APPENDIX H

BEG MODELING REPORT

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Reservoir modeling and simulation for estimating migration extents of injectate-CO_2 in support of West Ranch oilfield NEPA/EIS

Gulf Coast Carbon Center, Bureau of Economic Geology, Jackson School of Geosciences, The University of Texas at Austin

May 4, 2012

Summary

It is anticipated that anthropogenic carbon dioxide (CO2-A) will be injected into the deep (5,000-6,000 ft below sea level) subsurface for enhanced oil recovery (EOR) at the West Ranch oilfield beginning in early 2015. The purpose of this report is to present reservoir modeling and simulation results generated to support National Environmental Policy Act, Environmental Impact Statement (NEPA/EIS) requirements for the NRG Energy Company's Clean Coal Power Initiative project being funded, in part, by the U.S. Department of Energy, National Energy Technology Laboratory (NETL). The timeframe for the modeling and simulation, injection from 2014 through 2019 with observation extended through 2049, contributes to the conservative nature of the estimate of extent of CO2-A migration. Results show that the extent of the injectate-CO2-A, and associated zones of increased pressure, will remain within the surface footprint of areas leased and operated by Texas Coastal Ventures (TCV, NRG and their oilfield partner Hilcorp Energy) during and beyond the period of concern.

Introduction

Numerous studies have been conducted in the past to characterize subsurface geology below the West Ranch oilfield (e.g. Galloway and Cheng, 1985, ICF Resources and BEG, 1989). Results from these studies, and geologic structural control from geophysical log interpretation using the Petra© project constructed by Hilcorp and BEG, form the basis for the modeling described here. TCV is considering EOR operations in three different reservoir sands in the West Ranch oilfield. From deepest to shallowest these are the 98-A, 41-A, and Greta sand intervals, which are present between approximately 5,000 and 6,000 ft below sea level. Dr. Seyyed Hosseini, Research Associate with the Gulf Coast Carbon Center at the Bureau of Economic Geology, Jackson School of Geosciences, The University of Texas at Austin conducted the modeling and simulation work described herein for the 41-A sand interval as a case example. We consider this example to represent a worse-case scenario of migration of CO2 associated with enhanced oil recovery at the West Ranch oilfield.

Approach

Dr. Hosseini began the reservoir simulation modeling using structure contour data (elevation of top surface) for the 41-A sand constructed in and exported from Petra by Dr. Khandakar Zahid. A uniform thickness of 80 ft was used to generate a parallel bottom surface of this reservoir sand. These surfaces were transferred from Petra to Petrel© modeling software to begin generating the static geologic model for 41-A (fig. 1).

Hosseini then used contract report and published information on the distribution and properties of 41-A sands at West Ranch (figs. 2, 3) to generate a 16-layer reservoir model that represents the geologic setting as realistically as possible. Figure 2 shows the depositional/coastal zone units, or geologic facies, represented in the 41-A reservoir sands along with permeability ranges for each. The facies shown in figure 2 are (1) barrier core, which represents the high permeability sands in the core of a barrier island, (2) moderate permeability tidal channel, and (3) lower permeability tidal delta. Two other facies included in the static geologic model are lagoonal mud and non-sand. In preparing the static

geologic model Hosseini constructed a grid-based distribution of the facies that resembles the Galloway and Cheng (1985) image in figure 2. The model includes both horizontal and vertical heterogeneity as can be seen by the different distributions of facies for model layers 1, 6, and 15 in figures 3a, b, and c.

Based on the formation top information (structure contour map) for the 41-A sand, top surface of the 41-A sand was generated. Bottom surface of the 41-A assumed to be 80 ft below and parallel to the top surface. Surfaces were transferred from Petra to Petrel and static models were generated in Petrel. After generating appropriate structural model (fig. 1), using information published by Galloway and Cheng (1985) (fig.2), appropriate facies model (fig. 3) and corresponding permeability (fig. 4) and porosity (fig. 5) maps were generated. Vertical heterogeneity in the models is considered. Figure 4 shows the permeability distribution in layers 1, 6 and 15.

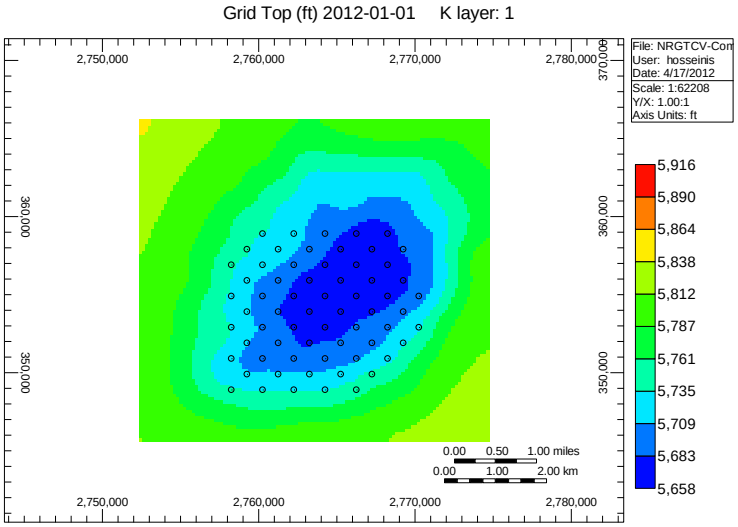

Figure 1. Structure contour map of the top of 41-A sand showing well distribution (open circles) used in reservoir simulations.

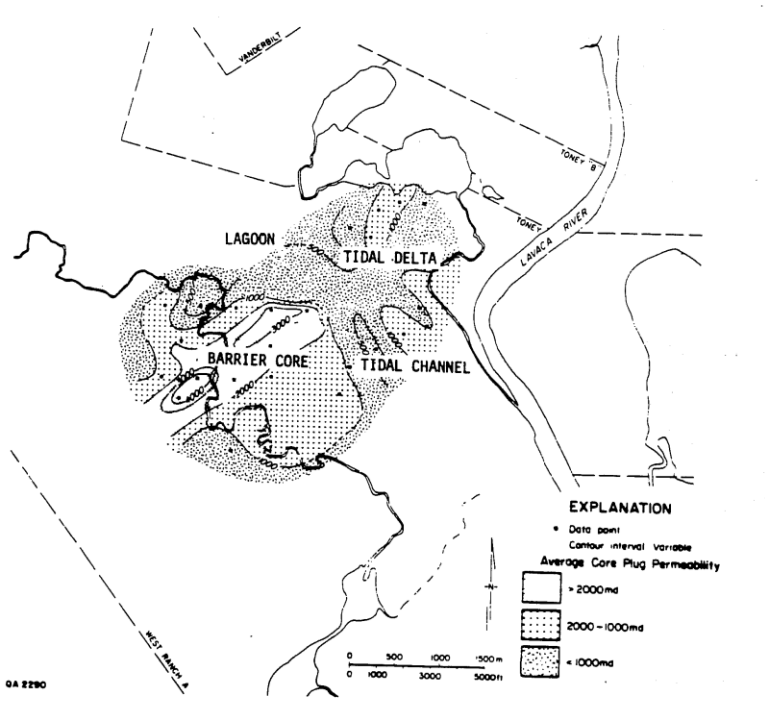

Figure 2. Map of facies and permeability range in the 41-A reservoir. Source: Galloway and Cheng (1985).

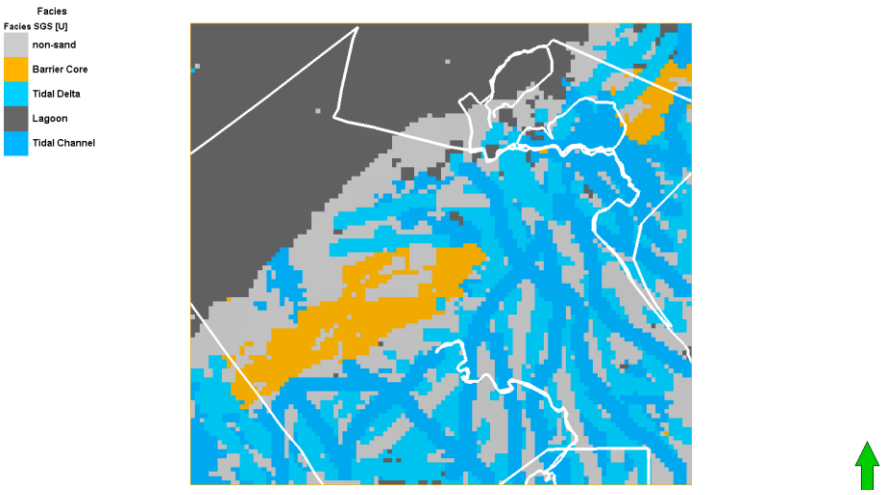

Figure 3a. Facies model for layer 1 of the static model. White lines show TCV lease areas.

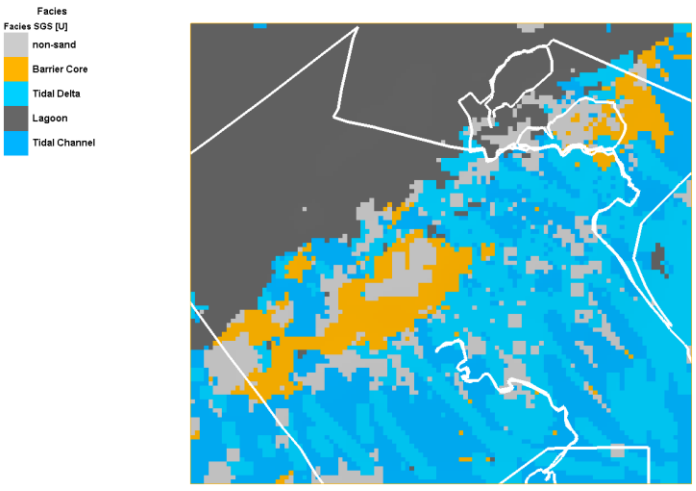

Figure 3b. Facies model for layer 6 of the static model. White lines show TCV lease areas.

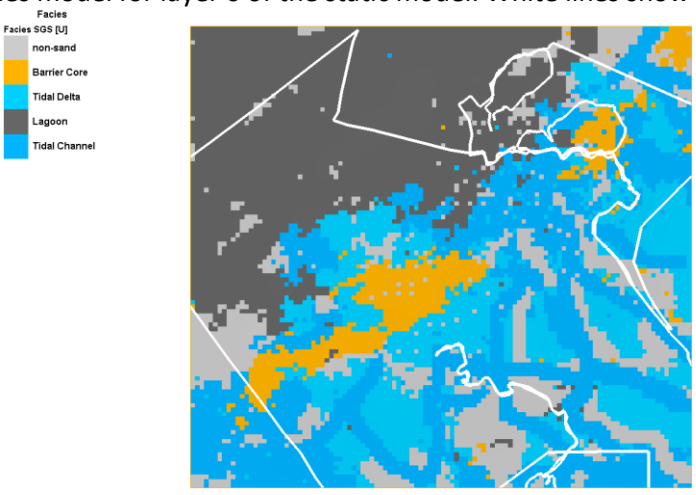

Figure 3c. Facies model for layer 15 of the static model. White lines show TCV lease areas.

The static model layers were then populated with values for permeability based on the ranges shown in for each facies in figure 2, plus a value of less than 10 millidarcies (md) for the lagoon and non-sand facies. Figures 4a, b, and c show variations in permeability corresponding to the facies distributions for model layers 1, 6, and 15. An image of the static porosity component for layer 1 in the reservoir model is shown in figure 5.

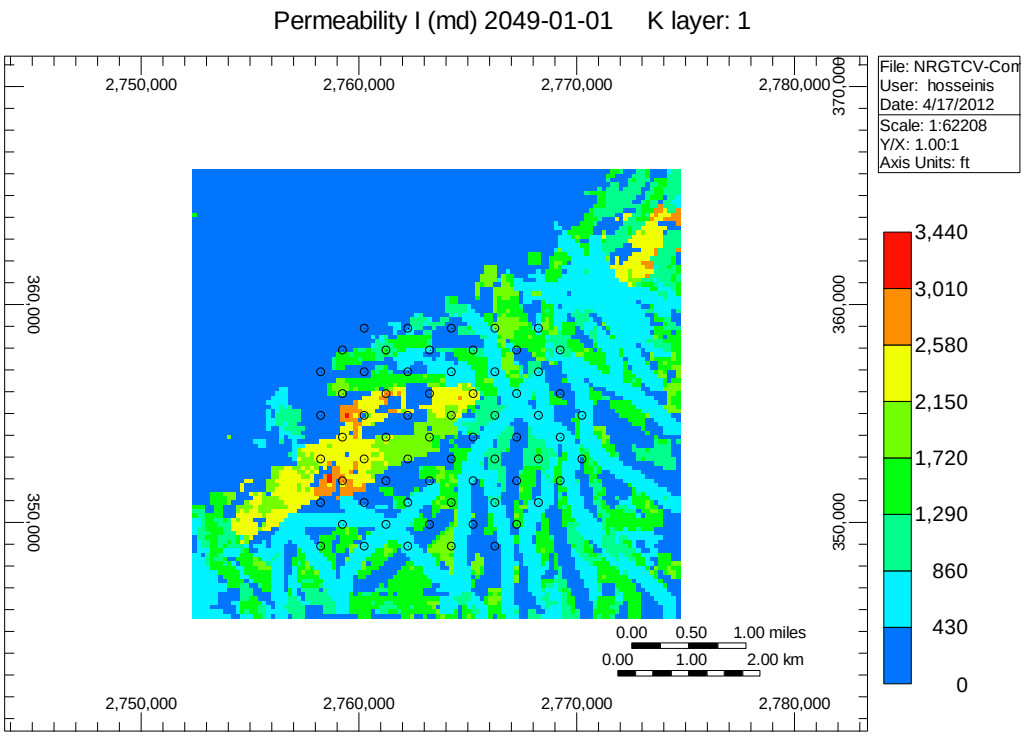

Figure 4a. Permeability model in layer 1 generated based on the facies model, and well distribution (open circles) used in reservoir simulations.

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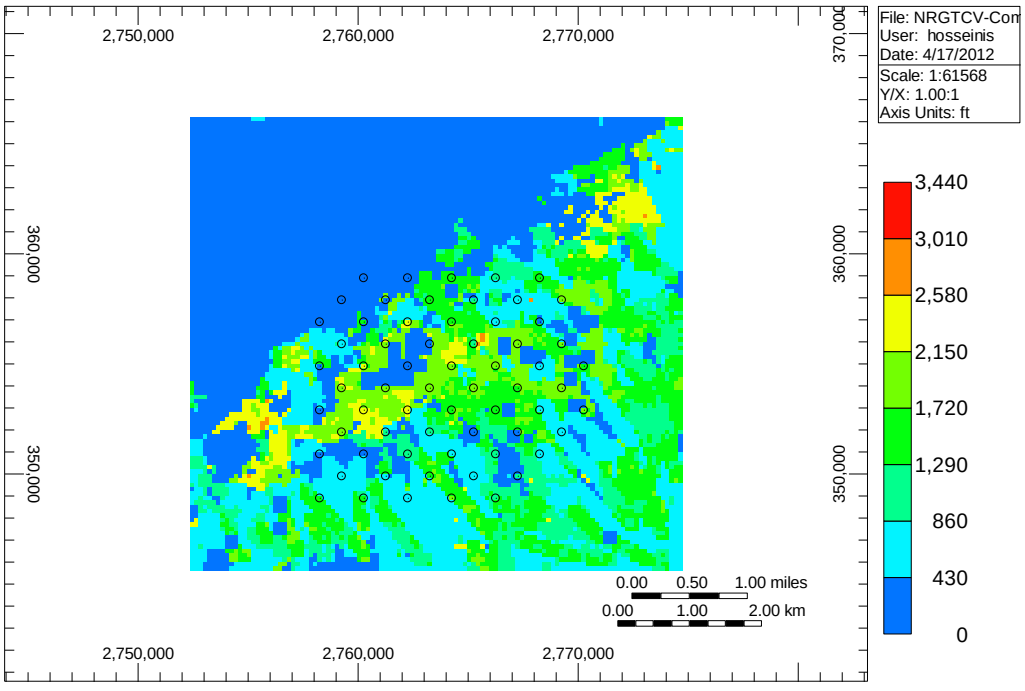

Figure 4b. Permeability model in layer 6 generated based on the facies model, and well distribution (open circles) used in reservoir simulations.

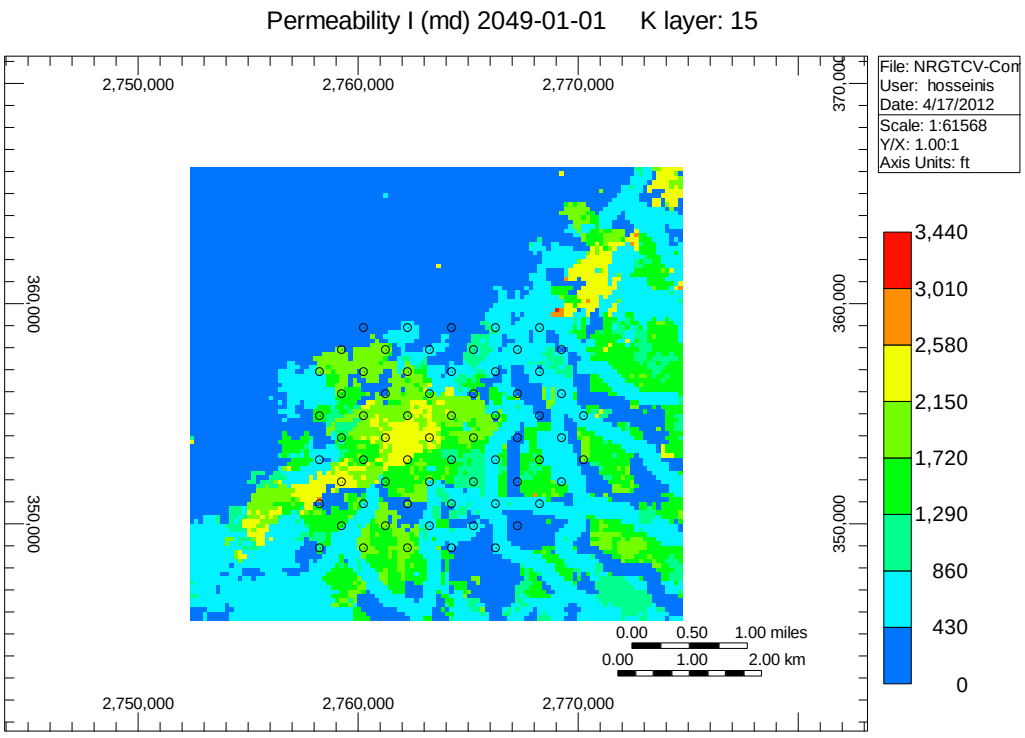

Figure 4c. Permeability model in layer 15 generated based on the facies model, and well distribution (open circles) used in reservoir simulations..

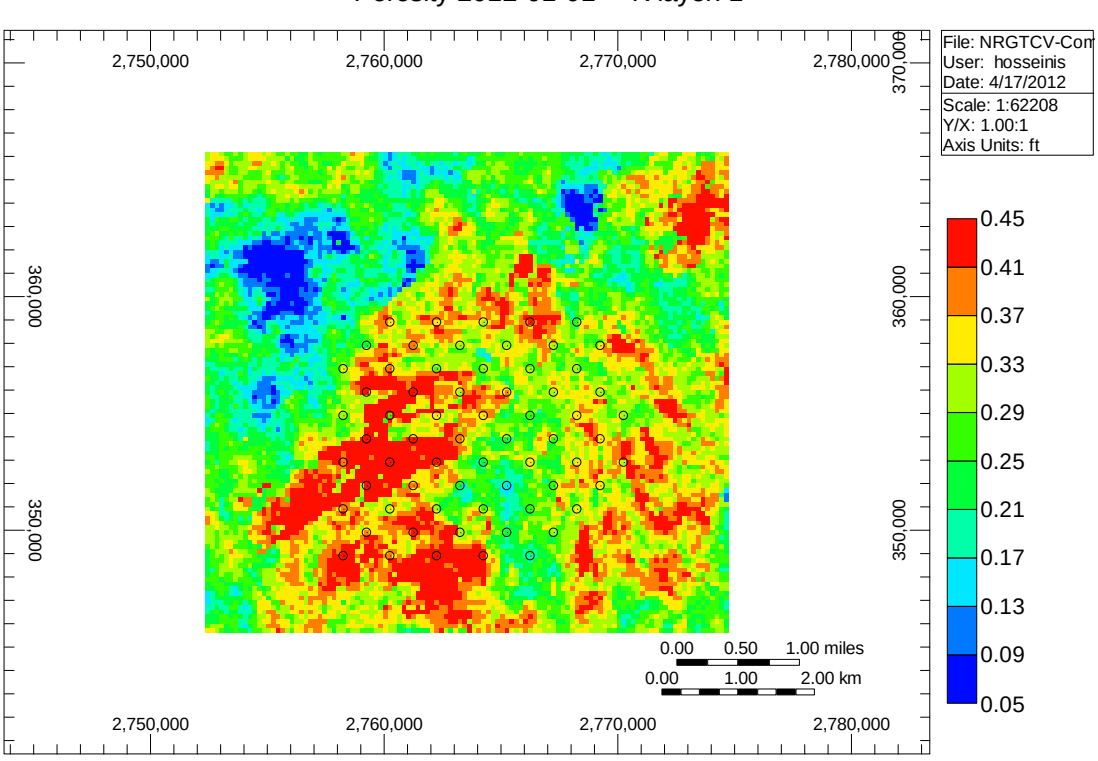

Fig 5. Porosity model for layer 1, and well distribution (open circles) used in reservoir simulations..

After completion, the static model of geologic framework and reservoir fluid properties was transferred to the Computer Modeling Group Ltd. (CMG) GEM© (Generalized Equation-of-State Model) software for dynamic fluid flow modeling. GEM is a compositional reservoir simulator that was used to calculate the extents of injectate CO2 and associated zones of increased pressure. Table 1 gives a summary of important model properties used in the GEM simulations.

Table 1. Properties used for reservoir simulation.

Injection start date	1/1/2014
Injection end date	1/1/2019
Extended simulation date	1/1/2049
Residual oil saturation	0.27
Average porosity	0.30
Average permeability, md	631
Maximum injection rate ,MMscf/day	2.5
Maximum production rate, bbl/day	3000
grids	112×103×16
Grid size, ft	200×200×5
Current reservoir pressure, psi	2400
Kz multiplier	0.1

Figure 6 shows the same wells as in figure 1 superimposed with oil saturation, with the transition from blue to green outlining the oil water contact. There are 36 injection and 29 production wells arranged in five spot patterns. Injection wells were constrained to maximum bottom hole pressure of 3,500 pounds per square inch (psi) and producers were constrained at minimum bottom hole pressure of 2,000 psi. The total injection rate used was about 1.7 million metric tonnes of CO_2 per year. The model was populated with dynamic reservoir data (relative permeability, fluid compositions, minimum miscibility pressure, etc) obtained from reports provided by Hilcorp.

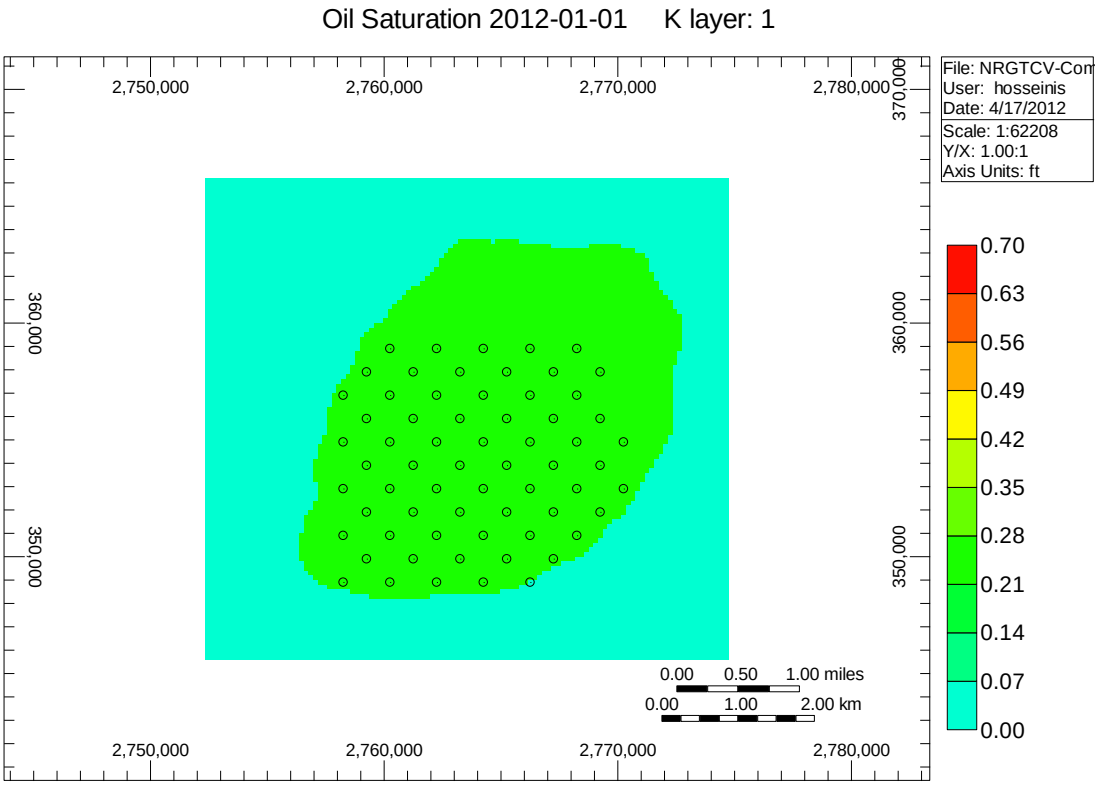

Fig 6. Initial oil saturation showing five-spot well distribution (open circles) used in reservoir simulations.

Results

CO_2 injection was modeled to continue for five years and then all the wells were shut in. The extent of CO2 gas and reservoir pressure after five years is shown for layers 1, 6 and 15 in figures 7 and 8 respectively. Layer 1 is at the top and layer 16 is at the base of the 80-ft thick 41-A reservoir sand. The extent of CO2 is depicted as gas saturation, which represents the pore volume fraction of gas (CO_2). Pressure values are in psi. After all the wells were shut in, an extended simulation was carried out until 2049 to further observe the CO2 migration and pressure response. Extent of the CO2 gas and reservoir pressure after 35 years are shown for layers 1, 6 and 15 in figures 9 and 10, respectively. Due to buoyancy effects most of the gas saturation accumulates in upper layers of the reservoir sand.

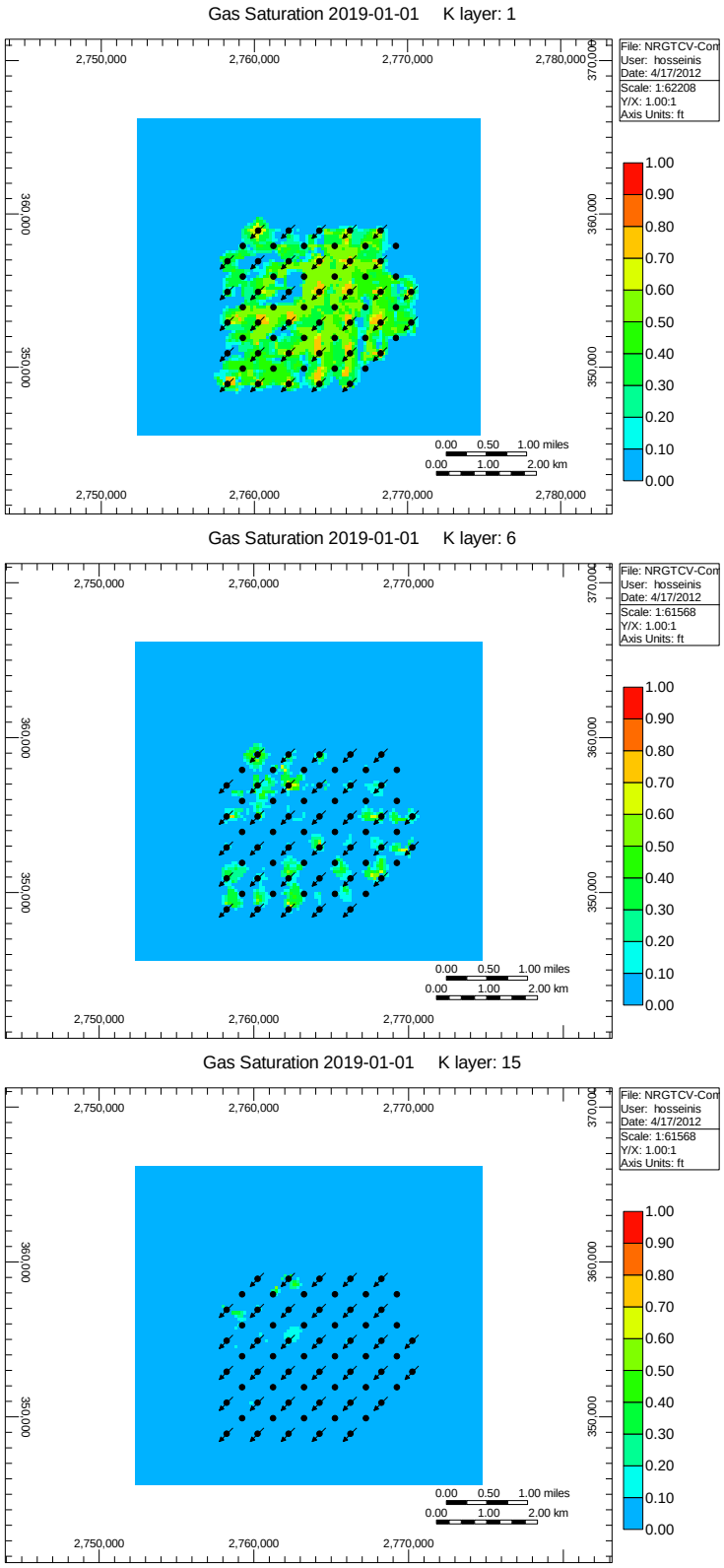

Figure 7. CO_2 extents at 1/1/2019 in layers 1 (top), 6 and 15(bottom)after 5 years of injection.

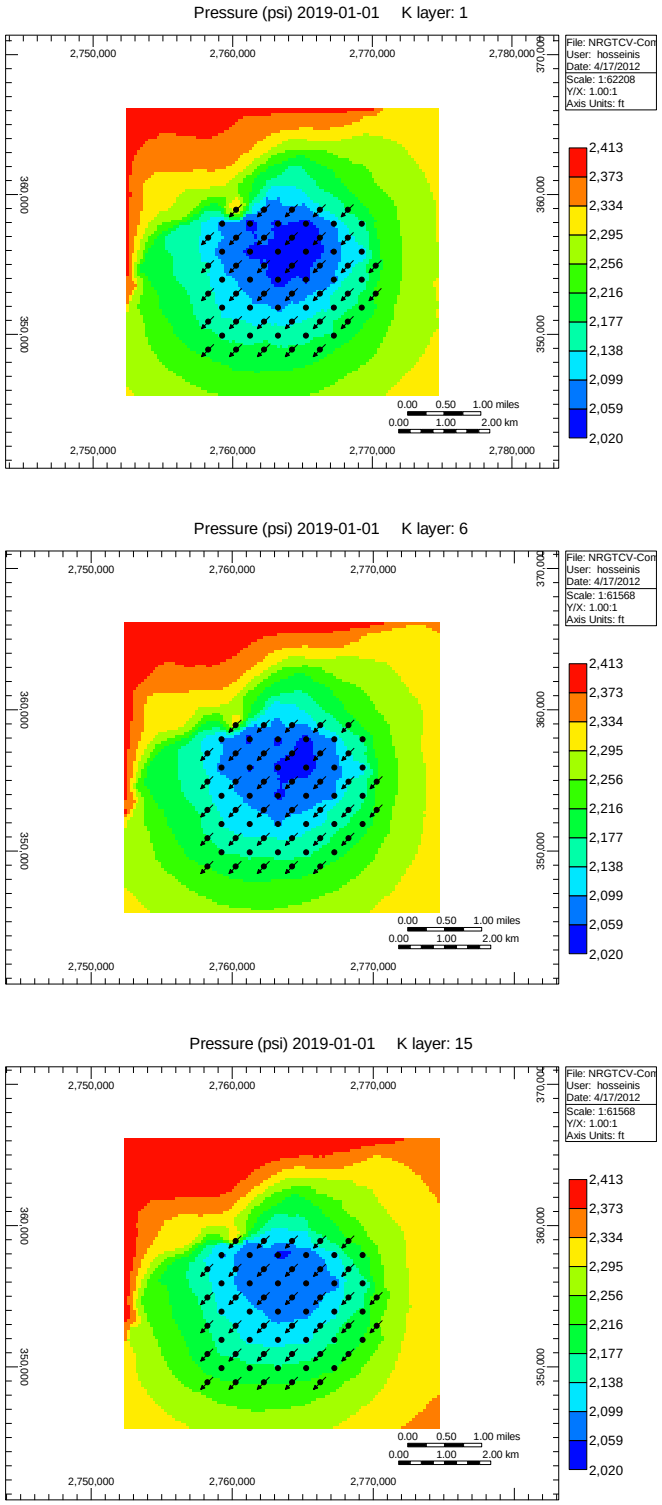

Figure 8. Pressure distribution at 1/1/2019 in layers 1 (top), 6 and 15 (bottom) after 5 years of injection

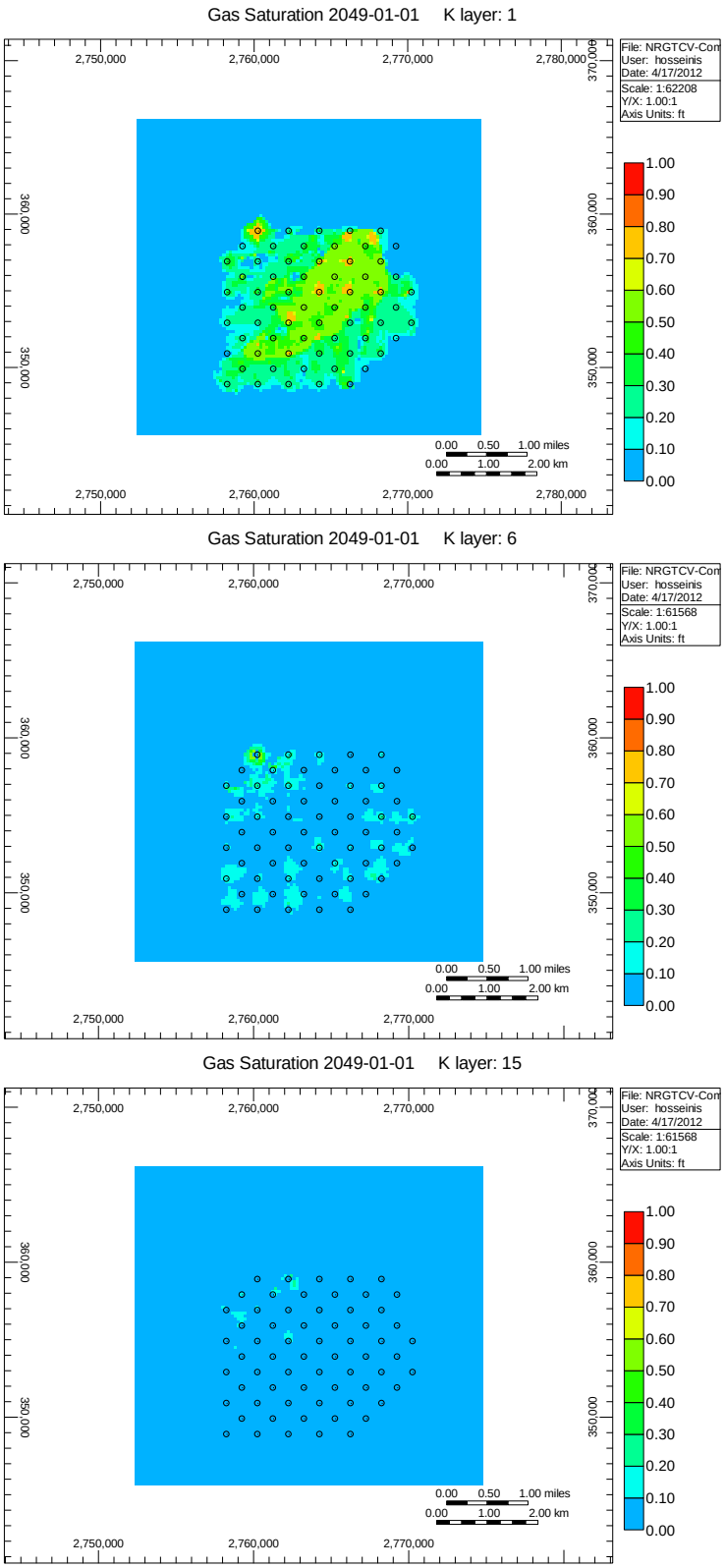

Fig 9. CO_2-A at 1/1/2049 in layers 1 (top), 6 and 15 (bottom), 30 years after termination of injection.

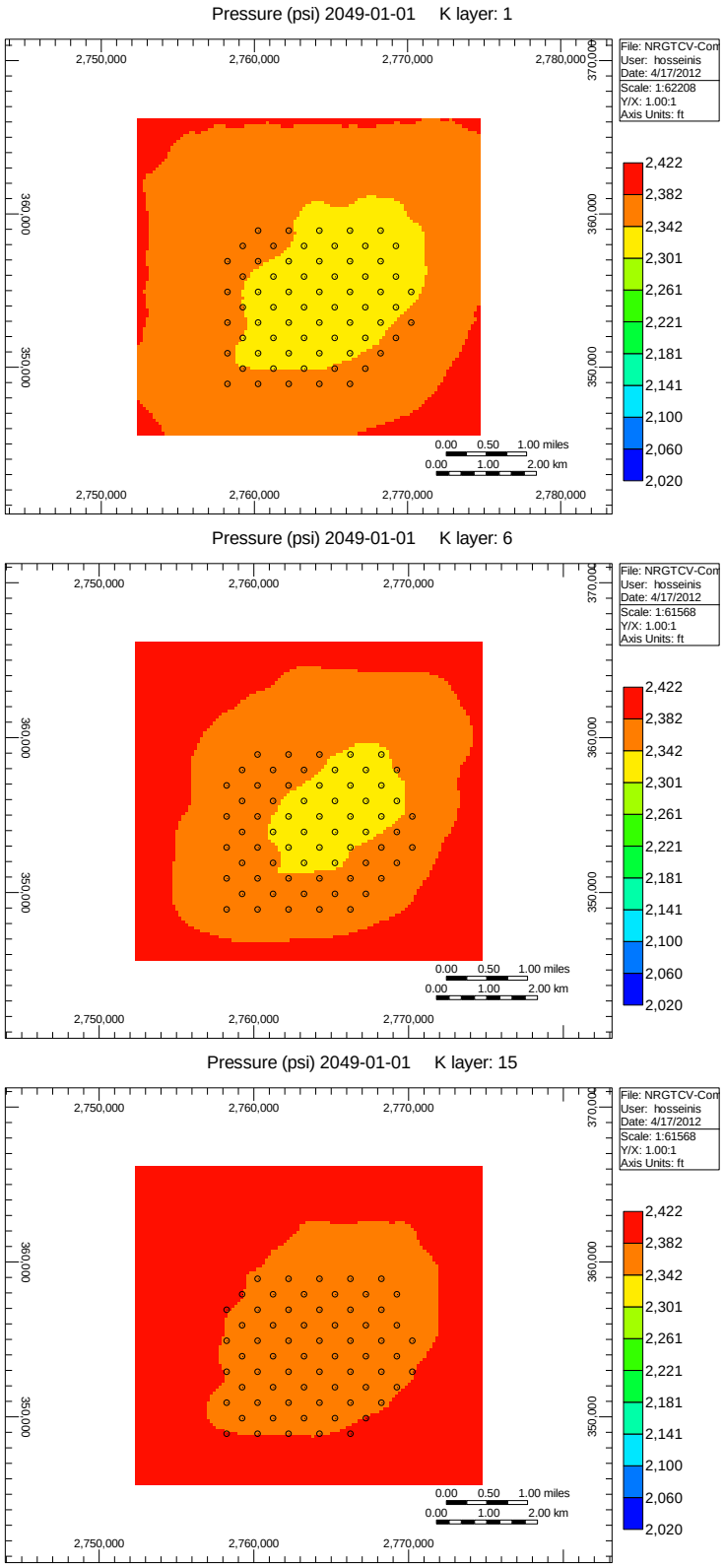

Fig 10. Pressure distribution at 1/1/2049 in layers 1 (top), 6 and 15 (bottom), 30 years after termination of injection.

Based on the assumed pattern of injection and production wells, and an injection rate of 1.7 million metric tonnes of CO_2, we show conformance of the operation. That is, both the injectate CO2-A and areas of elevated pressure remain within the TCV lease areas. Note that pressure elevation is mostly dominated by the production wells (around 2,000 psi), so there is no risk associated with excess pressurization of the field. By 2049, CO_2 moves to the top of the formation and as the reservoir pressure is below initial reservoir pressure at discovery (2800 psi), the strong regional aquifer will pressurize the reservoir back to about 2300 psi.

References

Galloway, W.E. and Cheng, E., 1985, Reservoir facies architecture in a microtidal barrier system – Frio Formation, Texas Gulf Coast, The University of Texas at Austin, Bureau of Economic Geology, Report of Investigations 144, 36p.

ICF Resources and Bureau of Economic Geology, 1989, As assessment of the reserve growth potential of the Frio Barrier-Strandplain play in Texas: contract report prepared for the U.S. Department of Energy/Office of Fossil Energy, 128p.

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APPENDIX I

BEG FAULT STUDY REPORT

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Evaluation of regional subsurface faulting in support of the West Ranch oilfield NEPA/EIS

Gulf Coast Carbon Center, Bureau of Economic Geology, Jackson School of Geosciences, The University of Texas at Austin

May 18, 2012

Summary

It is anticipated that anthropogenic carbon dioxide will be injected into the deep (~5,000-6,000 ft below sea level) subsurface for enhanced oil recovery (EOR) at the West Ranch oilfield in Jackson County, Texas beginning in early 2015. The purpose of this report is to present an evaluation of regional subsurface faulting in the vicinity of the oilfield to support National Environmental Policy Act, Environmental Impact Statement (NEPA/EIS) requirements for the NRG Energy Company's Clean Coal Power Initiative project being funded, in part, by the U.S. Department of Energy, National Energy Technology Laboratory (NETL). The primary geologic formation from which oil and gas are produced in the West Ranch field is the Frio Formation (Fm.). In Jackson County along the central Texas Gulf coast, the Frio Fm. was deposited in a marine beach setting (i.e. barrier-strand-plain) rather than a fluvial-deltaic setting as along northeast and southwest sections of the Texas Gulf Coast. In the northeastern areas, oil and gas were trapped primarily in salt domes. Unlike fields that produce from Frio Fm. salt domes, oilfields along the central Texas coast have little to no associated internal faulting.

The BEG geophysical-log-based evaluation of regional structural features shows two normal faults (growth faults) in the deep subsurface to the northwest and southeast of the West Ranch oilfield. The shallowest expression of the two faults is at depths of ~2,500 ft below sea level. An ~200 ft offset of geologic strata on either side of the fault to the northwest of the oilfield reveals the simple domal structure that is responsible for hydrocarbon trapping in the West Ranch field. Neither of the faults extend upward to land surface nor do they lie within the boundaries of the oilfield. In addition, there are no obvious or large-scale faults within the oilfield itself.

Introduction

The Frio Fm. is an Oligocene-age geologic unit that is present between ~5,000 and 6,500 ft below sea level in the West Ranch oilfield (fig. 1). Much of the Frio Fm. of the central Texas Gulf Coast was deposited as barrier-island/lagoonal systems (i.e., barrier-strand-plain) in ancient, near-shore beach environments (Boyd and Dyer, 1964; Galloway et al., 1982). According to Boyd and Dyer (1964), barrier strand-plain systems are composed of "elongate bodies of laterally deposited shoreline sands, similar to the Padre-Mustang-St. Joseph-Matagorda island complex of today." The depositional setting for Frio Fm. sediments along the northeastern and southwestern portions of the Texas Gulf coast was fluvial-deltaic (Galloway et al., 1982). In addition, deposits in the northeast are underlain by thick accumulations of Jurassic-age salt (Ewing, 1991). Thick accumulations of interlayered marine and nonmarine sand and shale of the Frio Fm. comprise one of the most prolific oil and gas producing geologic units in the Texas Gulf coast region (Galloway et al., 1982). Differences in depositional settings and subsequent geologic processes have resulted in different characteristics of Texas Gulf coast, Frio Fm. oilfields. For example to the northeast, hydrocarbons have been trapped in complexly

faulted salt dome structures whereas along the central Texas coast, simpler structural trapping has occurred (e.g. the West Ranch field).

Repeated pulses of rapidly deposited, large volumes of terrigenous sediment onto under-compacted, plastic muds in the Gulf of Mexico resulted in multiple stages of faulting along the northwestern margin throughout Tertiary time. Figure 2 shows the numerous growth faults that have been recognized in the western Gulf of Mexico basin. Growth faults, which are different from the type of faults that occur in salt domes, are a result of differential compaction and diagenesis of the different sediment packages. Bruce (1973) described the stages of growth faulting as:

- Interlayered sandstone and shale (terrigenous sediments) deposited on top of submarine shale masses
- Subsidence from sediment load accompanied by early water loss from underlying saturated shale masses
- Dewatering of shale masses becomes restricted and pore pressures increase
- Dewatering of sandstone/shale packages continues through the permeable sandstone layers
- Combination of greater compaction of sandstone/shale packages and increased pore pressure in shale masses (less compacted) results in uplift of shale masses relative to sandstone/shale
- Growth faulting results from instability and gravity sliding between the different sediment packages.

Figure 3 depicts results of the processes described above. The West Ranch oilfield is thought to lie within a sedimentary trough similar to that labeled #1 in figure 3 (HEC, personal communication).

Dr. Khandakar Zahid and Mr. David Carr, Postdoctoral Fellow and Research Scientist Associate, respectively with the Gulf Coast Carbon Center at the Bureau of Economic Geology, Jackson School of Geosciences, The University of Texas at Austin conducted geophysical log correlations, and construction of cross sections and maps to document the presence or absence of faulting in the vicinity of the West Ranch oilfield as described below.

Approach

The way to document the presence or absence of faulting is to correlate or match surfaces of geologic units laterally in the subsurface using geophysical logs. The top of the Anahuac shale, a geologic unit that immediately overlies the Frio Fm. (fig. 1), is a good horizon to use in such correlations because it is present throughout the subsurface of the Texas Gulf coast, has a distinctive geological log signature, and has several recognizable biostratigraphic zones (Ellisor, 1944). It is approximately 500 ft thick in the West Ranch field and pinches out within ~30 miles updip from the coast. Other strata used in this fault study are the individual reservoir sands within the Frio Fm. and the shallower Miocene interval (fig. 1).

Zahid and Carr evaluated the geological structure within and surrounding the West Ranch oilfield using a Petra© geological modeling project, which was assembled by Zahid and BEG graduate students using geophysical logs obtained from multiple commercial suppliers and augmented with those obtained from HEC. The presence of regional, down to the coast normal

faults (growth faults) close to West Ranch, and the absence of faulting within the oilfield have been previously documented in published literature (e.g., Baurenschmidt, 1944; Galloway and Cheng, 1986, Ewing, 1991, and Geomap, 1999-2009). These sources served as a starting point for the BEG results described below.

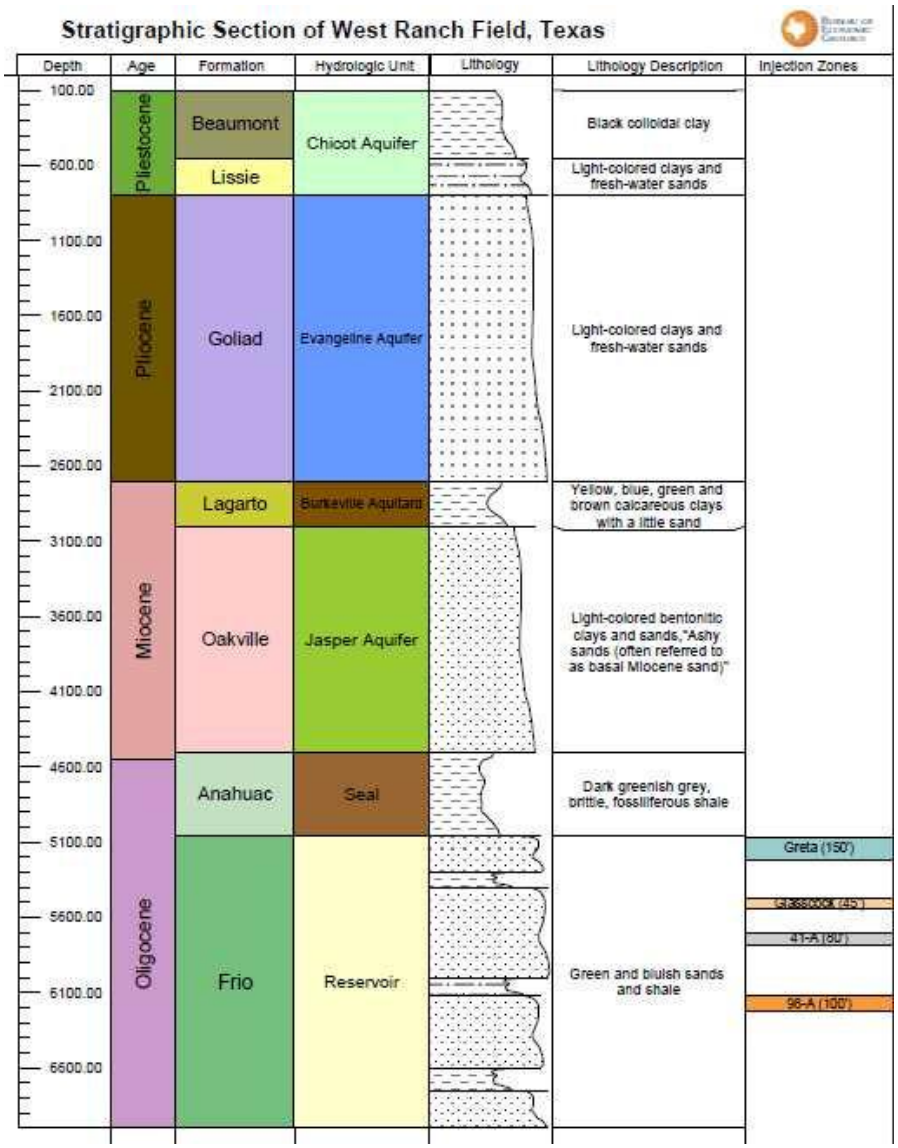

Figure 1. Geologic strata present at the West Ranch oilfield.

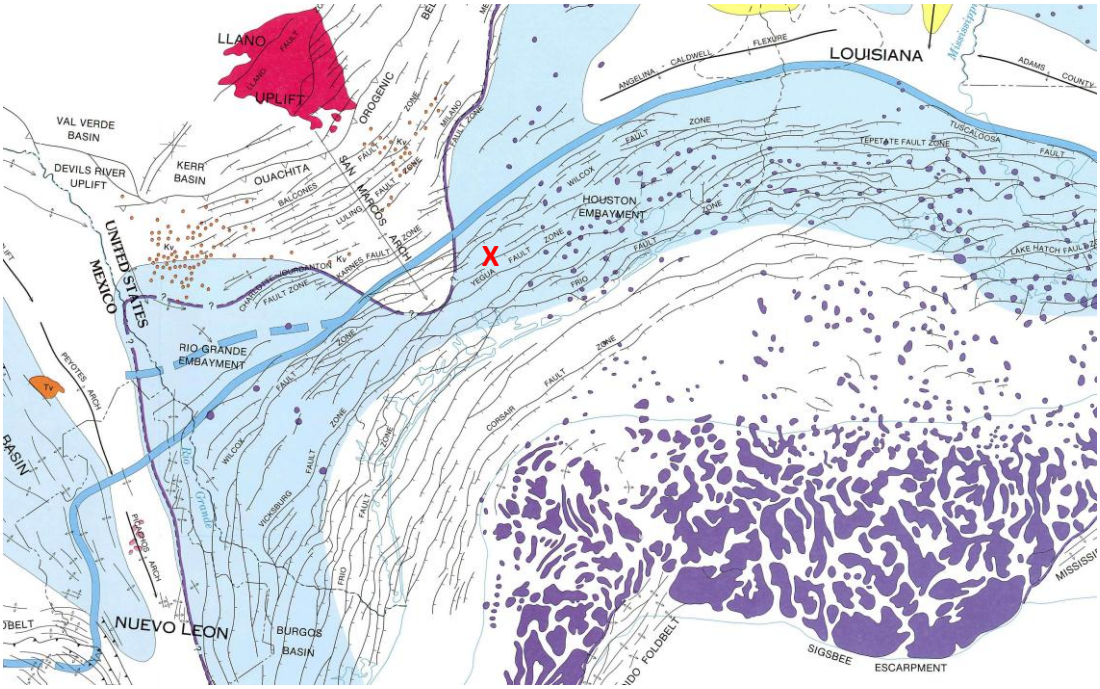

Figure 2. Structural features of the northwestern Gulf of Mexico basin. Modified from Ewing (1991), Plate 2. Red "X" shows approximate location of the West Ranch oilfield. Growth faults are thin black curved lines. Gulf coast outlined in light blue. Purple masses and dots (onshore and offshore) are salt structures (diapirs, pillows, or other structures).

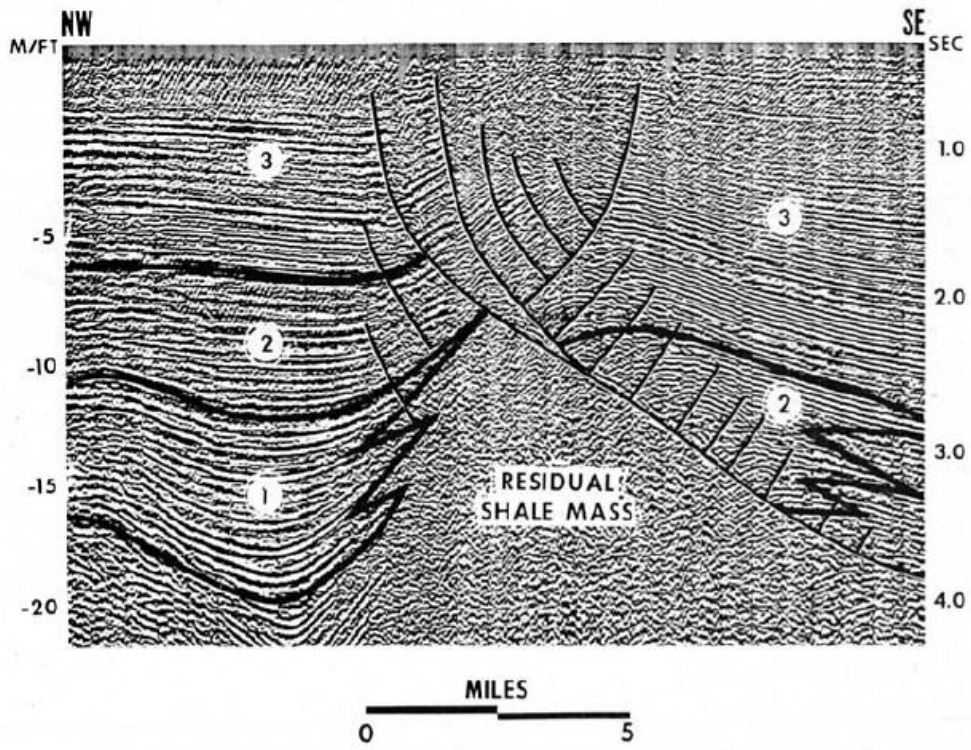

Figure 3. Seismic illustration of a submarine shale mass flanked by sandstone/shale sedimentary packages (1, 2, and 3) that have been offset by growth faulting (Bruce, 1973.

Results

As mentioned previously, published literature indicates that major growth faults are present near both the northwestern and the southeastern boundaries of the West Ranch oilfield. Figure 4 shows the West Ranch oilfield in Jackson County, Texas as defined by the concentration of geophysical logs; green dots represent oil wells. Locations of cross sections (blue lines) used to document vertical offset of the geologic strata on either side of the recognized faults (purple hatched lines) are also shown (fig. 4).

Both of the faults are mapped at the top of Anahuac shale (biostratigraphic zone *Discorbis*) in figure 4. Although the previously reported same two faults were mapped on different stratigraphic horizons [i.e., the GeoMap (1999-2009) faults were mapped at the top of Vicksburg Formation and the Galloway et al. (1986) fault was mapped on top of Miocene Formation], orientation of the faults are at high angle (80-85^{o}). As a result, both fault planes are at proximal distance to all reported stratigraphic intervals as seen in map view. The two faults set up the subtle roll-over anticlinal structure, which is located on the hanging wall immediately south of the down-to-the-basin fault to the northwest of the field (fig. 5). A roll-over anticline is a typical structure that has trapped hydrocarbons in many of the shallow Gulf coast oilfields (Ewing, 1991). As described by Nelson (1991), the subtle downward flexure or roll of beds on the downthrown (southeastward) side of the northwestern fault resulted from vertical collapse of the geological strata as the downthrown side moved away from the steeply dipping part of the fault. The more movement there is along such faults, the greater amount of roll of beds there will be on the downthrown side (Nelson, 1991). Given the very slight curvature or roll of surfaces marking the top of Anahuac and underlying reservoir sands (fig. 5), we can assume little movement along this fault.

Cross section A-A' is constructed of 13 logs hung on a sea level datum, is nine miles long, shows ~6,000 ft of geologic section, and runs perpendicular to the northwestern fault (fig. 5). Subsurface lithology and stratigraphy in each well can be interpreted from the log curves on the cross section, particularly the self potential (blue) and electrical resistivity (red) curves on each log. The fourth well from left in figure 4 does not contain digital log curves, only a raster image of the original well log. Raster images are just as useful in making this type of structural interpretation. The fault on cross section A-A' clearly offsets Anahuac shale and Greta sand horizons. We have extended it up into Miocene strata because of the offset observed in a small sand spike ~1,500 ft above the top of the Anahuac. The fault is dashed at depth because of the lack of geophysical log coverage. Figure 6 is another version of cross section A-A' plotted at true horizontal scale with an inset box showing the location of the zoomed-in view in fig. 7. In fig. 7, it is easier to see the vertical offset of ~150 ft in the Anahuac shale.

Cross section B-B' (fig. 8) is an 11-well, 4.5-mile long structural cross-section, shows ~7,000 ft of geologic section, and is perpendicular to the southeastern fault. It also shows the three target reservoir sands (Greta, 41-A and 98-A) and the overlying Anahuac shale. Most of the logs on the northwestern side of this fault only show section down through the Greta sand because we had not updated the Petra project with additional logs from Hilcorp at the time the cross sections were completed. The Anahuac is present on both sides of the fault showing a structural displacement of ~140 ft on the downthrown (northwestern) side of the fault.

Since early days of exploration and description the West Ranch field has been reported to be free of major faulting (e.g., Bauernschmidt, 1944). To complement the cross sections, a

structure-contour map of the Greta Sand (fig. 9) was made from analysis of logs from 600 wells in the main part of West Ranch field and its southwestward extension. Within the oilfield itself, the map clearly demonstrates the gentle four-way closure of the main anticline and a smaller closed structure to the southwest. Even with a tight contour interval of 10 feet, the contours are fairly smooth and regular, suggesting that no large-scale faulting, namely faults with throw exceeding 10-20 feet, exist in the field proper, where EOR activities will be focused.

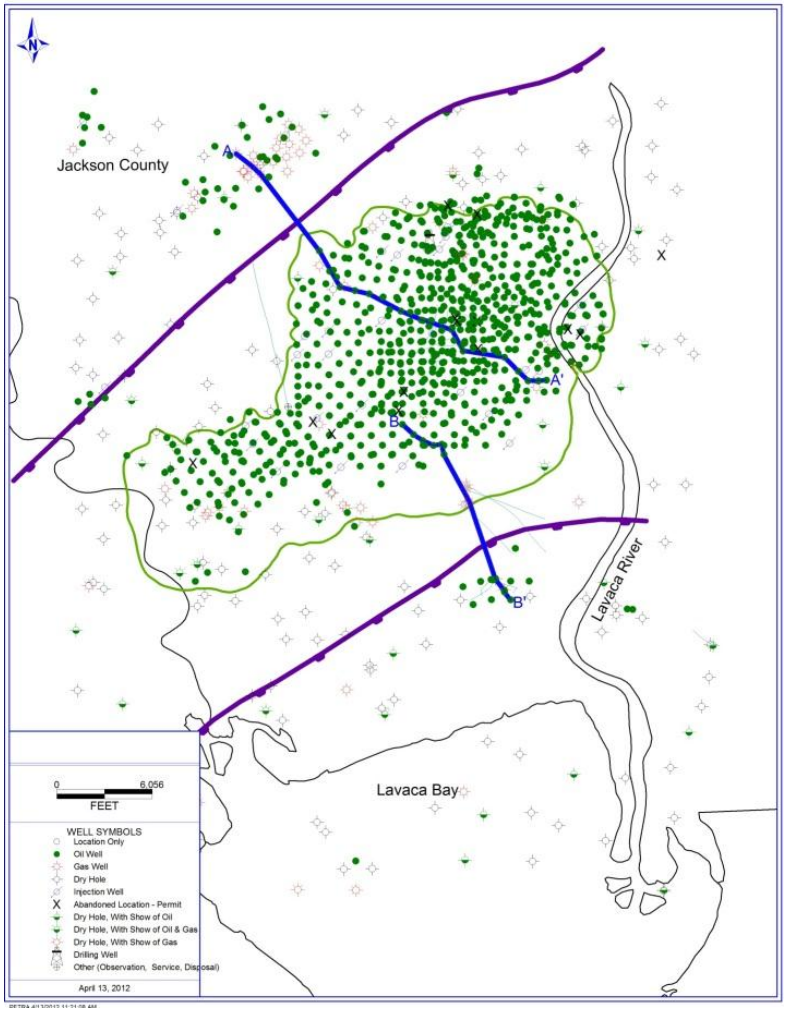

Figure 4. Map of West Ranch oilfield showing location of geophysical logs (see insert for key to well types), cross sections A-A' and B-B' (blue lines), and location of growth faults (purple lines) projected to the surface from the approximate top of the Anahuac Fm.

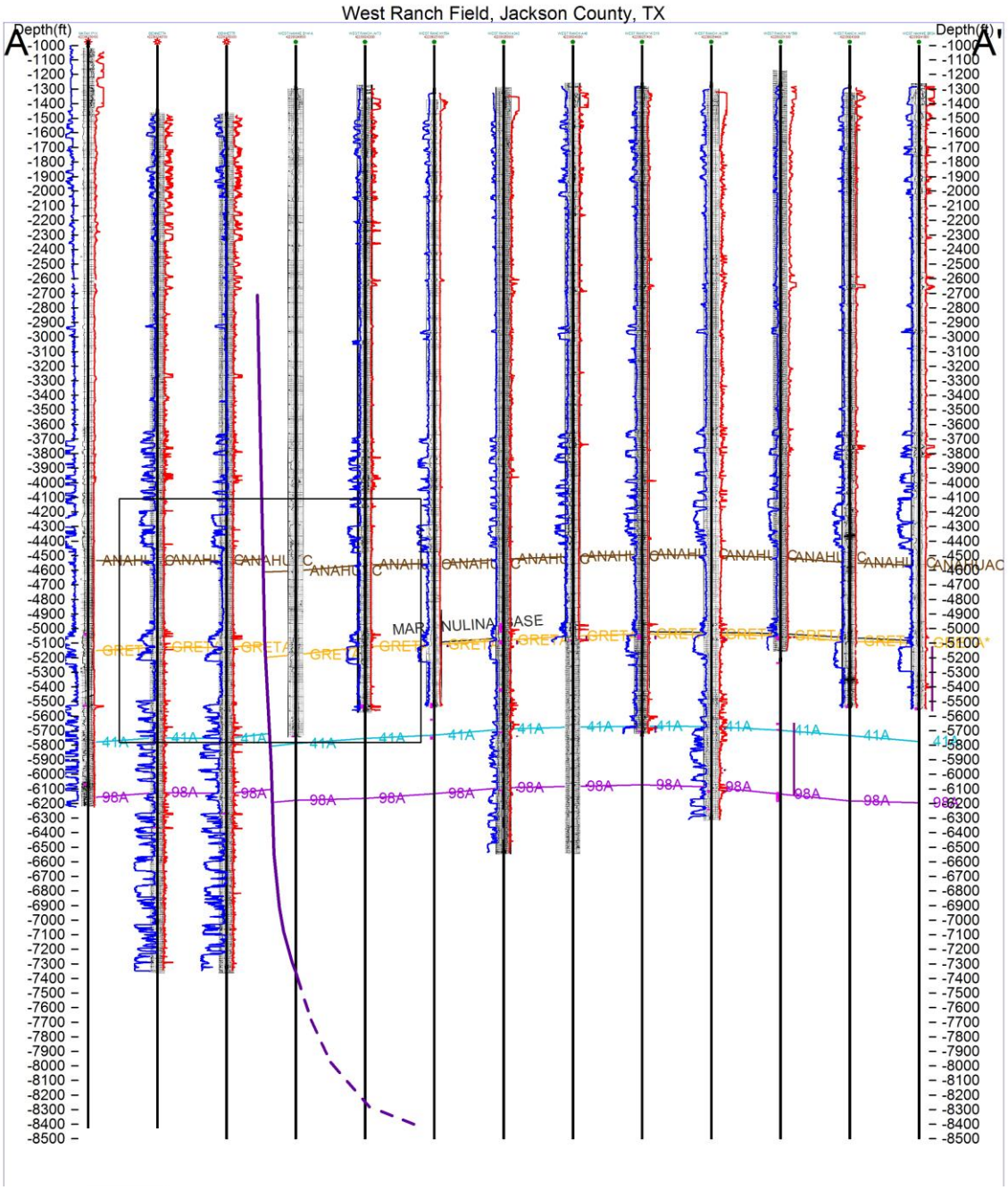

Figure 5. Cross section A-A'.

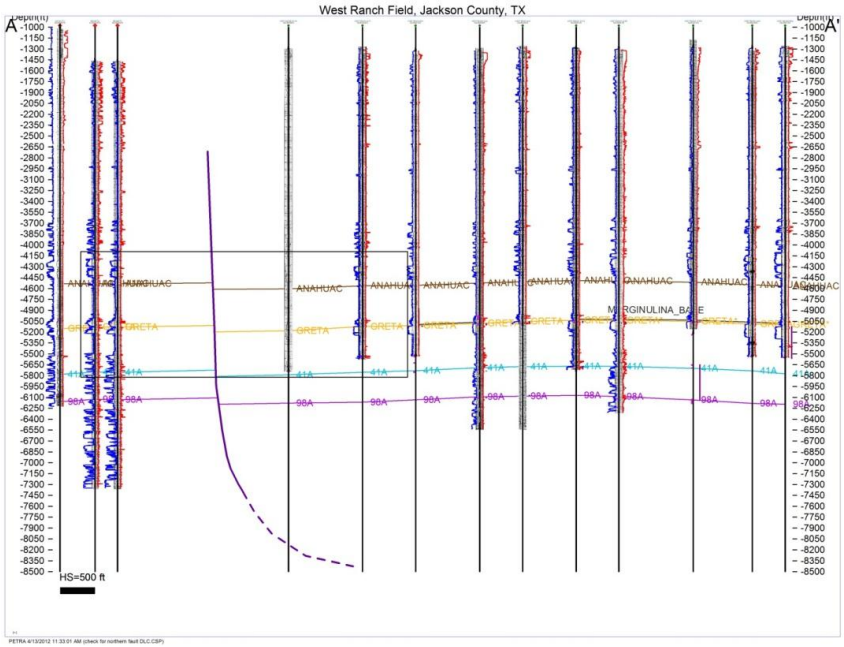

Figure 6. Version of cross section A-A' with true horizontal scale with box showing location of zoomed-in view in figure 7.

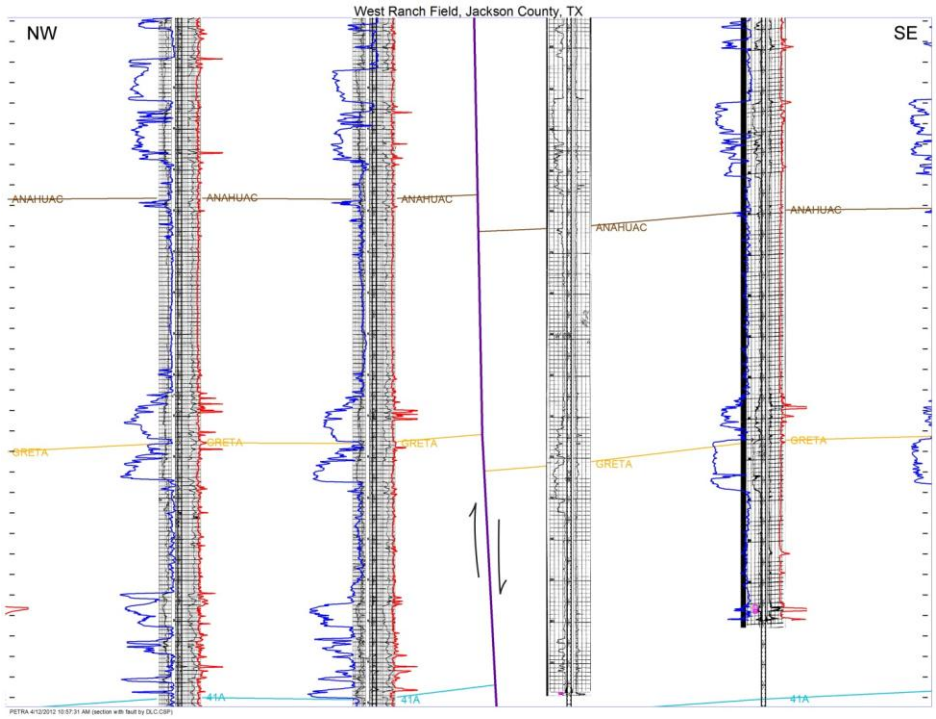

Figure 7. Zoomed-in view of box in cross section A-A'.

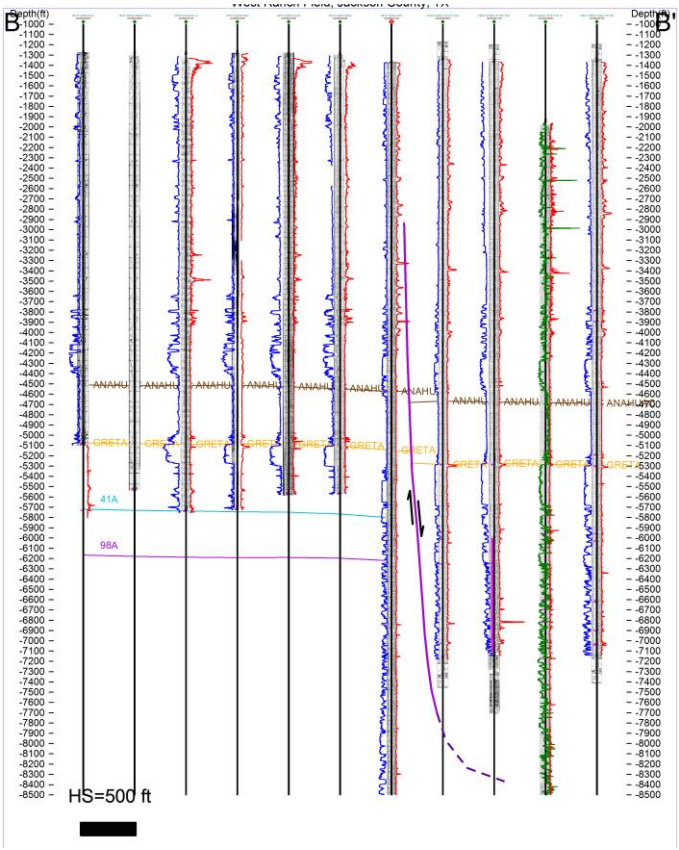

Figure 8. Cross section B-B’

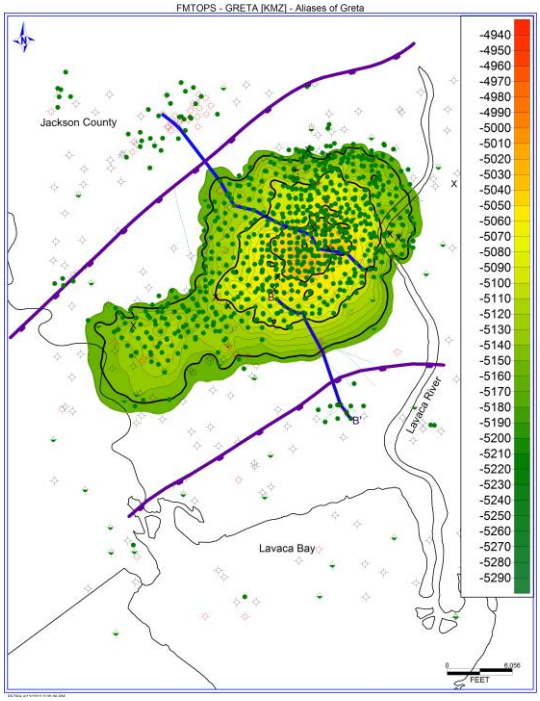

Figure 9. Structure contour map at the top of Greta sand using information for over 600 wells at West Ranch field. Contour interval = 10 feet.

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APPENDIX J

PUBLIC HEARING SUMMARY AND RESPONSES TO COMMENTS

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TABLE OF CONTENTS

LIST OF TABLES

ATTACHMENTS

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Introduction

The U.S. Department of Energy (DOE) announced the availability of the W.A. Parish Post-Combustion CO_2 Capture and Sequestration (PCCS) Project Draft Environmental Impact Statement (EIS) in a Notice of Availability (NOA) published in the *Federal Register* on September 21, 2012. DOE distributed the Draft EIS to the elected officials, agencies, Native American tribes, organizations, and members of the public identified in the distribution list in Chapter 10 of the Draft EIS.

The NOA indicated that comments were requested within a 45-day comment period and no later than November 5, 2012. It also stated that the public hearing would be held in two locations: at Thompsons Community Center in Thompsons, Fort Bend County, Texas, on October 10, 2012, and at the Edna High School in Edna, Jackson County, Texas on October 11, 2012.

Public Hearing

A public hearing was held in two locations to offer the public an opportunity to comment on the Draft EIS for the proposed project. The first hearing was held on October 10, 2012 at the Thompsons Community Center (134 Oilfield Road, Thompsons, Texas) and the second hearing was held on October 11, 2012, at Edna High School (1303 West Gayle Street, Edna, Texas).

In addition to the NOA published in the *Federal Register*, DOE published advertisements in five local newspapers between September 25, 2012 and October 8, 2012, as shown in Table 1, to advertise the public hearing and solicit public comments. Copies of the Affidavits of Publication for these advertisements are provided in Attachment 1.

Table 1. Dates and Publications for Advertisement

Newspaper	Dates of Publication
Fort Bend Herald	September 25 and October 8, 2012
El Campo Leader-News	September 26 and October 6, 2012
Jackson County Herald-Tribune	September 26 and October 3, 2012
Houston Chronicle – Southwest Edition	September 27 and October 4, 2012
La Sabasta (Southwest edition, in Spanish)	September 27 and October 4, 2012

This same information was contained in letters that were sent on September 19, 2012, to 190 property owners in the vicinity of the project. A copy of this letter is provided in Attachment 2

Collectively, 18 members of the public attended the public hearings in the two locations. Lists of attendees are provided in Attachment 3. Both hearings began with an informal open house from

5 p.m. to 7 p.m. During this time, attendees were given information packets about the project and were able to view project-related exhibits. DOE personnel and support staff were on hand to greet attendees, outline the meeting agenda; and answer questions about the Draft EIS, National Environmental Policy Act (NEPA) process and project status; and invite all attendees to provide comments, either written or verbal on the proposed project. NRG Energy Inc./Petra Nova LLC (NRG/Petra Nova) personnel also were available at displays illustrating various features of the proposed project.

The following displays were available for viewing at the Public Hearing:

- a project location map showing potential pipeline route alternatives,
- an explanation of the NEPA process,
- a schematic of the pipeline construction process, and
- a schematic of the carbon capture and enhanced oil recovery process.

In addition, detailed maps of the project area were available for viewing. The following handouts were made available for meeting attendees:

- a project fact sheet explaining the NEPA process and the DOE Clean Coal Power Initiative (CCPI);
- a Petra Nova fact sheet titled, "You're Looking at the Beginning of a Smarter, Brighter Energy Future;"
- a Petra Nova fact sheet titled, "The West Ranch CO_2 – EOR Project;"
- a Petra Nova fact sheet titled, "W.A. Parish CO_2 Capture Project;"
- a Petra Nova fact sheet titled, "CO_2 Enhanced Oil Recovery;" and
- comment cards (in Spanish and English).

The open house was followed by a formal presentation at 7:00 pm given by DOE and NRG representatives who explained the Parish PCCS Project, the NEPA process, DOE's Clean Coal Power Initiative Program, and the ways in which the public could submit comments on the scope of the EIS. A copy of the presentation is provided in Attachment 4.

After the formal presentation, the public was invited to give verbal comments at the microphone. A court reporter was present at the meeting to document verbal comments for the project record. Transcripts of the formal portions of the hearings are provided in Attachment 5. The formal hearings adjourned at approximately 8:00 pm on October 10, 2012 and on October 11, 2012.

All meeting attendees were invited to provide comments, either written or verbal, on the proposed scope of the EIS. Those attendees wishing to provide oral comments were given an opportunity to sign up to do so. Comment sheets were made available for all attendees to provide written comments either at the hearing, or to be faxed or mailed after the hearing. An

email address, a postal address, a fax number, and a toll-free telephone number were provided. In addition, individuals could request to receive the Draft EIS and/or Final EIS in various format options.

Presentation Summary

Mr. Mark Lusk, the DOE's NEPA Document Manager for the proposed project, welcomed the meeting participants. He explained his role in the project and the purpose of the public hearing—to provide information on the NEPA process and the Draft EIS, and to gather comments on the draft document. Mr. Lusk described the history of the proposed project and the NEPA process that has been followed. He explained how comments could be submitted (verbally at the hearing, in writing at the meeting, or by fax, mail, or email after the meeting until November 5, 2012, the end of the public comment period).

Mr. Jon Barfield of NRG/Petra Nova began his discussion by explaining why NRG/Petra Nova is pursuing the proposed project, including fulfillment of CCPI goals and benefits to NRG and the community. Mr. Barfield described the scope of the proposed project, including process overviews for the following project components: a CO_2 capture system at the W. A. Parish Generating Station in Fort Bend County; a pipeline running through Fort Bend, Wharton, and Jackson Counties; and enhanced oil recovery (EOR) operations at the West Ranch oil field in Jackson County. He reviewed the project schedule, noting that the NEPA process is scheduled for completion by early 2013. If the project receives environmental clearance, the pipeline work would begin in 2014 and the proposed project would start operating in late 2014 or early 2015.

Mr. Lusk concluded the presentation by reminding participants of the comment submission process and asking for any comments that attendees wanted to deliver verbally at the hearing or, as an option, directly to the court reporter.

No one made a formal comment at the October 10 hearing and one individual spoke at the October 11 hearing. At the public hearing on October 10, 2012, when no individuals expressed a desire to provide oral comments, DOE opened the session to a question and answer format. Several individuals asked clarifying questions about the diameter, location, and depth of the proposed pipeline; the need to take additional right-of-way; the number of rivers the pipeline would cross; whether other oil fields might benefit from the proposed project in the future; the size of the oil reservoir at the West Ranch Oil Field; and any potential hazards associated with the pressure of the CO_2 in the proposed pipeline. Similar questions were asked during both informal sessions as well. Many people at the October 11, 2012 public hearing were landowners previously contacted by NRG or its contractors. Many were wondering what the next steps would be for negotiating the pipeline right-of-way.

Methodology

In preparing the Final EIS, DOE considered all comments received on the Draft EIS individually and collectively. An identification number was assigned to each originator of comments (i.e., per commenter), including the individual who spoke at the public hearing. All comments were given a prefix of WAP Public (for members of the public) or WAP Agency (for agency comments). Each specific comment by the same commenter was assigned a sequential comment letter (e.g., WAP Public 1a, 1b, etc.). A total of five individuals and agencies provided comments on the draft EIS and proposed project, as follows:

- ***Two representatives of federal agencies (EPA, U.S. Department of the Interior)***
- ***One representative of a state agency (Texas Parks and Wildlife Department)***
- ***One representative of a Native American Tribe (Coushatta Tribe of Louisiana)***
- ***One representative of the general public (verbal testimony).***

DOE prepared responses to the comments and revised the Draft EIS, as appropriate. The Draft EIS was also revised based on changes in NRG/Petra Nova's plans and DOE's internal technical and editorial review. These latter changes made to the Draft EIS were not in response to public comments received. Most revisions were based on events that took place or information obtained in the time between the preparation of the Draft EIS and the preparation of the Final EIS (e.g., changing project alternatives). The Final EIS reflects the revisions made to the Draft EIS.

Summary of Comments and Identification of Commenters

DOE received verbal comments on the Draft EIS at the two public hearings. No written comments were submitted at that time. During the public comment period, three additional comment letters were received. Attachment 7 contains the complete list of comments submitted during the public comment period for the Draft EIS, as well as the DOE and NRG responses. Each comment may be found in its original form, (annotated by its identification number) in Attachments 5 and 6 of this Appendix.

ATTACHMENT 1
Newspaper Advertising Affidavits

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Department of Energy's
National Energy Technology Laboratory
Public Hearing

STATE OF TEXAS

COUNTY OF WHARTON

Before me, the undersigned authority, on this day personally appeared **Jay Strasner**, the publisher of the **El Campo Leader-News**, a newspaper having general circulation in Wharton County, Texas, who being by me duly sworn, deposes and says that the foregoing attached notice was published in said newspaper on the following date(s), to wit:

September 26

Subscribed and sworn to before me this

The 26th day of **September 2012**,

to certify which witness my hand and seal of office.

Jay Strasner, Publisher

DIANA L DAVID
Notary Public, State of Texas
My Commission Expires
July 24, 2013

Diana David

Notary Public in and for
Wharton County, Texas

DOE-NETL ANNOUNCES PUBLIC HEARING

The U.S. Department of Energy's (DOE) National Energy Technology Laboratory (NETL) announces the availability of the Draft Environmental Impact Statement (EIS) for the W.A. Parish Post-Combustion Carbon Dioxide (CO2) Capture and Sequestration Project for public review and comment, as well as the dates, locations, and times for two public hearings.

DOE selected the NRG Energy Inc. (NRG) W.A. Parish Post-Combustion CO2 Capture and Sequestration Project for financial assistance through a competitive process under the Clean Coal Power Initiative (CCPI) Program. NRG's proposed project would demonstrate the commercial feasibility of a retrofit, commercial-scale CO2 capture and compression system, coupled with use of the captured CO2 for enhanced oil recovery (EOR) and ultimate sequestration. The CO2 captured from the coal-fueled Unit 8 at NRG's W.A. Parish Plant in Fort Bend County, TX, would be transported approximately 80 miles in a new pipeline through Fort Bend, Wharton, and Jackson Counties to the West Ranch oil field.

DOE will host two public hearings at which stakeholders are invited to present oral and written comments on the Draft EIS. Representatives from DOE and NRG will be available to discuss the proposed project, the CCPI program, and the EIS process.

The meetings will be held at the following locations:

Wednesday, October 10, 2012
Thompsons Community Center
134 Oilfield Road, Thompsons, TX

Thursday, October 11, 2012
Edna High School
1303 West Gayle Street, Edna, TX

The schedule for each hearing will be as follows:

5:00 – 7:00 pm Open House
7:00 – 8:00 pm DOE/NRG presentation followed by a public comment session

Comments, requests to provide oral comments at the hearings, or requests for copies of the Draft EIS should be directed to Mr. Mark Lusk, NEPA Document Manager, DOE NETL, 3610 Collins Ferry Road, PO Box 880, MS I07, Morgantown, WV 26507-0880. Requests or comments can also be made by email at Parish.EIS0473@netl.doe.gov; by telephone at (412) 386-7435, toll-free 1-877-812-1569; or by fax (304) 285-4403. Envelopes, subject lines of e-mails, and faxes should be labeled "Parish PCCS Project." In preparing the Final EIS, DOE will consider all comments postmarked or received during the public comment period, which ends on November 5, 2012, and will consider late comments to the extent practicable.

The Draft EIS is available on DOE's NEPA web page at:
http://energy.gov/nepa/nepa-documents and on **NETL's web page at:**
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- Jackson County Memorial Library, 411 North Wells Street, Room 121, Edna, TX

United States Department of Energy's
National Energy Technology Laboratory
Public Notice

STATE OF TEXAS

COUNTY OF WHARTON

Before me, the undersigned authority, on this day personally appeared **Jay Strasner**, the publisher of the **El Campo Leader-News**, a newspaper having general circulation in Wharton County, Texas, who being by me duly sworn, deposes and says that the foregoing attached notice was published in said newspaper on the following date(s), to wit:

October 6

Subscribed and sworn to before me this

The 8th day of **October 2012**,

to certify which witness my hand and seal of office.

Jay Strasner, Publisher

DIANA L DAVID
Notary Public, State of Texas
My Commission Expires
July 24, 2013

Diana David

Diana David

Notary Public in and for
Wharton County, Texas

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9-25
10-8

URS Corporation

PUBLISHER'S AFFIDAVIT

Public Hearing

THE STATE OF TEXAS §
COUNTY OF FORT BEND §

Before me, the undersigned authority, on this day personally appeared Stan Woody who being by me duly sworn, deposes and says that he is the Publisher of *Fort Bend Herald* and that said newspaper meets the requirements of Section 2051.044 of the Texas Government Code, to wit:

1. it devotes not less than twenty-five percent (25%) of its total column lineage to general interest items;

(CLIPPING) (S)
ON Back

2. it is published at least once each week;

3. it is entered as second-class postal matter in the county where it is published; and

4. it has been published regularly and continuously since 1959.

5. it is generally circulated within Fort Bend County.

Publisher further deposes and says that the attached notice was published in said newspaper on the following date(s) to wit:

9-25, 10-8

_____, A.D. 2012

Stan Woody
Publisher

SUBSCRIBED AND SWORN BEFORE ME by Stan Woody who

X a) is personally known to me, or

_____b) provided the following evidence to establish his/her identity, _____

on this the 8th day of October, A.D. 2012 to certify which witness my hand and seal of office.

Vanessa L. Muniz
Notary Public, State of Texas

VANESSA L. MUNIZ
Notary Public, State of Texas
My Commission Expires
January 19, 2016

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Vanessa L. Muniz
Notary Public, State of Texas

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La Subasta
El Periódico de las oportunidades

Affidavit of Publication

The State of Texas

County of Harris

Before me, the undersigned authority, on this day personally appeared Maira Mendoza who being by me duly sworn, deposes and says that he is the Customer Support Representative of **La Subasta Newspaper** this said newspaper is weekly in Houston, Texas, Harris County. An advertisement for URS Corporation was published in the said newspaper in the following date(s), September 27, 2012 and October 4, 2012 in the Services Section of La Subasta Newspaper.

Customer # 111514 Display ad size 3x7

Newspaper Representative: Maira Mendoza

Subscribed and sworn before me this 04th day of October , 2012, to certify which witness my hand and seal of office.

Notary Public in and for the State of Texas
Melania Martinez
My commission expires: 06/01/2016.

NOTARY PUBLIC STATE OF TEXAS
Melania Martinez
My Commission Expires
06/01/2016

ma instalado,

A DE ALFOM-
rtos, 1-pasillo

SERVICIO A DOMICILIO, RESIDENCIAL Y COMERCIAL. Precios accesibles, programación de llaves. 832-723-8964.

TODOS LOS SERVICIOS EN JOSÉ CENO 30 años sirviendo a la comunidad, contabilidad, trajimos documentos, actas. 713-643-9254.

"FREEWAY INSURANCE" DESDE $29.00, TENEMOS MÚLTIPLES oficinas para su conveniencia. ¿No licencia, no crédito? Ok. Llámenos 713-489-0380.

"VALDERRAMA A/C" VENTA Y REPARACIÓN DE calefacción, aire acondicionado y refrigeración. Comercial y residencial. Estimados gratis 24/7. Llámenos 281-974-4599.

SERVICIO A DOMICILIO, RESIDENCIAL Y COMERCIAL. Precios accesibles, programación de llaves. 832-723-8964.

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DOE-NETL ANUNCIA AUDIENCIA PÚBLICA

El Laboratorio Nacional de Tecnología Energética (National Energy Technology Laboratory [NETL]) del Departamento de Energía (Department of Energy [DOE]) de los EE.UU. anuncia la disponibilidad de la Declaración de Impacto Ambiental Preliminario (Environmental Impact Statement [EIS]) para el Proyecto de Captura y Secuestro de Dióxido de Carbono (CO_2) Después de Combustión en la planta W.A. Parish. La Declaración de Impacto Ambiental Preliminario se dispone para la revisión y comentarios del público, y tambien se anuncia las fechas, lugares y horas para dos audiencias públicas.

El DOE a seleccionado el Proyecto de Captura y Secuestro de CO_2 Después de Combustión de NRG Energy Inc. (NRG) W.A. Parish para la asistencia financiera a través de un proceso competitivo bajo el programa Iniciativa de Energía de Carbón Limpio (Clean Coal Power Initiative [CCPI]). En el proyecto propuesto, NRG demostraría la facilidad comercial de un diseño actualizado, a escala comercial para la captura y compresión de CO_2, junto con el uso del CO_2 capturado para la recuperación de petróleo mejorada (enhanced oil recovery [EOR]) y la secuestración final. El CO_2 capturado de la Unidad 8, cual usa carbón como combustible, en la planta de NRG W.A. Parish en el condado de Fort Bend, TX, sería transportado aproximadamente 80 kilómetros en un nuevo oleoducto a través de los condados de Fort Bend, Wharton, y Jackson para el campo petrolero de West Ranch.

El DOE llevará a cabo dos audiencias públicas en las que las partes interesadas están invitadas a presentar comentarios orales y escritos sobre el EIS Preliminario.

Representantes del DOE y NRG estarán disponibles para discutir el proyecto propuesto, el programa de CCPI y el proceso de EIS.

Las juntas se llevará a cabo en las siguientes localidades:

Miércoles, 10 de Octubre de 2012
Thompsons Community Center
134 Oilfield Road, Thompsons, TX

Jueves, 11 de Octubre de 2012
Edna High School
1303 West Gayle Street, Edna, TX

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En la preparación del EIS Final, el DOE considerará todos los comentarios selladas o recibidas durante el período de comentarios públicos, que termina el 5 de noviembre de 2012, y tendrá en cuenta los comentarios tardíos en la medida posible.

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Llámenos 281-974-4599.

TODOS LOS SERVICIOS EN JOSÉ CENO 30 años sirviendo a la comunidad, contabilidad, trajimos documentos, actas. 713-643-9254.

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"FREEWAY INSURANCE" DESDE $29.00, TENEMOS MÚLTIPLES oficinas para su conveniencia. ¿No licencia, no crédito? Ok. Llámenos 713-489-0380.

"VALDERRAMA A/C" VENTA Y REPARACIÓN DE calefacción, aire acondicionado y refrigeración. Comercial y residencial. Estimados gratis 24/7. Llámenos 281-974-4599.

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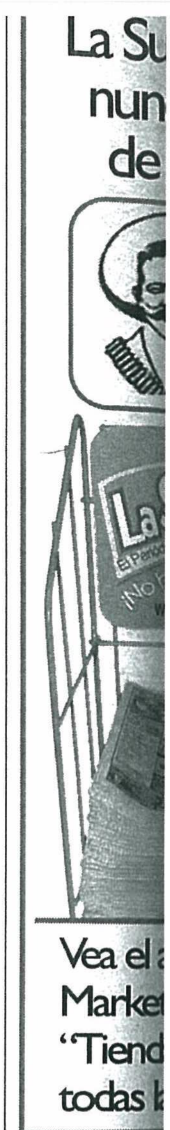


PUBLISHER'S AFFIDAVIT

STATE OF TEXAS
COUNTY OF JACKSON

Personally appeared before the undersigned, a notary public within and for said County and State, Chris Lundstrom, General Manager of THE JACKSON COUNTY HERALD-TRIBUNE a newspaper having general circulation in Jackson County, Texas, who, being duly sworn, states on oath that the foregoing attached notice was published in said newspaper on the following date(s), to wit:

9/26/12
10/3/12

Chris Lundstrom
Chris Lundstrom, General Manager

Subscribed and sworn to me before this 20 day of Dec 2012 to certify which witness my hand and seal of office.

KERRY KARL
Notary Public
STATE OF TEXAS
My Comm. Exp. 03/26/2015

Kerry Karl

Community support sought to purchase animals at the fair

Jackson County Youth Builders and the Ganado Community Fund are asking for financial support from the community to help purchase animal projects for the 2012 Jackson County Youth Fair.

Youth Builders is representative of the entire county. Its purpose is to take donations and bid on and purchase livestock to support youth from all of Jackson County.

"Last year the Jackson County Youth Builders purchased 21 livestock items at the Jackson County Youth Fair Auction and even purchased a steer for the first time and added on to 24 exhibitors for a value of $25,850," said Cammie Pearson, chairman.

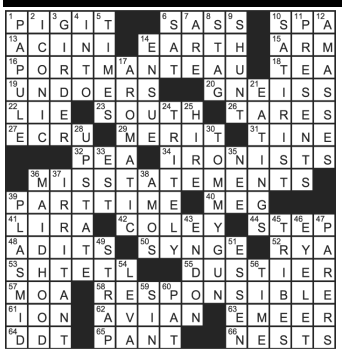
Donations can be mailed to Jackson County Youth Builders, c/o Cammie Pearson, P.O. Box 236, Edna, TX 77957.

The Ganado Community Fund is also seeking donations to help purchase animal projects at the 2012 Jackson County Youth Fair.

There are seven categories of sponsorship: Supporter, $5-$49 donation; Sponsor, $50-$99; Donor, $100-$199; Platinum Donor, $200-$299; Bronze Star Donor, $300-$399; Silver Star Donor, $400-$499; and a Gold Star Donor, $500 an up.

Donations to the Ganado Community Fund may be delivered to the Ganado Telephone Company or can be mailed to: Ganado Community Fund, P.O. Box 1013, Ganado, Texas 77962. Donations must be received by 5 p.m. on Tuesday, Oct. 4 in order for your name to appear in the buyers guide.

Sept. 19 Answers



Political signs regulated

State transportation officials want to remind Texans that under Texas law, it is a class C misdemeanor to place any sign on state highway right of way. The penalty for violating this law is a fine of up to $500 per sign.

However, it is legal to place a campaign sign on private property adjacent to state highways with landowners' permission.

Restrictions require that signs be constructed of lightweight material and no more than 50 square feet in size. Signs may be placed as early as 90 days prior to an election and must be removed within 10 days after an election.

TxDOT officials say the laws are intended to reduce clutter along highways so that official traffic control signs and vehicles approaching intersections are clearly visible for the safety of all the traveling public.

TxDOT's regulatory authority allows the immediate removal of a sign placed on state highway right of way without prior notice, if the sign is not authorized by state law or approved by the department.

Signs posing potential safety hazards will be removed as soon as possible, and taken to the local TxDOT maintenance yard. Candidates can come by and retrieve their signs.

For any questions, contact the local TxDOT office.

DOE-NETL ANNOUNCES PUBLIC HEARING

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DOE selected the NRG Energy Inc. (NRG) W.A. Parish Post-Combustion CO2 Capture and Sequestration Project for financial assistance through a competitive process under the Clean Coal Power Initiative (CCPI) Program. NRG's proposed project would demonstrate the commercial feasibility of a retrofit, commercial-scale CO2 capture and compression system, coupled with use of the captured CO2 for enhanced oil recovery (EOR) and ultimate sequestration. The CO2 captured from the coal-fueled Unit 8 at NRG's W.A. Parish Plant in Fort Bend County, TX, would be transported approximately 80 miles in a new pipeline through Fort Bend, Wharton, and Jackson Counties to the West Ranch oil field.

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The meetings will be held at the following locations:

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Edna High School, 1303 West Gayle Street, Edna, TX

The schedule for each hearing will be as follows:

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In preparing the Final EIS, DOE will consider all comments postmarked or received during the public comment period, which ends on November 5, 2012, and will consider late comments to the extent practicable.

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Education News

Send your education news to news@jacksonconews.com

Cowboy Corner

Edna High School

School pictures for grades 9-11, faculty/staff will be on Tuesday Oct. 9.

On Saturday, Nov. 17 the junior class serve.

Edna Elementary School

The Edna Elementary PTO is sponsoring a Bakeless Bake Sale through Friday, Oct. 5. Proceeds from this fundraiser will be used for field trips and other events. Student can earn prizes based on the amount of money they collect. The student who collects the most money will win an iPod Touch.

Teepee Talk

At 8:45 a.m. on Thursday, Oct. 4 Balfour will be in the media center for jr. ring presentation.

GISD FB JH at Louise will be at 5 p.m. on Thursday, Oct. 4.

Theatre practice will be at 6 p.m. on Thursday, Oct. 4.

At 6 p.m. on Thursday, Oct. 4 there will be varsity cheerleader practice.

GISD FB JV at Louise will be at 7 p.m. on Thursday, Oct. 4.

The end of the first six weeks will be on Friday, Oct. 5.

A pep rally will be held at 8:45 a.m. on Friday, Oct. 5.

Contributed Photo

Scout builds cement slab

Cyle Bacak finished his Eagle Scout project. He built a slab on the home side of the Ganado High School baseball field. He is 15 years old and a member of Troop 135 in Ganado. Ganado ISD provided the materials and Hurts Wastewater Management provided the cement for him to complete the project. He led 10 youth and adults on the project that took a total of 28 1/2 hours.

Edna resident joins UHV board

With expertise in law, accounting, families and higher education, the five newest members of the University of Houston-Victoria President's Regional Advisory Board bring years of professional experience to the group.

The new voting members for the 2012-2013 advisory board are Margery Loeb, Janis Scott and Viola Saenz, all of Victoria; and John Shutt of Edna. In addition, Beatriz Espinoza of Beeville will serve as a nonvoting, ex-officio member. Willie Rollins of Van Vleck was appointed to fill a vacancy in December and will continue to serve.

Shutt is the controller for Ganado Telephone Co. Inc. and YK Communications in Ganado. He has worked as a public accountant in Jackson County since 1979. He developed and marketed a system for total accounting in the credit union industry. Shutt also co-operates CherryBerry, a Victoria frozen yogurt business.

He serves as the vice president for the Velma L. and John H. Robinson Foundation and is the secretary and treasurer for the Bruce & Gladys Wright Charitable Trust. He previously served a six-year term on the Lavaca-Navidad River Authority.

"I am delighted to welcome our new members to the advisory board and look forward to working with them," UHV President Phil Castille said. "They bring a wealth of knowledge and some unique perspectives to the PRAB. Their feedback and suggestions will be important as we make decisions to shape the future of our growing university."

School Menus

Following are the breakfast and lunch menus for the week of Oct. 4-12:

Ganado ISD

Thursday: banana muffins, cereal, juice, milk; lunch- burrito, frito pie, chili, cheese, corn, salad, applesauce and oranges

Friday: breakfast pizza, cereal, milk, juice; lunch- fish, sausage, macaroni and cheese, carrot dippers, cherry tomato, pineapple and bananas

Monday: pan sausage, biscuit, cereal, juice, milk; lunch- steak finger, chicken stick, pasta salad, mix veggies, green beans, mix fruit and bananas

Tuesday: honey buns, cereal, juice, milk; lunch- hamburger, barbecue on a bun, salad cup, tater tots, pinto beans, pears and apples

Wednesday: peanut butter and jelly, cereal, juice and milk; lunch- corndogs, chicken fajita, salad, Spanish rice, corn, pineapple and oranges

Thursday: pig-n-blanket, cereal, juice and milk; lunch- meatballs, bread, sliced ham, brown rice, squash, blackeye peas, tropical fruit and bananas

Friday: blueberry muffins, cereal, juice and milk; lunch- pepperoni pizza, chicken salad, bread, carrot dippers, cherry tomato, Mandarin oranges and apple

Industrial ISD

Thursday: toast or cereal, fruit, juice and milk; lunch- chicken quesadillas, garden salad, green beans, fruit, tortilla and milk

Friday: French toast or cereal, fruit, juice and milk; lunch- corn dog, carrot slices, summer squash, fruit and milk

Monday: sausage roll or cereal, fruit, juice and milk; lunch- chicken tenders, mashed potatoes, baked beans, fruit, wheat roll and milk

Tuesday: biscuit sausage patty or cereal, fruit, juice and milk; lunch- hot dog, S.P. fries, cucumber slices with dip, fruit and milk

Wednesday: pancakes, sausage link or cereal, fruit, juice and milk; lunch- spaghetti with meat, green beans, garden salad, fruit and milk

Thursday: blueberry muffin or cereal, fruit, juice and milk; lunch- beef taco, pinto beans, lettuce salad, Spanish rice, wheat tortilla, fruit and milk

Friday: waffles or cereal, fruit, juice and milk; lunch- ham and cheese sub, broccoli with dip, lettuce salad, fruit and milk

Cobra Chat

Industrial ISD

The end of the first six weeks will be on Friday, Oct. 5.

A school board meeting will be held on Monday, Oct. 8.

A parent conference will be held on Wednesday, Oct. 10.

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AFFIDAVIT OF PUBLICATION

STATE OF TEXAS:
COUNTY OF HARRIS:

Before me, the undersigned authority, a Notary Public in and for the State of Texas, on this day personally appeared, the Newspaper Representative, at the HOUSTON CHRONICLE, a daily newspaper published in Harris County, Texas and generally circulated in the Counties of: Harris and surrounding counties and that the publication, of which the annexed herein, or attached to, is a true and correct copy, was published to-wit:

Advertising ran on Sept 27, 2012 and October 4, 2012 in the Fort Bend publication , Zone15, Page 8

Kari Chastain

Newspaper Representative

Sworn and subscribed to before me, this 21st day of Dec **2012** A.D.

Elizabeth Ann Gonzales

Notary Public in and for the State of Texas

ELIZABETH ANN GONZALES
NOTARY PUBLIC, STATE OF TEXAS
MY COMMISSION EXPIRES
APRIL 3, 2016

HOUSTON CHRONICLE
Thursday, September 27, 2012

FYI

AROUND THE AREA

Fort Bend ISD observes Arts in Education Week

The Fort Bend Independent School District joined schools across the nation in observing National Arts in Education Week from Sept. 9 to 15.

The observance promotes the role that arts education has in producing engaged, successful and college- and career-ready students, according to a district press release.

To celebrate the week, FBISD fine arts teachers created a wall display of student-produced artwork in the atrium of the FBISD Administration Building, located at 16431 Lexington Blvd. in Sugar Land.

FBISD students have received numerous national and state awards honoring their skills and achievements throughout the years, according to the release.

For more information, visit the National Art Education Association website at www.arteducators.org or www.nea.org.

Sugar Land runners cross finish lines

Four athletes from Sugar Land completed the Galveston Revival Race 5K on Sept. 15 in Galveston, and one Sugar Land runner crossed a finish line in Hawaii.

Nancy Mattison, 56, of Sugar Land, completed the Kauai Half Marathon in 4:21:24.

The event was held on Sept. 2 in Poipu Beach, Hawaii. A total of 1,186 runners finished the 13.1-mile race, which started on Poipu Road next to Poipu Shopping Village and ended along the beach near the Sheraton Hotel.

Troy Harrison of Waterfall, Pa., was the men's overall winner with a time of 1:15:15, and Emily Shertzer, of Jonestown, Pa., was the winner in the women's division in 1:21:19.

In Galveston, four Sugar Land racers crossed the finish line in the Galveston Revival Race 5K on Sept. 15. They are Devan Evans, with a time of 20:03; Federico Venturi, at 22:40; Larry Romero, 24:58; and Doreen Lee, 37:36.

A total of 265 people finished the 5K race, which began and ended at the Mardi Gras Arch.

Jack Jessop of Auburn, Maine, was the men's overall winner with a time of 19:04, while Anna Wheat of Houston was the winner in thewomen's category with a time of 23:03.

Mobile vision center brings eye care to Stafford

Transitions Optical, partnering with VSP Vision Care, provided hundreds of Stafford children with free eye exam, glasses and books recently.

Transitions Optical, in partnership with VSP Vision Care, visited the Houston area Sept. 14 with Eyenstein, a 40-foot, state-of-the-art mobile vision clinic, to help children start the school year with free eye exams and if needed, prescription eyeglasses.

"One in four students in kindergarten through sixth grade has an undetected vision problem that can interfere with the ability to read and learn," said Dan McLean, marketing manager at Transitions Optical.

"Together, with our partners, VSP and Vision Source, Transitions Optical is committed to reducing this statistic and making sure children receive proper eye care and eyewear so that they can succeed both in and out of the classroom."

Since the inception of Eyenstein in 2010, more than 2,500 children nationwide have received comprehensive eye exams onboard the clinic and approximately 1,700 children received free eyeglasses with Transitions lenses.

For more information, visit www.myeyepromise.com.

Contributed photo

This artwork by Emily Hanks, a third-grade student at Lexington Creek Elementary School, was just one example of student-produced art exhibited in the atrium of the Fort Bend Independent School District Administration Building while observing National Arts in Education Week.

Galveston Historical Foundation

A total of 265 runners, including four from Sugar Land, crossed the finish line at the Mardi Gras Arch in the 2012 Galveston Revival Race 5K on Sept. 15.

Rhythm and Blue Revue to play at Baybrook Mall

The Rhythm and Blue Revue will take the stage at Baybrook Mall beginning at 6 p.m. Thursday, Sept. 27.

Baybrook Mall, located in Friendswood, will host rhythm and blues performances every Thursday evening through Oct. 25.

For more information, call 281-488-4620 or visit www.baybrookmall.com.

FORT BEND COUNTY

Young royalty crowned at fair

By B.J. Pollock

New royalty was crowned at the Fort Bend County Fair on Sept. 22.

Fair Princess Lizzie Rule was surrounded by her court, Ava Lucas first runner-up; Hayden "Charlie" Harris, second runner-up; Ariel Gonzales, third runner-up, and Jasmin Juarez, fourth runner-up. Most Photogenic was Skyler Romero Hearrell.

Kaiden Bittner was named Fair Prince, and his court is Lane McCary first runner-up; Colton Stavinoha, second runner-up; Avery Hipp, third runner-up; Cole Christoffel, fourth runner-up; and Colton Ashley, fifth runner-up. Most Photogenic was Avery Hipp.

The Fair Duchess is Brynn Bostick and Fair Duke is Trypp Reed. The Duchess' Court is Cassidy Smith first runner-up; Kiley Kizziah, second runner-up; Hayley Patton, third runner-up; and Jenna Lindemann, fourth runner-up. Tatum Vela was named most photogenic.

The Duke's Court is Sean Williams, first runner-up; Heath Harris, second runner-up; Kadin Castillo, third runner-up; and Mark Rule, fourth runner-up and most photogenic.

Rockie Thielemann is Junior Fair Queen with her court of Alexis Smith, first runner-up; Megan Lepovitz, second runner-up; Aspen Noack, third runner-up; and Katie Koerth, fourth runner-up and most photogenic.

Winners will serve as county fair ambassadors and participate in fair-related events.

Lizzie Rule, left, is Fair Princess. Kaiden Bittner is Fair Prince.

Brynn Bostick, left, is Fair Duchess. Rockie Thielemann, right, is Junior Fair Queen.

Sheriff candidate forum Oct. 4

Fort Bend County Sheriff candidates Republican Troy Nehls and Democrat Michael Ellison will participate in a forum from 6-8 p.m. Oct. 4 at the University Branch Library, 14010 University Blvd., Sugar Land.

The forum is sponsored by OCA–Greater Houston Chapter. Cosponsors include Boat People SOS, Country First Republicans, Fort Bend Chinese American Voters League, Fort Bend Voters League, Houston 80-20 and the Vietnamese American Chamber of Commerce.

For information, contact OCA-GH at 832-266-2067 or oca@ocahouston.org.

PUBLIC HEARING

The U.S. Department of Energy's (DOE) National Energy Technology Laboratory (NETL) announces the availability of the *Draft Environments/Impact Statement* (EIS) for the *W.A. Parish Post-Combustion CO2 Capture and Sequestration Project* for public review and comment, as well as the dates, locations, and times for two public hearings.

DOE selected the NRG Energy, Inc. (NRG) W.A. Parish Post Combustion CO2 Capture and Sequestration Project for financial assistance through a competitive process under the Clean Coal Power Initiative (CCPI) Program. NRG's proposed project would demonstrate the commercial feasibility of a retrofit. Commercial scale carbon dioxide (CO2) capture and compression system, coupled with use of the captured CO2 for enhanced oil recovery (EOR) and ultimate sequestration. The CO2 captured from the coal-fueled Unit 8 at NRG's W.A. Parish Plant in Fort Bend County, TX, would be transported approximately 80 miles in a new pipeline through Fort Bend, Wharton, and Jackson Counties to the West Ranch oil field.

DOE will host two public hearings at which stakeholders are invited to Present oral and written comments on the Draft EIS. Representatives from DOE and NRG will be available to discuss the proposed project, the CCPI program, and the EIS process.

The meetings will be held at the following locations:

Wednesday, October 10, 2012
Thompsons Community Center
134 Oilfield Road, Thompsons, TX

Thursday, October 11, 2012
Edna High School
1303 West Gayle Street, Edna, TX

The schedule for each hearing will be as follows:
5-7 p.m. Open House
7-8 p.m. DOE/NRG presentation followed by a public comment session

Comments, requests to provide oral comments at the hearings, or requests for copies of the Draft EIS should be directed to Mr. Mark Lusk, NEPA Document Manager, DOE NETL, 3610 Collins Ferry Road, PO Box 880, MS 107, Morgantown, WV 265070880. Requests or comments can also be made by email at Parish.EIS0473@netl.doe.gov; by telephone at (412) 386-7435, toll-free 1-877-812-1569; or by fax (304) 285-4403. Envelopes, subject lines of emails, and faxes should be labeled "Parish PCCS Project."

In preparing the Final EIS, DOE will consider all comments postmarked or received during the public comment period, which ends on November 5, 2012, and will consider late comments to the extent practicable.

The Draft EIS is available on DOE's NEPA Web page at: http://energy.gov/nepa/nepa-documents; and on NETL's Web page at: http://www.netl.doe.gov/publications/others/nepe/index.html.

Copies of the Draft EIS also are available for review at the following locations:

- George Memorial Library, 1001 Golfview Drive, Richmond, TX
- Albert George Branch Library, 9230 Gene Street, Needville, TX
- Wharton County Library, 1920 North Fulton Street, Wharton, TX
- Jackson County Memorial Library, 411 North Wells Street, Room121, Edna, TX

FROM THE COVER

Stafford funds updates, renovations at theater

Arts from page 1

Land's announcement, "and bring many more people here to enjoy the arts and all that our city offers."

The city signed an exclusive agreement with ACE Sugar Land to design, construct and manage the 21-acre facility to be built near University Boulevard and U.S. 59, said Sugar Land spokesman Doug Adolph. ACE, formerly known as Pace Entertainment Co., is still in the conceptual programming and designing phase and has not yet set a date of completion.

Thriving less than 10 miles away is Stafford's performing arts theater and convention center. The complex includes a ballroom, 1,154-seat theater and 28-acres of festival fields. The eight-year-old facility, 10505 Cash Road, hosts more than 300 events a year from classic rock and classic country concerts to prominent corporations' conventions.

Bryan T. Blaum, president of the facility's management company, FM Squared, is not worried about Sugar Land's announcement, because competition is not new.

"We are already extremely competitive with Houston," he said. "The number of seats in terms of volume in Houston is second only to New York City. We just have to forge ahead and stick with our formula which is to treat people right and give them a fair deal."

Additionally, Sugar Land's new venue is projected to be more than six times the size of Stafford's and is almost in a different league.

"I was more concerned when the House of Blues opened (in downtown Houston) with its capacity similar to what we have," Blaum said.

The Stafford Centre, which is owned by the city of Stafford, strives to go against the grain of other Houston performing arts facilities. It offers free parking, a $5 maximum processing fee per transaction rather than per ticket and an intimate setting.

"All we can do is what we do and just continue to deliver what we deliver," Blaum said. "And people like what we do here." Despite being around for nearly a decade, the establishment is still "in a period of discovery" according to Blaum. This fall, the facility is undergoing $500,000 of renovations such as new carpeting in the ballroom and theater as well as upgrading to state-of-the-art HD video and projection equipment.

We are nowhere near where we want to be," Blaum said. "We think that we are going to be bigger and better every year."

Natalie Harms can be reached at natalie.harms@chron.com

If you go

What: Stafford Centre
Where: 10505 Cash Road, Stafford
Details: 281-208-6900 or www.staffordcentre.com
Fall lineup:
Oct. 6: Fort Bend County Women's Center's Music Festival with a performance by Rick Springfield
Oct. 4-7: The Silk Road Festival
Oct. 11: Dennis DeYoung, the former lead singer of the Styx, performs
Oct. 19-20: Cirque Imagination presents Ruckus
Oct. 25: The Up Experience
Oct. 28: The Fort Bend Symphony Orchestra begins its season
Nov. 9: Travis Tritt performs
Nov. 10: BJ Thomas and the Triumphs perform
Nov. 16: Mickey Gilley performs

Attractions include frogs, new mineral

Museum from page 1

off site that we could have been putting on display."

Sugar Land's development lately has been based on community requests and opinions. Sugar Land officials established a city task force to discover what community residents want, and they heard a resounding desire for more enlightening attractions.

"It was actually one of our first projects culturally," said Assistant Communications Director Doug Adolph. "Since then, other projects have built off of the museum's success, such as Constellation Stadium, and more to come. It served as sort of a springboard for a lot of projects."

To get its name on the map as well as attract visitors, the museum satellite focused on filling exhibit halls to keep visitors coming.

Along with the paleontology hall and a mixture of other traditional exhibits, its first season attraction was "The Chronicles of Narnia" exhibit.

"Since Narnia, we have worked to fill the museum halls," Barker said. "We've been here long enough that we've sort of settled in and we've learned a little about what the schools (and other guests) want."

HMNS Sugar Land plays host to about four schools a day during its busy spring season, and the field trips aren't just visiting from the Fort Bend area.

"We really have schools come from all over," Barker said. "I'm really surprised sometimes with how far away they will come."

Barker said schools like to mix it up from the Hermann Park location and experience the different temporary exhibits — of which Sugar Land does around two a year.

This summer, Sugar Land wrapped up "Animal Secrets" where children experienced natural wildlife.

"It was a huge hit," Barker said. "Children could come and learn about nature, animals and habitats. They could play as if they were that animal in those habitats. We even had a chipmunk suit they could put on."

The next exhibit hopes to educate all ages on a hot topic: energy conservation. The exhibit, dubbed "Conservation Quest," will demonstrate how people can leave less of on imprint on Earth in their daily life. The quest will conclude in January.

While these temporary features tend to be the museum's draw, the location offers a few standing, unique displays, such as "Science on a Sphere."

Developed by the National Oceanic and Atmospheric Administration, the rotating, 10-foot-diameter orb usually shows the Earth's face including weather patterns as recent as 48-hours, but can become any of the planets, said Barker. The museum has detailed footage — developed by NOAA — from the 2011 tsunami that affected Japan and the surrounding areas, showing the rising water levels around the world.

Also special to the Sugar Land location is the frog area. Living animals are few and far between in museums, but the amphibians offer an educational asset as well as being cute and fun to spot, Barker said.

About a dozen species from all over the world, such as the giant African bullfrog and the tiny Amazon milk frog, make up the amphibian collection, which is adjacent to the T-Rex.

Although the museum's geode hall is not a rarity, one of its pieces was recently a topic of national discussion. The museum houses a fraction of the Allende meteorite that thumped onto New Mexico's ground about 40 years ago. Geologists have been experimenting on a piece of the meteorite since then trying to identify a mysterious mineral. Just three months ago they finally called it a brand-new entity and named it "panguite."

"Now we have a very unique piece of science," Barker said, "at least until another mineral is discovered — which could be decades."

With all that the museum has to offer, Barker wants to build up the cultural attractions in Sugar Land to the community.

"We need to start getting people to think locally because once they do that they'll realize that it's easier to get here," Barker said. "They can go and do something spontaneously over the weekend and don't have to plan to go to Houston."

Natalie Harms can be reached at natalie.harms@chron.com

HOUSTON CHRONICLE
Thursday, October 04, 2012

Ad Number: 456626401
Insertion Number: N/A
Size: 3 Col x 5 in
Color Type: N/A
Advertiser: URS Corporation
Agency: N/A
Section-Page-Zone(s): Z-8-FORT BEND
Description:

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ATTACHMENT 2
Sample Letter to Property Owner

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NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR • Morgantown, WV • Pittsburgh, PA

U.S. DEPARTMENT OF ENERGY

September 19, 2012

Xxxxx
Xxxxx
xxxxx

Dear Mr.xxxx:

The U.S. Department of Energy's (DOE) National Energy Technology Laboratory (NETL) announce the availability of the *Draft Environmental Impact Statement for the W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project* for public review and comment. You are receiving this notice because you own property in the vicinity of the proposed project.

DOE selected the NRG Energy, Inc. (NRG) W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project (CCPI) for a financial assistance award through a competitive process under the Clean Coal Power Initiative Program. NRG's proposed project would demonstrate the commercial feasibility of a retrofit, commercial-scale CO_2 capture and compression system, coupled with use of the captured CO_2 for enhanced oil recovery (EOR) and ultimate sequestration. The CO_2 captured from the coal-fueled Unit 8 at NRG's W.A. Parish Plant in Fort Bend County, TX, would be transported approximately 80 miles in a new pipeline to the West Ranch oil field.

DOE will host two public hearings at which stakeholders are invited to present oral and written comments on the Draft EIS. Representatives from DOE and NRG will be available to discuss the proposed project, the CCPI program, and the EIS process.

The meetings will be held at the following locations:

Wednesday, October 10, 2012
Thompsons Community Center
134 Oilfield Road, Thompsons, TX

Thursday, October 11, 2012
Edna High School
1303 West Gayle Street, Edna, TX

The schedule for each hearing will be as follows:

5:00 – 7:00 pm Open House
7:00 – 8:00 pm DOE/NRG presentation followed by a public comment session

Comments or requests for electronic copies of the draft EIS should be directed to Mr. Mark Lusk, NEPA Document Manager, DOE NETL, 3610 Collins Ferry Road, PO Box 880, MS B07, Morgantown, WV 26507-0880. Requests or comments can also be made by email at Parish.EIS0473@netl.doe.gov; by telephone at (412) 386-7435, toll-free 1-877-812-1569; or by fax (304) 285-4403. Envelopes, subject lines of e-mails, and faxes should be labeled "Parish PCCS Comments."

In preparing the final EIS, DOE will consider all comments postmarked or received during the public comment period, which ends on November 5, 2012, and will consider late comments to the extent practical.

The Draft EIS is available on DOE's NEPA web page at: http://energy.gov/nepa/DOE_NEPA_documents.htm; and on NETL's web page at: http://www.netl.doe.gov/publications/others/nepa/index.html.

Copies of the Draft EIS also are available for review at the following locations:

- George Memorial Library, 1001 Golfview Drive, Richmond, TX
- Albert George Branch Library, 9230 Gene Street, Needville, TX
- Wharton County Library, 1920 North Fulton Street, Wharton, TX
- Jackson County Memorial Library, 411 North Wells Street, Room 121, Edna, TX

We hope you will join us at one of our public hearings.

Sincerely,

Mark W. Lusk
NEPA Document Manager/NEPA Compliance Office

ATTCHMENT 3
List of Public Hearing Attendees

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SIGN-IN SHEET

W.A. Parish Post-Combustion
CO_2 Capture and Sequestration Project –
Southeastern Texas.
October 10, 2012

Name	Title	Address	Telephone	Fax	E-mail
Rikki Stanley	Director				
Rose M. Taynes					
Sandra Cayard					
Joe Nafegar	Nafegar				
Norman Wood					
Carol Gubbels					
Gene DeBons	Gubbels				
Keith Julian	Julian Wohlford				
H. Milton Howe					
Freddie Heinzman	(mayor)				

SIGN-IN SHEET

W.A. Parish Post-Combustion
CO_2 Capture and Sequestration Project –
Southeastern Texas.
October 11, 2012

Name	Title	Address	Telephone	Fax	E-mail
R. Lee Lallie Mae Shafer					
Vance Mitchell					
Deion Patterson					
Ben Stafford					
Larry Riggs					
Ricki Stanley	Director				
Annette Marek					
Caren Cobb					

ATTACHMENT 4
Public Hearing Presentation

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W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project and the National Environmental Policy Act

Public Hearings –

October 10 and 11, 2012

NETL

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Program Overview and NEPA Process

W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project

Mark Lusk

NEPA Document Manager

U.S. Department of Energy

NETL

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an NRG company

Public Hearing Agenda

Why are we here tonight?

- Overview of NEPA
- Project summary and status
- Public comments

National Environmental Policy Act (NEPA)

- U.S. Federal Law - effective January 1, 1970
- Applies to all Federal agencies
- National charter for protection of the environment
- Promotes environmental considerations in decision-making

NEPA Mandate

- Environmental information must be available to public officials and citizens before Federal decisions are made and before Federal actions are taken
  - High quality information
  - Accurate scientific analyses
  - Expert agency consultation
  - Public involvement

NEPA Process for the W.A. Parish Post-Combustion CO_2 Capture & Sequestration Project Initiated

- EIS Determination – July 5, 2011
  - Official DOE decision that an EIS is needed
- Notice of Intent – Nov. 14, 2011
  - Public notice of agency's intent
  - Public scoping meetings (2)

- Notice of Availability – Sept. 21, 2012
  - Official release of draft EIS and start of 45-day comment period

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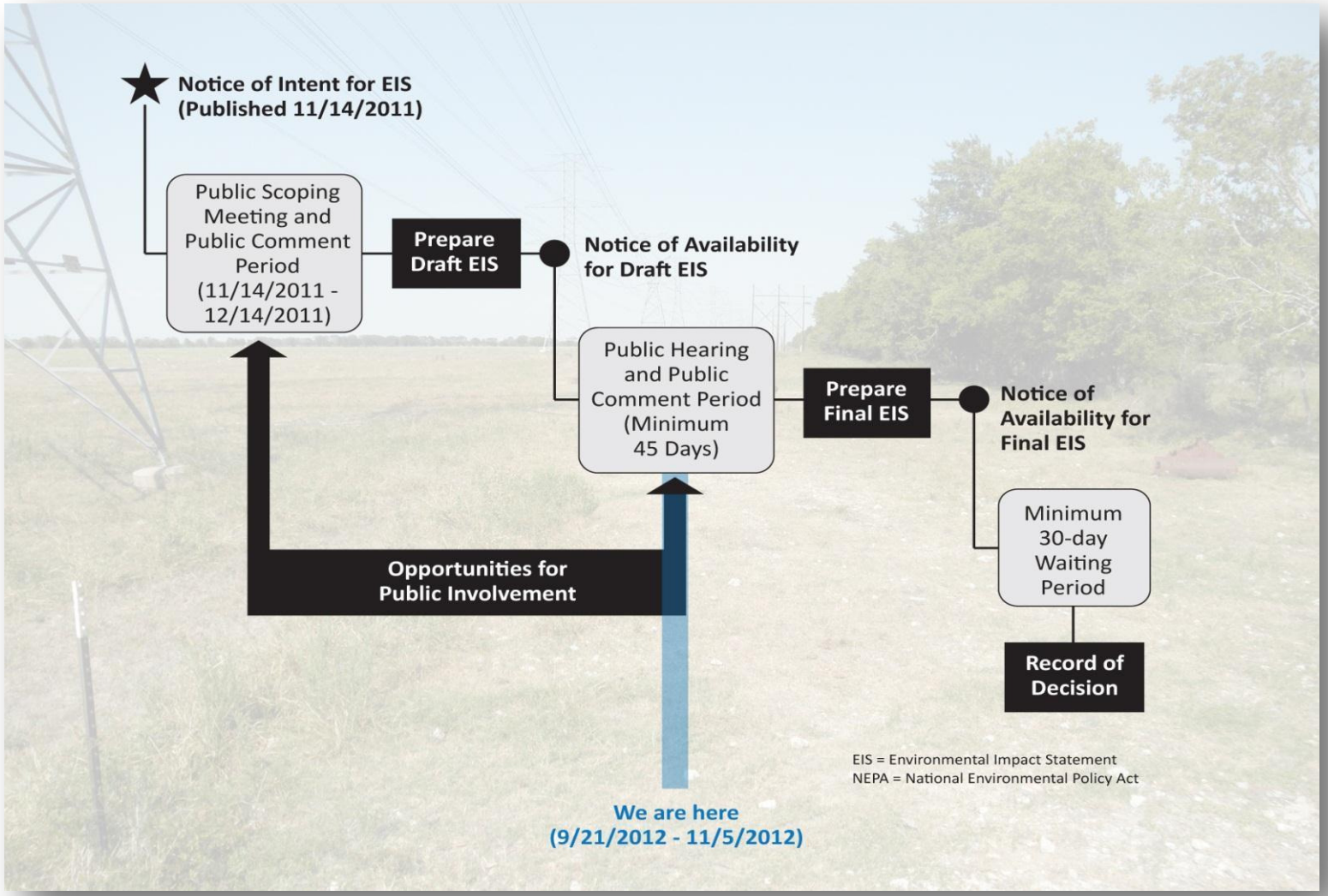
Content of Typical Environmental Impact Statement (EIS)

- Purpose and Need for agency action
- Proposed agency action and reasonable alternatives
- Proposed project and project alternatives
- Description of the affected environment
- Analysis of potential environmental consequences
- List of agencies, organizations, and persons contacted
- Public participation and responses to public comments (Final EIS)

NEPA Process and EIS Milestones

W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project



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an NRG company

Schedule

W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project

		SCHEDULE
EIS Determination		July 6, 2011
NEPA Site Visit & Kickoff Meeting		September 14-15, 2011
Notice of Intent (NOI)		November 14, 2011
Notice of Availability (NOA) – Draft EIS		September 21, 2012
Public Hearings		October 10-11, 2012
Close of 45-day Comment Period		November 5, 2012
NOA - Final EIS		January 2013
Record of Decision (ROD)		February/March 2013

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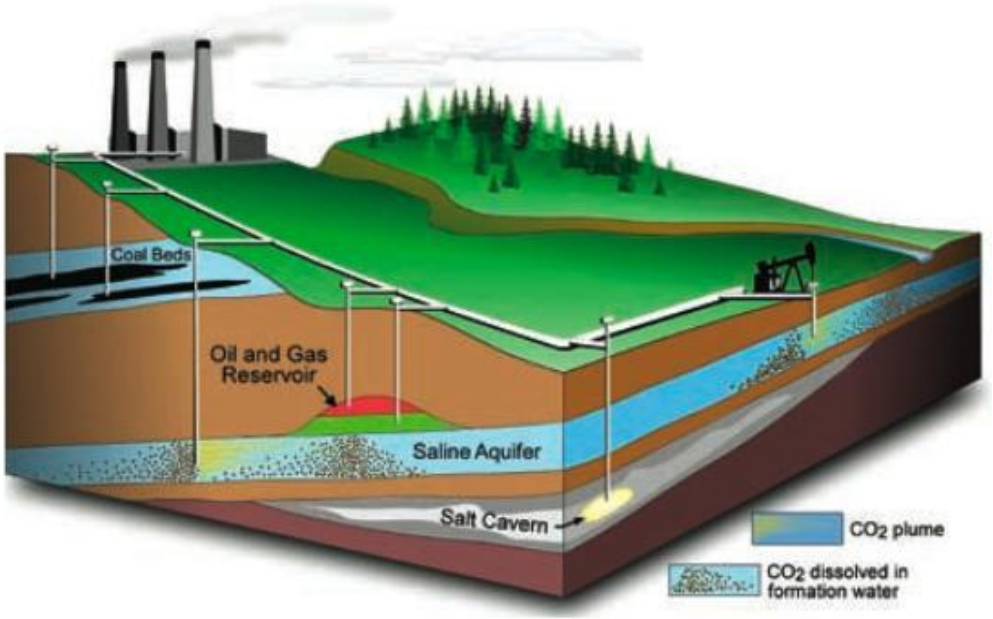
Purpose of Public Hearings

- Invite comments and input from all interested people on:

the Draft EIS

  - Content
  - Analyses
  - Concerns



Program Overview and NEPA Process

Opportunities for Public Comments

- Verbal - tonight
- Written – send in

Draft and Final EIS Requests

Additional hardcopies available by request:

- Summary with CD
- Whole document – Summary, Volumes 1 & 2, CD
- Or, download via internet

Available in the near future:

- Final EIS
- Record of Decision

Project Summary

W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project

Jon Barfield

Engineering Manager,
Environmental and Pipeline

Petra Nova LLC

NETL petra nova an NRG company

W. A. Parish Post-Combustion CO_2 Capture and Sequestration Project

W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project

- Project Overview
- Project Details
- Timeline
- Carbon Capture System
- CO_2 Transport and Use for Enhanced Oil Recovery

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Project Overview

W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project

- Why is NRG Petra Nova conducting this project?
  - Reduce carbon emissions; help with climate change
  - Modernize coal; maintain its viability as an established energy source, including coal-related jobs.
  - Drive the development and deployment of integrated commercial-scale Carbon Capture Utilization & Sequestration (CCUS) solutions; combining CO_2 Capture with commercially proven Enhanced Oil Recovery (EOR) technologies

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Project Overview

- Why is NRG Petra Nova conducting this project? (cont.)
  - Use EOR to produce otherwise unrecoverable oil; generating revenue stream to help offset cost of CO_2 capture, which by itself, is currently uneconomic under existing legislation
  - Integrated CCUS solutions deliver significant economic and environmental benefits, increases domestic energy security and growth, and ushers in new era of American innovation, entrepreneurship, competitiveness.

How will this project benefit the community?

W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project

- Greenhouse gas reduction
  - Improved air quality, health benefits
- Economic Development
  - Extends/preserves a large, valuable community asset, occupancy rates, local services, and private investment
- Job Creation
  - Preserves and extends over 100 existing jobs at the power plant and oil field
  - Creates more than 500 construction jobs
  - Creates nearly 50 permanent jobs
- Local opportunities
  - Texas Gulf Coast will become the world leader in CCUS

Provides jobs, economic green energy, reduced emissions, and lasting community benefits

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Project Details

W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project

- Purpose: Demonstrate how two distinct sectors of the energy industry can work together to meet common goals of GHG reduction and enhance domestic oil production by adding carbon capture system to an existing coal plant and using CO_2 for EOR.
- Location:
  - Capture System - W. A. Parish Generating Station in Fort Bend County
  - Transport System (Pipeline) – through Fort Bend, Wharton, and Jackson Counties
  - EOR Operations – Jackson County
- Preliminary Cost Estimate: ~$ 775 million
  - Department of Energy may provide a grant of up to $167 million
  - Private investment will cover the rest

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Project Details

W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project

- Capture, use, and sequester up to approximately 1.6 million tons of CO_2 annually (equivalent to 500,000 cars) through 90% CO_2 removal of treated flue gas.
- Demonstrate how commercial-scale carbon capture system can be fully integrated to existing coal plant with minimal impacts/disruptions to cost and production of electricity.
- Utilize, protect, and modernize existing energy infrastructure to deliver significant economic, environmental, and social benefits.
- Success of project will establish repeatable template for future CO_2-EOR projects involving existing coal-fired power plants and mature oil fields.

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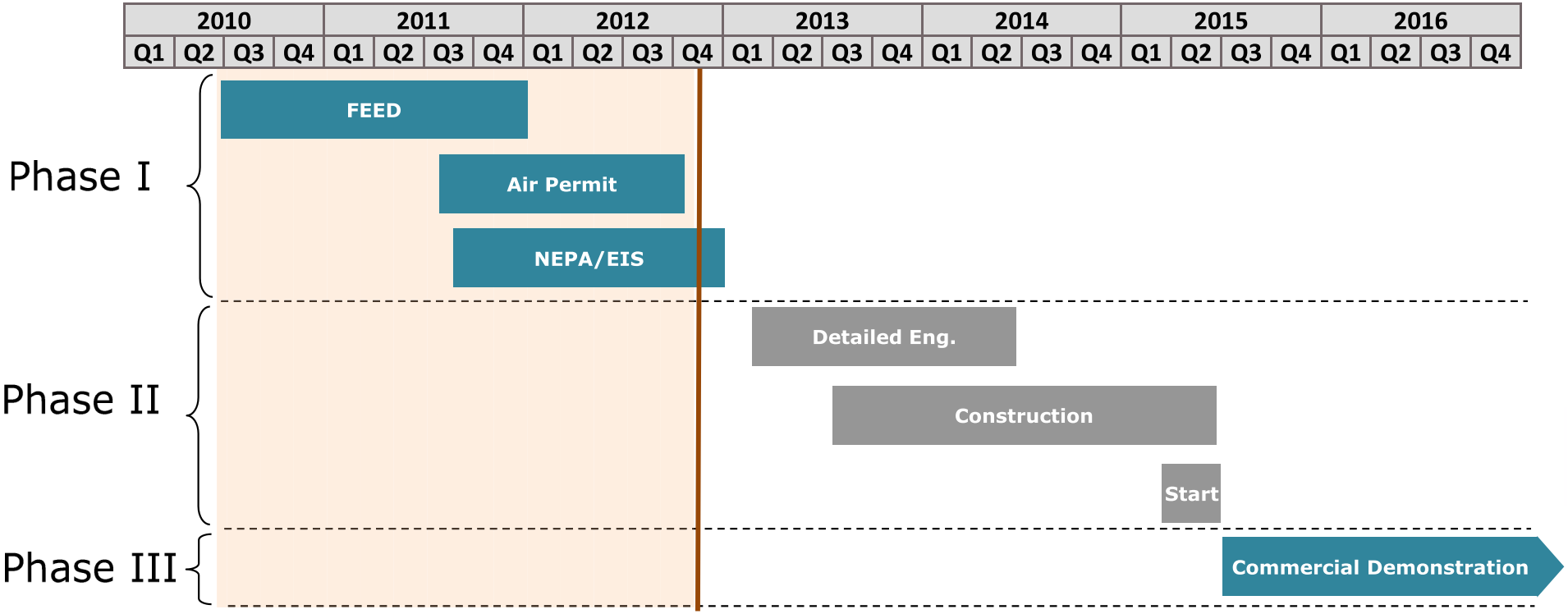
Timeline

W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project



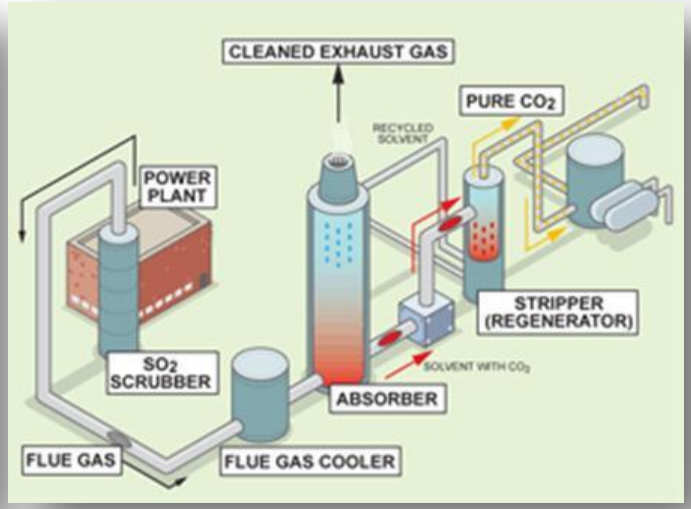
- CO_2/EOR Offtake Arrangement Established– COMPLETE
- Air Permit Application Submittal – COMPLETE
- Completing preliminary design study – COMPLETE
- NEPA – December, 2012 Target

NETL petra nova an NRG company

Carbon Capture System

W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project

WA Parish



General Capture Process

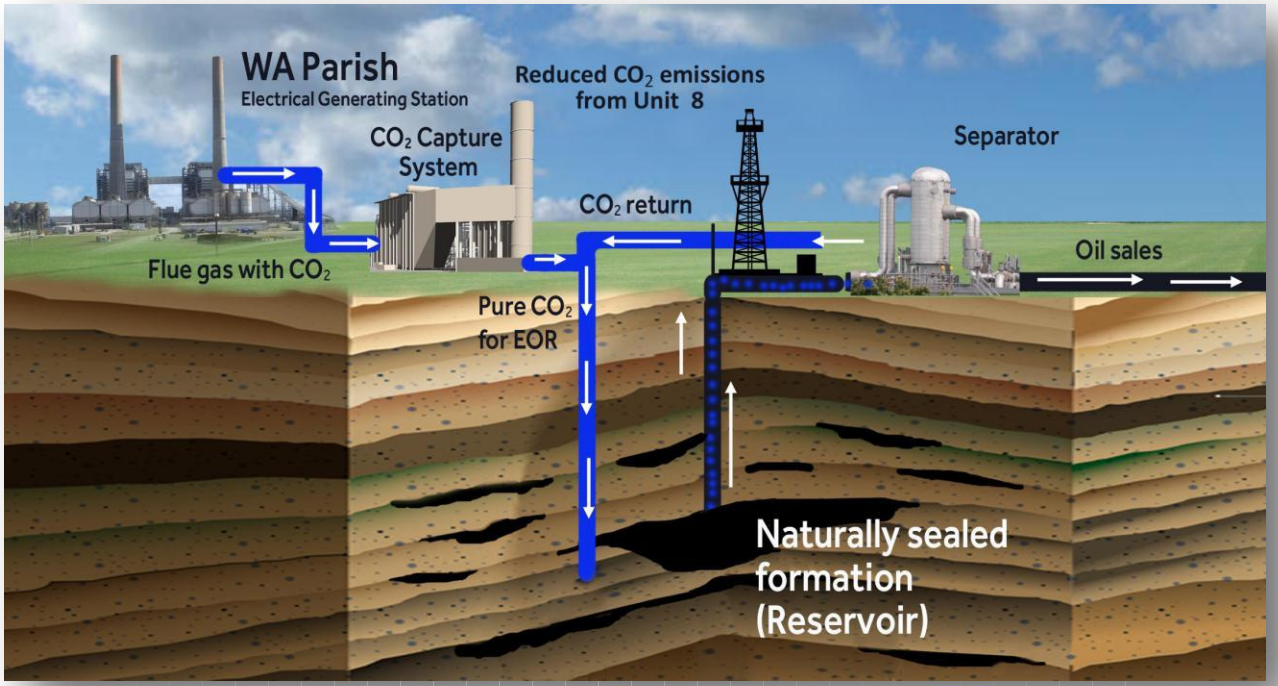
- NRG's W. A. Parish facility is located in Thompsons, Texas, 25 miles southwest of downtown Houston. The plant provides approximately enough power to serve over 3 million homes.
- The CO_2 capture plant for the NRG site will use a post-combustion chemical amine process technology to capture the equivalent up to a 240MW unit.
- At 240 MW, the capture plant would recover 90% or more of the CO_2 contained in that gas, resulting in ~5,000 tons per operating day (largest in the world).
- The project plans to also install a cogeneration facility to supply the energy requirements to the carbon capture facility.
- Existing plant performance will not degraded or disrupted by installation of carbon capture system.

NETL petra nova an NRG company

CO_2 Transport and Enhanced Oil Recovery

W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project

- Divert about 35% of Parish Unit 8 flue gas into CO_2 capture system
- CO_2 capture system removes virtually all the sulfur and 90% of CO_2 from treated flue gas
- CO_2 then compressed to 2,100 psi and piped to oil field

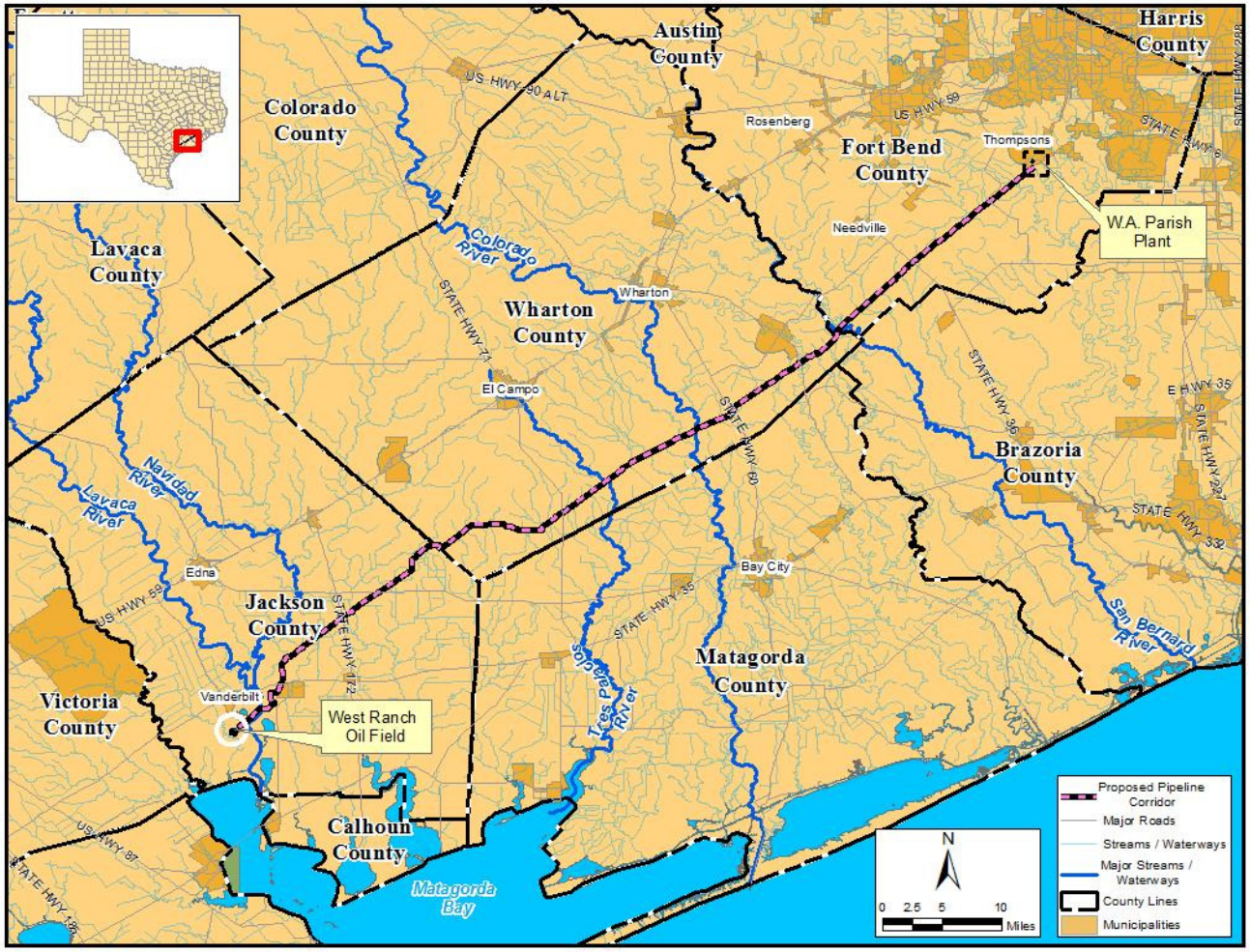


- CO_2 injected into formation to re-pressurize and act like a solvent, mobilizing oil to producing wells
- Once at surface, special equipment separates CO_2 from the oil
- CO_2 is then re-injected to mobilize more oil

NETL petra nova an NRG company

Pipeline Corridor

W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project



NETL

petra nova
an NRG company

Program Overview and NEPA Process

Opportunities for

Public Comments

- Verbal
- Written

Logistics for Verbal Comments

- Sign up to speak
- Five minutes per speaker, please
- Additional opportunities to speak, time permitting
- Government officials & pre-registered speakers will go first
- An official transcript will be made – part of Final EIS
- Speakers – state name/affiliation and speak clearly

DOE Wants Your Comments!

- Send written comments to:
  - Mark W. Lusk, NEPA Document Manager
    DOE - National Energy Technology Laboratory
    MS I07, P.O. Box 880
    Morgantown, WV 26507-0880
  - Email to: Parish.EIS0473@netl.doe.gov
  - Fax to: (304) 285-4403
  - Label envelopes, electronic mail subject lines, and faxes with – Parish EIS comments
- Comments postmarked by: Monday – November 5, 2012

ATTACHMENT 5
Public Hearing Transcript

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W. A. PARISH POST-COMBUSTION CO_2 CAPTURE AND SEQUESTRATION PROJECT

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PUBLIC MEETING

THOMPSONS, TEXAS

OCTOBER 10, 2012

****

On the 10th day of October, 2012, at 7:00 p.m., a public meeting was held in connection with the above-referenced matter at Thompsons City Hall, 502 Oilfield Road, Thompsons, Texas. The proceedings were reported by Karen Romeo Rothman, a Certified Shorthand Reporter in and for the State of Texas, by computerized stenograph machine.

MR. LUSK: Okay. I guess we'll get the meeting started.

Good to see everybody here tonight. Welcome to the Department of Energy's public hearing for the W. A. Parish Project that we're co-funding with NRG and our friends Petra Nova. We're here tonight to do a few things. One is to give you a little overview of the National Environmental Policy Act, which is what drives this whole process and why we're here tonight to talk with the public. The other is to give you a presentation about kind of the basics of the project and give you an idea of where it stands right now, the current status, and Jon Barfield from Petra Nova, an NRG subsidiary, will be doing that in a couple of minutes.

I guess we should let the record show we started right at 7:00 o'clock. We're here at the Thompsons Community Center, and I wanted to thank Freddie for letting us use your facility.

Freddie, thank you very much.

FREDDIE: You're welcome.

MR. LUSK: And I guess -- well, it's good to see everybody here again tonight, and we've had a chance to talk to most of you up front informally. Hopefully, we had a chance to answer some of your

questions. We had a couple of people come in a little bit later. If you want to stay and ask some questions later, we can do that, and maybe we'll generate more questions as we go through the presentations.

But tonight, like I said, we're here really for three main reasons: The first is to give you an overview of what we call the NEPA process. It's the National Environmental Policy Act. I'll tell you a little bit more about that in a minute.

The second is to let Jon talk about the project, and then we'll enter into -- what we normally do is have a formal comment session.

Is that coming through okay? It seems like I'm cutting out.

I didn't see anybody sign up to speak tonight. If you want to speak and give comments about the project, that's really why we're here. The main reason is to allow you to do that. So, if you want to speak tonight, please sign in so we have your name, and I can call you up and give you a chance to do that.

If you don't want to speak, that's fine, too. There are other ways to provide your comments. One, we have a court reporter here tonight. If you would like, after the formal session, you can come up here and dictate a comment to her. That's one option.

The other option, and probably the easier thing to do, is to go ahead and write a written comment, and we have forms for that. You don't have to use the forms. You know, you can take one of these forms with you. We have envelopes already pre-addressed, if you want to -- they don't have a stamp on them, unfortunately, but you can send it in that way. Or you can e-mail me, and we'll have a slide about that in a minute. I just want to let know, if you'd like to speak, please sign up. At this point we don't have anybody signed up. So, if you want to, please do.

I don't have any governor or senators to introduce you to tonight, so we'll skip through there.

I guess I will introduce a few people that I do know. Jon Barfield here from NRG Petra Nova, David Greeson in the back and Tony Armpriester in the back. There are a number of NRG folks here tonight that are our partner in the project. They actually will run the project from the nuts and bolts side. Ted McMahon here, my compadre from the Department of Energy, is our project manager to work hand-in-hand with them on the project.

My name is Mark Lusk. I'm what they call the NEPA document manager. If you notice, on the back table we've got this thick document. It's called an

Environmental Impact Statement, which is really why we're here. We put together this impact statement, and it addresses the impacts, as we see them, for the project. You're welcome to get a copy of that.

So, I guess at this point we'll start into the actual presentation. I'll quit talking off the cuff.

I mentioned why we're here. I don't want to dwell on that, but basically the National Environmental Policy Act is a requirement of federal agencies to take a good, hard look at projects, analyze their impacts, or what we'd like the impact to be. Basically, it's promoting environmental considerations as we make decisions about a project. We're still at a stage where we're deciding whether to fund the project. You know, we don't see a problem with going forward with it at this point, but the formality is still there. At the end of this process, we'll have what's called a record of decision, and that will be the formal agency decision on how to go forward with the project.

Basically, the Environmental Impact Statement, you saw how thick it is, it's a pretty comprehensive look at the project. It covers a lot of -- a lot of different what we call resource areas. It could be socioeconomics, could be biological

resources, water quality, air quality, those kinds of things. So, it's a wide look. But one of the requirements, as I mentioned, is public involvement, and that's why we're here tonight to talk to you guys, to present the project and hopefully hear some of your concerns.

To give you an idea where we've been already through this process, the Department of Energy did what's called a determination back in July of 2011. Basically what that means is we looked at the scope of the project, how big it is, what we were going to do and decided that an environmental impact statement is the right thing for us to do. At that point, we developed what's called a notice of intent, and that described the project in, you know, a small amount of detail, announced a round of public what we call scoping meetings, and we were here, not in Thompsons, but in Needville and also in Edna for two meetings back in the November-December time frame last year.

Since that time, the Environmental Impact Statement was developed, with the help of NRG and URS, who has representatives here as well, and as of September 21st, that Environmental Impact Statement in draft form was released to the public for your comments. So, that brings us up to today.

A typical environmental impact statement, like I said, is a pretty comprehensive document, but it includes these types of things: Purpose and need for agency action as to why we will be funding the project. You know, I'm not going to read the whole laundry list, but one thing that isn't there yet is the last bullet. At the end of this meeting, we'll have your comments. You'll have until November 5th to provide any written comments and send them to me. The final environmental impact statement will have another section in it that takes all those comments, we will develop responses to those comments, and that will be in probably what we'll call Volume 3. And also the final EIS will have any changes to the project that are developed and any additional analyses that are required as a result of your public comment.

This is just a slide to kind of show you where we are now. The blue line at the bottom is where we are in the process. The other boxes are the various stages in the process. It will all culminate in the end with the final EIS and the Record of Decision, which will be in 30 days, minimum, after release of the final EIS.

Again, just some dates to show you kind of expectations. The final EIS, probably in January. If

we don't get a lot of comments, maybe it's quicker than that.

And so, at this point, the main reason we're here again is to hear your comments, inform you of the project, if you haven't heard about it already, and hopefully we can generate some comments from you.

Just to reiterate, tonight we're here for verbal comments, and you're certainly welcome to send them in written. I personally like the written comments, because it gives you a chance to, you know, think over what you're saying, what you want to say, get down, you know, on pen and paper, whatever, type it. I get a written record of it, which is nice, but, you know, verbal is always good, too.

The other thing, if you'd like to receive a copy of the document, if you haven't already, let us know. Nancy, she was in the front taking down names when you came in. You can either let Nancy or I know, and we'll get you a copy of the document if you'd like one. It's also available a few other ways, on the Internet and whatnot, too. And then if you ask for a copy of the draft, we'll also put you on the list to receive a final as well.

So, I guess we'll get Jon up here, and he can talk a little bit about the project and give you the

current status. Jon?

MR. BARFIELD: Thank you, sir. Okay. Go to the next slide, please.

What I want to talk about tonight is a few of the project, the parts that we have, which is a carbon capture system at the existing power plant here close by, an 80-mile pipeline and then the activities that will be happening down at the oil field near Vanderbilt.

Why we're doing this project, it will reduce carbon emissions, we'll be capturing the slipstream of the exhaust gas coming out of Unit 8 here at the Parish power plant and capturing the CO_2 out of that, purifying it, and we're going to compress it to about 2,100 pounds, and we're going to move it through a pipeline down to the oil field to use in enhanced oil recovery.

So, what we're doing is, you know, it's a coal-fired plant. We take -- you know, we're reducing the amount of the greenhouse gas emissions from that coal plant. We're maintaining coal as a viable energy source and maintaining jobs at the plant, as well as, you know, creating some new jobs, and then, finally, driving the development and deployment of integrated commercial-scale Carbon Capture Utilization and

Sequestration. That's a mouthful to say, isn't it? Anyway, that's kind of the DOE mandate: They want to know can this be done economically. CO_2 technology for enhanced oil recovery is certainly proven. It's been done out in West Texas using naturally-occurring CO_2 out of the Cortez dome in Colorado, and as well as the Sheep Mountain dome in Colorado. So, it's proven technology.

What we're doing here that's different is we're capturing it out of an exhaust stream from a power plant. So, we use EOR to produce otherwise unrecoverable oil and generating a revenue stream to help offset the cost of that capture. It's very expensive, and I'll show you a slide here in a moment to give you the total project cost and you'll understand that by itself, if we were just capturing CO_2 and putting it in the ground and there's been some other proposed projects like that just to reduce greenhouse gas emissions, it's too expensive. It just -- there's no payback for a power company to do that. They'd have to pass the cost on to the consumers, and the consumers wouldn't like that too much.

So, as I mentioned, greenhouse gas reduction, economic development, because again it extends and preserves this large community asset in the power plant and then the coal that is used to fire the

plant, as well as, you know, keeping jobs and -- you know, both existing jobs, as well as jobs that will be associated with the construction and then operation of the new facilities.

There are a lot of opportunities in the Texas Gulf Coast where we're routing the pipeline. We go through several oil fields that are targets for using CO_2 as EOR and there's been some other projects where they've built CO_2 pipelines into this part of Texas as well. There's a reason for that, and that is this is the part of Texas that has the ideal geology to do that.

So, what we'll be doing, like I said, is we'll have a carbon capture system at our W. A. Parish power plant which is here nearby. That will be a new add-on there. There will be a power generation, a new unit that's built there to power that carbon capture system, and it will also -- then the CO_2 that's pulled out of that using a solvent will then be purified, compressed and then moved through a pipeline through Fort Bend, Wharton and Jackson counties -- and if you look back here, hopefully you've had an opportunity to look at the map that we have laid out -- and then the EOR operations, or enhanced oil recovery, will be down and the West Ranch oil field near Vanderbilt.

Our preliminary cost is about

$775,000,000, and the DOE, as part of this process, the reason they have to do an environmental impact statement and assess this through the NEPA process is because they will be awarding a grant potentially up to $167,000,000. Beyond that, private investment will cover the rest of the 775,000,000.

So, we'll capture, use and sequester or put in the ground about 1.6 million tons of CO_2 a year. That's equivalent to about the amount of CO_2 produced by half a million cars, and we'll do that by capturing again what we call a slipstream from the existing exhaust at our Unit 8 stack and removing about 90% of the CO_2 from that. Well, actually we'll being pulling about a 30% slipstream and removing 90%.

So, part of our goals will be to demonstrate that this can be done economically. I mean, we already know that the chemistry works. We already know that the transportation through pipeline works. We know that enhanced oil recovery works. So, what we've got to figure out is how to do this economically. And then again to kind of protect and modernize and utilize our existing infrastructure, so again our coal-fired plant, to deliver benefits. And then hopefully, if this project -- and it will be successful, I think in my mind, or I wouldn't be here -- then we want to do this

in other places where we have coal-fired plants, because again, we'll be reducing the amount of greenhouse gases that are released to the atmosphere. We'll be using CO_2 as a product to produce more domestic oil.

So, we have the timeline here, and you can see Phase 1 is almost complete. The front-end engineering design or feed study for the pipeline and the carbon capture system and plant work has been done. The air permit is close to being issued. I think we're a few weeks out. The NEPA Environmental Impact Statement, again Mark had put up a slide earlier, and there's a copy of it back on one of the big poster boards in the back that you can look at. And you can see where we are in the process is we're near the end of the draft EIS phase.

And then the next phase will be to incorporate comments we get tonight and tomorrow night, as well as through the mail or via e-mail or phone calls to Mark to November 5th. All those will be compiled, responded to and then produced in a final EIS. After that, then it will be 30 days or more, depending upon, you know, how much detail we have to go into, for the Record of Decision. That Record of Decision is when DOE has said yes, this makes sense, and we've assessed the environmental impacts, and we can release NRG to go

ahead and start spending the $167,000,000.

So, Phase 2, which will be next year and into 2014, is detailed engineering, and that's for both the carbon capture system, the balance of plant work, the pipeline, as well as some work that has to go on at the oil field to update facilities for handling CO_2. And then construction, which will begin early next year for some of the power plant work. The pipeline work will begin in 2014. And then we'll have a startup in late 2014, early 2015. After that, we have a commercial demonstration phase as part of the DOE scope of work where we're seeing how effective is it in terms of can we monitor the CO_2 that we're putting in the ground and to know kind of where it's going, how much is staying in the ground, how much is coming back up and then recovered in the oil that's produced.

So, it's a very simplified schematic of the carbon capture system. See the power plant, the flue gas is taken out. It's gone through a sulfur dioxide scrubber, and it's cooled down, and it's run through an absorber which contains a solvent, an amine solvent that captures the CO_2. Then that -- that solvent, the CO_2 is then stripped out, and now it's in its purified state, it's going to be compressed up to 2,100 pounds and then moved through the pipeline down to

the West Ranch field.

So, about 35% of the -- of the Unit 8 flue gas will be purified through the CO_2 capture system. The CO_2 capture system virtually removes all of the sulfur and 90% of the CO_2 from the treated flue gas. Like I said, it's compressed to 2,100 pounds and piped to the oil field.

It's going to be injected in the oil field, and the way that it happens is CO_2 is a solvent. So, it's going to get down into the spaces in the rocks, the pores of the rocks and basically dissolve it, the CO_2, and then it makes it more miscible or easier to flow, and then it will come up out of the reservoir. Once it comes out, then the CO_2 that is -- there's some of the CO_2, about 35% of it will stay in the ground. The rest of it will hopefully come up in the oil, and then it will be separated out. Because it's a valuable product you use to recover oil, they will strip it back out of the oil, recompress it and put it back down in the ground again and continue to use that, recycle that as long as they can.

This is just a map showing the pipeline corridor. What we try to do with a pipeline corridor is to co-locate it with existing infrastructure out there as much as possible to reduce the environmental impacts.

So, it's co-located for about the first 42 miles with the CenterPoint highline or powerline going down there. We have to pop out of the corridor a slight -- slight distance because of some -- some constraints. There's another pipeline that parallels the CenterPoint corridor where actually they are aligned in between the other pipeline and the powerline.

Then down south of Danevang, we move off of the CenterPoint corridor and over into -- we move over about a mile and then we go into the South Texas Electric Co-Op corridor. We follow that almost all the way down to Vanderbilt, but before we cross the Lavaca River, we actually pick up the Kinder Morgan Texas Pipeline corridor, which goes into the -- into the oil field, and we follow that in.

So, we try to minimize environmental impacts as much as possible. We have four major river crossings, or actually three major river crossings: The San Bernard, the Colorado and the Lavaca. Those will all be horizontally directional drilled, because there are a couple of other areas that were horizontally directional drilled, because just in once instance, about seven or eight miles downstream of where we are here now, there's some meandering streams and sandy areas that it's just not very well consolidated, it's

just easier to drill underneath it than it is to lay a pipeline conventionally through that. So, we'll be doing that at that point as well. I think at this point we have six drills planned. The hardtop roads will all be bored, so we'll dig basically bell holes on either side, and then we'll either do a jack and bore, or we'll drop a rig down in there and bore underneath those and then pull pipe back up through that way.

When we cross landowner roads that are just dirt tracks, we'll just open cut those. And same with the smaller streams. They'll just be conventional lays. We'll just open cut them, but we'll try to get in and out in a day.

And that's all I have, so I'm going to hand it back to you.

MR. LUSK: Thanks, Jon. Good job.

At this point, we usually open up the meeting to people who want to speak.

Is it still on? (Referring to microphone.)

No one signed up. Does anybody want to have some comments?

UNIDENTIFIED MALE SPEAKER: Can we ask a question?

MR. LUSK: Generally, we're here for comments. Do you guys want to take a question?

UNIDENTIFIED MALE SPEAKER: What's the diameter of the pipeline going to be?

MR. BARFIELD: The diameter of the pipe, it's 12-inch, so it's 12.75 outside diameter, and then the wall thickness is generally either going to be .33 wall or .406 wall pipe. So, the difference, we'll be doing the 12.75 outside diameter, and wall thickness will be the other diameter.

UNIDENTIFIED MALE SPEAKER: And it's going to be contained within the right-of-ways that are already existing?

MR. BARFIELD: 85% of it is in existing rights-of-way. There's about 15%, about six miles, where we had some constraints and we had to move outside, and we're still parallelling this existing corridor. But for the most part, 85% of it is in the power line corridors or in the other pipeline corridors.

MR. LUSK: I guess if no one wants to speak, if there's another clarifying question or something we might have missed?

UNIDENTIFIED MALE SPEAKER: You said four rivers. What were they?

MR. BARFIELD: Actually, there's three rivers. Yeah, initially we had put it across the Lavaca and the Navidad, but what I did is I rerouted -- I picked up that Texas pipeline coming into the field, and that way we just had to do one directional drill, rather than two. And that was -- that was particularly because to drill the one, we have to come up and basically split the land between the two and then try to set up and drill the other one, and it wasn't very easy from an engineering perspective.

MR. LUSK: And that also avoided a bunch of wetlands, too, didn't it?

MR. BARFIELD: It did. It did, absolutely.

UNIDENTIFIED MALE SPEAKER: I guess I have a question, if I might. I don't know that much about the West Ranch oil field, but I don't think it's a big, great big, booming oil field. And I can see whatever oil comes out, it may -- the lifetime of the project I guess is what I'm after. It may be 10 years, you've used all the CO_2 down there that you might need. I would think the facility would last longer than that in terms of capture, and it might be applied to other areas around.

MR. BARFIELD: That's correct. The way

the CO_2 flood works is it will take us a couple of years to kind of fill up the field, for lack of a better term. And then after about six or seven years, you can be pretty much on full recycle, everything that comes back up can be recompressed and put back in and used to continue to produce oil there. At that point, then the CO_2 that we produce can be used to move to other oil fields. And so potentially, you know, there may be other projects, you know, more pipe or something down the way. But for right now, we're just -- we have this project, and we know what we're doing with it. But you're exactly right.

UNIDENTIFIED MALE SPEAKER: You're showing a project down there only 4,000 acres out of 11,500. Is the rest of the field not applicable, you can't use it in the entire 11,500? Or would you expand the project to larger than 4,000 acres after this first phase?

MR. LUSK: Is that an ownership question, Jon?

MR. BARFIELD: No.

MR. GREESON: 11,000 acres is the acreage under lease, but the actual reservoir is only 4,000 acres.

UNIDENTIFIED MALE SPEAKER: So, that is the entire reservoir, that is the extent?

MR. GREESON: That is the extent.

MS. JULIANN GUBBELS WOHFORD: How deep are you going to put this line?

MR. BARFIELD: How deep is the pipeline?

MS. JULIANN GUBBELS WOHFORD: Uh-huh.

MR. BARFIELD: The DOT requires three feet of cover. Since this is mainly ag fields that we're crossing, everybody that we've talked to for the landowners have requested four feet of cover, which is a good idea. If you get kind of a deep Paratill or Paraplow, you're going to get either wrecked equipment or wrecked pipe. So, we'll be doing four feet of cover.

MS. JULIANN GUBBELS WOHFORD: Because in this part of the country, won't the pipes walk? Don't the pipes kind of walk up eventually?

MR. BARFIELD: I don't know. Typically, that might happen in areas that have a fairly high water table. But you know, if we were laying through areas like that, we'd put weights on the pipe, or we'd put concrete-coated pipe is more typically what we'd do. And there are a few areas where we will put some concrete-coated pipe in where we're down in like river bottoms and stuff like that because we don't want the pipe to become buoyant. So, that will be part of our advanced engineering design for the pipeline. But we

don't -- we don't intend to do that throughout because for most areas that should be fine.

MS. JULIANN GUBBELS WOHFORD: Are there any hazard problems with that much pressure when it goes from the main source, your plant here, when it initially goes to that much pressure?

MR. BARFIELD: At 2,100 pounds, and then it will be about 1,600 pounds down at the field, it's high pressure, but it's -- you know, it's certainly within the design limits of pipe. It's comfortably within the design limits of the pipe. With it being buried, it's nonflammable gas. Quite honestly, there have been so few CO_2 accidents where a pipe has ruptured in the last 50 years compared to natural gas lines and things like that that I couldn't really tell you anything beyond that, because it's a fairly safe thing. Operating high-pressure pipes is fairly common, not just with CO_2, but even higher pressures with natural gas. So, it's all really about the design of the pipe and making certain we stay within the tolerances, and we're well within them.

MS. JULIANN GUBBELS WOHFORD: And they usually check them?

MR. BARFIELD: Absolutely. Absolutely. We'll have -- we'll have a control room where we'll

monitor the pressure on the line. That's the easiest way to tell whether you've had a leak or a rupture is when you get a pressure drop. We'll also have what's called cathodic protection, and that's to make certain that the pipe doesn't corrode under the ground because of the difference in the electrical currents in soil, and you've got the current in the power lines running there. So, what you do is you put a current on the pipe, a very weak current. It's not enough to shock anybody, but it keeps it from corroding.

MS. JULIANN GUBBELS WOHFORD: So, you're going to be on the north side of the power line coming out of here. There's a new pipeline that's been put in.

MR. BARFIELD: That's correct.

MS. JULIANN GUBBELS WOHFORD: Are you going to be on the north side of that or the south side of that?

MR. BARFIELD: For the most part we'll be in between the two. So, ETC is laying a line that's parallel but not in the actual corridor of CenterPoint, and we're actually laying our pipeline in the corridor with CenterPoint, except for a six-mile part where we have to kick out of the CenterPoint right-of-way, out on the other side on the ETC line that's being currently constructed, and then we'll come back into it. And

again, we did that because it's already cleared, and there's not going to be any more impact. There's something under the ground or there's a structure above the ground.

MR. LUSK: Speaking of health risk, there's a health risk assessment in the EIS if you -- I forget which appendix it is.

MR. BARFIELD: I think it's Appendix E, but don't quote me on that.

MR. LUSK: E or F, yeah. Any of that discussion make you think you want to make a formal comment on the record? If you do, we would like to get your name. And if you're affiliated with anybody, that would be good, too.

(No response.)

MR. LUSK: I appreciate you guys taking questions. It's a little unusual, but it does help these guys understand a little bit better.

If you have no other questions, I suppose we could adjourn. Anybody that wants to talk about one of the posters or ask any more questions informally, you're welcome to stay for a few minutes and do that. But if not, we'll call it good. Does anybody want to leave a comment with this young lady up here? We won't listen.

THE STATE OF TEXAS §

COUNTY OF FORT BEND §

I, Karen Romeo Rothman, the undersigned Certified Shorthand Reporter in and for the State of Texas, do hereby certify that the above and foregoing contains a true and correct transcription of the public hearing held on October 10, 2012 in Thompsons, Texas.

I further certify that I am neither attorney or counsel for, related to or employed by any parties to the meeting, and further that I am not a relative or employee of any parties employed by the parties hereto or financially interested in the action.

SUBSCRIBED AND SWORN to under my hand and seal of office on this, the _____ day of October, 2012.

_____

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W.A. PARISH POST-COMBUSTION CO2 CAPTURE AND SEQUESTRATION PROJECT AND THE NATIONAL ENVIRONMENTAL POLICY ACT

OCTOBER 11, 2012

MR. LUSK: I guess we'll get started then. My name is Mark Lusk. I'm with the Department of Energy, and I've met a few of you guys tonight. I'm really glad you came.

Basically this meeting is put on by the Department of Energy, because we're helping to fund the project that's before you and we've talked about, and we'll present some more information in a minute. But because we're funding this project, $167 million of the -- about 800 million total cost, we are required to do a National Environmental Policy Act review. We refer to it as NEPA. So excuse me if I say NEPA, but that's what we're talking about.

Basically we have to do an environmental review for projects of, you know, big sizes like this. We do -- we create what's called an Environmental Impact Statement, and that's what we showed you up front, and you can get copies of it, if you'd like. There's a very detailed document that talks about the impacts of the project, and what we see as the possible impacts, and you can also pick up a summary. I saw some of you have the summary, which is, you know, a briefer version, but it also includes the CD, which has everything in it, if you want to look at it online. But if you want the whole document, let us know. We have one or two left, and we

can put it in the mail as well.

But let's, I guess, for the record show we've started basically at 7:00 tonight, and I don't see the principal or anybody from the school here, but we usually thank them for letting us use the facility. It's a nice new facility they have here.

But, you know, we're here because we're talking about the W.A. Parish project, post-combustion project that's 80 miles the other end of the pipeline, and I think most of you are here because you are landowners, so you're probably more concerned with the pipeline itself.

But we're gonna start by -- I'm gonna go over a few slides in a minute, and basically explain the NEPA process to you, showing you where we are in the process today, and what you can expect coming down in the next few months as we get through that process. It's an integral part of the project because our final decision on funding hinges upon this process, and we will, at the end of it, issue a record of decision that would then trigger the next phase of the project to begin, and that would be construction of the pipeline that we've talked about.

The other part of the meeting we will also talk about -- John -- I think most of you have met John

Barfield with NRG. He will talk about the project itself, give you a short description of the project, tell you where it is now, and what you can expect in the next few months and the coming couple of years as they start construction.

And at the end we'd like to give you a chance to provide some verbal comments to us, if you would like. You know we encourage you to do that. If you have something you would like to say, the court reporter is here. She records the proceedings of the meetings so we have it on record. So if you have comments, we will address them in the final EIS, which will come out later.

This is the draft EIS. I don't think I said that. The initial version is put out for public comment, and later, once we're done with this process and gather some more information that we still need to gather, based on additional surveys that some of you -- we will be on your property again to do some additional surveys, more information, finalizing some technology items with the -- with the plant itself. So we will issue a final EIS, and then the record of decision.

Basically, the National Environmental Policy Act, or what we refer to as NEPA, is a federal requirement. Because it's a federal agency, in this case

the Department of Energy is granting some of the money for the project, so we're required to go through this process. It takes a good hard look at a number of what we call resource areas; it could be socio economics, wetlands impacts -- you know, it's a long laundry list of things we're required to look at and is then documented in our large book here.

But basically it's to give us the background we need to make the decision on -- the final decision on whether to proceed with the project. A lot of good high quality information in here. We have contractors working on it to help us out. URS is here helping us with the meeting, but they're very instrumental in putting all the information on paper. NRG provides a lot of the information. So, it's a collaborative effort between the department, NRG, and our -- with help on writing and preparing the document. It's very comprehensive.

And part of the process and why we're here tonight is the last bullet here, public involvement. NEPA requires us to do public involvement. We were here in Edna at a different location, your community center over here, a year ago to do what we call scoping. Before we -- before we start this document, we come out and scope what the issues are, get what concerns are in the

public, you know, ask them what you want to make sure we address in this document. And we had a meeting here, like I said, in Edna and another one in Thompsons a year ago.

Now we're back to hear, really, your comments on this document, but we'll also listen. If you haven't had a chance to review the document, we'll listen to what your comments are in general about the project as well. And -- well, I'll get to that in a minute.

Go to the next slide.

I keep talking about the NEPA process. My job is to guide the project through that process. I'm what's called the NEPA document manager, and I have to manage this process to help get the information in the document, get through all of the review cycles, you know, make sure it happens in a timely fashion.

July 5th, 2001 we decided that the project is big enough that we need to do an Environmental Impact Statement. I mentioned that we came out and did public meetings. That was after we issued a notice of intent, which was published in the Federal Register, which is where the government publishes all their notifications. We also had newspaper clippings saying we're gonna have a meeting, and we did that a year ago.

Now as of a couple of weeks ago, we issued

what's called a notice of availability. That tells you the public and other interested people that this document is available for your review, and we would like to have your comments. That notice of availability also told people about this meeting, and we again issued letters to landowners, which most of you received, and that's why you're here tonight. We also had notifications in various newspapers, local newspapers in the three counties affected and also Houston. So, that's where we are right now.

If you've had a chance to look through your summary -- you probably haven't read it yet, but if you looked at say the table of contents, you'd get an idea that there's a lot of information in that document. We cover what we call our purpose and needs; why is the agency funding this project? You know, what is the purpose of the project? That's in there.

Then we'll go into the various alternatives considering what are the -- you know, what is the project gonna do? We describe the environment that's there now, you know, what are the -- what wetlands are present; what -- you know, what's the current socio economics of your area -- you know, what is there.

The reason we do that is, then, we will determine, based on what's there, what could the impacts

be, if the project is completed. And that's all detailed in here chapter by chapter, based on whatever resource area you may be interested in.

And we also include the agencies, organizations we've contacted, including your, you know, state -- various state -- the state governor gets a copy, various state agencies get copies. We send them to your mayor, we send them to -- local politicians get a copy. So we list in there who all got a copy.

The final bullet: As a result of these meetings -- if you provide a comment, we will address those comments, provide responses in the document, in the final EIS. Any written comments sent in, again, will be addressed in the final EIS. So we will issue another one of these large documents to have another -- another appendix in it that includes those responses.

And some of those questions or concerns may require some additional analysis or changes to the document itself, and we will bold those, put up the change forum sites so you will know what -- what changed in the document when it went final.

So, basically we're here where the blue line is at the bottom, the light blue line in the middle. We are here -- public meetings. There's a 45-day public comment period that started September 21st. When we

issued the notice of availability, it starts to clock, if you will. We'll be accepting comments that are post-marked through November 5th, and if they trickle in late, we will still try to deal with it, but we have to set some sort of deadline, so we encourage you to, you know, submit comments, and I will show you how in a minute.

So at the very end I mentioned that we will have the final environmental impact statement, the updated version of the draft. And the NEPA process ends with a record of decision, which will trigger the next phase of the project.

This kind of just reiterates the dates that I mentioned earlier, the final EIS -- you know, probably January. That's just a target date at this point. If we don't get a lot of comments, it will happen probably a little quicker. As quick as we can get the rest of the information we need, we'll get it out.

But the reason we're really here tonight is to hear your comments or to generate some interest in you to maybe submit a written comment later.

And I think -- is there another slide?

Okay. Two ways to give me comments: Verbally tonight here at the meeting -- we talked earlier, we had a chance to chit-chat. Anything you may

have said, you might say -- you know, we don't say, "Mr. So-and-So said this," but we might characterize those as general concerns. If you want to say something specific, I encourage you to have a verbal comment, come up here and say your name and say, you know, I'm concerned about this, or I've read the document, and I don't like what you said here, or whatever -- whatever you want to say. She will record it, so we have a record of it. It's not to make you nervous, it's just so we have a record -- an accurate record.

The other option, if you would like, is we generally -- and I didn't talk to you about this -- but we did last time. If you would like to do it more personally with this young lady, come up here not in front of everybody and leave a comment directly with her, we can do that, too, if you would like. That shouldn't take long. But otherwise, send in written comments.

Is there one more slide? Okay, one more. No, I guess we didn't have that one.

At the end of the slide show there's another slide that shows you different ways to get me written comments, and I think your letters had that in it as well. You can send them directly to me, the Department of Energy, you can email them to me, you can fax them to me, or you can use the form at the back of

the table. They even provided an envelope that's not stamped, but you can send it with this form in an envelope that's all ready to go. But, you know, we encourage you to let us know what your concerns are. Just try to get it to me by November 5th. That would be great.

Okay. You went to the end? At the end -- why don't you leave this up in case they want to write it down, or something. But I think, then -- if you want to go back to John's first slide. . .

I think most of you have met John Barfield with Petra Nova, an NRG subsidiary. He's gonna walk you through the project attributes and why we're doing this and tell you more about the project -- probably not in great detail, but we will let -- let John take over for a little while. Thank you.

MR. BARFIELD: Thanks, Mark.

I will walk through the project. There's probably more detail on the slides than folks are interested in, so I'll do a fairly high overview, but if you want more details, I'll be happy to talk with you afterwords, or maybe one of the others from NRG as well.

So, we'll go through a project overview and some details of the project. The timeline -- a lot of you had questions earlier about the timeframe for

construction. We'll talk about the carbon capture system, pipeline, and then the enhanced oil recovery at the West Ranch Field.

So why are we doing this? Well, it reduces carbon emissions. CO2 is a greenhouse gas, and currently the CO2 that we're talking about capturing is going up the stacks at the W.A. Parish power generation plant south of Houston. We're continuing and working with the government on clean coal technologies. So, what -- what can the government do, and what can we do in terms of -- of -- coal is a natural resource that's fairly abundant in the United States. How can we continue to tap into that domestic reserve? It helps us also maintain jobs at the Parish plant as well as create some new jobs with the carbon capture system and the pipeline operation.

Go on to the next slide.

Using the enhanced oil recovery to produce otherwise unrecoverable oil -- I will have this slide that has a little bit more detail here in a minute. You can see this schematic here on the back, I think, on the first poster, and then one of the handouts we have will be on the back side of that as well, and we will talk about that.

There's been several projects where carbon

capture has been proposed, and it's just injecting it into the ground to do what's called sequestration or basically storing it away so it's not released in the atmosphere. It's difficult to do a project like that because it's so cost-prohibitive either to the company or passing on costs through increasing electricity costs to the consumers. So, here what we're doing is we're using that CO2 as -- as a means to help us recover more oil here domestically.

The West Ranch Field had about 900 million barrels of oil originally in place; about 400 -- maybe 350 to 400 million of that has been recovered. The rest of it -- the bulk of it is still in the ground, but it's not recoverable by -- by ordinary means, and so we will talk about CO2, and how it's been used out in West Texas for about the last 40, 45 years to -- to do oil recovery.

So, we talked about greenhouse gas reduction, economic development -- that is just preserving the investments that we have in west -- not West Ranch -- in Parish, as well as creating maybe some new jobs at the power plant, in the oil field; some construction jobs that will be good jobs -- temporary -- but ultimately will create about 50 new jobs.

And then local opportunities -- because of the type of geology in the field, there is a lot of

fields like this that are located on the Texas Gulf Coast, some other companies have built CO2 pipelines into that area for the very reason; it's because the geology lends itself to, really, this type of oil recovery.

So talking just some more about the project: Demonstrate how two distinct sectors of the energy industry -- so we have power generation, which is what my company does, and then you have oil and gas exploration, which is what Hilcorp does down at West Ranch -- and working together to meet some common goals in terms of taking the CO2 that's currently going up our stacks and making a useful product out of it and helping us to increase oil production here in the United States.

The location, as I -- as I mentioned, are the W.A. Parish generating station in Fort Bend County just south of Houston, the transfer system or the pipeline that most of you have asked questions about and I've talked about with you is a part of the project that I'm managing directly, and then the enhanced oil operations here down at the West Ranch Field near Vanderbilt here in Jackson County.

The preliminary cost estimate is about $775 million, so that's the cost-prohibitive part I was talking about. The Department of Energy is going to provide a grant, pending the record of decision, of up to

$167 million. Private investments will then cover the rest of the cost of the project.

The project will capture, use and ultimately sequester up to 1.6 million tons of CO2 a year -- that's equivalent to what 500,000 cars produce annually -- through 90 percent of carbon dioxide removal of the treated flue gas. So what will happen is what's going up the stack at our Unit 8 at W.A. Parish, we're gonna take what we call a slipstream out of that, and that's gonna be about 30 percent of what's going up that stack, and from that, we're gonna capture about 90 percent of the CO2 out of it. The CO2 that we capture and purify -- we'll remove sulfur, we'll remove water and some other impurities -- will be about 99.96 percent pure, and that will be compressed and then moved through the pipeline 80 miles down to West Ranch Field to be injected for enhanced oil recovery.

Now, as the CO2 is injected into the field, some of it will stay there, other -- the rest of it will come back up in the oil, be separated out from the oil and ultimately recompressed and reinjected into the field.

Part of the -- the DOE part of this project is they're looking at various clean coal technologies, as well as CO2 technologies, and so part of

the goal is to demonstrate how -- how can we make this commercially viable and then take this and use it at other coal-fired plans throughout the country.

Giving you a timeframe, I know a lot of you, again, when we talked one on one, had some interest in when are you gonna be building through -- through my area, so we're gonna lay out a timeline here. In Phase I we did the front-end engineering design through 2010 through about the end of last year. We did that for the carbon capture system as well as the pipeline. The air permitting for the changes that have to occur at the W.A. Parish plant in Fort Bend County is currently in the process, and then the NEPA environmental impact statement process -- of course, Mark talked about earlier -- we're at the draft EIS stage. From this point, we incorporate public comments, and then a final EIS is produced, and then the DOE will come up with a record of decision as to what they're -- what they're gonna do with respect to the project.

Next year and into 2014 we will have detailed engineering going on. You see a big bar there for the Phase II construction -- a lot of the power plant work will take -- or the power plant work will take, you know, 24 months, two years -- that may be up to two-and-a-half years. So that will start a lot earlier

than the pipeline construction. The pipeline construction is currently slated to begin in the spring of 2014 and will take about six months, so, be completed toward the end of 2014, and then we will have our start-up in early 2015. And then for a few years after that, we will have the commercial demonstration where we will actually monitor how much oil is being produced, what -- what's happening to the CO2 in terms of how much is staying in the ground, how much we're bringing back up, and where is it staying in the ground.

This is kind of a simplified schematic of what happens at the plant with the carbon capture system, so we have this existing power plant, and we're taking flue gas out of the -- out of the stack there, out of one of the units, it's Unit 8. That unit was selected because it already has pretty substantial environmental controls on it to remove sulfur dioxide and -- and nitrogen oxide as well particulate matter, so it's a pretty clean gas stream already, and -- and we're gonna take that and purify it even more for this particular project.

So we will take a slipstream out of that, and you will see -- it will go through a sulfur scrubber there, so it will knock out, hopefully, all the remaining sulfur, as much as we can possibly get out of it. Then

the gas will be cooled down. It will go through what's called an absorber. The absorber has a chemical called an amine, and that's -- basically the CO2 is attached to that amine. Everything else passes through it, and so that's how we purify it. Then we treat the -- the amine and the absorber to release the CO2, and then this purified CO2 is then compressed, so we increase the pressure to move it more efficiently through the pipeline, and -- and that's -- and then -- and that happens in the stripper regenerator part, and then you will see pure CO2 will go through a compressor and into the pipeline.

And this is a schematic that's on the handout, on the back of one of the handouts as well as this first chart over here, but about 30, 35 percent of the Parish Unit 8 flue gas will go into the capture system. As I mentioned, that will remove virtually all of the sulfur and about 90 percent of the CO2 from the treated flue gas. That -- that CO2 that comes out will be 99.96 percent pure, and here in the summary and in the EIS there is a breakdown of -- of what those constituents will be in that.

CO2 is compressed to 2100 pounds per square inch and moved through a 12-inch carbon steel pipeline down to the oil field. There is no intermediate

pumping. So it starts out at about 2100 pounds. When it gets down to the oil field, it will be at about 1600 pounds per square inch. That's well within the designed tolerance of that particular steel and that particular type of pipeline. The pipeline will be, like I said, 12-inch, which is a nominal pipe size. It's really 12.75-inch outside diameter, then the wall thickness is gonna range anywhere from .333 inches to a half-inch, depending upon where we're laying the line. And then it will be sent down to the West Ranch Field where they will inject it into the oil field and produce the oil, and then some -- like I said, some of the CO2 will stay in the formations that are well below the water table. The rest of the CO2 will come out in the oil; will be separated out and reinjected.

After a period of five or six years, we won't need to ship any CO2 down there. It will be on what's called recycle, and everything that comes back up will be recompressed and then just sent back down into the field and used there again.

This map is up there as well. It's showing the pipeline corridor where it begins there at the W.A. Parish plant in Fort Bend County and then where it terminates down here at West Ranch Field. The pipeline corridor is about 85 percent co-located with

existing corridors out there.

When I laid the line out, I looked at the Center Point Energy right of way, which is about the first 46, 48 miles of -- of the corridor. We come out of that for about six miles because of some constraints where we're laying -- in that particular part of the corridor, we're laying between the existing power lines in their actual cleared right of way and a new pipeline that's being built on the outside of it by another company. So we're in already impacted areas.

We come down to just south of Danavang, and then we'll -- we'll skip over, and then we pick up another power line corridor called South Texas Electric Co-Op, and again, we're laying in their existing right-of-way easement, and we'll take that down almost all the way to just, I think, north of Lolita down there toward the bottom, and then we have to do some wiggling to get over onto another right of way, which is the Kinder Morgan Texas pipeline that runs through the field, and we will try to parallel that.

We have really four major water crossings there, the San Bernard River, the Colorado River, a creek called John's Creek, and then the Lavaca River. Those will all be horizontal directional drills, so we're not gonna cut through the -- the rivers, we will drill

underneath them and then just come out the other side and tie the pipe in.

So the corridor was selected, because it has a minimal amount of impact. We didn't want to go out there and have to knock down trees and mess up the habitat. We tried to lay it in areas where there were already impacts to the -- to the land. There were no threatened or endangered species found during our surveys. We've surveyed a hundred percent of the corridor. There were no cultural resources of significance that were found in the corridor as well, so it's a -- it's a fairly clean pipeline route.

And that's all I have to say. So I think it's back to you, Mark.

MR. LUSK: Back to me?

Okay. At this point in the meeting we generally ask to -- you know, have you guys, if you want to, do a verbal comment. Usually we give you -- you know, we ask you to sign up up front, and we have one person who has signed up already, but when he is done, I will ask if anyone else would like to have a comment. You're welcome, even if you didn't sign up, to come up and do it. We don't have that many people, so there's plenty of time. Usually we kind of say five minutes, but we won't worry about that too much, as long as you aren't

too long-winded.

We would like you to say your name very clearly, so she can get it correct. If you have your name spelled a little, you know, funny, maybe you can spell it for her as well, so, again, we can get it correct. If you have a specific affiliation, that will be good -- let us know. If you just want to say you're a landowner, that's fine -- whatever you want to say -- and then it's open to you, like what are your concerns, do you have a specific comment on this document, great; if you just have a concern in general about the project or if you ask if it affects you, that's what we want to hear. And again, we will address those comments directly in the final EIS, and they could even make us change something in the final EIS.

So at this point, Deron, I'll give you the floor since --

MR. PATTERSON: You want me to go first?

MR. LUSK: -- you've signed up, unless you want to defer, that's fine.

Can you -- what's the next slide? I'm gonna leave this slide up in case you want to write down anything, you know, my email address. That email address is not my personal email address, but it comes directly to me and only me, and -- or you can fax something to me.

Again, I really encourage you to comment. If you have something you want to let me know about, great. I encourage you to do that.

So, Deron if you want to. . .

MR. PATTERSON: Thank you very much. I appreciate it.

My name is Deron Patterson. That's spelled D-e-r-o-n, two T's -- Patterson.

Thank you very much, Department of Energy and NRG for having this forum here. I live in Sugar Land, Texas, and as I emailed David yesterday, I'm -- let me tell you the hats I'm wearing. I'm a community organizer in the City of Sugar Land, Texas. I didn't go last night to Thompsons because I was at another event, and I couldn't make it, and -- but I was in Corpus today working, so this worked out really well to come here in Edna, Texas, so glad to be here.

So I am a community organizer, and by that I am the co-founder and co-chair of the Sugar Land Democrats Club, and I know you're thinking, Sugar Land, there's no Democrats, but 42 percent of the people of Sugar Land are Democrats.

I'm also wearing my Texas Glass Association pin. I'm the vice-president of the Texas Glass Association, and I work a lot on legislation to

make for energy efficiency. So, for example, when this school was built, you know, having the right kind of glass -- because professionally I work for PPG Industries, which is one of largest glass companies in the world, paints and coatings and chemicals, based in Pittsburgh, Pennsylvania. But -- and I'm also here as a citizen as someone who, like you, has to breathe air, right? And we all want to breathe clean air.

So why I'm here is because -- truly, it's because I really care about the environment, and I see I think some of y'all are farmers. My grandparents were farmers in Nebraska, and the first ten years of my life, I spent a lot of time on my grandparents' farm, and it's from my grandfather that I learned the care and the love of the earth.

And then I had a great experience to get to go to school in New York City, so I kind of learned rural and urban in my life, but before I get to my position on this project itself, I just want to make a few comments, and I want to say a big thanks to David Knox. David Knox of NRG has been very kind and courteous, and we've been having a lot of conversations because my mission is to get NRG -- and I would like for NRG, since you are here listening and it's gonna be here, I want NRG to know, and I want the CEO of Princeton (ph)

WAP

Public

1a

to know that I want y'all to stop burning coal for the people of Sugar Land and Fort Bend County and greater Houston, because there is no such thing as clean coal. I don't care how attractive that woman is when she comes on and advertises -- put wax in your ears; she's a siren. There is no such thing as clean coal. Why? Because we know that coal is the worst emitter of carbon dioxide, and for that, I'm gonna applaud NRG and the Department of Energy for this project, because they're doing something about it.

But the worst emitter of carbon dioxide is the burning of coal. The devastation of the strip mining and the coal mines and the danger of the people dying in our coal mines around this country -- if you look at the amount of CO2 that a coal plant emits -- and forget about -- let's don't even get hung up about what's gonna happen to the level of the sea levels in a hundred years, let's talk about mercury. And I don't know if you're like me, I like eating fish, and do you know that every fish in the world has mercury in it? And do you know from what I read, 45 percent of the mercury in fish is from coal, coal being burnt here in the U.S., coal being burnt in Mexico, China and India.

You're a young woman and you go to the doctor because you're pregnant, but what is the doctor

gonna give you? He's gonna tell you to stay away from certain kinds of fish. Why? Because certain kinds of fish like tuna -- the big fish have more coal (sic) than the little fish. I love eating fish. I don't want to eat fish with mercury in it.

So I'm asking for the three boilers that are burning coal today on behalf of the citizens of Sugar Land, Missouri City, Fort Bend County, greater Houston -- NRG, please convert the three boilers from coal to natural gas. It can be done.

WAP

Public

1b

Mr. Fisher (ph) called me this year, and I thank him. Y'all are thinking about doing it. It can be done, and I want you to know on my side of the aisle -- and we're in the minority -- but on my side of the aisle, I'll do everything I can to help you with the costs. I'm willing to pay more money. I'll be your biggest sales rep, NRG, to push people to buy NRG Energy if you move from coal to natural gas. I'll be your biggest salesperson. I'll work on my side of the aisle to get the funding needed to make that conversion from coal to natural gas.

This week, I -- I -- when I saw the announcement about this, I started thinking, okay, what -- I got -- I got to get some facts, because this seemed like really good news about an idea to capture the

coal. It's been floating around. So I called Richard Morrison, the county commissioner of Precinct 1 where the Parish plant is at. I said, "Richard, where are you at on this?" He's an environmental lawyer. And he goes, "Deron, you know all the people." He goes, "You call your people and find out." He goes, "You know what? I've checked it out, and I'm in support of it." When Richard Morrison told me that, I said, "Okay." So I called the Sierra Club, and I talked to the two prominent environmental air quality people in the State of Texas, Dr. Neal Carmen (ph) and Dr. Al Ramirez (ph). I spoke to the Environmental Defense League, Mr. Jim Morrison. I spoke to Mr. -- Dr. Matt Tejeda (ph) of Houston, and I -- even at PPG -- we're a big, big manufacturing company -- I spoke to our on EH&S official Mr. Jeff Gigdoll (ph), who is in charge of new plant equipment for float glass manufacturing, and I spoke to him about this idea.

Because at first I thought, you know, I'm really not in favor of this to perpetuate and keep the coal moving along. You saw that document here, and I had a great conversation, and from the engineer, I have a little bit better understanding, this -- this carbon capture sequestration will capture 1.6 million tons.

Go to page 38 or page 39 of the EIS document, and I'm reading in there, and I'm looking that

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1c

the equipment to capture the carbon is gonna emit 800,000 tons, and I'm thinking to myself, oh, there's a typo here. There's a typo. That's a net effect of 50 percent. I'm like, "David, my god, just move from coal to natural gas, and you've taken care of 50 percent, because everybody knows that when you burn natural gas versus coal, there's 50 percent less CO2 burning natural gas." And I'm like, gosh, NRG, all this work on this pipeline and all this stuff -- okay.

But when I was talking to one of these energy environmental experts, he told me -- and nobody was excited. On the environmental side, no one is very excited about carbon capture, but he told me one thing that hit a button, and he goes, "Deron, you know what? If it was just the US of A" -- I don't think that this is viable -- but he goes, "Deron, China and India are gonna be burning coal for hundreds of years." Because, you know, in the United States we have a 400-year supply of coal. That's a lot. And he goes, "Deron, there's one reason why I support it, and that's because this will be the pilot project, and we can prove out, and, hopefully, you know, this 50 percent thing" -- and I just learned from the engineer that the reason why it's only 50 percent -- and it's actually better that that, probably hopefully, be proven to better that than -- but NRG when

they make the permit with the Department of Energy, you know, they've got to do like the worst-case scenario so to speak, okay?

So, when -- when the one gentleman told me that, that he wants to see this project and see how well it works is because this -- this pilot project could be the new technology to help the Chinese and the India companies and NRG, or whoever the supplier is, can sell that technology. And I thought back at my own company, PPG has been making glass since 1883. PPG in the 1990's created a new way to burn natural gas, to melt the sand. We're basically dirt melters. That's how you make glass, right? You melt sand. And PPG has a process called oxy fuel glass melting technology.

When you use oxygen into the -- into the tank of making a -- making glass, you reduce CO2 but about 10, 15, percent, and you reduce nitric-oxide by up to almost 70 percent.

In the United States, PPG has three glass plants that use oxy fuel technology. And do you know that we've sold the technology to three new plants over in mainland China? And we're gonna be selling more to China and to India, and every time a glass plant now is made, the nox will be 70 percent less. If you don't know anything about nox, when you take nox, nitric-oxide, and

you take the sun, and you take organic compounds, you get ground level ozone, which you don't have here in Edna, I doubt, which is a good thing, but in our big cities we do.

So -- so almost into conclusion, I support NRG and the Department of Energy for doing this project to see how this project can work. And the added benefit is, is we can take more of our own U.S. oil and use it because we're not gonna get to an oil-free economy any time soon. So, for that, is another good reason that we can use the oil that's in the ground around here by using the carbon from that. So, for that, I fully support the project, and -- and keep moving forward.

WAP Public 1d

I -- I did notice that there is going to be a bump in the amount of BOC's and nox because of this project. I want to ask NRG once again to take a strong look -- instead of asking for some credit situation out of Dallas, I would like for y'all to take a strong look to see if we can't work with one of the cities in Fort Bend County, Sugar Land, Missouri City, maybe the City of Houston to do a solar -- put a solar farm or some kind of a solar project to offset the additional BOC's and nox that are gonna be created because of the construction of the -- of the project.

WAP Public 1e

So, I've said a lot. You see I'm really

passionate about this, y'all, because I really am. I really am. Let me see if I have any other notes here --

MR. LUSK: We need to wrap it up here.

MR. PATTERSON: Yeah, that's it. Thank you very much for your time. I really appreciate it.

Dave, please stop burning coal in the three boilers, and let's get this one going to capture the carbon. Thank you.

MR. LUSK: Okay. Would anyone else like to follow Deron and give us some additional comments? We'd love to have you; if -- if not, I'll give you the option to come up and say something individually, if you would like, or please, if you have written comments when you get a chance to maybe digest what was said tonight and maybe read a couple of sections on the EIS if you would like and send something written to me directly, that would be good too, and if not, we can adjourn this more formal part of the meeting. If you have some additional questions, we can join back at a poster and talk about something for a few minutes, if you'd like. I'm sure that John and David and everybody else might -- might be willing to do that. Last chance for verbal comments? I guess we're good.

(Conclusion of hearing)

THE STATE OF TEXAS)
COUNTY OF JACKSON)

REPORTER'S CERTIFICATE

I, TAMMY C. WATKINS, Certified Shorthand Reporter in and for the State of Texas, do hereby certify that the above and foregoing contains a true and correct transcription of the Public Hearing Meeting held on October 11, 2012 in Jackson County, Texas, to the best of my ability.

WITNESS MY OFFICIAL HAND this the _____ day of _____, 2012.

_____
TAMMY C. WATKINS, CSR, RPR
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ATTACHMENT 6
Public Hearing Written Comments

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COUSHATTA TRIBE
OF LOUISIANA

HERITAGE DEPARTMENT

October 29, 2012

Mark Lusk, NEPA Document Manager
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road, M/S I07
PO Box 880
Morgantown, WV 26507-0880

SUBJECT: Section 106 Compliance Review

RE: W.A. Parish Post-Combustion CO2 Capture and Sequestration Project

WAP

Agency

1

Dear Mr. Lusk:

The Coushatta Tribe of Louisiana has reviewed the above referenced proposed undertaking and are in concurrence with your findings of "no historical properties affected".

Sincerely,

Michael Tarpley
Deputy THPO
Coushatta Tribe of Louisiana

337-584-1560 337-584-1616 (FAX) PO BOX 10 ELTON, LA 70532

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75202-2733

November 2, 2012

Mark Lusk
U.S. Department of Energy
National Energy Technology Laboratory
3610 Collins Ferry Road
M/S 107, P.O. Box 880
Morgantown, WV 26507-0880

Dear Mr. Lusk,

In accordance with our responsibilities under Section 309 of the Clean Air Act (CAA), the National Environmental Policy Act (NEPA), and the Council on Environmental Quality (CEQ) regulations for implementing NEPA, the U.S. Environmental Protection Agency (EPA) Region 6 office in Dallas, Texas, has completed its review of the Draft Environmental Impact Statement (DEIS) prepared by the U.S. Department of Energy for the W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project.

WAP Agency 2a

EPA rates the DEIS as LO - "Lack of Objections". We are enclosing technical comments that provide recommendations for further clarification and additional discussion in the Final EIS (FEIS). The EPA's Rating System Criteria can be found here: http://www.epa.gov/oecaerth/nepa/comments/ratings.html. Responses to comments should be placed in a dedicated section of the FEIS and should include the specific location where the revision, if any, was made. If no revision was made, a clear explanation should be included.

EPA appreciates the opportunity to review the DEIS. Our classification will be published on the EPA website, www.epa.gov, according to our responsibility under Section 309 of the CAA to inform the public of our views on the proposed Federal action. Please send our office one copy of the FEIS and an internet link. On October 1, 2012, EPA began requiring mandatory EIS filing on the *e-NEPA Electronic Filing* system at http://www.epa.gov/compliance/nepa/submiteis/index.html. If you have any questions or concerns, please contact John MacFarlane of my staff at macfarlane.john@epa.gov or 214-665-7491 for assistance.

Sincerely,

Rhonda Smith
Chief, Office of Planning
and Coordination

Enclosure

DETAILED COMMENTS ON THE
U.S. DEPARTMENT OF ENERGY'S
DRAFT ENVIRONMENTAL IMPACT STATEMENT
FOR THE
W.A. PARISH POST-COMBUSTION CO_2 CAPTURE AND
SEQUESTRATION PROJECT
FORT BEND COUNTY, TEXAS

BACKGROUND: NRG Energy, Inc's (NRG) proposed W.A. Parish Post-Combustion CO_2 Capture and Sequestration (PCCS) Project would construct a carbon dioxide (CO_2) capture facility at its 4,880-acre W.A. Parish Plant (Plant) in rural Fort Bend County. The capture facility would use an advanced amine-based CO_2 absorption technology to capture at least 90 percent of the CO_2 from a 250-megawatt equivalent portion of the flue gas exhaust from Unit 8 at the Plant. The Department of Energy (DOE) will provide $167 million in cost-shared financial assistance to NRG under the Clean Coal Power Initiative Program to support construction and operation of NRG's PCCS Project.

COMMENTS: The following are offered for your agency's consideration in completing the Final EIS:

2.3.2.4.4.4 Air Emissions, page 2-22

This and other sections in the DEIS explains that NRG is required, as part of the Nonattainment New Source Review permitting process, to provide offsets to reduce the total net project increases of ozone precursors (NOx and Volatile Organic Compounds [VOC]) within the Houston Galveston Brazoria (HGB) Metropolitan Statistical Area. In a September 27, 2012 letter, NRG contacted EPA Region 6 to determine available options for offsetting the project's increased VOC emissions, and specifically requested to offset the project's proposed VOC emission increases in the HGB ozone nonattainment area with banked NOx discreet emission reduction credits (DERCs) generated in the HGB area.

WAP Agency 2b

In an October 12, 2012 letter to NRG, EPA Region 6 provided concurrence on the use of HGB NOx DERCs to offset VOC emission increases at a 1:1 trading ratio in this specific situation. This approach will also require approval from the Texas Commission on Environmental Quality.

3.7.3.1 Surface Water, Direct and Indirect Impacts, Pipeline Corridor, page 3.7-23

This section states "As the pipeline is currently designed, the three major rivers (i.e., the San Bernard River, the Colorado River, and the Lavaca River) and three other waterbodies (i.e., the man-made pond by FM 1994, Big Creek and Jones Creek) would be crossed by horizontal directional drilling (HDD). NRG anticipates that open-cut methods would be used to cross the remaining smaller waterbodies and wetland areas."

Recommendation:

WAP Agency 2c

- EPA recommends that the applicant use HDD to cross under all perennial waterways, all waterways designated as Ecologically Significant Stream Segments, and any other waterway with unique characteristics.

WAP Agency 2d

- EPA recommends the applicant verify the extent of Traditional Navigable Waters in the study area.

3.8.3.1.2 Wetlands and Floodplains, Construction Impacts, Pipeline Corridor, Wetlands, page 3.8-14

Table 3.8-5 lists the estimated temporary and permanent impacts to jurisdictional wetlands from the proposed project. The estimated permanent impacts to wetlands are listed at 7.4 acres.

WAP Agency 2e

- The applicant should provide appropriate compensatory mitigation for permanent impacts to 7.4 acres of wetlands.

WAP Agency 2f

- The applicant should use approved wetland functional assessment models to determine the wetland types that would be impacted and the extent of functional loss and appropriate compensatory mitigation that would be required to fully restore the unavoidable adverse impacts to waters of the U.S., including special aquatic sites as identified in 40 CFR Part 230 Section 404(b)(1).

3.9.2.1 Terrestrial Vegetation and Habitats

This section states "The U.S. National Vegetation Classification System and land cover data (NatureServe 2012) were used to characterize the terrestrial vegetation communities and habitats within the region of influence (ROI)." While that information is worthwhile, additional evaluation is necessary to identify rare plant communities within the study area.

Recommendation:

WAP Agency 2g

- The applicant should utilize the Texas Parks and Wildlife Department's (TPWD) Rare Plant Communities to identify any State or Global rare plant communities.

WAP Agency 2h

- If the proposed project would impact any State or Global rare plant communities, EPA recommends contacting TPWD to discuss appropriate mitigation measures.

3.19 Environmental Justice

WAP Agency 2l

The method used to determine Environmental Justice applicability and impact appears to be flawed and/or misleading. For the purpose of Environmental Justice, Hispanic or Latino is to be considered in the determination of the minority populations within the region of influence (ROI) and the environmental impact.

Recommendation:

WAP Agency 2J

- EPA recommends that DOE properly address and/or reassess the environmental justice impact of the proposed project on the affected populations. We recommend utilizing the Council on Environmental Quality's (CEQ) "Environmental Justice Guidance under NEPA"[1] and Executive Order (EO) 12898 - Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations[2] to evaluate EJ impacts.

4.0 Mitigation Measures, page 4-1

Table 4-1, Summary of Mitigation Measures, contains a list of practices NRG proposes to implement during project construction to minimize/mitigate potential adverse impacts to air quality and greenhouse gas emissions. In addition to the measures included in Table 4-1, as well as all applicable local, state, or federal requirements, EPA recommends that the following mitigation measures be included in the Construction Emissions Mitigation Plan in order to reduce impacts associated with emissions of NOx, CO, PM, SO_2, and other pollutants from construction-related activities:

WAP Agency 2k

Fugitive Dust Source Controls:

- Stabilize open storage piles and disturbed areas by covering and/or applying water or chemical/organic dust palliative where appropriate at active and inactive sites during workdays, weekends, holidays, and windy conditions;
- Install wind fencing and phase grading operations where appropriate, and operate water trucks for stabilization of surfaces under windy conditions; and
- Prevent spillage when hauling material and operating non-earthmoving equipment and limit speeds to 15 miles per hour. Limit speed of earth-moving equipment to 10 mph.

Mobile and Stationary Source Controls:

- Plan construction scheduling to minimize vehicle trips;
- Limit idling of heavy equipment to less than 5 minutes and verify through unscheduled inspections;
- Maintain and tune engines per manufacturer's specifications to perform at EPA certification levels, prevent tampering, and conduct unscheduled inspections to ensure these measures are followed;
- If practicable, utilize new, clean equipment meeting the most stringent of applicable Federal or State Standards. In general, commit to the best available emissions control technology. Tier 4 engines should be used for project construction equipment to the maximum extent feasible;
- Lacking availability of non-road construction equipment that meets Tier 4 engine standards, the responsible agency should commit to using EPA-verified particulate traps,

[1] http://www.epa.gov/environmentaljustice/resources/policy/ej_guidance_nepa_ceq1297.pdf
[2] http://www.epa.gov/lawsregs/laws/eo12898.html

WAP Agency 2k

oxidation catalysts and other appropriate controls where suitable to reduce emissions of diesel particulate matter and other pollutants at the construction site; and

- Consider alternative fuels and energy sources such as natural gas and electricity (plug-in or battery).

Administrative controls:

- Prepare an inventory of all equipment prior to construction and identify the suitability of add-on emission controls for each piece of equipment before groundbreaking;
- Develop a construction traffic and parking management plan that maintains traffic flow and plan construction to minimize vehicle trips; and
- Identify sensitive receptors in the project area, such as children, elderly, and infirmed, and specify the means by which impacts to these populations will be minimized (e.g. locate construction equipment and staging zones away from sensitive receptors and building air intakes).

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United States Department of the Interior

OFFICE OF THE SECRETARY
Office of Environmental Policy and Compliance
1001 Indian School Road NW, Suite 348
Albuquerque, New Mexico 87104

ER 12/676
File 9043.1

November 5, 2012

VIA ELECTRONIC MAIL ONLY

Mark W. Lusk
National Environmental Policy Act Document Manager
U.S. Department of Energy
National Energy Technology Laboratory (NETL)
3610 Collins Ferry Road, M/S I07
Morgantown, West Virginia 26507-0880

Dear Mr. Lusk:

The U.S. Department of the Interior has reviewed the Draft Environmental Impact Statement (DEIS) for the W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project Funding, Fort Bend and Jackson Counties, Texas, for the Department of Energy's proposed action to provide financial assistance to NRG Energy, Inc., for a demonstration project to use captured carbon dioxide at the Parish PCCS Project in Fort Bend, Texas, to enhance oil recovery at the West Ranch oil field in Jackson County, Texas. The captured and compressed carbon dioxide would be transported via an 80-mile-long, 12-inch-diameter underground pipeline through Fort Bend, Wharton, and Jackson Counties, Texas. We provide the following comments in accordance with the Fish and Wildlife Coordination Act (16 U.S.C. 661-667e), Endangered Species Act (16 U.S.C. 1531 *et seq*.), National Environmental Policy Act (42 U.S.C. 4321 *et seq*.), Bald and Golden Eagle Protection Act (16 U.S.C. 668-668c), and Migratory Bird Treaty Act (MBTA) (16 U.S.C. 703 *et seq*.). We also offer general comments on the DEIS.

General Comments

WAP

Agency

3a

Threatened and Endangered Species

According to Section 7(a)(2) of the Endangered Species Act (ESA), it is the responsibility of each federal agency to ensure any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any species listed under the ESA. Based upon an inventory of listed species and other current information, the federal action agency determines if any endangered or threatened species may be affected by the proposed action.

The U.S. Fish and Wildlife Service's (FWS) Consultation Handbook is online at: *http://www.fws.gov/endangered/esa-library/pdf/esa_section7_handbook.pdf* for further information on definitions and the Section 7 process.

Whooping Crane

WAP Agency 3b

The endangered whooping crane (*Grus Americana*) has been documented in Fort Bend and Wharton Counties, Texas. The lack of documented sightings of whooping cranes within the region of influence (ROI) and lack of observation of whooping cranes during field surveys is not sufficient data to predict with certainty where whooping cranes may be found in the future. Although rare, it is conceivable that whooping cranes may use agriculture fields, rivers, and fresh water wetlands within or adjacent to the pipeline footprint for feeding or staging areas during migration.

Whooping cranes are monogamous, forming lifelong pair bonds, and breed in Wood Creek National Park, Canada. Once the breeding season has ended, whooping cranes migrate to their wintering grounds in Texas, usually arriving in late October to mid-November. Overall, the migration can take several months and encompasses a 200-mile wide corridor. The birds migrate during the day and stop to feed and rest at night. Whooping cranes feed on insects, frogs, rodents, small birds, minnows and berries during migration and switch to predominantly blue crabs and clams on the wintering grounds. Typically, the birds winter at the Aransas National Wildlife Refuge and surrounding areas, where they prefer the coastal salt marshes, but they will also forage in fresh water habitats such as rolling sandy areas characterized by oak brush, grasslands, swales, and ponds. Whooping cranes begin the migration to Canada in late March and early April. However, as noted above, whooping cranes have occasionally stopped over in Fort Bend and Wharton Counties, Texas.

Bald Eagle

WAP Agency 3c

On August 8, 2007, the bald eagle was removed from the list of threatened or endangered species under the ESA. However, the bald eagle continues to be protected under the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act. Bald eagle nesting season in Texas typically begins on October 1 and can extend through May. They usually nest 1-2 miles from rivers or other large water bodies such as a lake or reservoir. Bald eagles tend to nest in very large, mature trees (such as those found in the footprint of the proposed pipeline corridor) that can support a nest up to 10 feet in diameter and weighing upwards of half a ton (USFWS[1]).

The DEIS mentions several inactive bald eagle nests and one active bald eagle nest known to occur within the ROI. Breeding bald eagle pairs will return to the same area year after year, often using alternate nests sites within the territory during different breeding years. Although a given nest may be lost between nesting periods, the pair often returns to the same territory to build another nest. There may be additional bald eagle nests located in the project area, since the number of bald eagles nesting in Texas is increasing and locations of their nests are unknown. Therefore, FWS recommends conducting additional surveys for bald eagle nests prior to the

[1] U.S. Fish and Wildlife Service. June 2007. Bald Eagle Fact Sheet. July, 23, 2012 *http://www.fws.gov/midwest/eagle/recovery/biologue.html*

commencement of construction. All work crew members should be informed bald eagles may be in the area and should be aware of what bald eagles and bald eagle nests look like. There should be one point of contact designated in each crew to be notified if workers observe a bald eagle. If an active nest(s) is found, FWS recommends implementing the strategies found in the Bald Eagle Management Guidelines at: *http://www.fws.gov/midwest/eagle/guidelines/index.html* to avoid disturbance of the nest.

WAP Agency 3c cont.

All eagle nests are protected under the Bald and Golden Eagle Protection Act and require a permit before one can be removed. Only inactive nests may be removed, provided the take is necessary to protect an interest in a particular locality and the activity necessitating the take or the mitigation for the take will, with reasonable certainty, provide a clear and substantial benefit to eagles. Before removing a bald eagle nest, you will be required to comply with all avoidance, minimization, or other mitigation measures determined as reasonable to compensate for the detrimental effects, including indirect effects, to the regional eagle population.

Mussels

WAP Agency 3d

Several candidate species of freshwater mussels have been documented in the Colorado River basin and have the potential to occur within the project area. Candidate species are those species being considered for listing pursuant to the ESA. While these species are not afforded any legal protection under the ESA, the FWS provides species information for consideration in the environmental review process and to encourage efforts to avoid adverse impacts to these species. It is known that sedimentation smothers and suffocates mussels and is one of the main contributors to mussel die offs. Therefore, the FWS recommends the use of silt fences and filter fabric to reduce sedimentation within the Colorado River and its tributaries located within the project area. Please review the Best Management Practices for Projects Affecting Rivers, Streams and Tributaries (enclosed) and coordinate with the FWS's Clear Lake Ecological Services Field Office at 281-286-8282, regarding impacts to candidate species to avoid potential project modifications or delays if these species become federally listed before the project is completed.

Migratory Birds

WAP Agency 3e

Over 1,000 species of birds are protected by the Migratory Bird Treaty Act. Any taking of migratory birds, including nests with eggs, incidental to an otherwise lawful activity is a violation of the MBTA. All measures must be taken to avoid incidental take such as conducting land clearing activities outside of the breeding season.

If the proposed project or action includes a reasonable likelihood that take of nesting migratory birds will occur, then that action should be undertaken outside of the nesting season. This includes clearing or cutting of vegetation, structure construction and maintenance, etc. The primary nesting season for migratory birds varies greatly between species and geographic location but generally extends from early April to mid-July. However, the maximum time period for the nesting season can extend from early February through late August. Also, eagles may initiate nesting as early as late December or January depending on the geographic area. Due to this variability, project proponents should consult with the USFWS Region 2 Migratory Bird Program for specific nesting seasons. Strive to schedule all disruptive activities outside the peak of migratory bird nesting season to the greatest extent possible. Always avoid any habitat

WAP Agency 3e cont.

alteration, removal, or destruction during the primary nesting season for migratory birds. Clearing vegetation in the year prior to construction (but not within the nesting season) may discourage birds from attempting to nest in the proposed construction area, thereby decreasing chance of take during construction activities. Inactive nests on structures scheduled for maintenance, remodeling, or demolition should be removed in advance of the planned activity so that re-nesting is not attempted. For example, swallows may return to the same nest year after year. Therefore, inactive swallow nests from a previous year's nesting season should be removed before commencing an activity in the current year's nesting season. New nesting attempts should be discouraged and new nests should be destroyed before egg-laying begins. If a proposed project or action poses the potential for take of migratory birds and/or the loss or degradation of migratory bird habitat and work cannot occur outside the migratory bird nesting season, project proponents should provide the FWS with an explanation for why work has to occur during the migratory bird nesting season. Further, in these cases, project proponents also need to demonstrate that all efforts to complete work outside the migratory bird nesting season were attempted and that the reasons work needs to be completed during the nesting season were beyond the proponent's control.

Where project work cannot occur outside the migratory bird nesting season, project proponents must survey those portions of the project area during the nesting season prior to construction occurring to determine if migratory birds are present and nesting in those areas. In addition to conducting surveys during the nesting season/construction phase, companies may also benefit from conducting surveys during the prior nesting season Such surveys will assist the company in any decisions about the likely presence of nesting migratory birds or sensitive species in the proposed project or work area. While individual migratory birds will not necessarily return to nest at the exact site as in previous years, a survey in the nesting season in the year before construction allows the company to become familiar with species and numbers present in the project area well before the nesting season in the year of construction. Bird surveys should be completed during the nesting season in the best biological timeframe for detecting the presence of nesting migratory birds, using accepted bird survey protocols. FWS offices can be contacted for recommendations on appropriate survey guidance. Project proponents should also be aware that results of migratory bird surveys are subject to spatial and temporal variability. Finally, project proponents will need to conduct migratory bird surveys during the actual year of construction if they cannot avoid work during the primary nesting season (see above) and if construction will impact habitats suitable for supporting nesting birds.

Pipeline Corridors, Compressor Stations, and Metering Facilities

WAP Agency 3f

Previous pipeline projects have used bright lighting on associated above ground pipeline structures such as meter stations, compressor stations, connection stations, main line valve stations, and other small facilities associated with the pipeline project. We recommend all bright lighting associated with these above ground structures be down-shielded to significantly reduce impacts to resident and migratory birds and other resident wildlife. Security lighting for on the ground facilities and equipment should be down-shielded to keep light within the boundaries of each site. Overall, we recommend alternative routes and directional drilling be evaluated and the least environmentally damaging route/method should be selected.

FWS also recommends including the enclosed pipeline conditions (enclosure), jointly developed by the Galveston, Texas District of the U.S. Army Corps of Engineers and the associated

resource agencies in any necessary permits. These guidelines were developed to reduce project impacts to sensitive habitats along new rights-of-way.

We appreciate the opportunity to review the proposed W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project and DEIS. If you have any questions or need additional information, please contact Edith Erfling, Supervisor, FWS Clear Lake Ecological Services Field Office, at 281-286-8282.

Sincerely,

Stephen R. Spencer, Ph.D.
Regional Environmental Officer

Enclosures

BEST MANAGEMENT PRACTICES FOR PROJECTS AFFECTING RIVERS, STREAMS AND TRIBUTARIES

The project crosses or potentially affects river, stream or tributary aquatic habitat. Therefore the Service recommends implementing the following applicable Best Management Practices:

1. Construct stream crossings during a period of low streamflow (e.g., July - September);

2. Cross streams, stream banks and riparian zones at right angles and at gentle slopes;

3. When feasible, directionally bore under stream channels;

4. Disturb riparian and floodplain vegetation only when necessary;

5. Construction equipment should cross the stream at one confined location over an existing bridge, equipment pads, clean temporary native rock fill, or over a temporary portable bridge;

6. Limit in-stream equipment use to that needed to construct crossings;

7. Place trench spoil at least 25 feet away landward from streambanks;

8. Use sediment filter devices to prevent movement of spoil off right-of-way when standing or flowing water is present;

9. Trench de-watering, as necessary, should be conducted to prevent discharge of silt laden water into the stream channel;

10. Maintain the current contours of the bank and channel bottom;

11. Do not store hazardous materials, chemicals, fuels, lubricating oils, and other such substances within 100 feet of streambanks;

12. Refuel construction equipment at least 100 feet from streambanks;

13. Revegetate all disturbed areas as soon as possible after construction to prevent unnecessary soil erosion. Use only native riparian plants to help prevent the spread of exotics;

14. Maintain sediment filters at the base of all slopes located adjacent to the streams until right-of-way vegetation becomes established;

15. Maintain a vegetative filtration strip adjacent to streams and wetlands. The width of a filter strip is based on the slope of the banks and the width of the stream. Guidance to determine the appropriate filter strip (stream management zone, SMZ) width is provided below; and

16. Direct water runoff into vegetated areas.

SMZ WIDTH

SMZ widths should consider watershed characteristics, risk of erosion, soil type, and stream width. SMZ widths are measured from the top of each bank and established on each side of the stream. Erosion risk is increased with sandy soil, steep slopes, large watersheds and increasing stream widths. Recommended primary (refers to ephemeral streams) and secondary SMZ (refers to intermittent, braided, and perennial streams, lakes, and ponds) widths are provided in the table below.

Steam Width (Feet)	Slope (Percent)	Primary SMZ (Feet)	Secondary SMZ (Feet)
<20	<7	35	0
<20	7-20	35	50
<20	>20	Top of slope or 150	75
20-50	<7	50	0
20-50	7-20	50	50
20-50	>20	Top of slope or 150	75
>50	<7	Width of stream or 100 max.	0
>50	7-20	Width of stream or 100 max.	50
>50	>20	Top of slope or 150	75

PERMIT REQUIREMENTS

A permit may be required from the U.S. Army Corps of Engineers should fill material be placed in wetlands or other waters of the United States. Should such a permit be required, the BMP's contained in this enclosure, as well as other conservation provisions, may become permit conditions. Additional permit requirements may apply, depending upon the nature of individual projects.

DEFINITIONS

Perennial streams have a well defined channel and flow year-round, except during periods of extreme drought.

Intermittent streams have a seasonal flow and a continuous well-defined channel.

Ephemeral streams flow during and for a few hours or days after periods of heavy rain and the stream channel is less recognizable than either perennial or intermittent streams.

Braided streams are stream systems with multiple and frequently interconnected channels.

Wetlands generally support hydrophytic vegetation, hydric soils and wetland hydrology.

Literature Cited

Arkansas Forestry Commission. 2001. Draft Arkansas Forestry Best Management Practices for Water Quality Protection.

USACE Pipeline Conditions developed by USACE, USFWS, NOAA, & TPWD

These special conditions can be used to address impacts to non-forested wetlands along pipeline routes.

1. The permittee must notify the U.S. Army Corps of Engineers (USACE) Galveston District, Regulatory Branch, Compliance Section Chief (Compliance) in writing within 7 days of the completion of the pipeline construction. The permittee must restore all impacted jurisdictional waters of the U.S. including wetlands within the permit area, to pre-project contours and elevations within 30 calendar days of completion of the pipeline construction.

2. The permittee will conduct four separate reports that will be used to compare pre- and post-construction site conditions, including one pre-construction report and three restoration reports. All reports will use geographical information system (GIS)/Remote Sensing analysis based on aerial imagery and ground surveys of the project site according to the "Protocols for Data Submission" (Protocol), which is described in the attachment. The restoration reports must compare pre- and post-construction conditions in the permit area, present conclusions on the success or failure of the restoration activities, and include a proposal to bring the project into compliance, if restoration is not successful. Reports will include the following:

a. The **first** report will be conducted before pipeline construction begins. The permittee will conduct aerial and ground surveys as part of the GIS analyses of the permit area (including any proposed temporary work areas) according to the attached Protocol.

b. The **second** report will be an initial restoration report and submitted to Compliance within 60 calendar days of the completion of pipeline construction. This second report will be based on post-construction aerial and ground surveys conducted after the completion of the pipeline construction. Should some wetland areas not be restored satisfactorily, remedial action, such as planting, addition of fill material, or additional mitigation, may be required, at the discretion of Compliance.

c. The **third** report will be a supplemental restoration report submitted to Compliance one year after the completion of pipeline construction. This third report will be based on post-construction aerial and ground surveys conducted one year after the completion of the pipeline construction (or the end of first growing season, whichever comes first). The third report must be submitted 60 days after the surveys are conducted. The re-vegetation of disturbed areas should be at least 30% of the pre-construction aerial coverage of non invasive, native vegetation, to be considered on target for eventual restoration. Should some wetland areas not be restored satisfactorily, remedial action, such as replanting, addition of fill material, or additional mitigation, may be required, at the discretion of Compliance.

d. The **fourth** report will be a supplemental restoration report submitted to Compliance within two years after the completion of pipeline construction. The fourth report must be submitted 60 days after the two year time limit. This fourth report will be based on a post-construction aerial and ground surveys conducted two years after the completion of the pipeline construction (or the end of second growing season, whichever comes first). The re-vegetation of disturbed areas should be 100% of the pre-construction aerial coverage with non-invasive, native vegetation, to be considered on target for complete restoration. Should some wetland areas not be restored satisfactorily, remedial action, such as replanting, addition of fill material, or additional mitigation, may be required, at the discretion of Compliance.

Protocols for Data Submission (Protocol)

a. Aerial Imagery Protocol: The first report must utilize recent aerial imagery (within the last five years) of the permit area and an area 300-foot-wide on each side of the permit area. The second report must utilize aerial images taken within two months of project completion. The third image must be taken approximately one year after pipeline construction is complete. The fourth image must be taken approximately two years after pipeline construction is complete. The aerial imagery must be color infrared, ortho-corrected, with a maximum of 6-inch pixel size, and +/- 1 meters spatial accuracy, presented at a scale of 1 inch = 200 feet.

b. Ground Survey Protocol: Each restoration reports will include GIS analysis of the permit area, accompanied by a ground survey that includes sample points with geographic coordinates, a wetland data sheet percent of relative vegetation cover, and elevations for each change in plant community (described in the USACE 1987 Wetland Delineation Manual) throughout the entire permit area. The survey coordinates must have sub-meter accuracy; data must be recorded and submitted in NAD 1983 UTM zones and coordinates.

c. GIS/Remote Sensing Analysis Protocol: Each report must include aerial imagery of the permit area, and an area 300-foot-wide on each side of the permit area with a GIS analysis of the aerial imagery. Survey reports will assess all existing plant communities, open water, and special aquatic sites (in acres) within the entire permit area. The GIS analysis must be submitted in the reports as an 8 ½ by 11-inch hard copy. Upon request by Compliance, the permittee shall submit the GIS analysis in Arcview Shapefile format with Federal Geographic Data Committee (FGDC) compliant metadata, and all raster imagery in GEoTiff format with FGDC compliant metadata, on a CD-ROM.

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TEXAS PARKS & WILDLIFE

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November 6, 2012

Mark Lusk
NETL
3610 Collins Ferry Road
Morgantown, WV 26507

WAP
Agency
4

RE: W.A. Parish Post-Combustion Carbon Capture and Storage Project
NRG Energy, Inc.
Fort Bend County, Texas

Dear Mr. Lusk:

Under section 12.0011 of the Texas Parks and Wildlife Code, Texas Parks and Wildlife Department (TPWD) is charged with "providing recommendations that will protect fish and wildlife resources to local, state, and federal agencies that approve, permit, license, or construct developmental projects" and "providing information on fish and wildlife resources to any local, state, and federal agencies or private organizations that make decisions affecting those resources."

NRG Energy, Inc. (NRG) is proposing a project that would capture carbon dioxide (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County. The CO_2 would be delivered in a new approximately 80-mile long pipeline to the West Ranch oil field located near the city of Vanderbilt in Jackson County, Texas, where it would be used for enhanced oil recovery and ultimately sequestered.

TPWD provided comments for the proposed project on March 20, 2012 and additionally has met with the project sponsor to evaluate the project's impacts upon fish and wildlife resources. The DEIS has incorporated TPWD's comments and concerns regarding impacts to fish and wildlife resources. TPWD requests that the project sponsor utilize the recommendations provided in the March 20, 2012 comment letter and coordinate with TPWD if project plans change.

TPWD appreciates the efforts of NRG Energy, Inc. to coordinate with TPWD on the impacts to fish and wildlife resources and looks forward to continued cooperative efforts. Please contact TPWD staff, Amy Turner, Ph.D., Wildlife Habitat Assessment Biologist, at (361) 576-0022 if you have any questions or need additional assistance.

Sincerely,

Amy Turner

Amy Turner, Ph.D.
Wildlife Habitat Assessment Program
Wildlife Division

AJT:ERS-2670

4200 SMITH SCHOOL ROAD
AUSTIN, TEXAS 78744-3291
512.389.4800
www.tpwd.state.tx.us

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ATTACHMENT 7
Responses to Comments

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Comments from the Public

Deron Patterson – Comment No. WAP Public 1a: I want y'all to stop burning coal for the people of Sugar Land and Fort Bend County and Greater Houston because there is no such thing as clean coal.

Response: Comment noted.

Deron Patterson - Comment No. WAP Public 1b: On behalf of the citizens of Sugar Land, Missouri City, Fort Bend County, and Greater Houston, I'm asking that the three NRG boilers that are burning coal be converted to natural gas.

Response: DOE's proposed action must comply with the purposes of the Clean Coal Power Initiative (CCPI), which include demonstration of the commercial feasibility of certain types of new technologies for the cleaner use of coal. DOE issued Funding Opportunity Announcement (FOA) DE-FOA-0000042 to seek projects focused on the integration of coal-fueled power generation with CO_2 capture, utilization and sequestration. Neither CCPI nor the FOA directly extends funding to plants fueled by natural gas. Thus, awarding CCPI funding for conversion of a coal-fueled plant to a natural-gas-fueled plant would not meet DOE's purpose and need for action as defined by Congress when they provided the program funding and as defined by DOE under the specifications of the FOA.

Any decision that NRG might make regarding conversion of their coal-fueled power plants to natural gas would be based on a number of factors, including price volatility and long-term price projections for coal and natural gas. Along with risk taken on fuel prices long-term, the costs of plant conversion, environmental compliance, by-product sales (including sales or use of CO_2), waste disposal, and operational costs would be considered. Over the planned life of a typical power plant, coal has historically demonstrated much less price variability compared to natural gas. Recent history has shown that natural gas prices can vary greatly, causing some plants using natural gas to cease operations (and even close) when the price of natural gas goes too high. Throughout the 1990s, plants fueled by natural gas were built in response to the low prices for the relatively abundant natural gas at that time. The widespread deployment of these plants resulted in the demand exceeding the supply to a degree that caused a large increase in natural gas prices. As a result, many natural gas plants were put on standby or closed. High prices for natural gas eventually triggered more exploration and production of natural gas, which led to a decline in natural gas prices. This price volatility has resulted in caution among long-term investors and lenders, as well as utility companies, regarding the opportunities to participate in such proposed plants today. If more domestic capacity becomes available and additional infrastructure is developed to allow adequate access to natural gas over the life of a plant, power generation companies may revisit their plans.

Deron Patterson - Comment No. WAP Public 1c: On page 328 or 39 of the Draft EIS, it says that the equipment to capture the carbon is going to emit 800,000 tons [of CO_2]. That's a net effect of 50 percent.

Response: Section 3.3.3.2 of the EIS summarizes the operational CO_2 emissions of the Parish PCCS Project (~785,000 tons per year [tpy]) and expected CO_2 removal and sequestration (~1.6 million tpy). While these rates reflect an overall net reduction of approximately 50%, the proposed project is expected to demonstrate the ability of the amine-based solvent technology process to remove at least 90% of the CO_2 from a slipstream of flue gas from a coal-fired unit, and ultimately deliver approximately 1.6 million tons of CO_2 for use at the West Ranch oil field.

Deron Patterson - Comment No. WAP Public 1d: I support NRG and the DOE for doing this project. It will also allow us to use more domestic oil.

Response: Comment noted.

Deron Patterson - Comment No. WAP Public 1e: I noticed that this project would cause a bump in the VOCs and NO_x emitted and I urge NRG to consider this.

Response: VOC and NO_x emissions result from the operation of the carbon capture process and related equipment. As described in Section 3.2.3.2.4 of the EIS, these emissions would be offset by the retirement of emissions credits, at a 1.3 to 1 ratio. The Texas Commission on Environmental Quality (TCEQ) air permit for the proposed project would have a Special Condition requiring NRG to provide emission credits prior to the start of operation.

Comment from Native American Tribal Representative

Coushatta Tribe of Louisiana - Comment No. WAP Agency 1: The Coushatta Tribe of Louisiana has reviewed the above referenced proposed undertaking [project] and is in concurrence with your findings of "no historical properties affected."

Response: Comment noted.

Comments from Federal and State Agencies

U.S. Environmental Protection Agency, Region 6

U.S. EPA - Comment No. WAP Agency 2a: EPA rates the Draft EIS as LO – Lack of Objections.

Response: Comment noted.

U.S. EPA - Comment No. WAP Agency 2b: In an October 12, 2012 letter to NRG, EPA Region 6 provided concurrence on the use of Houston Galveston Brazoria (HGB) NO_x discreet emission reduction credits (DERCs) to offset VOC emission increases at a 1:1 trading ratio in this specific situation. This approach will require approval from the Texas Commission on Environmental Quality (TCEQ).

Response: Section 3.2.3.2.4 Summary of Operational Impacts, documents the use of NO_x DERCs to satisfy VOC emission offset requirements. This method is in the approved State Implementation Plan (SIP), and has been approved by EPA and TECQ in writing. A discussion of this has been added.

U.S. EPA - Comment No. WAP Agency 2c: EPA recommends that the applicant use horizontal directional drilling (HDD) to cross under all perennial waterways, all waterways designated as Ecologically Significant Stream Segments, and any other waterway with unique characteristics.

Response: DOE and NRG consulted with the Texas Parks and Wildlife Department (TPWD) to determine the most effective manner to cross waterways based on the local conditions. On the basis of this consultation, HDD was considered appropriate for large stream crossings; however, conventional open cut methods with additional Best Management Practices (BMPs), as recommended by TPWD, were considered to be sufficiently protective of smaller waterways. As described in Section 3.7.3.1, smaller perennial waterways and Ecologically Significant Stream Segments that are 50 feet or less in width (Cedar Lake Creek and West Carancahua Creek) would be crossed using conventional open cut methods and use BMPs to reduce expected impacts to a short-term and minor level. Additional BMPs that would be used at the Ecologically Significant Stream Segments include: using double silt fencing; avoiding clearing of stream bank and in-stream native vegetation; phasing work during dry periods; minimizing any stream bed disturbance; and locating equipment storage areas, valves, and pump stations beyond the floodplain.

U.S. EPA - Comment No. WAP Agency 2d: EPA recommends that the applicant verify the extent of Traditional Navigable Waters in the study area.

Response: DOE expects that the U.S. Army Corps of Engineers (USACE) would determine the larger perennial streams to be Traditional Navigable Waters. The classification of all waterways crossed by the proposed pipeline would be further reviewed by the USACE as part of the Section 10 of the Rivers and Harbors Act and Section 404 of the Clean Water Act (Section 10/404) permitting process. Text was added to Section 3.7.3.1 stating that the extent of Traditional Navigable Waters would be verified with the USACE as part of the permitting process.

U.S. EPA - Comment No. WAP Agency 2e: The applicant should provide appropriate compensatory mitigation for permanent impacts to 7.4 acres of wetlands.

Response: NRG would meet all requirements for compensatory mitigation as required by the Section 10/404 process. As described in the last paragraph of Section 3.8.3.1.2, compensatory mitigation would be provided for permanent impacts to wetlands, as required for the USACE Section 10/404 permit. Permanent impacts would be avoided to the maximum extent practicable. Total potential permanent impacts have been reduced to 3.7 acres, as shown in Table 3.8-5. As described in Section 3.8.3.1.2, permanent impacts to palustrine emergent wetland impacts are

expected to be avoided, and palustrine scrub-shrub and palustrine forested wetland permanent impacts are expected to be avoided to the maximum extent practicable and reduced to less than 0.1 acre per "single and complete project." A definition of single and complete project as defined by the USACE has been added to Section 3.8.3.1.2.

U.S. EPA - Comment No. WAP Agency 2f: The applicant should use approved wetland functional assessment models to determine wetland types that would be impacted, and the extent of functional loss and appropriate compensatory mitigation required to fully restore unavoidable adverse impacts to Waters of the U.S., including special aquatic sites as identified in 40 CFR Part 230 Section 404(b)(1).

Response: Text was modified to state that a functional assessment would be used to determine the magnitude of the impacts, and a mitigation plan would be developed to fully compensate for the impacts. As described in the previous comment response, compensatory mitigation would be provided for wetland impacts as required by a Section 10/404 permit.

U.S. EPA - Comment No. WAP Agency 2g: The applicant should use the TPWD's Rare Plant Communities to identify any State or Global rare plant communities.

Response: A description of the TPWD Rare Plant Communities List was added to Section 3.9.2.1. The TPWD Rare Plant Community status for each community type that is listed within the ROI was added to Section 3.9.2.1.1, and to the potential impacts tables (Table 3.9-4 and Table 3.9-5).

U.S. EPA - Comment No. WAP Agency 2h: If the proposed project would impact any State or Global rare plant communities, EPA recommends contacting TPWD to discuss appropriate mitigation measures.

Response: Eight of the community types that are identified within the construction corridor are listed on the TPWD's Rare Plant Communities List (Table 3.9-4). DOE expects potential impacts to these communities to be avoided or to be minor, as summarized below:

- West Gulf Coastal Plain Large River Floodplain Forest - areas classified as this community are near large rivers and would be avoided by HDD.
- Texas Saline Coastal Prairie - areas classified as this community occur within the West Ranch oil field and active agricultural fields along the pipeline route; these areas appear to be misclassified (these areas are actually agricultural or maintained grasses) and impacts to Texas Saline Coastal Prairie plant communities are not anticipated.
- Tamaulipan Mixed Deciduous Thornscrub - areas classified as this community occur within the West Ranch oil field; no impacts are anticipated.
- West Gulf Coastal Plain Small Stream and River Forest - areas classified as this community occur near small rivers; impacts would be reduced by use of BMPs. Impacts due to clearing trees along the edge of existing cleared right-of-way are expected to be minor.

- Tamaulipan Calcareous Thornscrub - areas classified as this community occur within the West Ranch oil field; no impacts are anticipated.
- Central and Upper Texas Coast Dune and Coastal Grassland - areas classified as this community occur near large rivers, and would be avoided by HDD.
- Texas-Louisiana Coastal Prairie - areas classified as this community occur within active agricultural fields. These areas appear to be misclassified and impacts to Texas-Louisiana Coastal Prairie habitat are not anticipated.
- Central and South Texas Coastal Fringe Forest and Woodland -areas classified as this community occur near large rivers, and would be avoided by HDD.

The TPWD was contacted during scoping and the agency provided comments to be considered during preparation of the EIS. TPWD later provided a letter commending NRG's coordination with the agency, acknowledged that the Draft EIS incorporated its recommendations, and provided no further comments on the Draft EIS.

U.S. EPA - Comment No. WAP Agency 2i: The method used to determine Environmental Justice (EJ) applicability and impact appears to be flawed and/or misleading. For the purposes of EJ, Hispanic or Latino is to be considered in determining minority populations within the region of influence (ROI) and environmental impact.

Response: DOE supplemented the EJ analysis in the Final EIS to include an assessment of Hispanic or Latino populations as shown in Table 3.19-1. Additional text on Hispanic or Latino populations has been added to Section 3.19.1.2, Section 3.19.2.1.1, Section 3.19.3.1, and Section 3.19.3.2. Additionally, a separate analysis of minority populations was conducted and added to the EIS for disclosure purposes based on USEPA guidance (see Table 3.19-2). There are two ways to assess the U.S. Census Bureau ethnicity data to determine the existence of EJ areas of concern: (1) minority populations that are meaningfully greater than the corresponding county/state or (2) if the population is more than 50 percent minority. Each methodology can produce different results. Using the meaningfully greater threshold, no EJ areas of concern were determined to exist. However, using the 50 percent minority threshold, three census tracts in the ROI exhibited EJ areas of concern related to minority populations. However, the proposed project is not expected to have disproportionately high and adverse human health or environmental impacts on minority populations.

U.S. EPA - Comment No. WAP Agency 2j: EPA recommends that DOE properly address and/or reassess the EJ impact of the proposed project on affected populations. They recommend use of the Council on Environmental Quality's (CEQ's) "Environmental Justice Guidance under NEPA" and Executive Order 12898 – Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations to evaluate EJ impacts.

Response: DOE follows CEQ guidance and EO 12898 when conducting its environmental justice analyses. Based on EPA's comments and additional guidance, DOE supplemented the EJ analysis in the Final EIS to include an assessment of Hispanic or Latino populations as shown in Table 3.19-1. Additional text on Hispanic or Latino populations has been added to Section

3.19.1.2, Section 3.19.2.1.1, Section 3.19.3.1, and Section 3.19.3.2. Additionally, a separate analysis of minority populations was conducted and added to the EIS for disclosure purposes based on USEPA guidance (see Table 3.19-2). There are two ways to assess the U.S. Census Bureau ethnicity data to determine the existence of EJ areas of concern: (1) minority populations that are meaningfully greater than the corresponding county/state or (2) if the population is more than 50 percent minority. Each methodology can produce different results. Using the meaningfully greater threshold, no EJ areas of concern were determined to exist. However, using the 50 percent minority threshold, three census tracts in the ROI exhibited EJ areas of concern related to minority populations. However, the proposed project is not expected to have disproportionately high and adverse human health or environmental impacts on minority populations.

U.S. EPA - Comment No. WAP Agency 2k: EPA recommends that mitigation measures be included in the Construction Emissions Mitigation Plan to reduce impacts associated with emissions of NO_x, CO, PM, SO_2, and other pollutants from construction-related activities. These measures include fugitive dust source controls, mobile and stationary source controls, and administrative controls as detailed in the U.S. EPA letter dated 11/2/2012.

Response: The mitigation measure for NO_x, CO, and SO_2 for construction impacts is "Using motorized construction equipment that is late model, has appropriate emissions control systems, and is properly maintained to ensure maximum efficiency and minimized emissions." This mitigation measure is documented in Table 4-1, Summary of Mitigation Measures. The main mitigation measure for particulate matter (PM) is use of modern, well-maintained construction equipment as well as dust abatement practices. Table 4-1 lists nine specific dust suppression measures that NRG has committed to implement. DOE will consider additional mitigation measures when drafting the Record of Decision.

U.S. Department of the Interior – U.S. Fish and Wildlife Service

USFWS - Comment No. WAP Agency 3a: Ensure that Threatened and Endangered Species information in Draft EIS is in compliance with U.S. Fish and Wildlife Service's (USFWS's) Consultation Handbook.

Response: In compliance with the guidelines of the Consultation Handbook regarding formal consultation, DOE sent a letter to the USFWS, dated February 14, 2012, to inform the agency about the proposed undertaking and to request technical assistance. DOE subsequently talked with USFWS personnel about potential impacts to migratory whooping cranes and to discuss the results of mussel surveys conducted since release of the Draft EIS. DOE determined that no endangered species or critical habitat would be affected by the proposed project and therefore no informal or formal consultation would be required. Information presented in the Final EIS and specifically in Chapter 3.9 Biological Resources is similar to what would be found in a Biological Assessment prepared for the USFWS.

USFWS - Comment No. WAP Agency 3b: The endangered whooping crane has been documented in Fort Bend and Wharton Counties, Texas. Lack of documented sightings of whooping cranes within the region of influence (ROI) and lack of observation of whooping cranes during field surveys is not sufficient data to predict with certainty where whooping cranes may be found in the future. Although rare, it is conceivable that whooping cranes may use agricultural fields, rivers, and fresh water wetlands within or adjacent to the pipeline footprint for feeding or staging areas during migration.

Response: DOE added text to Section 3.9.3.1.2 indicating that the proposed pipeline route would cross the whooping crane's migratory route and that NRG would conduct additional surveys prior to initiating pipeline construction. Any areas being actively used by whooping cranes during their migration would be avoided while individuals are present. Discussion with USFWS personnel indicated that this could occur as cranes stop to feed or rest during migration, but that nesting along the proposed pipeline route is unlikely.

USFWS - Comment No. WAP Agency 3c: Bald eagle nesting season in Texas typically begins on October 1 and can extend through May. The Draft EIS mentions several inactive bald eagle nests and one active bald eagle nest known to occur within the ROI. Breeding bald eagle pairs return to the same area year after year, often using alternate nests sites within the territory during different breeding years. Although a given nest may be lost between nesting periods, the pair often returns to the same territory to build another nest. There may be additional bald eagle nests located in the project area, since the number of bald eagles nesting in Texas is increasing and locations of their nests are unknown. Therefore, USFWS recommends conducting additional surveys for bald eagle nests prior to the beginning of construction. All work crew members should be informed (that) bald eagles may be in the area and should be aware of what bald eagle nests look like. There should be one point of contact designated in each crew to be notified if workers observe a bald eagle. If an active nest(s) is found, USFWS recommends implementing strategies found in the USFWS Bald Eagle Management Guidelines. All eagle nests are protected under the Bald and Golden Eagle Protection Act and require a permit before one can be removed. Only inactive nests may be removed, provided the take is necessary to protect an interest in a particular locality and the activity necessitating the take or the mitigation for the take will, with reasonable certainty, provide a clear and substantial benefit to eagles. Before removing a bald eagle nest, you will be required to comply with all avoidance, minimization, or other mitigation measures determined as reasonable to compensate for the detrimental effects, including indirect effects, to the regional bald eagle population.

Response: See response to comment WAP Agency 3e below regarding pre-construction bird surveys.

USFWS - Comment No. WAP Agency 3d: Several candidate species of freshwater mussels have been documented in the Colorado River basin and have the potential to occur within the project area. Candidate species are those species being considered for listing pursuant to the Endangered Species Act (ESA). While these species are not afforded any legal protection under

the ESA, the USFWS provides species information for consideration in the environmental review process and to encourage efforts to avoid adverse impacts to these species. It is known that sedimentation smothers and suffocates mussels and is one of the main contributors to mussel die offs. Therefore, the USFWS recommends use of silt fences and filter fabric to reduce sedimentation within the Colorado River and its tributaries in the project area. Review Best Management Practices for Projects Affecting Rivers, Streams and Tributaries, and coordinate with USFWS's Clear Lake Ecological Services Field Office regarding impacts to candidate species to avoid potential project modifications/delays if these species become federally listed before the project is completed.

Response: The Colorado River and its major tributary near the proposed crossing location, Jones Creek, would both be crossed using HDD. HDD crossing methods would prevent sedimentation and preserve mussel habitat. Section 3.5.3.1 lists BMPs that would be used for the project, including silt fencing. As described in Section 3.9.3.1.2, additional mussel surveys would be conducted in consultation with TPWD to assess potential impacts to mussels from geotechnical borings and water uptake for HDD pipeline installation. A permit would be obtained from TPWD to relocate state-listed mussels if impacts cannot be avoided.

USFWS - Comment No. WAP Agency 3e: If the proposed project or action includes a reasonable likelihood that take of nesting migratory birds will occur, then that action should be undertaken outside of the nesting season. This includes clearing or cutting of vegetation, structure construction and maintenance, etc. The applicant should consult with USFWS's Region 2 Migratory Bird Program for the specific nesting seasons of migratory birds in the project area as well as procedures for avoiding disruptive activities. Habitat alteration, removal, or destruction should be avoided during primary nesting season. If project work occurs during nesting season, applicant must conduct surveys to determine if migratory birds are present prior to construction. Surveys must take place during the prior nesting season as well as during nesting season during construction.

Response: A migratory bird (including whooping crane) and bald eagle survey would be conducted prior to construction in areas where potential habitat would be impacted. The bald eagle survey would follow USFWS's Bald Eagle Management Guidelines, and the migratory bird survey would follow guidelines to be developed in consultation with the USFWS Region 2 Migratory Bird Program. Section 3.9.3.1.2 of the EIS has been updated to state that, "Consultation with TPWD indicated that the primary migratory bird nesting season is March through August. If clearing vegetation during the nesting season is unavoidable, previously undisturbed areas within the construction area would be surveyed prior to construction to identify and flag nests with eggs or young that could otherwise be disturbed by construction activities." If any potential impacts are identified during the bird surveys, the USFWS and TPWD would be contacted for technical assistance or consultation, as appropriate.

USFWS - Comment No. WAP Agency 3f: USFWS recommends down-shielding of all bright lighting associated with above-ground structures to significantly reduce impacts to resident and migratory birds, and other resident wildlife. Security lighting for on-the-ground facilities and

equipment should be down-shielded to keep light within the boundaries of each site. Alternative routes and directional drilling should be evaluated and the least environmentally damaging route/method should be selected. Follow enclosed pipeline conditions developed by Galveston, Texas, District of the USACE and the associated resource agency in any necessary permits.

Response: Section 3.11.3.1.2 states that, "During construction, night time security and work lights would be used for the safety of workers. Security lighting would not be installed at the pipeline ROW for use during operations with the exception of the meter station that would be constructed on the east side of the Lavaca River. Lighting installed at the meter station would be down-shielded to reduce interference with wildlife. The impact of lighting during construction would be temporary and minor. The impact of lighting for operations at the proposed meter station would be minor."

As described in Chapter 2, alternative pipeline routes were evaluated, and the selected route minimizes impacts by using existing corridors for approximately 75% of the length of the corridor. HDD methods would be used to avoid impacts to six large perennial streams. A Section 10/404 permit would be obtained from the USACE for potential impacts to wetlands and waters, and would include measures required to avoid, minimize, and mitigate for potential impacts.

Texas Parks and Wildlife Department

TPWD - Comment No. WAP Agency 4: Texas Parks and Wildlife Department (TPWD) provided comments for the proposed project on March 20, 2012 and additionally has met with the project sponsor to evaluate the project's impacts upon fish and wildlife resources. The Draft EIS has incorporated TPWD's comments and concerns regarding impacts to fish and wildlife resources. TPWD requests that the project sponsor utilize the recommendations provided in the March 20, 2012 comment letter and coordinate with TPWD if project plans change.

Response: Section 3.9 of the Final EIS incorporated many of the recommendations from the March 20, 2012 TPWD comment letter (included in Appendix C). These include avoiding and minimizing impacts to: federally-listed species and their habitat, migratory birds, bird rookeries, state-listed mussel species, bald and golden eagles, and wetlands and other waters. DOE will consider implementing additional recommendations when drafting its Record of Decision.

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