BAYOU CORNE PUBLIC UPDATE

March 11, 2014

DNR/OOC

Site Overview – Sinkhole/Containment

- **Sinkhole size – ~29 acres**
- **Subsidence area around sinkhole – ~23 acres**
- **Total area – ~52 acres**
- **South containment berm re-route project – estimated completion by end of April**

Site Overview – Gas Removal

- **51 total ORWs have been installed**
- **38 ORWs currently connected to flare lines**
- **Cumulative gas flared – 25.9 mmcf**
- **Current 7-day average – 41.3 mcf**

Containment

South containment berm re-routed to ensure protection of Bayou Corne, based on predominantly southwest growth trend of sinkhole

- **Following upswing in micro-seismic activity, Assumption OEP/state agencies directed that contingency be developed for potential failure of south berm**

- **Original south berm route still functional while new route under construction**

- **DNR Office of Coastal Management worked with U.S. Army Corps of Engineers to expedite construction timetable**

Vent Wells

Installation of ORWs targeting aquifer gas accumulations supported by CPT/MiHPT

- **Focus in/around community and other significant gas column detections**

- **ORWs in Sportsman's Landing – thickest apparent gas column is in that area, column in northern part of community appears thinner**

- **ORWs bracketing thickest gas zone – across Bayou Corne from Sportsman's Landing to south and west, east of ORW 37 along La 70**

Targeting Gas with ORWs

Newest ORW installations indicative of complexity of targeting gas at top of aquifer

- **Some ORWs in communication with productive zone of gas column-top of aquifer – ORWs 36, 50, 55 have sustained solid production**

- **Others in same area have not had same success – ORW 49 marginal, ORWs 37, 52, 53, 56, 58 have shown minimal to low gas flow in same general area as more successful ORWs**

- **Pressure monitoring wells indicate gas pressure still present**

- **Water management could address issue of difficulty of precise targeting in highly variable gas accumulation zone**

- **Community concerns about water removal have led to search for alternatives and site-specific data on water removal**

Vent well recent developments

Removing water in ORWs to determine potential to improve gas flow – such water management is common practice in commercial wells, where water is commonly co-located with gas and oil

- **Wellbore purging– drawing down water that has built up in wellbore over time to improve gas flow**

- **Testing sustained removal**
  - **Tests located on Texas Brine-acquired property in community**
  - **Provide data on potential for improved gas flow**
  - **Provide site-specific data on potential for surface subsidence, in response to concerns raised by community**

20’-to-40’ gas – recent developments

Passive Vent Wells

- **Proposed as method of removing shallow gas following community concerns about DPVE water removal**
- **Work plan called for routing to flare if sustained flow encountered**
- **Constant air monitoring required at well sites, in addition to existing community air monitoring network already in place (TBC, Assumption OEP, DEQ)**
- **PVWs in community being plugged, new plan required for any subsequent attempts**

Other recent developments

Acadian Pipeline bubble site at Grand Bayou – Bubble Site 101

- **Acadian re-routing of pipelines due to sinkhole impact on previous pipeline route – bubbling appeared in Grand Bayou above area of horizontal boring for pipeline crossing (approx. 40’ depth)**

- **Conservation Pipeline agents followed up on site safety**

- **Bubbling has diminished since first appearance,**
  - **Initial results indicated biogenic, will continue to monitor/sample site for possible changes in intensity/gas characterization**

What Will Happen Next

- **Completion of new sinkhole containment southern berm route**
- **Continued operation & maintenance of ORW network**
- **Further defining potential impact at ground surface of de-watering to enhance gas flow**
- **Determination of methods of installation and operation of additional ORWs – water removal issue will be important factor**
- **Continued monitoring of seismic activity, sinkhole, gas pressures, air and water**