



Blue Ribbon Commission on Bayou Corne and Grand Bayou Public Safety

Wednesday, May 1st, 2013
Assumption Parish Community Center





1. Welcome & Purpose

President Marty Triche,
Assumption Parish

2. Blue Ribbon Commission

Perry Franklin, Facilitator
Denis O'Carroll, Ph.D.
Will Pettitt, Ph.D.

3. Situational Update

Gary Hecox, Ph.D.

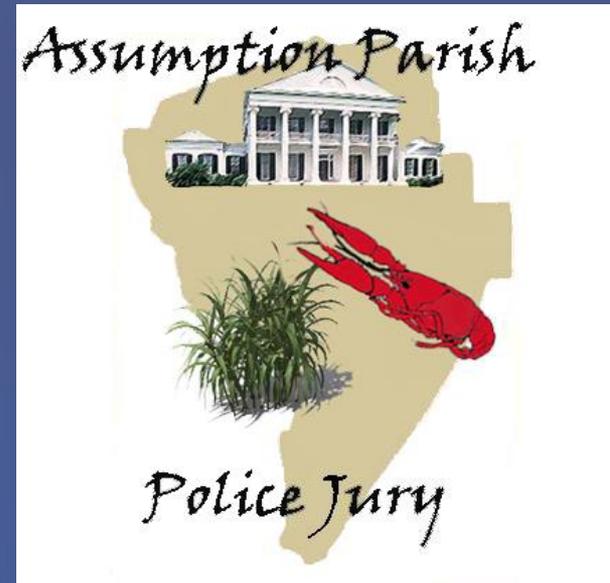
4. Status Update

President Marty Triche

Agenda



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.



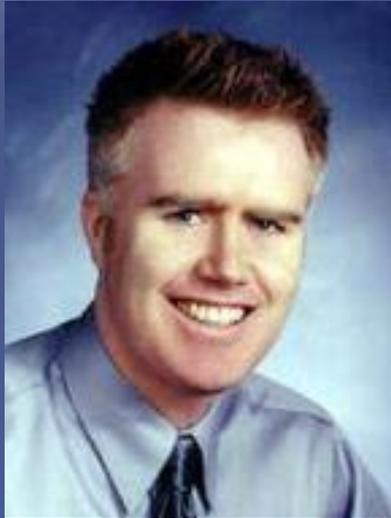
- Senior Hydrogeologist and GIS Analyst with CB&I (formerly Shaw Environmental)
- Technical lead for CB&I Bayou Corne response team for duration of incident
- Baton Rouge, Louisiana / Park City, Utah

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.



- Vice President of Itasca Group
- Member of microseismic and geomechanics team in ongoing Bayou Corne response
- Minneapolis, Minnesota

Will Pettitt, Ph.D.



- 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

John Voigt



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

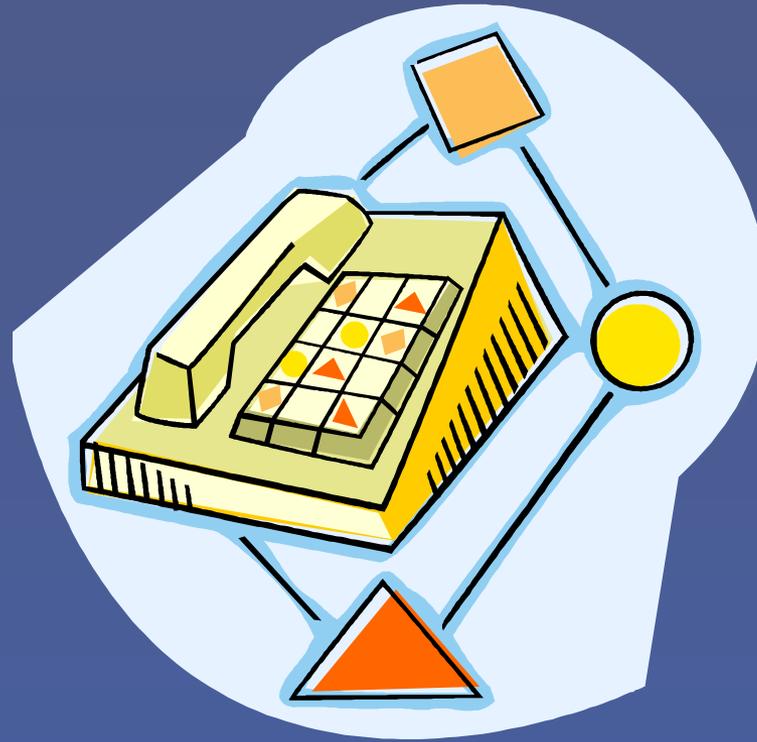
First Meeting of Commission

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

First Meeting Accomplishments



BRC Conference Call

- April 11th, 2013
 - 12 of 13 Commission Members Participated
-



3-Day Workshop

{ in Louisiana



Monday

29-Apr

Tuesday

30-Apr

Wednesday

1-May

Legend

- Full Commission
- Stability Break-Out
- Gas Break-Out



8:00	Breakfast Meeting	Morning Briefing	Morning Briefing				
8:30	Site Visit	Gas Focus Group	Stability Focus Group				
9:00				Bus trip to Bayou Corne	Gas Focus Group	Stability Focus Group	
9:30				Site Tour via helicopter, boat and vehicle	Gas Focus Group	Stability Focus Group	
10:00					Working Lunch	Gas Focus Group	Stability Focus Group
10:30						Working Lunch Full Commission Plenary Session	Gas Focus Group
11:00	Return to CB&I Lunch on bus.	Gas Focus Group	Stability Focus Group				
11:30	Work Session Full Commission			Break	Bus trip to Napoleonville		
12:00		Break	Break			Public Meeting	
1:00	Working Dinner			Working Dinner	Return to hotel		
1:30		Return to hotel	Return to hotel			Return to hotel	
2:00	Return to hotel			Return to hotel	Return to hotel		
2:30		Return to hotel	Return to hotel			Return to hotel	
3:00	Return to hotel			Return to hotel	Return to hotel		
3:30		Return to hotel	Return to hotel			Return to hotel	
4:00	Return to hotel			Return to hotel	Return to hotel		
4:30		Return to hotel	Return to hotel			Return to hotel	
5:00	Return to hotel			Return to hotel	Return to hotel		
5:30		Return to hotel	Return to hotel			Return to hotel	
6:00	Return to hotel			Return to hotel	Return to hotel		
6:30		Return to hotel	Return to hotel			Return to hotel	
7:00	Return to hotel			Return to hotel	Return to hotel		
7:30		Return to hotel	Return to hotel			Return to hotel	
8:00	Return to hotel			Return to hotel	Return to hotel		
8:30		Return to hotel	Return to hotel			Return to hotel	

Workshop Schedule

April 29 – May 1



Site Visit to Bayou Corne & Grand Bayou



Briefing from OEP

04/29/2013 09:55



Site Visit Briefing

04/29/2013 09:55



Aerial Tour



Water Tour

04/29/2013 11:48



Water Tour



Ground Tour



Ground Tour

04/29/2013 12:28



Ground Tour

04/29/2013 13:05



Ground Tour

04/29/2013 10:20



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

Office Work Sessions



Blue Ribbon Commission

Stability

Gas
Migration
and
Removal

Areas of Focus



Focus Group Sessions



Gas

Gas Focus Group Update

- Addressing the gas-related questions in the Commission Charter
 - Denis O'Carroll, Ph.D.
-



1. Identify the sources of gas

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

Gas

- 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
-



Gas

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

Gas

- Radius of influence test results are critical
- Maximize effectiveness of vent wells
- Evaluate alternative technology for gas removal





Gas

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
-



Gas

6. Address concerns with hydrogen sulfide gas from cap rock and deep formations

- Hazard identification
 - Mitigation/contingency plans
 - Monitoring best practices
-



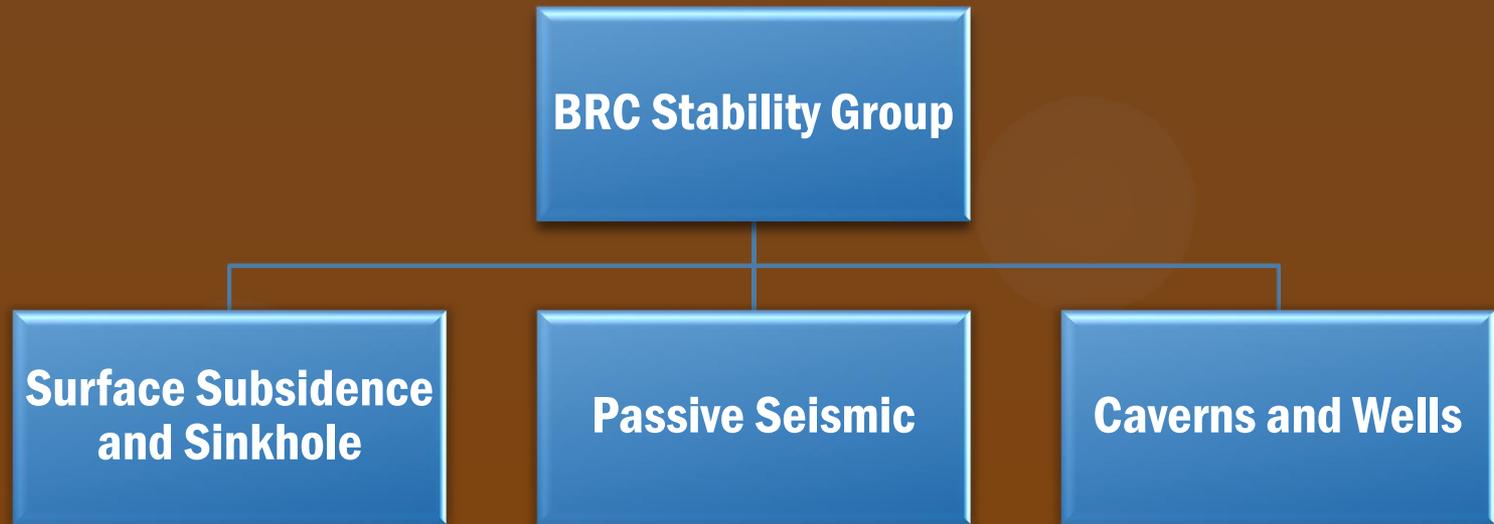
Stability

Stability Focus Group

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



Stability



Monitoring Plan for Stability



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
-



Stability

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
-



Stability

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





Stability

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
-



Stability



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
-



Stability

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





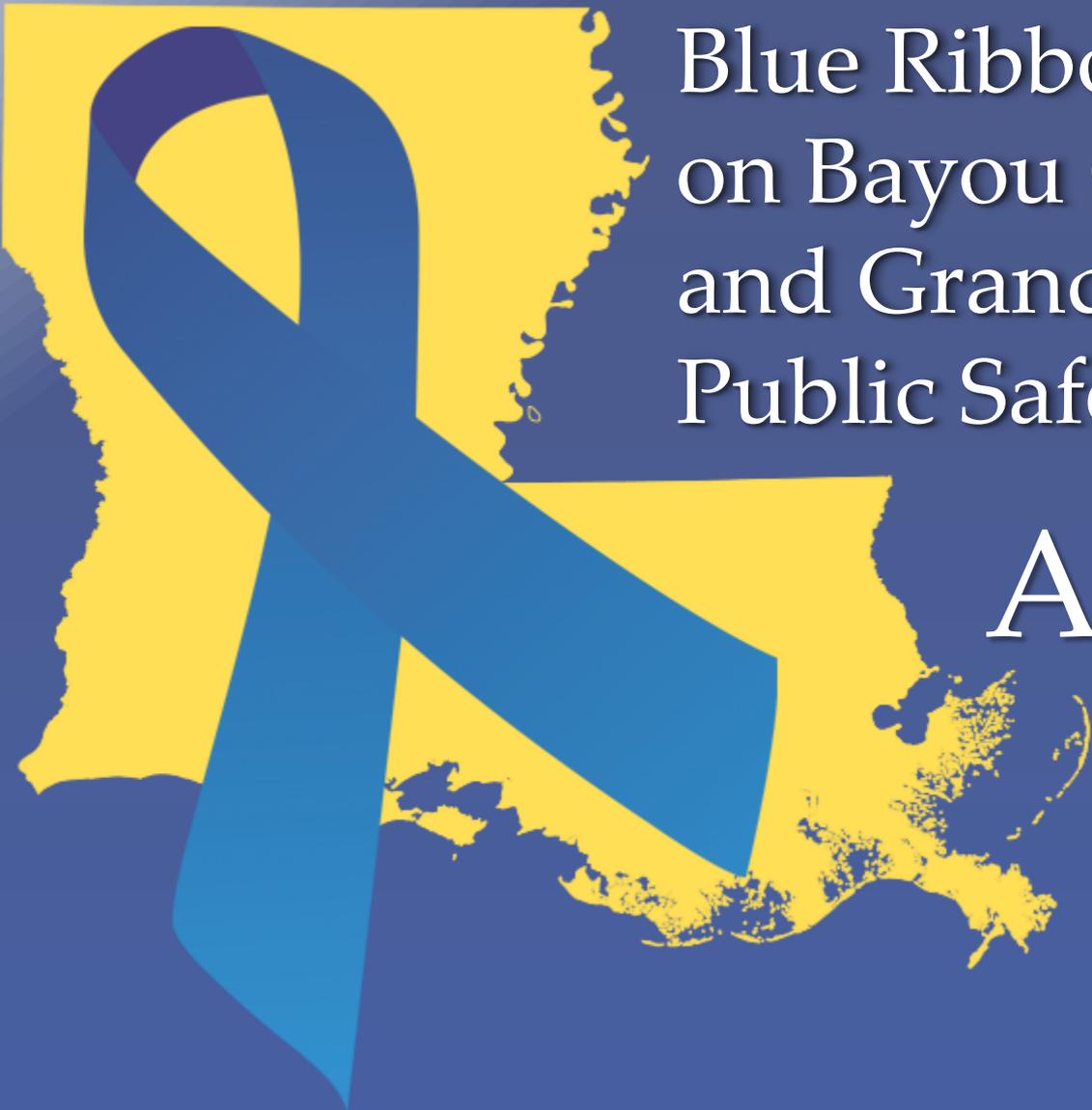
Situational Update

{ Dr. Gary Hecox



Status Update

{ Mr. Marty Triche
{ Assumption Parish President



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and Grand Bayou
Public Safety

Adjourned

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