- LDEQ Command Post on site. Mobile Air Monitoring Lab (MAML) scheduled to be on site on a recurring basis collecting continuous data on methane/non-methane VOCs and H2S.
- DEQ is conducting community air monitoring
- DEQ has submitted comments on Texas Brine's proposed water control structure to DNR



Assumption Parish Operational Situation Summary

- **Department of Transportation and Development**
 - Regular monitoring and surveying roadways and bridges in the area for ground movement
 - Developed a traffic contingency plan if needed
 - Hired a contractor to perform the feasibility of alternative alignments for LA 70
 - Implementing long term plan for automated, continuous monitoring for roadway and bridge movement/subsidence
 - Technology meeting for roadway and bridge monitoring held 14 MAR
 - Foundation pads for CORS system have been installed, 3 of 4 pads installed as of 27 MAR
 - Prepared and delivered final proposal for road and bridge monitoring to Texas Brine
 - Stage 0 meeting was held for possible bypass road on 27 MAR
 - SENSR system installation began 08 April to be co-located on the community bridges
 - CORS 1 was installed on 01 April
 - A stakeholder meeting regarding the potential Hwy 70 bypass road was held on 11 April
 - CORS 3 and 4 were installed on 11 April
 - Telemetry has been confirmed for all three CORS installations
 - SENSR system installation was completed and all have live monitoring feed
 - SAA installation began 10 April
 - SAA 1 installed and functioning on 25 April
 - Emergency Hwy 70 reroute meeting held on 25 April



Assumption Parish Scientific Situation Summary

- **USGS:**

- Source of seismic activity estimated between 200 and 600 meters deep
- Continuing to monitor seismic activity at the six seismograph locations
- USGS reported limited seismic activity---average of one tremor a day---direction NW of sinkhole and other side of the pipeline right-of-way---Dr. Horton stated the science behind the recent events does not suggest a heightened level of risk at this time.
- USGS confirms no seismic activity in the area of the butane caverns
- Representative of the science group discussed dome mechanics and surveys for investigatory well with representative of USGS and Sandia National Lab
- In response to Texas Brine's assertion that region seismic activity caused their cavern to be compromised, USGS stated (on 25 Sept. 2012) that it is their belief that the seismicity is a consequence of the collapse of the cavern, and not the cause of the collapse of the cavern and the formation of the sinkhole
- Based on the sinkhole water level transducer, the "burp" that occurred on 11/20/2012 @2245 moved approximately 15,000 ft³ of water (100,000 gal; 2,700 bbls). This was 0.04 foot instantaneous water level change over the area of the sinkhole of about 8 acres. The 0.08 foot change on 11/27/12 moved approximately 30,000 ft³ of water (200,000 gal; 5,400 bbls). The event on 11/20/12 was preceded by a rapid water level rise of approximately 0.01 foot when a gas bubble reached the surface, though the gas dissipated upon reaching surface. A similar rise was not recorded for the 11/27/12 seismic event . Both water level changes were recorded by the water level transducer in the one inclinometer equipped with such a transducer.
 - Dr. Horton and the USGS indicated that there was a seismic event recorded at station LA08 at 11:38 am on 11/27/12. The activity was shallow and northeast of station LA08 and northwest of station LA09.
 - Recent seismic activity is possibly contributable to VSP activity or the unusually high water, according to Dr. Horton (1/16/13)
- USGS has removed its 6 monitoring stations. Texas Brine is now operating 7 stations in place of the USGS monitors



Assumption Parish Scientific Situation Summary

- **USGS (cont'd):**

- On 1/19/2013 there was about a 0.04 foot water level change during the burp at 10:00. The volume of water moved as similar to the previous events—about 15,000 cubic feet. This burp was somewhat different than previous events in that the water level recovered immediately after the burp. This is likely because the water level in the surrounding swamp is much higher than on previous events and there is now plenty of water in the swamp to flow into the sinkhole when it burps. The water level data also show that from 1/15/13 to 1/21/13, the Oxy 3 pad settled approximately 0.55 feet relative to the IP-2 tilt meter station with the majority of the settlement from 1/17/13 to 1/19/13. The settlement stopped shortly after the 1/19/13 10:00 burp event.
- As of 2/4 Dr. Steve Horten reported above normal seismic activity happening in the vicinity of the sinkhole. This is similar to past seismic activity, and could be indicative of a potential burp. All activity on the Pad 3 and the sinkhole has been suspended until the above normal seismic activity subsides. Dr. Horten will continue to monitor and update.
- The Bayou Corne Helicorders registered the seismic activity that occurred in the Solomon Islands on 09 FEB
- Dr. Hecox also reported VLP seismic activity is ongoing and being recorded by the Bayou Corne Helicorders
- DNR elevated the status of operational activities on the sinkhole to Yellow Alert (Clean Up Contractors have been restricted to land based operations for work on the sinkhole) on 01 MAR due to seismic activity
- Responsibility of seismic monitoring oversight has been transferred to the University of Memphis.



Assumption Parish Scientific Situation Summary

- **University of Memphis:**

- Increased Seismic activity was noted on Sunday, 17 Mar, and Friday, 22 Mar
- Dr. Horton has observed multiple VLPs overnight on 25 MAR but activity on the sinkhole remains at Code 1 (full operations)
- Dr. Hecox observed seismic activity around the sinkhole early on 28 MAR and activity on the sinkhole has been moved to a Code 2 (limited operations) as of 28 MAR
- 1 MEQ on 1 April. Currently a low to moderate rate of VLPs
- Dr. Horton has observed reduced activity of MEQs and activity on the sinkhole is at Code 1 (normal operations) as of 08 April`
- Dr. Horton has indicated that the MEQ rates are currently moderate and VLP rates are low to moderate. Sinkhole activity is currently at Code 2 (limited operations)
- Seismic level remains in Code 3. The MEQ rate continues to be high and large VLP's are being attributed to the 7.8 magnitude earthquake in Iran
- Dr. Hecox and Dr. Horton noted that MEQ and VLPs have tapered off and activity is back to Code 1 on 19 April
- The MEQ rate is low and there are a moderate number of VLP events, but the Code will remain at 3 due to depressurization of OG3A through 24 April
- **Per Dr. Horton, the rate of MEQs appears moderate with 10+ events per 24 hours with a similar number of VLP events. The rate does not appear to be increasing at this time. Code level remains at 2**



Assumption Parish Scientific Situation Summary

- **Scientific Workgroup theories of cause:**
 - Salt Dome moving – natural migration of gas
 - Failed cement casing in OXY #3 well
 - Cavity Failure
 - Salt / Caprock falling from top of the cavern
 - Natural
 - Man-made (including penetration into sediments by cavern)
 - Gas storage cavern connections, communications by fractures
 - Low permeability seepage of gas into OXY #3 (source unknown)
 - Regional Tectonic activity (movement on growth faults)
 - A combination of above events
 - A Bayou Corne Science Workgroup workshop was held Friday, March 8, 2013 from 8:30 a.m. to noon.



Next Operational Period (30 Apr – 3 May 2013) Incident Action Plan

- *The State Agency is responsible for oversight of the following activities. Texas Brine and its contractors are performing operational response activities.*

DNR:

- Texas Brine conducting hydrocarbon removal operations
- Perform oversight of operations at investigatory well, observation/vent well and sink hole (day light hours)
- Staff providing assist Assumption Parish Incident Commander and DEQ with bubble site monitoring, community air monitoring, and in-home monitoring
- Reviewing analysis of water samples from water wells screened in Mississippi River Alluvial aquifer
- Continue source investigation and file reviews
- Coordinate and provide information to science team
- Dome operators proceeding to implement their Shallow Geology, Aquifer, and Caprock Characterization Plan
- CB&I to collect pressure readings from the shallow water Geoprobes
- CB&I continues to evaluate the production of formation gas from the vent wells
- November 12, 2012 emergency order from the Commissioner of Conservation:
 - Homes – Ventilation improvements in unventilated, unoccupied, enclosed spaces
 - Gas Monitors
 - Texas Brine's contractor is Installing pressure monitoring wells with DNR oversight.
 - Develop plan for mitigation problem over area
 - Contain dissolved contamination from flowing into Bayou Corne



Next Operational Period (30 Apr – 3 May 2013) Incident Action Plan

- *The State Agency is responsible for oversight of the following activities. Texas Brine and its contractors are performing operational response activities.*

DNR (Cont'd)

- Texas Brine contractor to install antennas & repeaters for in-home monitoring
- Texas Brine contractor to install in-home monitors.
- Texas Brine contractor will continue to set tubing and pumps in the ORW wells
- Hauling clay for completion of containment berm
- Continue testing the CPT
- Continue construction of Geophone 1 drill pad
- DNR contractor interpreting 3D seismic data
- ORW 33 will be installed
- Continue to lay sand on western berm extension
- Continue installation of geoprobes
- DNR to receive Blue Ribbon Commission comments in this operational period
- Continue installation of ROI wells on ORW 9 pad



Next Operational Period (30 Apr - 3 May 2013) Incident Action Plan

- **DEQ:**

- Continue to conduct air and water monitoring in the community and in the area of the bubbling in Bayou Corne, Triche Canal, and Grand Bayou
- Continue to offer indoor air monitoring to residents who complete the Rite of Passage form from the Parish. Residents desiring indoor home monitoring may call DEQ @ (225) 219-3015
- Pursuant to the DNR press release dated 11/7/2012 regarding the pressure in some geoprobes, LDEQ will conduct indoor air monitoring as requested at residential homes in the Bayou Corne community.
- Conduct any test required by scientific group to aid in source/cause identification
- Provide oversight of Texas Brine's efforts to conduct hydrocarbon removal at the slurry site.
- DEQ is requesting written plan from Texas Brine with timeline for water control structure and water monitoring.
- Provide oversight and review of Texas Brine's air and water quality monitoring efforts.
- Continue to visually monitor conditions of the booms and general conditions of the slurry area from the well pad.
- Conducting water quality monitoring at bubbling sites
- DEQ is conducting air monitoring activities



Next

Operational Period (30 Apr - 3 May 2013)

Incident Action Plan

- **DHH / Office of Public Health**

- DHH will continue to review and analyze environmental sample data as provided by the Louisiana Department of Environmental Quality (LDEQ), for any chemical findings that would indicate a potential public health risk.
- DHH Safe Drinking Water Program will continue to monitor the incident for any reports of the expansion of the slurry/hole to ensure that water distribution underground piping is not compromised.



Next

Operational Period (30 Apr - 3 May 2013)

Incident Action Plan

- **DHH / Office of Public Health:**
 - DHH/OPH will continue to participate in meetings with GOHSEP and Assumption Parish to maintain visibility and operational readiness for any potential public health concerns.



Next Operational Period (30 Apr - 3 May 2013) Incident Action Plan

- **DOTD:**

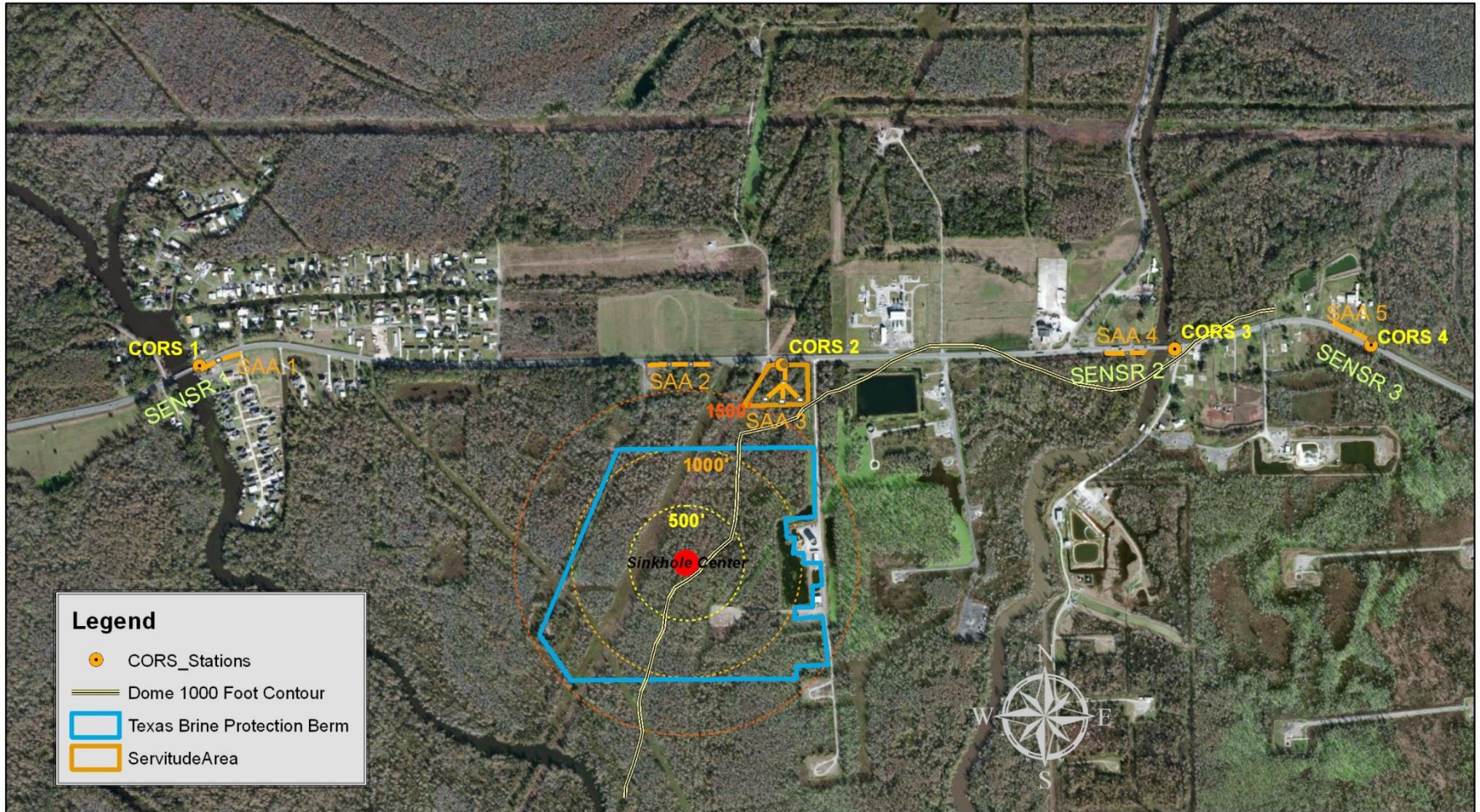
- Continue to prep CORS sites
- Continue survey and daily observation of road and bridges
- Surveying, access to private property, environmental/permitting, and site preparation work is underway
- **SAA installation will continue**

Prospective Instrumentation Placement

1 in = 1,000 feet

Pavement and Geotechnical
Engineering
Section 67
(225) 379-1312

Bridge Maintenance and
Facilities Maintenance
Section 51
(225) 379-1552





Next

Operational Period (30 Apr – 3 May 2013)

Incident Action Plan

- **Scientific Group:**

- Analyzing groundwater sample analyses
- Evaluate issues as they arise
- Continue to provide information to the UCG
- Anyone can submit information at any time for science team evaluation by sending an email to askgohsep@la.gov
- Additional members added to the team as needed



Assumption Parish Long Range Plan

- **DNR:**
 - Conducting testing of investigatory well to determine cavern condition and root cause
 - Scientific Group conference calls/meetings will be scheduled weekly to review new data and issues that arise
 - Continue source investigation and file review
 - Evaluate results of monitoring data and take necessary action
 - Monitor operations at investigatory, observation/vent well and sink hole (day light hours)
 - Staff on standby to assist incident commander
 - Ensure total remediation of the entire site
 - Continue to pursue landowner access agreements
 - Implement CB&I's Plan of Action
 - Conduct industrial well sampling bi-weekly and bubble sites as reported in general vicinity of operations.
 - Dome operators to identify presence of natural gas and vent as necessary
 - Ensure Texas Brine fully complies with the Commissioner of Conservation's Orders dated 11 Oct 12, Nov 2012, 7 Dec 2012, and 14 Jan 2013.
 - Blue Ribbon Commission will evaluate data collected in order to provide recommendations on risk levels to the Parish
- **DOTD:**
 - Investigating bypass to 70 around the Salt Dome
 - Deployment of continuous automated monitoring system for roadway-bridge movement and subsidence
- **DEQ:**
 - Continue to conduct sampling on air and water in area of operation
 - Continue oversight of ongoing remedial activities
 - Continue to conduct hazard assessment monitoring with APSO in resident homes and properties when requested.