Blue Ribbon Commission on Bayou Corne and Grand Bayou Public Safety

Wednesday, May 1st, 2013
Assumption Parish Community Center
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Welcome and Opening Remarks

Parish President Marty Triche
Commission Members

Blue Ribbon Commission on Bayou Corne and Grand Bayou Public Safety
• Research Director at France’s Ecole Polytechnique
• Member of the French Commission for Underground Storage Safety
• Former president of the Solution Mining Research Institute
• Palaiseau, France

Pierre Berest, Ph.D.
• Geotechnology and Engineering Program Manager for Sandia National Laboratories
• Research focused on subsurface monitoring for environmental applications, risk assessments and simulations
• Albuquerque, NM

David Borns, Ph.D.
• Twelve (12)-year resident of Bayou Corne, Louisiana

• More than thirty (30) years of industrial experience in the workforce

J.C. Chamberlain
• Assistant Vice Chancellor for Research with UT-Austin’s Center for Research in Water Resources
• Former member, Science Advisory Committee, EPA Underground Injection Control program
• Former chairman of review panel, EPA’s Robert S. Kerr Environmental Research Laboratory Groundwater Modeling Research

Randall Charbeneau, Ph.D.
• Associate Coordinator of U.S. Geological Survey Energy Resources Program
• Focused research on geologically based energy resources and impacts to environmental and human health
• Reston, Virginia

Doug Duncan
• Geochemist with Hartman Environmental Geoscience
• Contributor to regulatory guidance documents on vapor intrusion for EPA and several state agencies
• San Diego, California

Blayne Hartman, Ph.D.
• Senior Hydrogeologist and GIS Analyst with CB&I (formerly Shaw Environmental)
• Technical lead for CB&I Bayou Corne response team for duration of incident
• Baton Rouge, Louisiana / Park City, Utah

Gary Hecox, Ph.D.
• Geotechnical consultant
• Former president of Solution Mining Research Institute
• Former Underground Storage Technology Manager for Sandia National Laboratories

James Linn, Ph.D.
• Associate Professor for University of Western Ontario’s Department of Civil and Environmental Engineering
• Research focused on groundwater contamination and remediation
• Ontario, Canada

Denis O'Carroll, Ph.D.
Will Pettitt, Ph.D.

- Vice President of Itasca Group
- Member of microseismic and geomechanics team in ongoing Bayou Corne response
- Minneapolis, Minnesota
• Associate Professor with LSU’s Craft & Hawkins Department of Petroleum Engineering
• Consulting engineer for Federal Oil Spill Commission on events leading to 2010 Deepwater Horizon accident
• Baton Rouge, Louisiana

John Rogers Smith, Ph.D.
• Hydrogeologist with Louisiana DNR
• Former Assistant Professor with Louisiana Geological Survey at LSU
• Coordinator, Bayou Corne Science Work Group
• Baton Rouge, Louisiana

Thomas Van Biersel, Ph.D.
• President of Voigt Mining and Geotechnical
• Specializing in underground salt mine geology and brine/water inflow evaluation
• Executive Director of Solution Mining Research Institute
• Clarks Summit, Pennsylvania
Charter of the Commission

Roles, Responsibilities and Timeline
Governor Bobby Jindal directed the Department of Natural Resources (DNR), to establish the Commission in consultation with the

- Office of Conservation (OC),
- Governor’s Office of Homeland Security and Emergency Preparedness (GOHSEP),
- senior technical staff, technical consultants, and local officials,

**to provide appropriate benchmarks** to Assumption Parish officials and the Unified Command Group regarding the mandatory evacuation order and the conditions in the area surrounding the sinkhole along the western edge of the Napoleonville Salt Dome in Assumption Parish, Louisiana.

**Purpose**
1. Recommendations on what safety benchmarks should be and when they have been met sufficiently to recommend that conditions are safe for the public.

2. Recommendations regarding any long-term monitoring measures determined necessary to ensure the long-term safety of the public in the area.

Duties
• Assist Assumption Parish officials in deciding when community members may safely return to the evacuation area
• Determine the conditions necessary to ensure that appropriate benchmarks are met
• Identify additional data needs
• Prepare a report with recommendations

Scope of Activities
Blue Ribbon Commission on Bayou Corne and Grand Bayou Public Safety

Reports to...
- DNR
- Assumption Parish
- GOHSEP
- Commissioner of Conservation

Final Recommendations to...
- Assumption Parish
  - Assumption Parish Police Jury

Reporting
Blue Ribbon Commission
Formed Late March 2013
First Meeting of Commission
Early April 2013 @ LSU
• Kick-off Meeting
  • Reviewed Purpose, Roles, and Responsibilities
  • Viewed Draft Schedule
  • Received Status Update Briefing from Dr. Hecox
• 100% commissioners attended in person and via web video conference
• Attended by the public
• Event was covered by news media
BRC Conference Call

- April 11th, 2013
- 12 of 13 Commission Members Participated
3-Day Workshop in Louisiana
Workshop Schedule
April 29 – May 1
Site Visit to Bayou Corne & Grand Bayou
Briefing from OEP
Site Visit Briefing
Aerial Tour
Ground Tour

04/29/2013 12:28
Ground Tour
Community Tour
Office Work Sessions
Office Work Sessions

1. Briefings from experts in key topic areas
2. Preliminary summaries of existing data sets
3. Review of precise objectives outlined in the charter document
Blue Ribbon Commission

Areas of Focus

Stability

Gas Migration and Removal
Focus Group Sessions
Gas Focus Group Update

- Addressing the gas-related questions in the Commission Charter
- Denis O’Carroll, Ph.D.
1. Identify the sources of gas

- Existing well and a subset volume of the 2007 3D seismic data has been reviewed. Commissioners are reviewing further.
- Further analysis of 2013 3D seismic data.
2. Determine the volume and rate of gas migration into the aquifer

- Commission recognizes that gas is coming up through the DRZ to sustain the existing gas cap
- Determine whether area of gas bubbling is expanding, stationary or shrinking
- Further BRC analysis of 2013 3D seismic data plays a key role
3. Identify reductions required in gas pressure/volume to prevent gas migration to surface

- Collect core and gas samples to improve efficiency
- Use modeling to determine reduction required
4. Determine effectiveness of current vent well operations

- Radius of influence test results are critical
- Maximize effectiveness of vent wells
- Evaluate alternative technology for gas removal
5. Develop monitoring and performance metrics to ensure gas poses no future threat to public safety

- Monitor for decrease or cessation of bubbling in the area and necessary reduction in aquifer pressure
- Evaluate enhanced mitigation measures for the homes
6. Address concerns with hydrogen sulfide gas from cap rock and deep formations

- Hazard identification
- Mitigation/contingency plans
- Monitoring best practices
Stability Focus Group

- Addressing the stability-related questions in the Commission Charter
- Will Pettitt, Ph.D.
BRC Stability Group

- Surface Subsidence and Sinkhole
- Passive Seismic
- Caverns and Wells

Monitoring Plan for Stability
1. Effect of Oxy 3 cavern collapse upon current & future stability of all caverns in area

- Further BRC analysis of 2013 3D seismic data
- Develop long-term cavern operational practices
2. Identify the short and long-term monitoring needs that should be undertaken to monitor the stability of the western edge of the Napoleonville Salt Dome, existing caverns and surrounding sedimentary layers

- Monitoring access to wells Oxy 1, Oxy 3A
- Near-surface seismic monitoring
- Deep microseismic array in salt needed
- Subsidence and deformation monitoring
3. Identify measures to ensure that the threat of surface releases will be contained within the current bermed area around the sinkhole.

• BRC affirms the need to maintain the berm due to continued subsidence issues.
4. Analyze existence of void spaces to determine if they are of sufficient size such that a release of gas from such void spaces would pose an immediate or long-term threat to the public within the evacuation area, including Hwy 70.

- Prior modeling indicated the extreme unlikelihood of large void spaces.
- BRC initial review of 2013 3D seismic data continues with additional analysis to occur.
5. Evaluate current or future damaged, weak, or areas of subsidence around the sinkhole where potential future movement or subsidence may occur threatening public safety in the evacuation area, including Hwy 70

- Assure full-scale subsidence monitoring occurs along Hwy 70
- Establish subsidence metrics of the western dome and communities
6. Identify any additional actions or monitoring measures to be undertaken to assure public safety in the vicinity of the sinkhole and evacuation area, including Hwy 70

- Stability monitoring program and establishing baseline data
- Regular review of stability monitoring program with reporting to the public
  - Specific triggers
  - Actions in response to triggers
  - Oversight and quality checks
• Independent review of 3D Seismic data complete by mid-June
• Analysis and action on other stability/gas issues ongoing, not waiting for 3D Seismic data where not needed
• Ongoing full commission/focus group web and conference call meetings as needed
• Setting of formal safety benchmarks for natural gas removal and surface stability

Path Forward
Situational Update

Dr. Gary Hecox
Status Update

Mr. Marty Triche
Assumption Parish President
Blue Ribbon Commission on Bayou Corne and Grand Bayou Public Safety

Adjourned

Wednesday, May 1st, 2013
Assumption Parish Community Center