APPENDIX C

CONSULTATION LETTERS

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CONSULTATION LETTERS

In the course of preparing this EIS, interaction efforts with Native American tribes and state and federal agencies were necessary to **present DOE's Proposed Action,** discuss issues of concern or other interests that could be affected by **DOE's** Proposed Action **or NRG's proposed project**, obtain information pertinent to the environmental impact analysis of the **proposed project**, and initiate consultations or permit processes. Following are the consultation letters sent to the various agencies accompanied by the agency responses, when responses were received. This appendix is organized as follows:

C.1 NATIVE AMERICAN TRIBAL CONSULTATION

- April 5, 2012 consultation letter from Mr. Mark Lusk of the DOE to Mr. Carlos Bullock of the Alabama-Coushatta Tribe of Texas
- April 5, 2012 consultation letter from Mr. Mark Lusk of the DOE to Mr. Louis Maynahonah of the Apache Tribe of Oklahoma[1]
- April 5, 2012 consultation letter from Mr. Mark Lusk of the DOE to Mr. Johnny Wauqua of the Comanche Nation of Oklahoma[1]
- April 5, 2012 consultation letter from Mr. Mark Lusk of the DOE to Mr. Kevin Sickey of the Coushatta Tribe of Louisiana[1]
- April 5, 2012 consultation letter from Mr. Mark Lusk of the DOE to Mr. Ron Twohatchet of the Kiowa Indian Tribe of Oklahoma[1]
- April 5, 2012 consultation letter from Mr. Mark Lusk of the DOE to Mr. Mark Chino of the Mescalero Apache Tribe of the Mescalero Reservation[1]
- April 5, 2012 consultation letter from Mr. Mark Lusk of the DOE to Mr. Donald Patterson of the Tonkawa Tribe of Indians of Oklahoma[1]
- April 5, 2012 consultation letter from Mr. Mark Lusk of the DOE to Mr. Earl J. Barbry, Sr. of the Tunica-Biloxi Indian Tribe of Louisiana[1]
- **October 29, 2012 response letter from Mr. Michael Tarpley of the Coushatta Tribe of Louisiana to Mr. Mark Lusk of the DOE**

C.2 PROTECTED SPECIES CONSULTATION

- February 14, 2012 consultation letter from Mr. Mark Lusk of the DOE to Mr. Steve Parris of the U.S. Fish and Wildlife Service
- February 2012 response letter from Ms. Edith Erfling of the U.S. Fish and Wildlife Service to Mr. Mark Lusk of the DOE.
- February 14, 2012 consultation letter from Mr. Mark Lusk of the DOE to the Field Supervisor of the Texas Parks and Wildlife Department, Wildlife Habitat Assessment Program[2]
- March 20, 2012 response letter from Ms. Amy Turner of the Texas Parks and Wildlife Department, Wildlife Habitat Assessment Program to Mr. Mark Lusk of the DOE
- **November 5, 2012 response letter from Mr. Stephen Spencer of the U.S. Fish and Wildlife Service to Mr. Mark Lusk of the DOE**

[1] Attachments omitted from this appendix because they are the same as the attachments to the April 5, 2012 letter to the Alabama-Coushatta Tribe of Texas.
[2] Attachments omitted from this appendix because they are the same as the attachments to the February 14, 2012 letter to the U.S. Fish and Wildlife Service.

- **November 6, 2012 response letter from Ms. Amy Turner of the Texas Parks and Wildlife Department, Wildlife Habitat Assessment Program to Mr. Mark Lusk of the DOE**

C.3 CULTURAL RESOURCES CONSULTATION

- February 10, 2012 consultation letter and proposed scope of work from Mr. Mark Lusk of the DOE to Mr. Mark Wolfe of the Texas Historical Commission
- February 23, 2012 project review letter from Mr. Mark Wolfe of the Texas Historical Commission to Mr. Mark Lusk of the DOE, requesting backhoe trenching
- April 25, 2012 letter from Mr. Mark Lusk of the DOE to Mr. Mark Wolfe of the Texas Historical **Commission** containing proposed scope of work for backhoe trenching
- May 14, 2012 response from Mr. Mark Wolfe of the Texas Historical Commission to Mr. Mark Lusk of the DOE, approving April 25, 2012 proposed scope of work for backhoe trenching
- June 19, 2012 letter from Mr. Mark Lusk of the DOE to Mr. Mark Wolfe of the Texas Historical containing Section 106 determination for proposed project activities at the W.A. Parish Plant and West Ranch Oil Field
- July 11, 2012 response from Mr. William Martin of the Texas Historical Commission (for Mr. Mark Wolfe) to Mr. Mark Lusk of the DOE, concurring that no historic properties would be affected by the proposed project activities at the W.A. Parish Plant and West Ranch Oil Field
- August 2, 2012 letter from Mr. Mark Lusk of the DOE to Mr. Mark Wolfe of the Texas Historical containing Section 106 determination for proposed project activities along the proposed pipeline construction right-of-way
- **September 14, 2012 response from Mr. Mark Wolfe of the Texas Historical Commission to Mr. Mark Lusk of the DOE**
- **December 14, 2012 letter from Mr. Mark Lusk of the DOE to Mr. Mark Wolfe of the Texas Historical Commission**
- **January 2, 2013 letter from Mr. Mark Lusk of the DOE to Mr. Mark Wolfe of the Texas Historical Commission**
- **January 17, 2013 response from Mr. Mark Wolfe of the Texas Historical Commission to Mr. Mark Lusk of the DOE**
- **January 18, 2013 response from Mr. Mark Wolfe of the Texas Historical Commission to Mr. Mark Lusk of the DOE**

C.4 OTHER CONSULTATION

- February 10, 2012 consultation letter from Mr. Mark Lusk of the DOE to Ms. Rhonda Smith of U.S. Environmental Protection Agency, Region 6
- February 13, 2012 consultation letter from Mr. Mark Lusk of the DOE to Mr. Johnny Ortega of the Fort Bend County, Floodplain Administration[3]
- February 13, 2012 consultation letter from Mr. Mark Lusk of the DOE to the Jackson County Permit & Inspection Department, Floodplain Administration[3]
- February 13, 2012 consultation letter from Mr. Mark Lusk of the DOE to Ms. Monica Martin of the Wharton County, Floodplain Administration[3]
- March 22, 2012 response letter from Ms. Monica Martin of the Wharton County, Floodplain Administration to Mr. Mark Lusk of the DOE[3]

[3] Attachments omitted from this appendix because they are the same as the attachments to the February 10, 2012 letter to U.S. Environmental Protection Agency, Region 6.

- **November 2, 2012 response letter from Ms. Rhonda Smith of U.S. Environmental Protection Agency, Region 6 to Mr. Mark Lusk of the DOE**

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C.1 NATIVE AMERICAN TRIBAL CONSULTATION

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

U.S. DEPARTMENT OF ENERGY

April 5, 2012

Mr. Carlos Bullock, Chairman
Alabama-Coushatta Tribe of Texas
571 State Park Rd. 56
Livingston, TX 77351

Subject: Request for Section 106 Consultation for the Proposed W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Mr. Bullock:

The U.S. Department of Energy (DOE) proposes to provide financial assistance to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide gas (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology for use in EOR operations and long-term geologic storage.

DOE would provide NRG with approximately $167 million of cost-shared funding, which includes *American Recovery and Reinvestment Act of 2009* funds, to implement the Project. DOE selected NRG's Project for a financial assistance award through a competitive process under the Clean Coal Power Initiative (CCPI) Program. The estimated total project cost is $845 million.

DOE is preparing an environmental impact statement (EIS) to assess the potential environmental impacts associated with its proposed action and NRG's proposed Project. As part of the *National Environmental Policy Act of 1969* (NEPA) process, DOE consults with interested Native American tribes, as well as federal, state, regional, and local agencies, including consultations required under Section 106 of the *National Historic Preservation Act of 1966* (NHPA). DOE plans to coordinate its Section 106 obligations with the NEPA process.

DOE is providing this Project description to you so that your Tribe may relate any potential concerns regarding traditional and cultural sites. For your convenience, please find enclosed a response form (Attachment 2). Any information you provide will assist DOE in the preparation of the EIS. All correspondence(s) with your office will be included in an appendix to the EIS.

3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507
mark.lusk@netl.doe.gov • Voice (304) 285-4145 • Fax (304) 285-4216 • www.netl.doe.gov

Project Description

NRG proposes to design, construct, and operate a commercial-scale CO_2 capture facility at its W.A. Parish Plant and deliver the CO_2 via an approximately 80-mile-long, 12.75-inch (outside diameter) pipeline to the West Ranch oil field in Jackson County, Texas. A map showing the expected Project footprint is enclosed (Attachment 1).

The proposed Project would use an advanced amine-based absorption technology to capture 90 percent (approximately 1.6 million tons) of CO_2 annually from a 240-megawatt (MW) equivalent flue gas slip stream taken from the 617-MW Unit 8 at the Parish Plant. Up to 5,475 tons per day of captured CO_2 would be dried, compressed, and transported via a new pipeline to the West Ranch oil field where it would be used in EOR operations.

The primary components of the Project include the following:

1. Carbon Capture Facility

The proposed Project would retrofit one of the W.A. Parish Plant's existing coal-fueled units (Unit 8) with a post-combustion CO_2 capture system that would be constructed within the existing 4,880-acre Parish Plant site. A new natural gas-fired combined-cycle power plant, estimated to be 80-MW in size, would also be constructed to produce the auxiliary power needed to drive the proposed carbon capture system.

2. CO_2 Transport

Captured CO_2 would be transported via a new approximately 80-mile-long pipeline to the West Ranch oil field. The anticipated pipeline route includes mostly sparsely developed rural and agricultural lands in Fort Bend, Wharton, and Jackson Counties in Texas. The majority (approximately 95 percent) of the planned pipeline route will utilize existing mowed/maintained utility rights-of-ways (ROWs) to minimize environmental impacts and avoid sensitive resources to the greatest extent practical. Although the proposed pipeline will be located within existing ROWs for the majority of its length, NRG may need to review existing landowner agreements along the route to negotiate for widening of the ROW for construction of the pipeline in some areas.

3. EOR and CO_2 Sequestration

The proposed Project would deliver up to 1.6 million tons of CO_2 per year to the existing West Ranch oil field, located in Jackson County. The oil field has been in operation since 1938, and Texas Coastal Ventures, LLC, a joint venture between NRG and Hilcorp Energy Company, would conduct the EOR operations. The proposed project would use existing wells and access roads to the extent practicable.

4. CO_2 Monitoring, Verification, and Accounting Program

NRG would implement a monitoring, verification, and accounting (MVA) program to monitor the injection and migration of CO_2 within the geologic formations at the EOR site. The MVA program must meet specific regulatory and CCPI Program requirements, and may consist of a variety of monitoring and modeling activities.

Project Schedule

NRG plans to start construction of the Project in November 2012 and begin the demonstration phase of commercial operations by 2015. The schedule is contingent on NRG receiving the necessary permits and regulatory approvals, as well as financial closing on all funding sources, including DOE's financial assistance.

DOE respectfully requests that your Tribe provide any opinions or site-specific information concerning the Project to DOE within 30 days of receiving this letter. Information provided by your Tribe will assist DOE in preparing the EIS and with fulfillment of its regulatory responsibilities under NEPA and the NHPA.

Cultural resource surveys along the proposed pipeline route have commenced and are expected to be completed in April 2012. DOE can supply your office with the findings of these studies if you are interested. The results will also be presented in the draft EIS, which DOE plans to provide to your office for review and comment. All correspondence with your office will be included in an appendix to the EIS.

DOE appreciates your participation and respectfully requests a response as soon as practical to help us quickly identify potential issues. You can reach me for comment by email at mark.lusk@netl.doe.gov, by telephone at (304) 285-4145, or at the address listed on the front page.

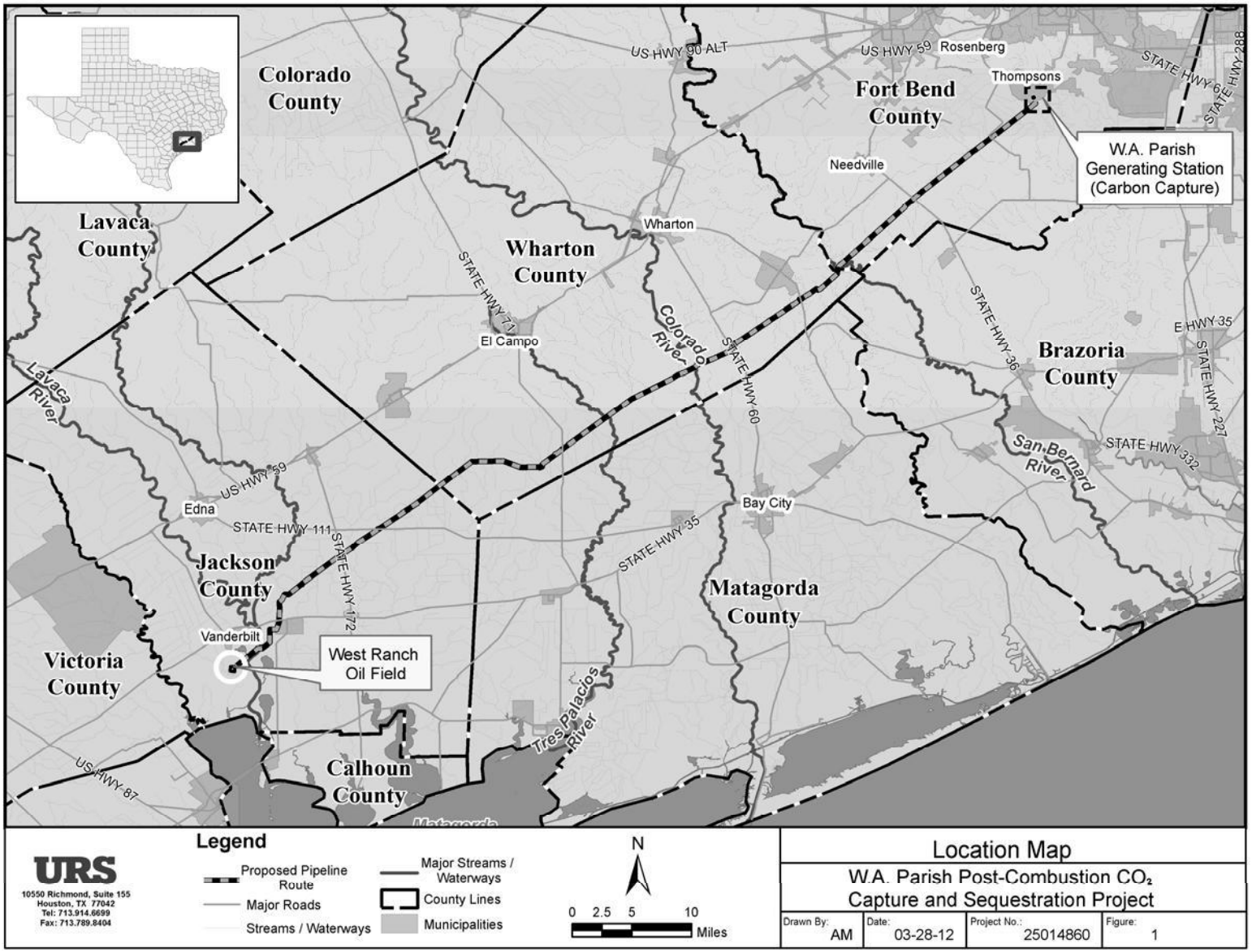
Sincerely,

Mark W. Lusk
NEPA Document Manager

Attachments (2)

cc:
Jon Barfield - NRG
Anthony Armpriester - NRG
Ted McMahon - DOE
Pete Conwell - URS
Rob Lackowicz - URS

Attachment 1. Location Map



Attachment 2. Comments for Proposed NRG Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Alabama-Coushatta Tribe of Texas
571 State Park Road
Livingston, Texas 77351
Tel: (936) 563-1101

We have reviewed the following proposed project: W.A. Parish Post-Combustion Carbon Capture and Storage Project and have:

_____ No comments _____ The following comments (attach sheets if preferred):

Signature

Printed Name Date

Return to: Mark W. Lusk, U.S. Department of Energy, National Energy Technology Laboratory, 3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507

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

U.S. DEPARTMENT OF ENERGY

April 5, 2012

Mr. Louis Maynahonah, Chairman
Apache Tribe of Oklahoma
P.O. Box 1330
Anadarko, OK 73005

Subject: Request for Section 106 Consultation for the Proposed W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Mr. Maynahonah:

The U.S. Department of Energy (DOE) proposes to provide financial assistance to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide gas (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology for use in EOR operations and long-term geologic storage.

DOE would provide NRG with approximately $167 million of cost-shared funding, which includes *American Recovery and Reinvestment Act of 2009* funds, to implement the Project. DOE selected NRG's Project for a financial assistance award through a competitive process under the Clean Coal Power Initiative (CCPI) Program. The estimated total project cost is $845 million.

DOE is preparing an environmental impact statement (EIS) to assess the potential environmental impacts associated with its proposed action and NRG's proposed Project. As part of the *National Environmental Policy Act of 1969* (NEPA) process, DOE consults with interested Native American tribes, as well as federal, state, regional, and local agencies, including consultations required under Section 106 of the *National Historic Preservation Act of 1966* (NHPA). DOE plans to coordinate its Section 106 obligations with the NEPA process.

DOE is providing this Project description to you so that your Tribe may relate any potential concerns regarding traditional and cultural sites. For your convenience, please find enclosed a response form (Attachment 2). Any information you provide will assist DOE in the preparation of the EIS. All correspondence(s) with your office will be included in an appendix to the EIS.

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mark.lusk@netl.doe.gov • Voice (304) 285-4145 • Fax (304) 285-4216 • www.netl.doe.gov

Project Description

NRG proposes to design, construct, and operate a commercial-scale CO_2 capture facility at its W.A. Parish Plant and deliver the CO_2 via an approximately 80-mile-long, 12.75-inch (outside diameter) pipeline to the West Ranch oil field in Jackson County, Texas. A map showing the expected Project footprint is enclosed (Attachment 1).

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The primary components of the Project include the following:

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2. CO_2 Transport

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4. CO_2 Monitoring, Verification, and Accounting Program

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Sincerely,

Mark W. Lusk
NEPA Document Manager

Attachments (2)

cc:
Jon Barfield - NRG
Anthony Armpriester - NRG
Ted McMahon - DOE
Pete Conwell - URS
Rob Lackowicz - URS

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

U.S. DEPARTMENT OF ENERGY

April 5, 2012

Mr. Johnny Wauqua, Chairman
Comanche Nation of Oklahoma
HC-32, Box 1720
Lawton, OK 73502

Subject: Request for Section 106 Consultation for the Proposed W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Mr. Wauqua:

The U.S. Department of Energy (DOE) proposes to provide financial assistance to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide gas (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology for use in EOR operations and long-term geologic storage.

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mark.lusk@netl.doe.gov • Voice (304) 285-4145 • Fax (304) 285-4216 • www.netl.doe.gov

Project Description

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Sincerely,

Mark W. Lusk
NEPA Document Manager

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

U.S. DEPARTMENT OF ENERGY

April 5, 2012

Mr. Kevin Sickey, Chairman
Coushatta Tribe of Louisiana
P.O. Box 818
Elton, LA 70532

Subject: Request for Section 106 Consultation for the Proposed W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Mr. Sickey:

The U.S. Department of Energy (DOE) proposes to provide financial assistance to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide gas (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology for use in EOR operations and long-term geologic storage.

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Project Schedule

NRG plans to start construction of the Project in November 2012 and begin the demonstration phase of commercial operations by 2015. The schedule is contingent on NRG receiving the necessary permits and regulatory approvals, as well as financial closing on all funding sources, including DOE's financial assistance.

DOE respectfully requests that your Tribe provide any opinions or site-specific information concerning the Project to DOE within 30 days of receiving this letter. Information provided by your Tribe will assist DOE in preparing the EIS and with fulfillment of its regulatory responsibilities under NEPA and the NHPA.

Cultural resource surveys along the proposed pipeline route have commenced and are expected to be completed in April 2012. DOE can supply your office with the findings of these studies if you are interested. The results will also be presented in the draft EIS, which DOE plans to provide to your office for review and comment. All correspondence with your office will be included in an appendix to the EIS.

DOE appreciates your participation and respectfully requests a response as soon as practical to help us quickly identify potential issues. You can reach me for comment by email at mark.lusk@netl.doe.gov, by telephone at (304) 285-4145, or at the address listed on the front page.

Sincerely,

Mark W. Lusk
NEPA Document Manager

Attachments (2)

cc:
Jon Barfield - NRG
Anthony Armpriester - NRG
Ted McMahon - DOE
Pete Conwell - URS
Rob Lackowicz - URS

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

U.S. DEPARTMENT OF ENERGY

April 5, 2012

Mr. Ron Twohatchet, Chairman
Kiowa Indian Tribe of Oklahoma
P.O. Box 369
Carnegie, OK 73015

Subject: Request for Section 106 Consultation for the Proposed W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Mr. Twohatchet:

The U.S. Department of Energy (DOE) proposes to provide financial assistance to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide gas (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology for use in EOR operations and long-term geologic storage.

DOE would provide NRG with approximately $167 million of cost-shared funding, which includes *American Recovery and Reinvestment Act of 2009* funds, to implement the Project. DOE selected NRG's Project for a financial assistance award through a competitive process under the Clean Coal Power Initiative (CCPI) Program. The estimated total project cost is $845 million.

DOE is preparing an environmental impact statement (EIS) to assess the potential environmental impacts associated with its proposed action and NRG's proposed Project. As part of the *National Environmental Policy Act of 1969* (NEPA) process, DOE consults with interested Native American tribes, as well as federal, state, regional, and local agencies, including consultations required under Section 106 of the *National Historic Preservation Act of 1966* (NHPA). DOE plans to coordinate its Section 106 obligations with the NEPA process.

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3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507
mark.lusk@netl.doe.gov • Voice (304) 285-4145 • Fax (304) 285-4216 • www.netl.doe.gov

Project Description

NRG proposes to design, construct, and operate a commercial-scale CO_2 capture facility at its W.A. Parish Plant and deliver the CO_2 via an approximately 80-mile-long, 12.75-inch (outside diameter) pipeline to the West Ranch oil field in Jackson County, Texas. A map showing the expected Project footprint is enclosed (Attachment 1).

The proposed Project would use an advanced amine-based absorption technology to capture 90 percent (approximately 1.6 million tons) of CO_2 annually from a 240-megawatt (MW) equivalent flue gas slip stream taken from the 617-MW Unit 8 at the Parish Plant. Up to 5,475 tons per day of captured CO_2 would be dried, compressed, and transported via a new pipeline to the West Ranch oil field where it would be used in EOR operations.

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The proposed Project would retrofit one of the W.A. Parish Plant's existing coal-fueled units (Unit 8) with a post-combustion CO_2 capture system that would be constructed within the existing 4,880-acre Parish Plant site. A new natural gas-fired combined-cycle power plant, estimated to be 80-MW in size, would also be constructed to produce the auxiliary power needed to drive the proposed carbon capture system.

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Sincerely,

Mark W. Lusk
NEPA Document Manager

Attachments (2)

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

U.S. DEPARTMENT OF ENERGY

April 5, 2012

Mr. Mark Chino, President
Mescalero Apache Tribe of the Mescalero Reservation
P.O. Box 227
Mescalero, NM 88340

Subject: Request for Section 106 Consultation for the Proposed W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Mr. Chino:

The U.S. Department of Energy (DOE) proposes to provide financial assistance to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide gas (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology for use in EOR operations and long-term geologic storage.

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mark.lusk@netl.doe.gov • Voice (304) 285-4145 • Fax (304) 285-4216 • www.netl.doe.gov

Project Description

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Mark W. Lusk
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NATIONAL ENERGY TECHNOLOGY LABORATORY
Albany, OR • Morgantown, WV • Pittsburgh, PA

U.S. DEPARTMENT OF ENERGY

April 5, 2012

Mr. Donald Patterson, President
Tonkawa Tribe of Indians of Oklahoma
1 Rush Buffalo Road
Tonkawa, OK 74653-4449

Subject: Request for Section 106 Consultation for the Proposed W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Mr. Patterson:

The U.S. Department of Energy (DOE) proposes to provide financial assistance to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide gas (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology for use in EOR operations and long-term geologic storage.

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NEPA Document Manager

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

U.S. DEPARTMENT OF ENERGY

April 5, 2012

Mr. Earl J. Barbry, Sr., Chairman
Tunica-Biloxi Indian Tribe of Louisiana
P.O. Box 1589
Marksville, LA 71351

Subject: Request for Section 106 Consultation for the Proposed W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Mr. Barbry:

The U.S. Department of Energy (DOE) proposes to provide financial assistance to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide gas (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology for use in EOR operations and long-term geologic storage.

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Sincerely,

Mark W. Lusk
NEPA Document Manager

Attachments (2)

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Anthony Armpriester - NRG
Ted McMahon - DOE
Pete Conwell - URS
Rob Lackowicz - URS

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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

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

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C.2 PROTECTED SPECIES CONSULTATION

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

U.S. DEPARTMENT OF ENERGY

February 14, 2012

Mr. Steve Parris
Field Supervisor
U.S. Fish and Wildlife Service
Clear Lake ES Field Office
17629 El Camino Real #211
Houston, Texas 77058-3051

Re: Consultation Request for the Proposed W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Mr. Parris;

The U.S. Department of Energy (DOE) proposes to provide funding to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology coupled with EOR operations and long-term geologic storage of the CO_2.

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DOE is preparing an environmental impact statement (EIS) to assess the potential environmental impacts associated with the proposed Project. As part of the *National Environmental Policy Act of 1969* (NEPA) process, DOE will consult with interested federal, state, regional, and local agencies; as well as Native American tribes. As a result, DOE requests consultation with the U.S. Fish and Wildlife Service (USFWS) regarding threatened and endangered species or their critical habitat in the vicinity of the Project as required under Section 7 of the *Endangered Species Act* (ESA).

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Project Details

NRG proposes to design, construct, and operate a commercial-scale CO_2 capture facility at its Parish Plant and deliver the CO_2 via an approximately 80-mile-long, 12.75-inch (outside diameter) pipeline to the West Ranch oil field in Jackson County, Texas. The enclosed maps (Attachment 1) illustrate the proposed project areas.

The Project would use an advanced amine-based absorption technology to capture 90 percent (approximately 1.6 million tons) of CO_2 annually from a 240-megawatt (MW) equivalent flue gas slip stream taken from the 617-MW Unit 8 at the Parish Plant. Up to 5,475 tons per day of captured CO_2 would be dried, compressed, and transported via a new pipeline to the West Ranch oil field for its use in EOR operations.

The primary components of the Project include the following:

1. Carbon Capture Facility

The proposed Project would retrofit one of the Parish Plant's existing coal-fueled units (Unit 8) with a post-combustion CO_2 capture system that would be constructed within the existing 4,880-acre Parish Plant. A new natural gas-fired combined-cycle power plant, estimated to be 80-MW in size, would be constructed to produce the auxiliary power needed to drive the proposed carbon capture system.

2. CO_2 Transport

Captured CO_2 would be transported via a new approximately 80-mile-long pipeline to the West Ranch oil field. The anticipated pipeline route includes mostly sparsely-developed rural and agricultural lands in Fort Bend, Wharton, and Jackson Counties in Texas. The majority (approximately 95 percent) of the planned pipeline route will utilize existing mowed/maintained utility rights-of-ways (ROWs) to minimize environmental impacts and avoid sensitive resources to the greatest extent practical. Although the proposed pipeline will be located within existing ROWs for the majority of its length, NRG may need to review existing landowner agreements along the route to negotiate for widening of the ROW for construction of the pipeline in some areas.

3. EOR and CO_2 Sequestration

The proposed Project would deliver up to 1.6 million tons of CO_2 per year to the existing West Ranch oil field, located in Jackson County. The oil field has been in operation since 1938, and Texas Coastal Ventures, LLC, a joint venture between NRG and Hilcorp Energy Company, would conduct the EOR operations.

4. CO_2 Monitoring, Verification, and Accounting Program

NRG would implement a monitoring, verification, and accounting (MVA) program to monitor the injection and migration of CO_2 within the geologic formations at the EOR site. The MVA program must meet specific regulatory and CCPI Program requirements, and may consist of a variety of monitoring and modeling activities.

Project Schedule

NRG plans to start construction of the Project in November 2012 and begin the demonstration phase of commercial operations by 2015. The schedule is contingent on NRG receiving the necessary permits and regulatory approvals, as well as financial closing on all the necessary funding sources, including DOE's financial assistance.

Maps showing the expected footprint for the proposed carbon capture site, the proposed pipeline route, and the existing oil field area are provided in Attachment 1. Biological and cultural resource surveys along the proposed pipeline route are scheduled between January and March 2012. DOE and NRG have contracted with URS Group, Inc., to provide environmental and cultural resources services to support development of the EIS and other regulatory compliance requirements for the Project. Results of the surveys will be documented in separate reports and analyzed in the EIS.

Threatened and Endangered Species in the Project Area

A desktop review of USFWS/Texas Parks and Wildlife Department (TPWD) online databases has shown that the Federally-listed endangered species located within the three counties traversed by the proposed Project include: (1) the Whooping crane (*Grus Americana*) in Fort Bend, Wharton, and Jackson Counties; (2) the Texas prairie dawn flower (*Hymenoxys texana*) in Fort Bend County only; and (3) the West Indian manatee *(Trichechus manatus)* in Jackson County only (see Attachment 2). No impacts to these species or their critical habitat are anticipated as a result of the proposed Project. Furthermore, the proposed Project will not impact any marine or shoreline habitats utilized by any of these protected species.

A search of the Texas Natural Diversity Database (TXNDD) showed that the proposed pipeline route intersects two TXNDD element occurrence polygons. According to maps depicting TXNDD search results (see Attachment 2); the northernmost polygon is based on the historic presence of an eagle nest in the area (TPWD Nest #241-4A [Wharton County]). This nest, first identified in 2001, was inactive in 2003 and 2004, and there is no information after 2004. The southernmost polygon is based on the historic presence of eagle nests in the area (TPWD Nests 120-2A, 2B, and 2C). Nest 2C was found to have fallen in 2004, and no information is available after 2004. DOE recognizes that the bald eagle is afforded Federal protection under the *Bald and Golden Eagle Protection Act,* the *Migratory Bird Treaty Act,* and is protected by the State of Texas. However, since the proposed pipeline would be primarily constructed along an existing ROW to minimize or avoid environmental impacts during construction, impacts to these bald eagle habitats (i.e. trees that have nests or that would be potential nesting sites) are not expected.

DOE respectfully requests that the USFWS provide site-specific information concerning existing natural resources within Fort Bend, Wharton, and Jackson Counties. This information would include details regarding threatened and endangered species, species of special concern, critical habitats, or any other significant biological resources (e.g., unique or sensitive habitats, nature preserves, and migratory bird fallout areas) that may be located within the vicinity of the proposed Project. DOE also requests guidance from USFWS concerning survey recommendations or seasonal constraints on construction with respect to threatened and endangered species. The information provided by the USFWS will assist DOE in the preparation

of the EIS and with fulfillment of its regulatory responsibilities under the ESA. DOE also plans to provide a copy of the draft EIS to your office for review and comment. All correspondence with your office will be included in an appendix to the EIS.

DOE would appreciate your participation and request a response as soon as practical to help quickly identify potential impacts to protected species in the vicinity of the Project. You can reach me by email at mark.lusk@netl.doe.gov, by telephone at (304) 285-4145, or at the address listed on the front page with any questions or comments.

Sincerely,

Mark W. Lusk
NEPA Document Manager/NEPA Compliance Officer

Attachments:
1. Project Location Maps
2. Threatened and Endangered Species Lists/Texas Natural Diversity Database Maps

cc:
Jon Barfield - NRG
Anthony Armpriester - NRG
Ted McMahon - DOE
Pete Conwell - URS

ATTACHMENT 1

PROJECT LOCATION MAPS

K:\ENV\ENV10\25014860\GIS\MXD\usfws_consult.mxd

URS
10550 Richmond, Suite 155
Houston, TX 77042
Tel: 713.914.6699
Fax: 713.789.8404

Legend

Proposed Pipeline Route

0 375 750 1,500 Feet

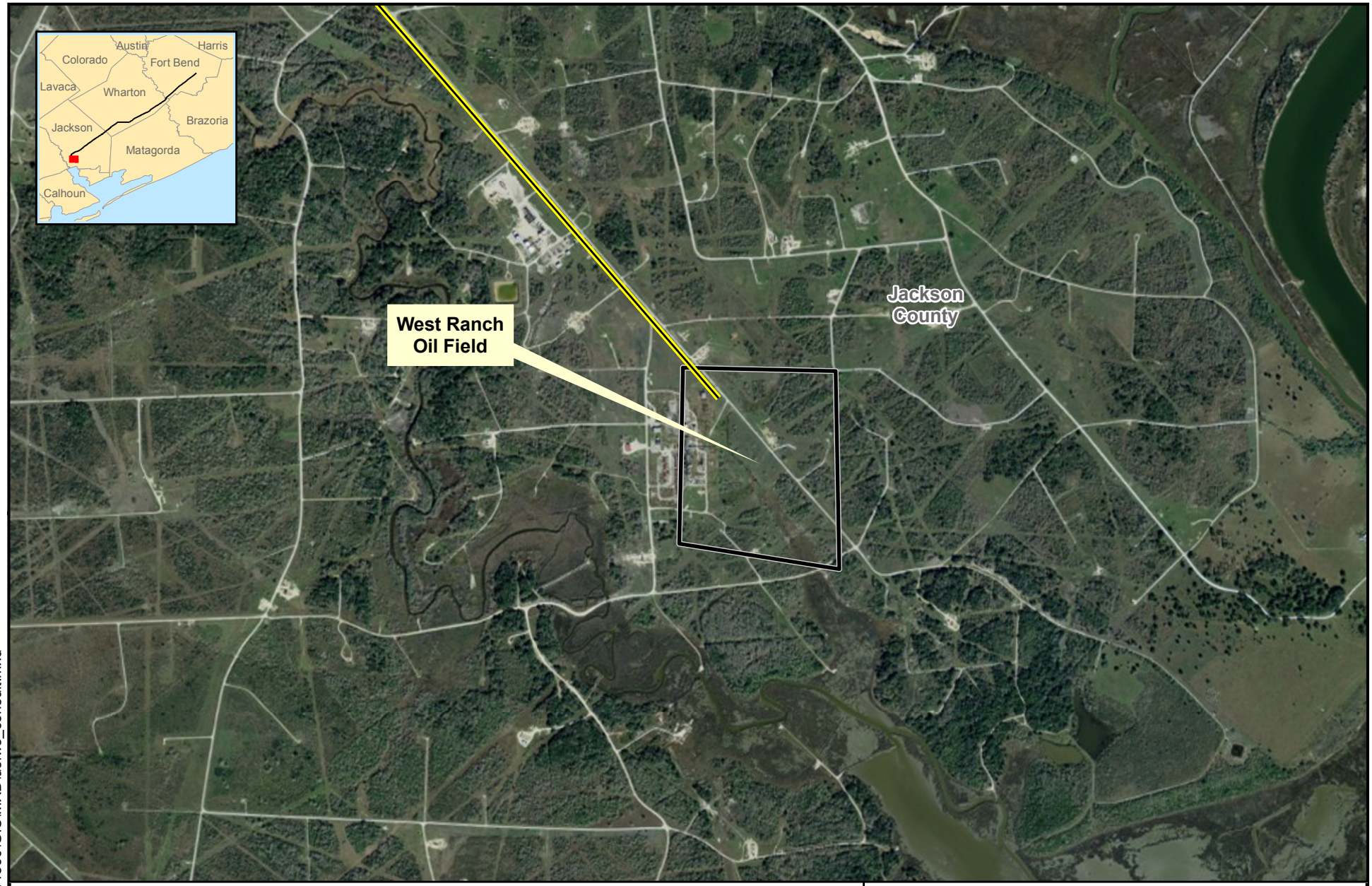
1 in = 1,500 feet

N

Proposed Pipeline Route Map

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

Drawn By:	Date:	Project No.:	Figure:
AM	12-16-11	25014860	5 of 8



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Legend

Proposed Pipeline Route

0 375 750 1,500 Feet

1 in = 1,500 feet

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Proposed Pipeline Route Map

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

Drawn By:	Date:	Project No.:	Figure:
AM	12-16-11	25014860	7 of 8

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URS
10550 Richmond, Suite 155
Houston, TX 77042
Tel: 713.914.6699
Fax: 713.789.8404

Legend

- Proposed Pipeline Route
- Major Roads
- Streams / Waterways
- Major Streams / Waterways
- County Lines
- Municipalities

N

0 2.5 5 10 Miles

Location Map

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

Drawn By:	Date:	Project No.:	Figure:
AM	12-16-11	25014860	1

ATTACHMENT 2

T&E SPECIES LIST/TXNDD MAPS

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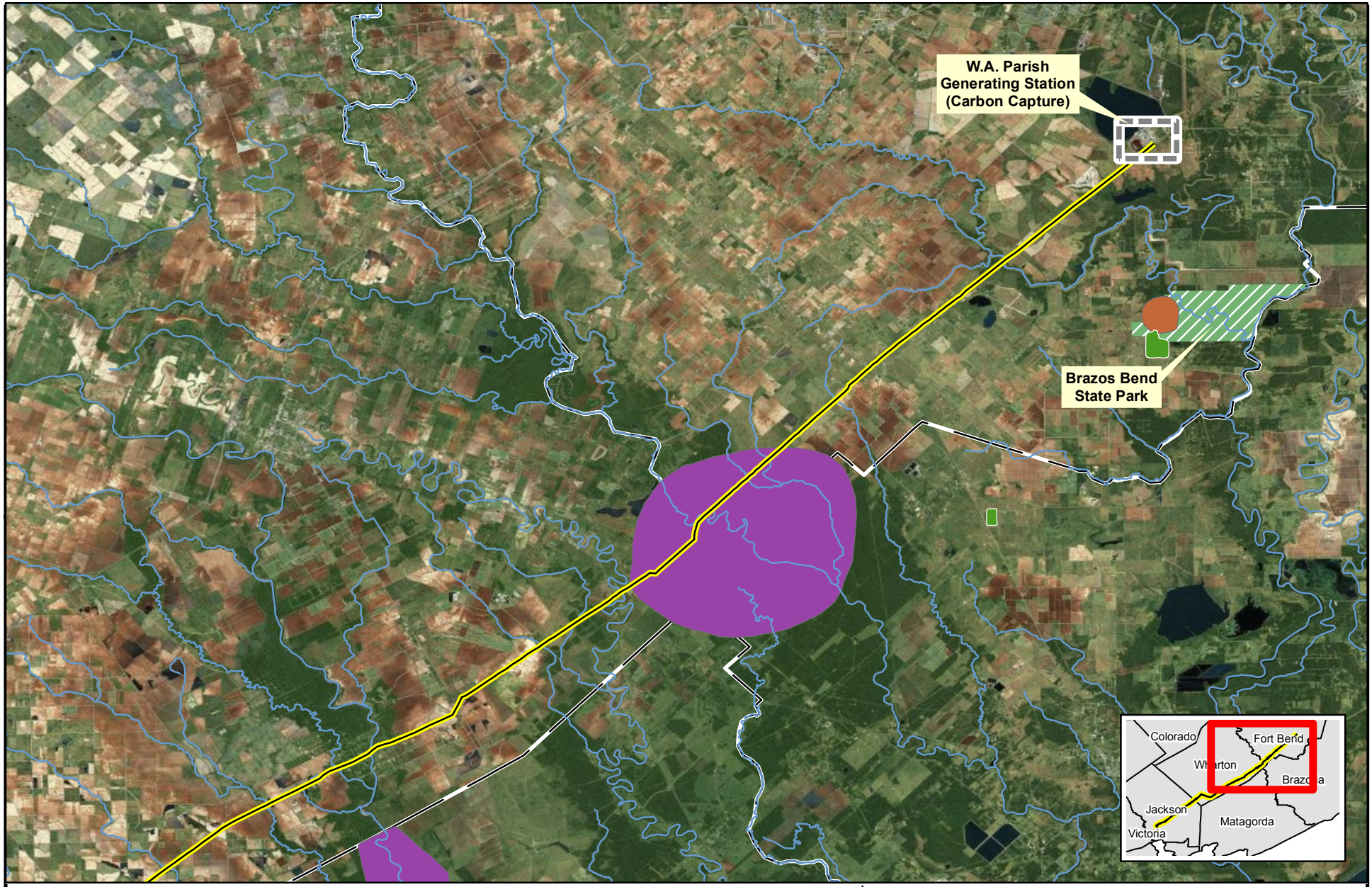

URS
10550 Richmond, Suite 155
Houston, TX 77042
Tel: 713.914.6699
Fax: 713.789.8404

Legend

- Proposed line
- Managed Areas
- County Lines

Species

- Bald Eagle
- Welder machaeranthera / Threeflower broomweed
- Little Bluestem-brownseed Paspalum Series
- Threeflower broomweed
- Rookery

N

0 2.5 5 Miles

Texas Natural Diversity Database

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

Drawn By:	Date:	Project No.:	Figure:
AM	01-18-12	25014860	1 - 2

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URS
10550 Richmond, Suite 155
Houston, TX 77042
Tel: 713.914.6699
Fax: 713.789.8404

Legend

- Proposed line
- Managed Areas
- County Lines

Species

- Bald Eagle
- Welder machaeranthera / Threeflower broomweed
- Little Bluestem-brownseed Paspalum Series
- Threeflower broomweed
- Rookery

N

0 2.5 5 Miles

Texas Natural Diversity Database

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

Drawn By:	Date:	Project No.:	Figure:
AM	01-18-12	25014860	2 - 2

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JACKSON COUNTY

BIRDS

		Federal Status	State Status
American Peregrine Falcon	*Falco peregrinus anatum*	DL	T

year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more

Arctic Peregrine Falcon	*Falco peregrinus tundrius*	DL	

migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south;

Bald Eagle	*Haliaeetus leucocephalus*	DL	T

found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts,

Brown Pelican	*Pelecanus occidentalis*	DL	E

largely coastal and near shore areas, where it roosts and nests on islands and spoil banks

Henslow's Sparrow	*Ammodramus henslowii*		

wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along

Interior Least Tern	*Sterna antillarum athalassos*	LE	E

subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars

Mountain Plover	*Charadrius montanus*		

breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass

Peregrine Falcon	*Falco peregrinus*	DL	T

both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along

Reddish Egret	*Egretta rufescens*		T

resident of the Texas Gulf Coast; brackish marshes and shallow salt ponds and tidal flats; nests on ground or in

Snowy Plover	*Charadrius alexandrinus*		

formerly an uncommon breeder in the Panhandle; potential migrant; winter along coast

Sooty Tern	*Sterna fuscata*		T

predominately 'on the wing'; does not dive, but snatches small fish and squid with bill as it flies or hovers over

Southeastern Snowy Plover	*Charadrius alexandrinus tenuirostris*		

wintering migrant along the Texas Gulf Coast beaches and bayside mud or salt flats

Sprague's Pipit	*Anthus spragueii*	C	

only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal

Western Burrowing Owl	*Athene cunicularia hypugaea*		

open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human

White-faced Ibis	*Plegadis chihi*		T

prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests

White-tailed Hawk	*Buteo albicaudatus*		T

near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas,

Whooping Crane	*Grus americana*	LE	E

potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun,

Wood Stork	*Mycteria americana*		T

forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-

FISHES

		Federal Status	State Status
American eel	*Anguilla rostrata*		

coastal waterways below reservoirs to gulf; spawns January to February in ocean, larva move to coastal waters,

Smalltooth sawfish	*Pristis pectinata*	LE	E

different life history stages have different patterns of habitat use; young found very close to shore in muddy and

MAMMALS

		Federal Status	State Status
Louisiana black bear	*Ursus americanus luteolus*	LT	T

possible as transient; bottomland hardwoods and large tracts of inaccessible forested areas

Plains spotted skunk	*Spilogale putorius interrupta*		

catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded,

Red wolf	*Canis rufus*	LE	E

extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal

West Indian manatee	*Trichechus manatus*	LE	E

Gulf and bay system; opportunistic, aquatic herbivore

MOLLUSKS

		Federal Status	State Status
Texas fatmucket	*Lampsilis bracteata*	C	T

streams and rivers on sand, mud, and gravel substrates; intolerant of impoundment; broken bedrock and course

REPTILES

		Federal Status	State Status
Green sea turtle	*Chelonia mydas*	LT	T

Gulf and bay system; shallow water seagrass beds, open water between feeding and nesting areas, barrier island

Gulf Saltmarsh snake	*Nerodia clarkii*		

saline flats, coastal bays, and brackish river mouthss

Kemp's Ridley sea turtle	*Lepidochelys kempii*	LE	E

Gulf and bay system, adults stay within the shallow waters of the Gulf of Mexico; feed primarily on crabs, but

Loggerhead sea turtle	*Caretta caretta*	LT	T

Gulf and bay system primarily for juveniles, adults are most pelagic of the sea turtles; omnivorous, shows a

Texas diamondback terrapin	*Malaclemys terrapin littoralis*		

coastal marshes, tidal flats, coves, estuaries, and lagoons behind barrier beaches; brackish and salt water; burrows

Texas horned lizard	*Phrynosoma cornutum*		T

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees;

Texas scarlet snake	*Cemophora coccinea lineri*		T

mixed hardwood scrub on sandy soils; feeds on reptile eggs; semi-fossorial; active April-September

Texas tortoise	*Gopherus berlandieri*		T

open brush with a grass understory is preferred; open grass and bare ground are avoided; when inactive occupies

Timber/Canebrake rattlesnake	*Crotalus horridus*		T

swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone

PLANTS

Federal Status State Status

Shinner's sunflower *Helianthus occidentalis ssp plantagineus*
mostly in prairies on the Coastal Plain, with several slightly disjunct populations in the Pineywoods and South

Threeflower broomweed *Thurovia triflora*
Texas endemic; near coast in sparse, low vegetation on a veneer of light colored silt or fine sand over saline clay

Welder machaeranthera *Psilactis heterocarpa*
Texas endemic; grasslands , varying from midgrass coastal prairies, and open mesquite-huisache woodlands on

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FORT BEND COUNTY

AMPHIBIANS

		Federal Status	State Status
Houston toad	*Anaxyrus houstonensis*	LE	E

endemic; sandy substrate, water in pools, ephemeral pools, stock tanks; breeds in spring especially after rains;

BIRDS

		Federal Status	State Status
American Peregrine Falcon	*Falco peregrinus anatum*	DL	T

year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more

Arctic Peregrine Falcon	*Falco peregrinus tundrius*	DL	

migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south;

Attwater's Greater Prairie-	*Tympanuchus cupido attwateri*	LE	E

this county within historic range; endemic; open prairies of mostly thick grass one to three feet tall; from near sea

Bald Eagle	*Haliaeetus leucocephalus*	DL	T

found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts,

Henslow's Sparrow	*Ammodramus henslowii*		

wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along

Interior Least Tern	*Sterna antillarum athalassos*	LE	E

subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars

Peregrine Falcon	*Falco peregrinus*	DL	T

both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along

Sprague's Pipit	*Anthus spragueii*	C	

only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal

Western Burrowing Owl	*Athene cunicularia hypugaea*		

open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human

White-faced Ibis	*Plegadis chihi*		T

prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests

White-tailed Hawk	*Buteo albicaudatus*		T

near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas,

Whooping Crane	*Grus americana*	LE	E

potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun,

Wood Stork	*Mycteria americana*		T

forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-

FISHES

		Federal Status	State Status
American eel	*Anguilla rostrata*		

coastal waterways below reservoirs to gulf; spawns January to February in ocean, larva move to coastal waters,

Sharpnose shiner	*Notropis oxyrhynchus*	C	

endemic to Brazos River drainage; also, apparently introduced into adjacent Colorado River drainage; large

MAMMALS

		Federal Status	State Status
Louisiana black bear	*Ursus americanus luteolus*	LT	T

possible as transient; bottomland hardwoods and large tracts of inaccessible forested areas

Plains spotted skunk	*Spilogale putorius interrupta*		

catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded,

Red wolf	*Canis rufus*	LE	E

extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal

MOLLUSKS

		Federal Status	State Status
False spike mussel	*Quadrula mitchelli*		T

possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of

Smooth pimpleback	*Quadrula houstonensis*	C	T

small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel,

Texas fawnsfoot	*Truncilla macrodon*	C	T

little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals,

REPTILES

		Federal Status	State Status
Alligator snapping turtle	*Macrochelys temminckii*		T

perennial water bodies; deep water of rivers, canals, lakes, and oxbows; also swamps, bayous, and ponds near

Texas horned lizard	*Phrynosoma cornutum*		T

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees;

Timber/Canebrake rattlesnake	*Crotalus horridus*		T

swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone

PLANTS

		Federal Status	State Status
Texas prairie dawn	*Hymenoxys texana*	LE	E

Texas endemic; in poorly drained, sparsely vegtated areas (slick spots) at the base of mima mounds in open

Threeflower broomweed	*Thurovia triflora*		

Texas endemic; near coast in sparse, low vegetation on a veneer of light colored silt or fine sand over saline clay

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WHARTON COUNTY

BIRDS

		Federal Status	State Status
American Peregrine Falcon	*Falco peregrinus anatum*	DL	T

year-round resident and local breeder in west Texas, nests in tall cliff eyries; also, migrant across state from more

Arctic Peregrine Falcon	*Falco peregrinus tundrius*	DL	

migrant throughout state from subspecies' far northern breeding range, winters along coast and farther south;

Attwater's Greater Prairie-	*Tympanuchus cupido attwateri*	LE	E

this county within historic range; endemic; open prairies of mostly thick grass one to three feet tall; from near sea

Bald Eagle	*Haliaeetus leucocephalus*	DL	T

found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts,

Henslow's Sparrow	*Ammodramus henslowii*		

wintering individuals (not flocks) found in weedy fields or cut-over areas where lots of bunch grasses occur along

Interior Least Tern	*Sterna antillarum athalassos*	LE	E

subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars

Peregrine Falcon	*Falco peregrinus*	DL	T

both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along

Sprague's Pipit	*Anthus spragueii*	C	

only in Texas during migration and winter, mid September to early April; short to medium distance, diurnal

Western Burrowing Owl	*Athene cunicularia hypugaea*		

open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human

White-faced Ibis	*Plegadis chihi*		T

prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; nests

White-tailed Hawk	*Buteo albicaudatus*		T

near coast on prairies, cordgrass flats, and scrub-live oak; further inland on prairies, mesquite and oak savannas,

Whooping Crane	*Grus americana*	LE	E

potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun,

Wood Stork	*Mycteria americana*		T

forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-

CRUSTACEANS

		Federal Status	State Status
A crayfish	*Cambarellus texanus*		

shallow water; benthic, burrowing in or using soil; apparently tolerant of warmer waters; prefers standing water

FISHES

		Federal Status	State Status
American eel	*Anguilla rostrata*		

coastal waterways below reservoirs to gulf; spawns January to February in ocean, larva move to coastal waters,

Blue sucker	*Cycleptus elongatus*		T

larger portions of major rivers in Texas; usually in channels and flowing pools with a moderate current; bottom

Sharpnose shiner	*Notropis oxyrhynchus*	C	

endemic to Brazos River drainage; also, apparently introduced into adjacent Colorado River drainage; large

MAMMALS

		Federal Status	State Status
Louisiana black bear	*Ursus americanus luteolus*	LT	T

possible as transient; bottomland hardwoods and large tracts of inaccessible forested areas

Plains spotted skunk	*Spilogale putorius interrupta*		

catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded,

Red wolf	*Canis rufus*	LE	E

extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal

MOLLUSKS

		Federal Status	State Status
Creeper (squawfoot)	*Strophitus undulatus*		

small to large streams, prefers gravel or gravel and mud in flowing water; Colorado, Guadalupe, San Antonio,

False spike mussel	*Quadrula mitchelli*		T

possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of

Smooth pimpleback	*Quadrula houstonensis*	C	T

small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel,

Texas fawnsfoot	*Truncilla macrodon*	C	T

little known; possibly rivers and larger streams, and intolerant of impoundment; flowing rice irrigation canals,

Texas pimpleback	*Quadrula petrina*	C	T

mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado and Guadalupe river basins

REPTILES

		Federal Status	State Status
Texas horned lizard	*Phrynosoma cornutum*		T

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees;

Timber/Canebrake rattlesnake	*Crotalus horridus*		T

swamps, floodplains, upland pine and deciduous woodlands, riparian zones, abandoned farmland; limestone

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Mexican Spotted Owl
Houston Toad
Willow Flycatcher
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Dunes Sagebrush Lizard
PARTNERSHIPS
WIND ENERGY
WETLANDS
ES FIELD OFFICES
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New Mexico
Oklahoma
Texas

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List of species by county for Texas:

Counties Selected: Fort Bend

Select one or more counties from the following list to view a county list:

Anderson
Andrews
Angelina
Aransas
Archer

View County List

Fort Bend County

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
Texas prairie dawn-flower	*Hymenoxys texana*	Flowering Plants	E				P
whooping crane	*Grus americana*	Birds	E, EXPN				P

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WETLANDS
ES FIELD OFFICES
Arizona
New Mexico
Oklahoma
Texas

Back to Start

List of species by county for Texas:

Counties Selected: Jackson

Select one or more counties from the following list to view a county list:

Anderson
Andrews
Angelina
Aransas
Archer

View County List

Jackson County

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
West Indian Manatee	*Trichechus manatus*	Mammals	E				P
whooping crane	*Grus americana*	Birds	E, EXPN				P

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PROPOSED LISTINGS
Dunes Sagebrush Lizard
PARTNERSHIPS
WIND ENERGY
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Arizona
New Mexico
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Texas

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List of species by county for Texas:

Counties Selected: Wharton

Select one or more counties from the following list to view a county list:

Anderson
Andrews
Angelina
Aransas
Archer

View County List

Wharton County

Common Name	Scientific Name	Species Group	Listing Status	Species Image	Species Distribution Map	Critical Habitat	More Info
whooping crane	*Grus americana*	Birds	E, EXPN				P

Last updated: November 1, 2011

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United States Department of the Interior

FISH AND WILDLIFE SERVICE
Division of Ecological Services
17629 El Camino Real, Suite 211
281/286-8282 / (FAX) 281/488-5882

February, 2012

Thank you for your request for threatened and endangered species information in the Clear Lake Ecological Services Office's area of responsibility. According to Section 7(a)(2) of the Endangered Species Act and the implementing regulations, it is the responsibility of each Federal agency to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any federally listed species.

Please note that while a Federal agency may designate a non-Federal representative to conduct informal consultation or prepare a biological assessment, the Federal agency must notify the U.S. Fish and Wildlife Service (Service) in writing of such designation. The Federal agency shall also independently review and evaluate the scope and contents of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

A county-by-county listing of federally-listed threatened and endangered species that occur within this office's work area can be found at http://www.fws.gov/southwest/es/EndangeredSpecies/EndangeredSpecies_Lists/EndangeredSpecies_Lists_Main.cfm. You should use the county-by-county listing and other current species information to determine whether suitable habitat for a listed species is present at your project site. If suitable habitat is present, a qualified individual should conduct surveys to determine whether a listed species is present.

After completing a habitat evaluation and /or any necessary surveys, you should evaluate the project for potential effects to the listed species and make one of the following determinations:

No effect – the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for species occurring in the project county is not present in, or adjacent to, the action area). No coordination or conduct with the Service is necessary. However, if the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

Is not likely to adversely affect – the project may affect listed species and/or critical habitat: however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. The Federal agency or the designated non-Federal representative should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all the information and documentation used to reach your decision with your concurrence. The Service must have this documentation before issuing a concurrence.

Is likely to adversely affect – adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also likely to cause some adverse effect to individuals or that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires the Federal action agency to initiate formal Section 7 consultation with this office.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles. The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Endangered Species Act requirements for your projects at http://www.fws.gov/endangered/esa-libray/pdf/esa_section7_handbook.pdf.

If we can further assist you in understanding a federal agency's obligations under the Endangered Species Act, please contact Donna Anderson, Moni Belton, Kelsey Gocke, Jeff Hill, Charrish Stevens, or Arturo Vale at 281-286-8282.

Sincerely,

Edith Erfling

Edith Erfling
Field Supervisor

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

U.S. DEPARTMENT OF ENERGY

February 14, 2012

Field Supervisor
Texas Parks and Wildlife Department
Wildlife Division
Wildlife Habitat Assessment Program
4200 Smith School Road
Austin, TX 78744-3291

Re: Consultation Request for the Proposed W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

To Whom It May Concern:

The U.S. Department of Energy (DOE) proposes to provide funding to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology coupled with EOR operations and long-term geologic storage of the CO_2.

DOE proposes to provide NRG with approximately $167 million of cost-shared funding, which includes *American Recovery and Reinvestment Act of 2009* funds, to implement the Project. DOE selected the Project for a financial assistance award through a competitive process under the Clean Coal Power Initiative (CCPI) Program. The estimated total project cost is $845 million.

DOE is preparing an environmental impact statement (EIS) to assess the potential environmental impacts associated with the proposed Project. As part of the *National Environmental Policy Act of 1969* (NEPA) process, DOE will consult with interested federal, state, regional, and local agencies; as well as Native American tribes. As a result, DOE requests consultation with the Texas Parks and Wildlife Department (TPWD) regarding state threatened and endangered species in the vicinity of the Project as required under Section 7 of the *Endangered Species Act* (ESA).

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mark.lusk@netl.doe.gov • Voice (304) 285-4145 • Fax (304) 285-4216 • www.netl.doe.gov

Project Details

NRG proposes to design, construct, and operate a commercial-scale CO_2 capture facility at its Parish Plant and deliver the CO_2 via an approximately 80-mile-long, 12.75-inch (outside diameter) pipeline to the West Ranch oil field in Jackson County, Texas.

The Project would use an advanced amine-based absorption technology to capture 90 percent (approximately 1.6 million tons) of CO_2 annually from a 240-megawatt (MW) equivalent flue gas slip stream taken from the 617-MW Unit 8 at the Parish Plant. Up to 5,475 tons per day of captured CO_2 would be dried, compressed, and transported via a new pipeline to the West Ranch oil field where it would be used in EOR operations.

The primary components of the Project include the following:

1. *Carbon Capture Facility*

The proposed Project would retrofit one of the Parish Plant's existing coal-fueled units (Unit 8) with a post-combustion CO_2 capture system that would be constructed within the existing 4,880-acre Parish Plant. A new natural gas-fired combined-cycle power plant, estimated to be 80-MW in size, would be constructed to produce the auxiliary power needed to drive the proposed carbon capture system.

2. *CO_2 Transport*

Captured CO_2 would be transported via a new approximately 80-mile-long pipeline to the West Ranch oil field. The anticipated pipeline route includes mostly sparsely-developed rural and agricultural lands in Fort Bend, Wharton, and Jackson Counties in Texas. The majority (approximately 95 percent) of the planned pipeline route will utilize existing mowed/maintained utility rights-of-ways (ROWs) to minimize environmental impacts and avoid sensitive resources to the greatest extent practical. Although the proposed pipeline will be located within existing ROWs for the majority of its length, NRG may need to review existing landowner agreements along the route to negotiate for widening of the ROW for construction of the pipeline in some areas.

3. *EOR and CO_2 Sequestration*

The proposed Project would deliver up to 1.6 million tons of CO_2 per year to the existing West Ranch oil field, located in Jackson County. The oil field has been in operation since 1938, and Texas Coastal Ventures, LLC, a joint venture between NRG and Hilcorp Energy Company, would conduct the EOR operations.

4. *CO_2 Monitoring, Verification, and Accounting Program*

NRG would implement a monitoring, verification, and accounting (MVA) program to monitor the injection and migration of CO_2 within the geologic formations at the EOR site. The MVA program must meet specific regulatory and CCPI Program requirements, and may consist of a variety of monitoring and modeling activities

Project Schedule

NRG plans to start construction of the Project in November 2012 and begin the demonstration phase of commercial operations by 2015. The schedule is contingent on NRG receiving the necessary permits and regulatory approvals, as well as financial closing on all the necessary funding sources, including DOE's financial assistance.

Maps showing the expected footprint for the proposed carbon capture site, the proposed pipeline route, and the existing oil field area are provided in Attachment 1. Biological and cultural resource surveys along the proposed pipeline route are scheduled between January and March 2012. DOE and NRG have contracted with URS Group, Inc., to provide environmental and cultural resources services to support development of the EIS and other regulatory compliance requirements for the Project

Threatened and Endangered Species in the Project Area

A desktop review of the TPWD online database has shown that the State-listed endangered species located within Fort Bend, Wharton, and Jackson Counties, Texas include (see T&E lists in Attachment 2):

- **Whooping crane** (*Grus americana*) - Ft. Bend, Wharton, Jackson
- **Red wolf** *(Canis rufus)* – Ft. Bend, Wharton, Jackson
- **Interior least tern** (*Sterna antillarum athalassos)* - Ft. Bend, Wharton, Jackson
- **Attwater's greater prairie-chicken** (*Tympanuchus cupido attwateri)* - Ft. Bend, Wharton
- **Houston toad** (*Anaxyrus houstonensis)* – Ft. Bend
- **Texas prairie dawn flower** (*Hymenoxys texana*) - Ft. Bend
- **West Indian manatee** *(Trichechus manatus)* - Jackson
- **Brown pelican** (*Pelecanus occidentalis)* - Jackson
- **Smalltooth sawfish** (*Pristis pectinata)* - Jackson
- **Kemp's Ridley sea turtle** (*Lepidochelys kempii)* – Jackson

No impacts to the above-listed species or their critical habitat are anticipated as a result of the Project, and the proposed Project will not impact any marine or shoreline habitats utilized by any of these protected species.

A search of the Texas Natural Diversity Database (TXNDD) showed that the proposed pipeline route intersects two TXNDD element occurrence polygons. According to maps depicting TXNDD search results provided in Attachment 2, the northernmost polygon is based on the historic presence of an eagle nest in the area (TPWD Nest #241-4A [Wharton County]). This nest was first identified in 2001, was inactive in 2003 and 2004, and there is no information after 2004. The southernmost polygon is based on the historic presence of eagle nests in the area (TPWD Nests 120-2A, 2B, and 2C). Nest 2C was found to have fallen in 2004. No information is available after 2004. DOE recognizes that the bald eagle is afforded Federal protection under the *Bald and Golden Eagle Protection Act*, the *Migratory Bird Treaty Act*, and is protected by the State of Texas. However, since the proposed pipeline would be primarily constructed along

an existing ROW to minimize or avoid environmental impacts during construction, impacts to the bald eagle habitat (i.e. trees that have nests or that would be potential nesting sites) is not expected.

DOE respectfully requests that the TPWD provide site-specific information concerning existing natural resources within Fort Bend, Wharton, and Jackson Counties. This information would include details regarding threatened and endangered species, species of special concern, critical habitats, or any other significant biological resources (e.g., unique or sensitive habitats, nature preserves, and migratory bird fallout areas) that may be located within the vicinity of the proposed Project. DOE also requests guidance from TPWD concerning surveying recommendations or seasonal constraints on construction with respect to threatened and endangered species. The information provided by the TPWD will assist DOE in the preparation of an EIS and fulfillment of its regulatory responsibilities under the ESA. DOE also intends to provide a copy of the draft EIS for the Project to your office for review and comment. All correspondence with your office will be included in an appendix to the EIS.

DOE would appreciate your participation and request a response as soon as practical to help quickly identify potential impacts to protected species in the vicinity of the Project. You can reach me for comment by email at mark.lusk@netl.doe.gov, by telephone at (304) 285-4145, or at the address listed on the front page.

Sincerely,

Mark W. Lusk
NEPA Document Manager/NEPA Compliance Officer

Attachments:
1. Project Location Maps
2. Threatened and Endangered Species Lists/Texas Natural Diversity Database Maps

cc:
Jon Barfield - NRG
Anthony Armpriester - NRG
Ted McMahon - DOE
Pete Conwell - URS

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March 20, 2012

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Mark Lusk
NETL
3610 Collins Ferry Road
Morgantown, WV 26507

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

Dear Mr. Lusk:

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.

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."

Based on the project description and the preliminary pipeline alignment, TPWD offers the following preliminary comments and recommendations:

Federal Regulations

Endangered Species Act (ESA)

Federally-listed animal species and their habitat are protected from "take" on any property by the ESA. Take of a federally-listed species can be allowed if it is "incidental" to an otherwise lawful activity and must be permitted in accordance with Section 7 or 10 of the ESA. Federally-listed plants are not protected from take except on lands under federal/state jurisdiction or for which a federal/state nexus (i.e., permits or funding) exists. Any take of a federally-listed species or its habitat without the required allowance from U.S. Fish and Wildlife Service (USFWS) is a violation of the ESA.

The Texas Natural Diversity Database (TXNDD) is intended to assist users in avoiding harm to rare species or significant ecological features. Given the small proportion of public versus private land in Texas, the TXNDD does not include a representative inventory of rare resources in the state. Absence of information in the database does not

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imply that a species is absent from that area. Although it is based on the best data available to TPWD regarding rare species, the data from the TXNDD do not provide a definitive statement as to the presence, absence or condition of special species, natural communities, or other significant features within your project area. These data are not inclusive and **cannot be used as presence/absence data**. This information cannot be substituted for on-the-ground surveys. The TXNDD is updated continuously based on new, updated and undigitized records; for questions regarding a record, please contact txndd@tpwd.state.tx.us.

Due to the large scope of the project, TPWD recommends that the applicant contact the TXNDD through the email above and request the TXNDD data to adequately evaluate the proposed project's impacts upon rare resources. Records within 5 miles are discussed below and shown on Figure 1.

Please refer to the enclosed map (Figure 1) and element occurrence list for additional information.

> **Recommendation:** Potential impacts to federally-listed species and their habitat should be considered for the project. TPWD recommends that routes be designed to avoid areas of suitable habitat. If suitable habitat is present and harm to federally-listed species may occur, then the appropriate USFWS field office should be consulted pursuant to the ESA.

Bald and Golden Eagle Protection Act

The Bald Eagle (*Haliaeetus leucocephalus*) is known to nest and winter in the portions of Texas. Please note that, although the Bald Eagle is no longer federally-listed threatened, this species remains state-listed threatened and receives protection under the U.S. Bald and Golden Eagle Protection Act. Under this act eagles are protected from disturbance which is defined as: "*To agitate or bother a bold or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, 1) injury to an eagle, 2) a decrease in it productivity, by substantially interfering with normal breeding, feeding, or sheltering behavior, or 3) nest abandonment, by substantially interfering with normal breeding, feeding, or sheltering behavior.*"

In addition to immediate impacts, this definition also covers impacts that result from human-caused alterations initiated around a previously used nest site during a time when eagles are not present, if upon the eagles return, such alterations agitate or bother an eagle to a degree that injures an eagle or substantially interferes with normal breeding, feeding, or sheltering habits and causes, or is likely to cause, a loss of productivity or nest abandonment.

Guidelines for minimizing disturbance to both nesting and wintering Bald Eagles can be found at http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_w7000_0013_bald_eagle_mgmt.pdf.

The TXNDD revealed known occurrences of the Bald Eagle (*Haliaeetus leucocephalus*) within 5 miles of the project area as shown on the enclosed map (Figure 1). Please note, known occurrences of Bald Eagle nesting locations along the Colorado River are not indicated on Figure 1. The proposed project falls within these known locations. For more information on these nesting locations please contact Brent Ortego at (361) 576-0022 x 221.

Recommendation: TPWD recommends the project be developed to avoid or minimize potential impacts to areas along the project where the state-threatened Bald Eagle may occur, but have not been officially reported and recorded in the TXNDD. Areas buffering active nests should be protected from disturbance.

Migratory Bird Treaty Act (MBTA)

MBTA implicitly prohibits intentional and unintentional take of migratory birds, including their nests and eggs, except where permitted. Measures should be taken to ensure that migratory bird species within and near the project area are not adversely impacted by clearing and construction activities.

Recommendation: TPWD recommends that vegetation removal be avoided during the primary migratory bird nesting season, March through August, to avoid adverse impacts to this group. If clearing vegetation during the nesting season is unavoidable, TPWD recommends the construction area be surveyed to ensure that no nests with eggs or young will be disturbed by construction. Any vegetation (trees, shrubs, and grasses) where occupied nests are located should not be disturbed until the eggs have hatched and the young have fledged. For additional information regarding potential impacts of the project on migratory birds, contact the USFWS - Migratory Bird Office at (505) 248-7882.

Clean Water Act (CWA)

The U.S. Army Corps of Engineers (USACE) as authorized by Section 404 of the CWA of 1972 issues permits for unavoidable discharge of dredged or fill material into Waters of the U.S., including wetlands. Any unavoidable impacts to jurisdictional streams and wetlands would be subject to review and approval of the USACE. If potential impacts to jurisdictional wetlands are anticipated, the appropriate USACE district office should be consulted pursuant to CWA.

Wetlands, riparian areas, and bottomland forests generally provide valuable habitat for wildlife and protect waterways from sediment loads in runoff water. Such habitats are priority habitat types targeted for conservation by TPWD across the state.

Recommendation: If crossing streams, wetlands, and associated riparian habitat and bottomland forest is unavoidable, TPWD recommends that minimization of impacts be proposed through:

- reductions in the nominal construction ROW width in wetlands, riparian habitat, and bottomland forest
- placement of the pipeline parallel to existing road or utility ROW *except* where this would cause greater impact to wetland and riparian habitats or rare resources,
- selective routing
- the use of wetland and waterbody construction and mitigation procedures,
- crossing wetlands, streams and associated riparian habitat and bottomland forest using boring techniques
- reducing maintenance of the permanent ROW in wetlands to a 10-ft. wide area centered over the pipeline

Recommendation: Where boring would be conducted, TPWD recommends that staging areas for drilling equipment be located in previously disturbed areas or areas of low value habitat. The footprint of disturbance should be reduced as much as possible and crossings should be conducted perpendicular to linear stream and riparian habitats to reduce the amount of disturbance.

Recommendation: NRG should minimize disturbance to inert microhabitats, i.e., snags, brush piles, fallen logs, creek banks, and pools as these provide habitat for a variety of wildlife species and their food sources.

Recommendation: In wetland areas, only vegetation impeding construction should be removed, equipment should not be driven over vegetation when it is extremely wet, and heavy machinery should not be stored on vegetative cover for long periods of time. Protective mats should be placed within streambeds during construction to reduce the amount of soil and root disturbance and aid in the recovery of plants.

Recommendation: Vehicles not needed specifically at creek crossings should utilize nearby roadways and bridges when crossing wetlands and streams to avoid soil disturbances.

State Regulations

Ecologically Significant Stream Segments

TPWD has identified Ecologically Significant Stream Segments (ESSSs) throughout the state to assist regional water planning groups in identifying ecologically unique stream segments under Texas Administrative Code Title 31 357.8. Until approved by the legislature this is not a legal designation. The stream segments are identified through extensive review by TPWD staff and are determined to be ecologically important due to one or more of the following criteria: Biological function; hydrologic function; riparian conservation areas; high water quality/exceptional aquatic life/high aesthetic value; or threatened or endangered species/unique communities. Additional information on ESSS may be found at http://www.tpwd.state.tx.us/landwater/water/environconcerns/water_quality/sigsegs/. The proposed pipeline crosses the following ESSSs (Figure 2):

- Big Creek
- Colorado River
- Lavaca River
- San Bernard River
- West Carancahua Creek

Recommendation: If ground or water disturbing activities are to occur in or near an ESSS, every effort should be undertaken to preserve the biological, hydrological, aquatic life and aesthetic qualities that support the ESSS. Best management practices (BMPs) to avoid erosion, sedimentation, turbidity, stream bank, stream bed and vegetative disturbance should be developed and implemented to the greatest extent practicable. Such measures would include strict adherence to the Texas Commission on Environmental Quality Section 401 CWA Water Quality Certification, the Section 402 CWA Storm Water Pollution Prevention Plan and the USACE Nationwide 14 Permit terms and conditions for mitigation, erosion and sediment control during the construction phase. Those controls include the use of double silt fencing in construction areas near creek drainages, avoiding clearing of stream bank and in-stream native vegetation, phasing work during dry periods, crossing ESSSs by horizontal directional drilling, minimizing any stream bed disturbance, and siting equipment storage areas, valves, and pump stations beyond the floodplain of streams and rivers including ESSS.

Chapter 86, Parks and Wildlife Code – State-Owned Streambeds

No TPWD permit is required for **boring underneath** navigable streams (as defined in Texas state law). Disturbance to state owned streambeds and removal of streambed materials may require a permit from this Department under Chapter 86 of the Parks and Wildlife Code. Information regarding such permits can be found at http://www.tpwd.state.tx.us/faq/landwater/sand_gravel/.

Recommendation: If state owned streambeds would be disturbed as a result of proposed project, TPWD recommends NRG contact Tom Heger at the letterhead address or by phone at (512) 389-4583 for application forms and additional information.

Section 68.015, Parks and Wildlife Code – State-listed Species

Section 68.015 of the Parks and Wildlife Code regulates state-listed species. Please note that there is no provision for take (incidental or otherwise) of state-listed species. A copy of *TPWD Guidelines for Protection of State-Listed Species* is attached for your reference. This document includes a list of penalties for take of state-listed species. State-listed species may only be handled by persons with a scientific collection permit obtained through TPWD. For more information on this permit, please contact the Wildlife Permits Office at (512) 389-4647.

The TPWD county lists for rare species may be obtained from the following link: http://gis.tpwd.state.tx.us/TpwEndangeredSpecies/DesktopDefault.aspx. These lists provide information regarding rare species that have potential to occur within each county. Rare species could potentially be impacted if suitable habitat is present at or near the project site.

The TXNDD revealed the following known occurrences of state-listed species within 5 miles of the project area in Texas (Figure 1):

- Bald Eagle (*Haliaeetus leucocephalus*)

Recommendation: TPWD recommends that NRG consult the above-reference TPWD county lists to determine if habitat for state-threatened species occurs within the project area. An on-the-ground survey by a qualified biologist should be performed in areas of suitable habitat to determine if species are present. If present, NRG should incorporate actions into the project to avoid impacts to these species.

Potential adverse impacts should be identified and conservation measures to offset harm should be incorporated into the project mitigation plan. If rare, threatened, and endangered species are to be adversely affected, TPWD should be contacted for further coordination.

State Fish and Wildlife Resources

Rare Resources

Special features, natural communities, and rare species that are not listed as threatened or endangered are tracked in the TXNDD. Although not afforded protection by the ESA or Parks and Wildlife Code Section 68.015, TPWD actively promotes rare species conservation. TPWD considers it important to evaluate and if necessary, minimize impacts to rare species and their habitat to reduce the likelihood of endangerment.

The TXNDD revealed the following known occurrences of species of concern, special features, and natural communities within 5 miles of the project area in Texas:

- Texas Diamondback Terrapin (*Malaclemys terrapin littoralis*)
- Threeflower broomweed (*Thurovia triflora*)
- Welder machaeranthera (*Psilactis heterocarpa*)
- Colonial waterbird rookery

Rookeries

In general, nesting dates for herons and egrets range from early February to late August in Texas, depending on the species. Great Blue Herons (GBHE) are usually the first to nest. When GBHE get disrupted from the nest and abandon nesting, then the other

species of herons and egrets may not attempt to nest at the colony that year. A reference that indicates nesting dates for Texas species within heronries can be found in *Nuisance Heronries in Texas*: http://www.tpwd.state.tx.us/publications/pwdpubs/media/pwd_bk_w7000_0134.pdf

Recommendation: If rookeries are encountered, TPWD recommends BMPs for avoiding/minimizing disturbance during nesting. TPWD recommends a primary buffer area of 300 meters (984 feet) from the heronry periphery to avoid any vegetation clearing as a protection measure to protect the heronry and its habitat. Pipeline construction and permanent easements that would encroach within this buffer area should be re-routed, adjusted, or narrowed to avoid clearing within this buffer area. Utilizing areas that have already been cleared within this buffer area may be acceptable depending on site-specific characteristics. Additionally, human foot traffic or machinery use should not occur within this buffer area during the nesting season.

Recommendation: TPWD recommends a secondary buffer area of 1000 meters (3281 feet) from the heronry periphery to avoid clearing activities or construction using heavy machinery during the breeding season (courting and nesting). At this time, TPWD does not have a detailed report of the heronries found along the proposed pipeline route. When details regarding the heronries are provided, TPWD staff can discuss NRG's ability to feasibly meet the recommended setback distances. Details to aid in decision making includes the size of the heronry number of nests and area of heronry), species utilizing the heronry, distance of heronry periphery from the construction area, and characteristics regarding the habitat within and surrounding the heronry.

Mussels

On November 5, 2009, the Texas Parks and Wildlife Commission acted to place 15 native freshwater mussel species on the state-threatened species list.

Recommendation: TPWD recommends potentially impacted waterways within the range of state listed mussels be assessed for rare mussel habitat. Where suitable habitat is present, mussel surveys should be conducted if construction would be conducted in waters associated with mussels. Direct disturbance of habitat and degradation of water quality should be avoided where threatened mussels or their habitat are found. If mussel populations are present within the limits of the proposed project area, those populations should be protected from disturbance to the greatest extent possible. If disturbance of mussel beds cannot be avoided, the TPWD Wildlife Habitat Assessment Program (512) 389-4571 should be contacted for guidance on mitigation.

Recommendation: TPWD recommends use of BMPs for riparian areas to minimize impacts on mussels as well as fish species which are the mussel larval host. BMPs would include measures such as: 1) avoiding impact to perennial waters and their

associated riparian areas by using horizontal directional drilling techniques, 2) avoiding construction during fish and mussel spawning periods, 3) completing construction through the streambed during periods of drought when the stream is dry, and 4) use of double silt fences and doubling soil stabilization measures along the banks to avoid increasing the turbidity of the creek.

Vegetation

The proposed project crosses the Gulf Coast Prairies and Marshes Ecoregion and would occur within various vegetation types associated with the region. Texas Ecological Systems Classification and Mapping Project (ESMP) Phase 1 and 2 provide recently mapped vegetative cover based on the NatureServe Ecological System Classification System as described by Comer (2003). More information and downloads from the ESMP can be obtained at http://www.tpwd.state.tx.us/landwater/land/maps/gis/tescp/index.phtml.

Recommendation: TPWD recommends the ESMP be used to aid in routing to avoid sensitive areas and important habitats. TPWD would like to note that although a route may appear to have certain impacts based on remote analysis, the quality of the habitat being impacted cannot be determined without field surveys.

TPWD prefers that disturbed upland areas be restored to pre-construction contours and planted with a mixture of **native** herbaceous species, especially when the adjacent property on one or both sides of the pipeline ROW contains native species of vegetation. Introduction of non-native species into native landscapes should be prevented.

Based on a review of the TPWD Vegetation Types of Texas (1984) map, the following vegetation types are found in the study area:

- Crops
- Pecan Elm
- Marsh Barrier Island

A map of vegetation types in the study area is attached for your reference (Figure 3).

Recommendation: TPWD recommends minimizing impacts to native vegetation to the extent feasible during project design and construction. Unavoidable loss of native vegetation should be mitigated by revegetating areas disturbed by project activities with site-specific native species. A list of native plant species suitable for use in the project area can be developed to fit your specific site needs using the TPWD Texas Plant Information Database at http://tpid.tpwd.state.tx.us/.

Recommendation: For revegetation, TPWD recommends selection of species that are suited to the site conditions and intended uses and to consider native species that have multiple benefits and provide species diversity. Native perennial grass species recommended by TPWD for permanent cover include Switchgrass (*Panicum*

virgatum), Eastern Gamagrass (*Tripsacum dactyloides*), Virginia Wildrye (*Elymus virginicus*), Canada Wildrye (*E. canadensis*), Yellow Indiangrass (*Sorghastrum nutans*) and Little Bluestem (*Schizachyrium scoparium*). Other species appropriate for the area can be found by accessing the TPWD Texas Plant Information Database. During the easement acquisition process, each landowner should be offered a native seed mix.

Recommendation: To verify successful revegetation and to determine the need for additional restoration, TPWD recommends the applicant conduct at least 2 years of post-construction monitoring. In wetlands, TPWD recommends that vegetation be allowed to reestablish naturally with a three year monitoring plan to determine success. TPWD recommends that unsuccessful wetland revegetation be accompanied by active planting with native wetland herbaceous and woody plant species in consultation with a professional wetland ecologist.

Invasive Species

The Chinese tallowtree (*Triadica sebifera*) is an invasive species known to invade stream banks, riverbanks, and wet areas as well as upland sites. Disturbed areas are especially susceptible to infestation of tallow trees. Other exotic species with potential to invade portions of the project ROW include cogon grass (*Imperata cylindrica*), Chinese privet (*Ligustrum sinese*), deep-rooted sedge (Cyperus entrerianus), Japanese honeysuckle (*Lonicera japonica*), and purple loosestrife (*Lythrum salicaria*).

Recommendation: A revegetation and maintenance plan should be prepared to monitor and control invasive species within the construction and operation ROWs. Occurrences of the exotic species listed above should be treated and controlled.

Mitigation Plan

TPWD recommends NRG prepare a mitigation plan to provide compensatory mitigation for loss of important wildlife habitats where impacts from the pipeline cannot be avoided or minimized. This would include impacts to species and habitats covered under federal law (wetlands and associated habitats, threatened or endangered species) and state resource habitat types not covered by state or federal law (riparian areas, native prairies, certain types of bottomland hardwoods, S1 and S2 natural communities). At a minimum, TPWD recommends a replacement ratio of 1:1 for state resource habitat types.

TPWD advises review and implementation of the comments and recommendations. If you have any questions, please contact Amy Turner, Ph.D. at (361) 576-0022 or amy.turner@tpwd.state.tx.us. As the primary point-of-contact for this project, correspondence regarding this project should be addressed to Amy Turner, Ph.D., TPWD Wildlife Division, Wildlife Habitat Assessment Program, 4200 Smith School Road, Austin, TX 78744.

Sincerely,

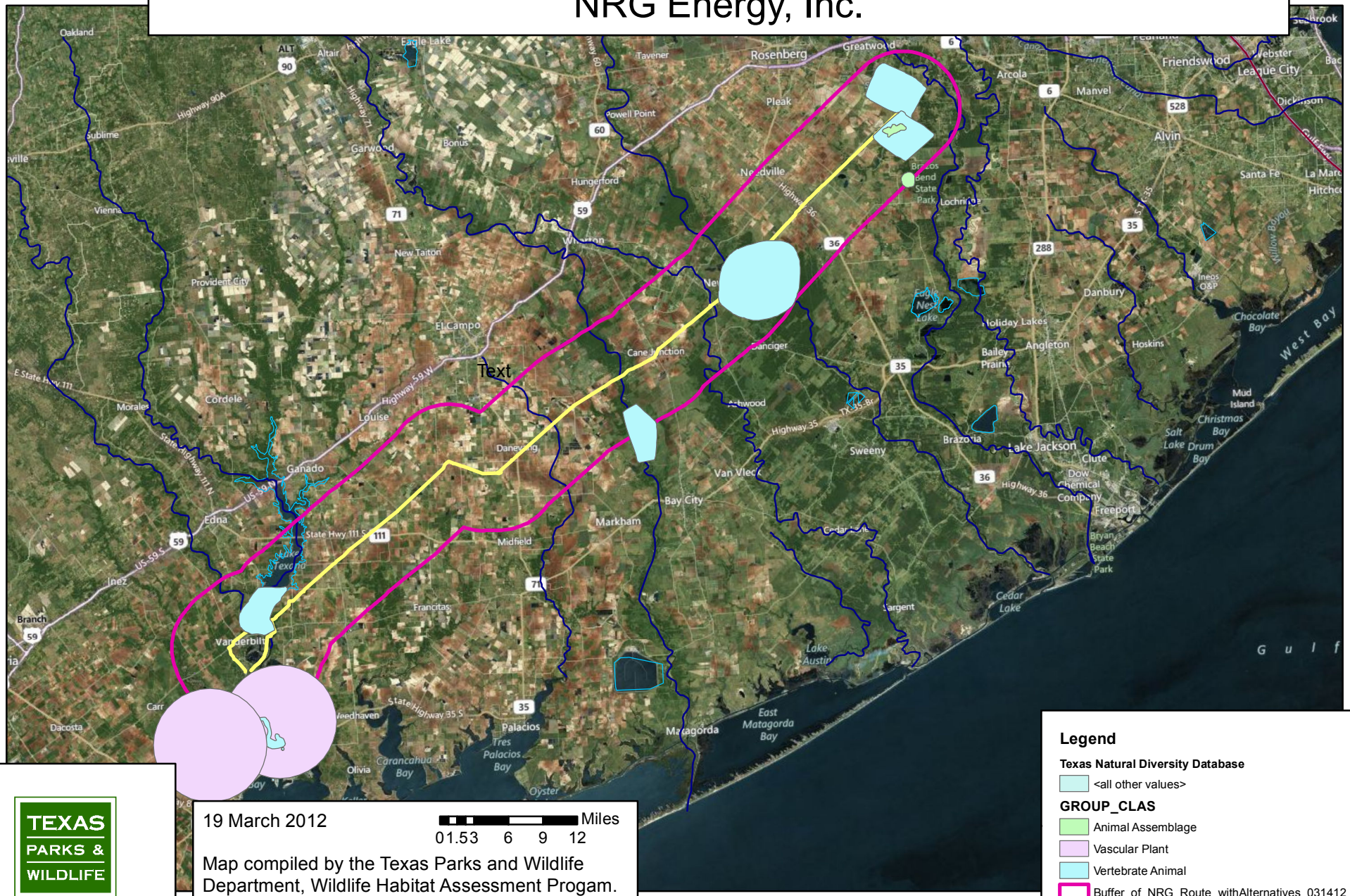
Amy Turner

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

/ajt:17002

Enclosures: TXNDD Occurrence Shapefiles and Element Occurrence Records
TPWD Guidelines for Protection of State-Listed Species

Figure 1
Texas Natural Diversity Database
W.A. Parish Post- Combustion Carbon Capture and Storage Project
NRG Energy, Inc.



19 March 2012

Miles
0 1.5 3 6 9 12

Map compiled by the Texas Parks and Wildlife Department, Wildlife Habitat Assessment Progam. No claims are made to accuracy of the data or the suitablity of the data to a particular use.

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Legend

Texas Natural Diversity Database

<all other values>

GROUP_CLAS

Animal Assemblage

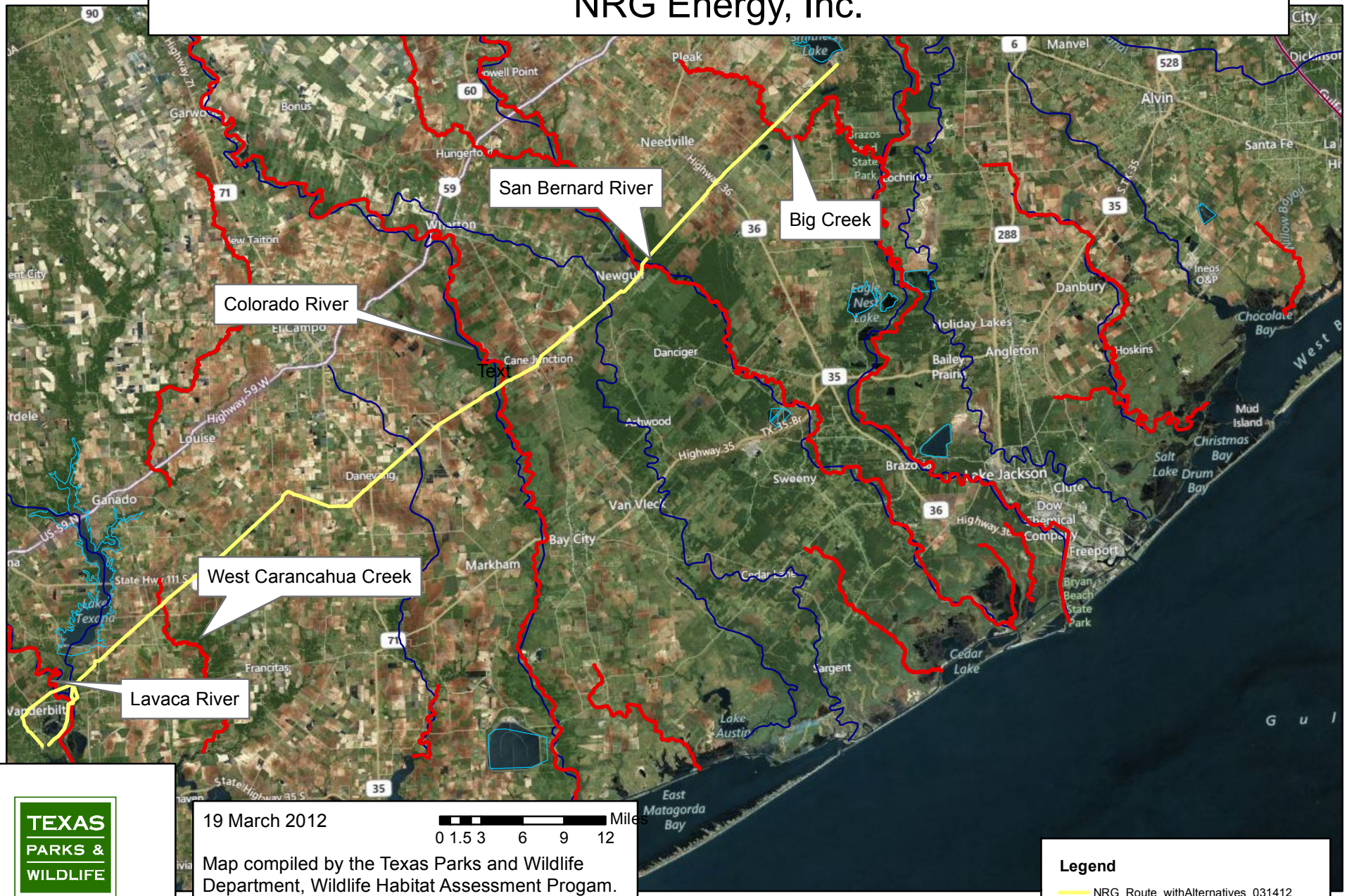
Vascular Plant

Vertebrate Animal

Buffer_of_NRG_Route_withAlternatives_031412

NRG_Route_withAlternatives_031412

Figure 2
Ecologically Significant Stream Segments
W.A. Parish Post- Combustion Carbon Capture and Storage Project
NRG Energy, Inc.



19 March 2012

0 1.5 3 6 9 12 Miles

Map compiled by the Texas Parks and Wildlife Department, Wildlife Habitat Assessment Progam. No claims are made to accuracy of the data or the suitablity of the data to a particular use.

Legend

- NRG_Route_withAlternatives_031412
- Ecologically Significant Stream Segments

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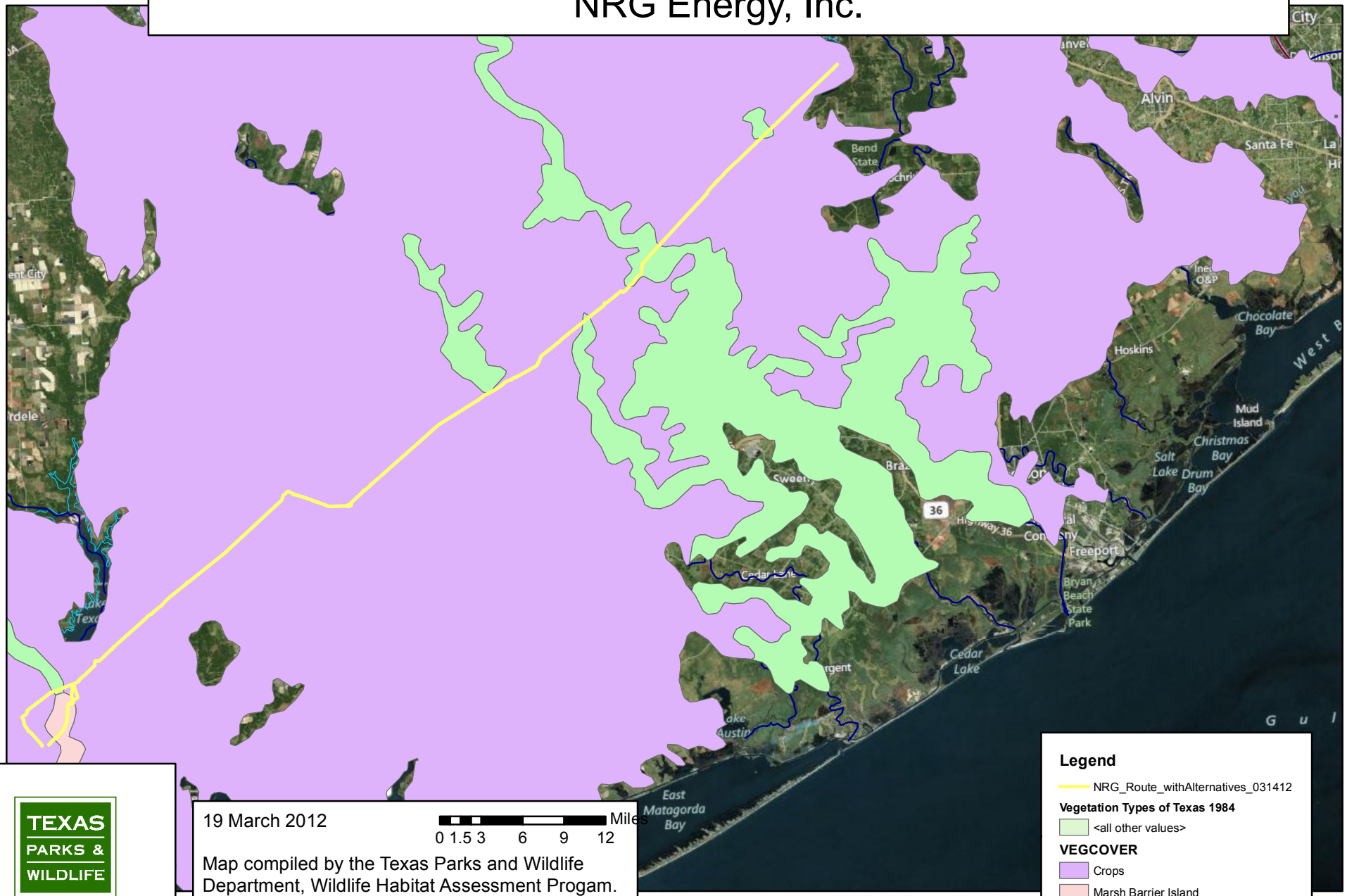
Figure 3
Vegetation Types of Texas 1984
W.A. Parish Post- Combustion Carbon Capture and Storage Project
NRG Energy, Inc.



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19 March 2012

0 1.5 3 6 9 12 Miles

Map compiled by the Texas Parks and Wildlife Department, Wildlife Habitat Assessment Progam. No claims are made to accuracy of the data or the suitablity of the data to a particular use.

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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

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

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

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.

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

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

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

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

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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T. Dan Friedkin
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Fort Worth

Antonio Falcon, M.D.
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San Antonio

Dan Allen Hughes, Jr.
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Bill Jones
Austin

Margaret Martin
Boerne

S. Reed Morian
Houston

Dick Scott
Wimberley

Lee M. Bass
Chairman-Emeritus
Fort Worth

Carter P. Smith
Executive Director

November 6, 2012

Mark Lusk
NETL
3610 Collins Ferry Road
Morgantown, WV 26507

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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C.3 CULTURAL RESOURCES CONSULTATION

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(See Appendix A to EIS Appendix G for a copy of the February 10, 2012 Phase I Cultural Resources Investigation Scope of Work)

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TEXAS HISTORICAL COMMISSION
real places telling real stories

February 23, 2012

Mark Lusk
U.S. Department of Energy
3610 Collins Ferry Road
P.O. Box 880
Morgantown, West Virginia 26507

Re: Project review under Section 106 of the National Historic Preservation Act of 1966
Notification of Project and Proposed Phase I Cultural Resources Inventory Scope of Work for the W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Mr. Lusk:

Thank you for your correspondence describing the above referenced project. This letter serves as comment on the proposed federal undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission. As the state agency responsible for administering the Antiquities Code of Texas, these comments also provide recommendations on compliance with state antiquities laws and regulations.

The review staff, led by Jeff Durst, has examined our records. According to our maps, the proposed project area should be surveyed as recommended by URS Group, Inc. (URS). However, we recommend, in addition to the procedures outlined in the URS scope of work, that backhoe trenching be conducted in areas adjacent to waterways where there is the potential for deeply buried cultural resources. In areas where directional drilling will be utilized to pass underneath waterways backhoe trenching should take place at the location of the bore holes entrance and exit points where deep sediments are observed or suspected. In instances where deep sediments are not encountered in these areas then this should be explained in the report as the reason why backhoe trenching was not conducted.

All work on the should meet the minimum archeological survey standards posted on-line at www.thc.state.tx.us. A report of investigations should be produced in conformance with the Secretary of the Interior's Guidelines for Archaeology and Historic Preservation, and submitted to this office for review.

Thank you for your cooperation in this federal and state review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If you have any questions concerning our review or if we can be of further assistance, please contact Jeff Durst at 512/463-8884.**

Sincerely,

for
Mark Wolfe, State Historic Preservation Officer

MW/jjd

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

U.S. DEPARTMENT OF ENERGY

April 25, 2012

Mr. Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission
1511 Colorado St.
Austin, Texas 78701

Subject: Response to Texas Historical Commission Request for Backhoe Trenching; Proposed Phase I Cultural Resources Inventory Scope of Work for the W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Mr. Wolfe,

In correspondence from your office dated February 23, 2012, the Texas Historical Commission (THC) recommended that "backhoe trenching be conducted in areas adjacent to waterways where there is the potential for deeply buried cultural resources. In areas where directional drilling will be utilized to pass underneath waterways backhoe trenching should take place at the location of the bore holes entrance and exit points where deep sediments are observed or suspected."

URS Group, Inc. (URS) conducted a soil and geomorphological review of the six horizontal directional drills (HDD) planned for waterbody crossings during construction of the proposed CO_2 pipeline. As shown in Attachment 1, HDDs are planned for the following six waterbody crossings: Big Creek; FM 1994 (and adjacent pond); San Bernard River; Colorado River; Jones Creek; and Lavaca River. Attachment 1 also provides detailed aerial imagery of the HDD locations and indicates the proposed limits of the pipeline construction corridor, including additional temporary workspace, approximate milepost (MP) locations, and soil types. A summary of the soil types encountered at the entry and exit points for each HDD is provided in Table 1 below.

The FM 1994 HDD would cross under a man-made pond and would be completed in Bernard-Edna Complex soil (Table 1), which is associated with an upland landform. Therefore, the U.S. Department of Energy (DOE) proposes that no deep testing would be required for the FM 1994 HDD. Additionally, the HDD exit points for the Big Creek and Lavaca River crossings are characterized by the Edna fine sandy loam and Telferner fine sandy loam, respectively (Table 1). Both of these soils are affiliated with ancient (i.e., pre-Holocene) meander ridges on the Beaumont Formation. Based on their landform characteristics and age, no additional deep testing is considered warranted for the HDD exit locations at the Big Creek and Lavaca River crossings.

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The soils encountered at the remaining eight HDD entry and exit locations (i.e., the entry locations for the Big Creek and Lavaca River HDDs and the entry and exit locations for the San Bernard River, Colorado River, and Jones Creek HDDs) are associated with well-defined floodplain deposits that may contain more deeply buried cultural resources. As recommended by THC, DOE proposes that additional deep testing via backhoe trenching be conducted at these eight locations. Table 1 summarizes the recommendations for each HDD entry and exit location.

Table 1. HDD Entry and Exit Location Soils

HDD Name	MP	Entry Location			Exit Location		
		Soil Symbol	Soil Name	Deep Testing Proposed	Soil Symbol	Soil Name	Deep Testing Proposed
Big Creek	6.5	Kd	Kaman clay	Yes	Eb	Edna fine sandy loam	No
FM 1994	8.5	Be	Bernard-Edna complex	No	Be	Bernard-Edna complex	No
San Bernard River	20.5	As	Asa silty clay loam	Yes	Pa	Pledger clay	Yes
Colorado River	34	Cn	Clemville-Norwood complex	Yes	Me	Brazoria clay, rarely flooded	Yes
Jones Creek	35.5	Me	Brazoria clay, rarely flooded	Yes	Me	Brazoria clay, rarely flooded	Yes
Lavaca River	77.0	Ar	Aransas clay, saline, frequently flooded	Yes	TfA	Telferner fine sandy loam	No

Source: U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) soil survey data for Fort Bend, Wharton, and Jackson Counties, Texas. URL: http://soildatamart.nrcs.usda.gov. Accessed April 2012.

The deep testing methodology for the eight proposed testing locations would be confined to the approximate boundaries of the proposed entry/exit points. The HDD borehole size is anticipated to be approximately 20 to 24-in (51 to 61-cm) in diameter. During pipeline construction, a pit measuring approximately 10-ft by 10-ft (2.6-m by 2.6-m) in areal extent and approximately 4-ft (1.2-m) in depth would be excavated at each HDD entry and exit point to contain drilling muds. Based on this project design, DOE proposes to excavate a 10-ft-long, 4-ft-deep trench, oriented perpendicular to the pipeline corridor, within the planned entry/exit pit at each of the eight deep testing locations. Trenching would be conducted utilizing a rubber-tired or tracked backhoe, depending upon soil and weather conditions, with a smooth (i.e., clean-up) bucket measuring approximately 3-ft (0.9-m) in width. The trenches would be excavated in approximately 6-in (15-cm) intervals to allow for examination of the exposed trench soils and sidewalls. Any exposed archaeological materials and/or subsurface features would be noted and recorded during this procedure and representative soil profiles would be drawn and photographed for each exposed trench face once the maximum depth of 4-ft (1.2-m) is reached.

If the Principal Archaeologist feels that additional depth is required to adequately assess a testing location, the Principal Archaeologist would request that the backhoe excavator excavate deeper in that portion of the trench. However, for health and safety reasons, survey personnel will not enter portions of the trench that are deeper than 4-ft (1.2-m) in depth, but will visually assess the trench wall from the ground surface or an adjacent location. Once observations are completed for each trench, excavated soil would be placed back into the trench and the ground surface returned to preexisting contours. Any encountered cultural features and/or materials will be analyzed and assessed as described in the February 10, 2012, Scope of Work that was reviewed by your office. The results of the deep testing at the eight proposed HDD locations would then be summarized in the Phase I cultural resources report being prepared for the ongoing pipeline corridor investigation.

We hope that the above rationale and trenching methodology address THC's recommendation for deep soil testing. DOE and NRG Energy, Inc., plan to proceed with this work as soon as possible (i.e., beginning around May 1, 2012) and are providing this approach to your office for informational purposes. Should you have any questions regarding the proposed backhoe trenching, please contact Mr. Rob Lackowicz (URS National Historical Preservation Act consultant) at 225-935-2974 or by email at rob.lackowicz@urs.com. You can also reach me for comment at the address listed on the front page, by telephone at (304) 285-4145, or by email at mark.lusk@netl.doe.gov.

Sincerely,

Mark W. Lusk
NEPA Document Manager/NEPA
Compliance Officer

Attachment

cc:
Jeff Durst - THC
Ted McMahon - DOE
Jon Barfield - NRG
Anthony Armpriester - NRG
Rob Lackowicz - URS
Martin Handly - URS
Pete Conwell - URS

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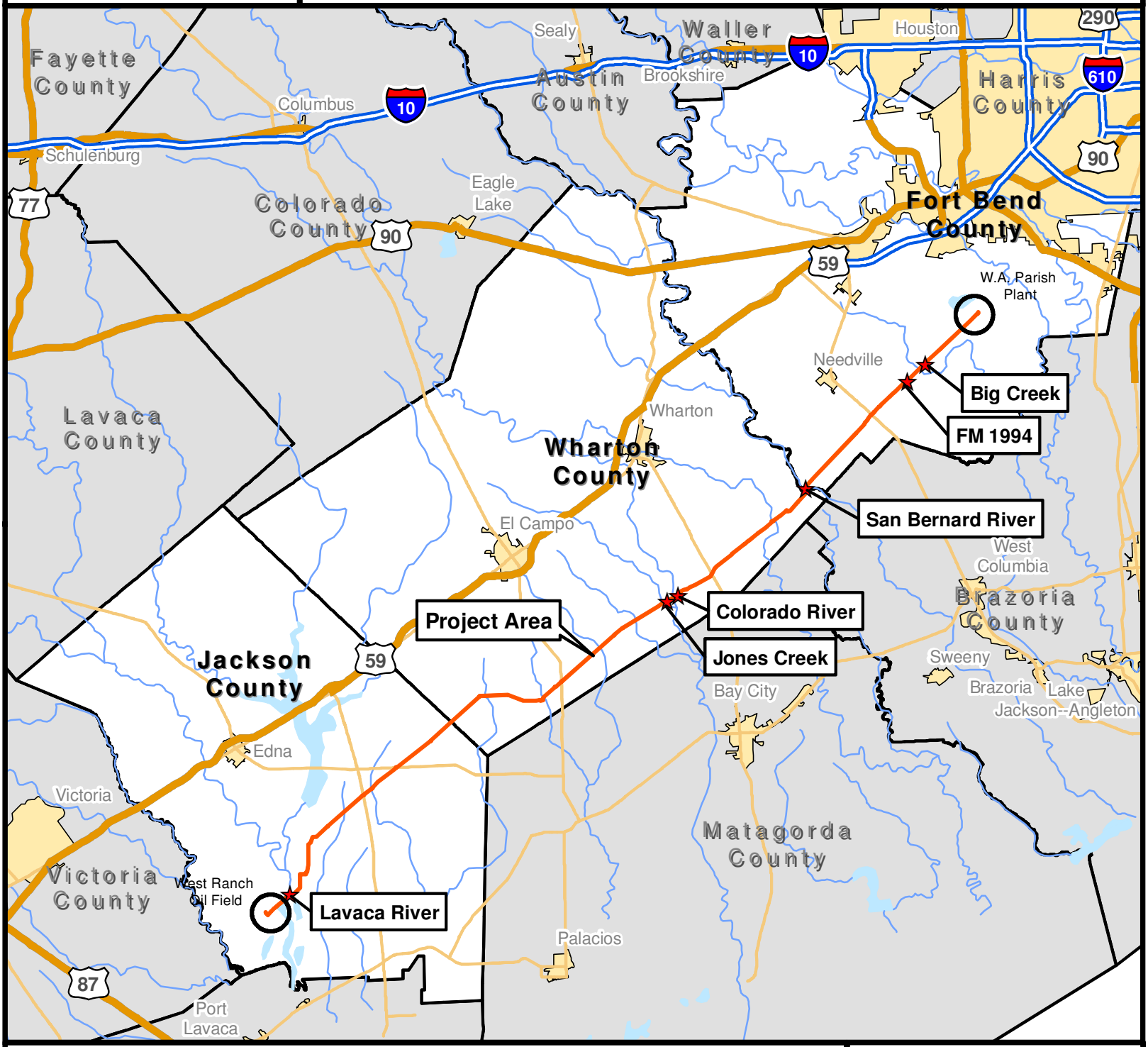
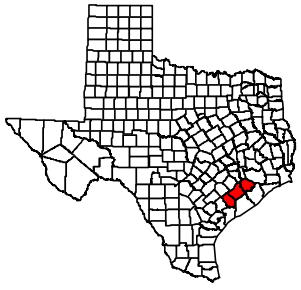
Proposed NRG Energy CO_2 Pipeline



- Proposed HDD Location
- Project Area
- Major River
- Major Lake
- Interstate Highway
- Highway
- Major Road
- Urban Area
- Project County
- Surrounding County

Locator Map



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Overview Map

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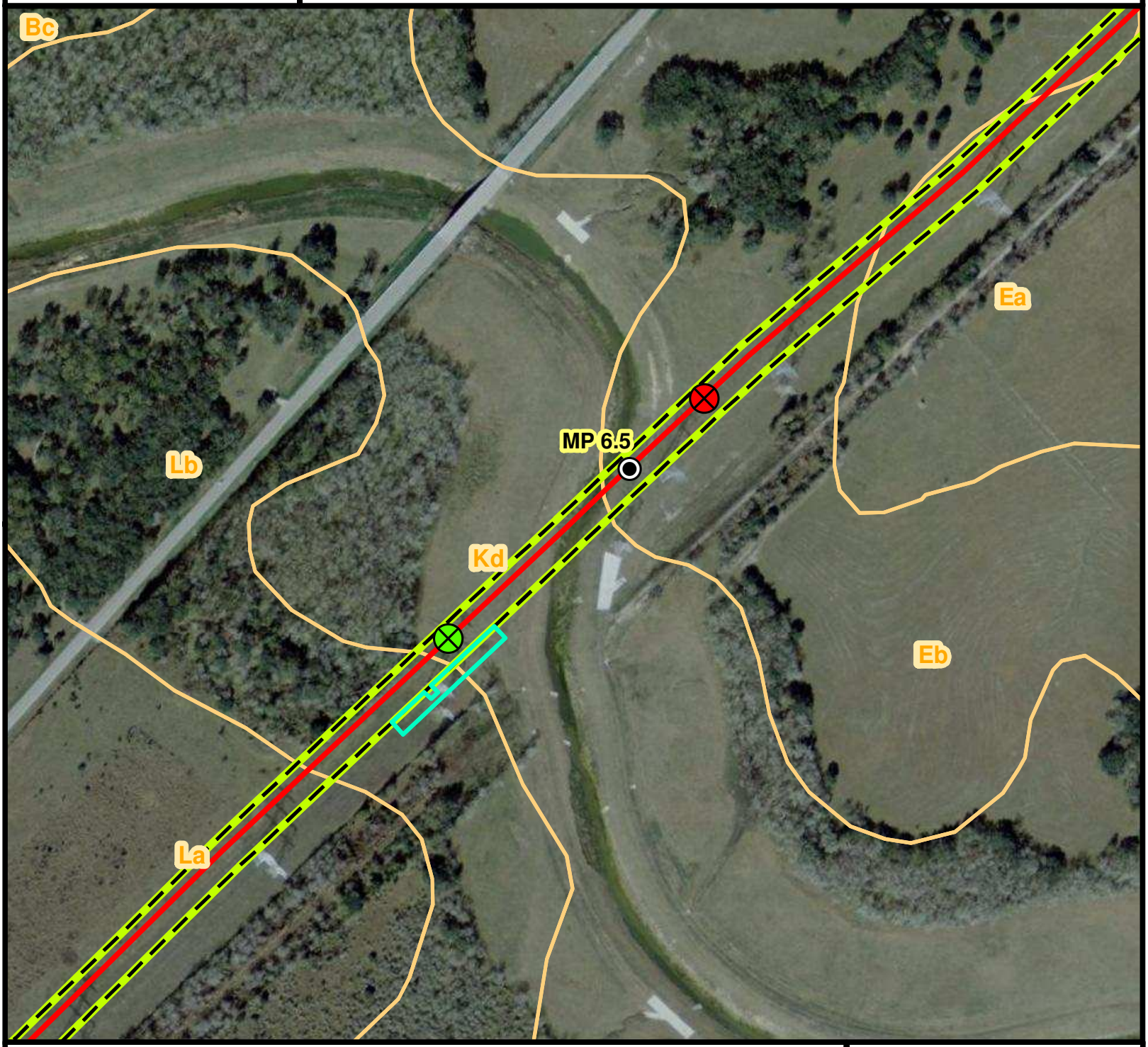
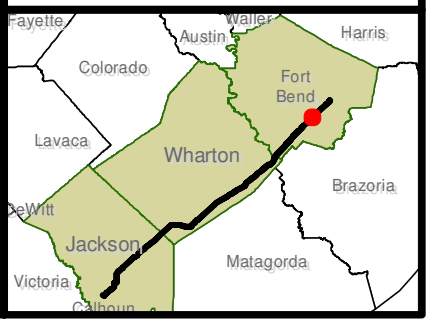
NRG W. A. Parish CO_2 Pipeline



- Proposed HDD Entry
- Proposed HDD Exit
- Soil
- Proposed ATWS
- Proposed Pipeline Centerline
- Proposed Pipeline Corridor

Location Map



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Big Creek HDD Entry/ Exit Points

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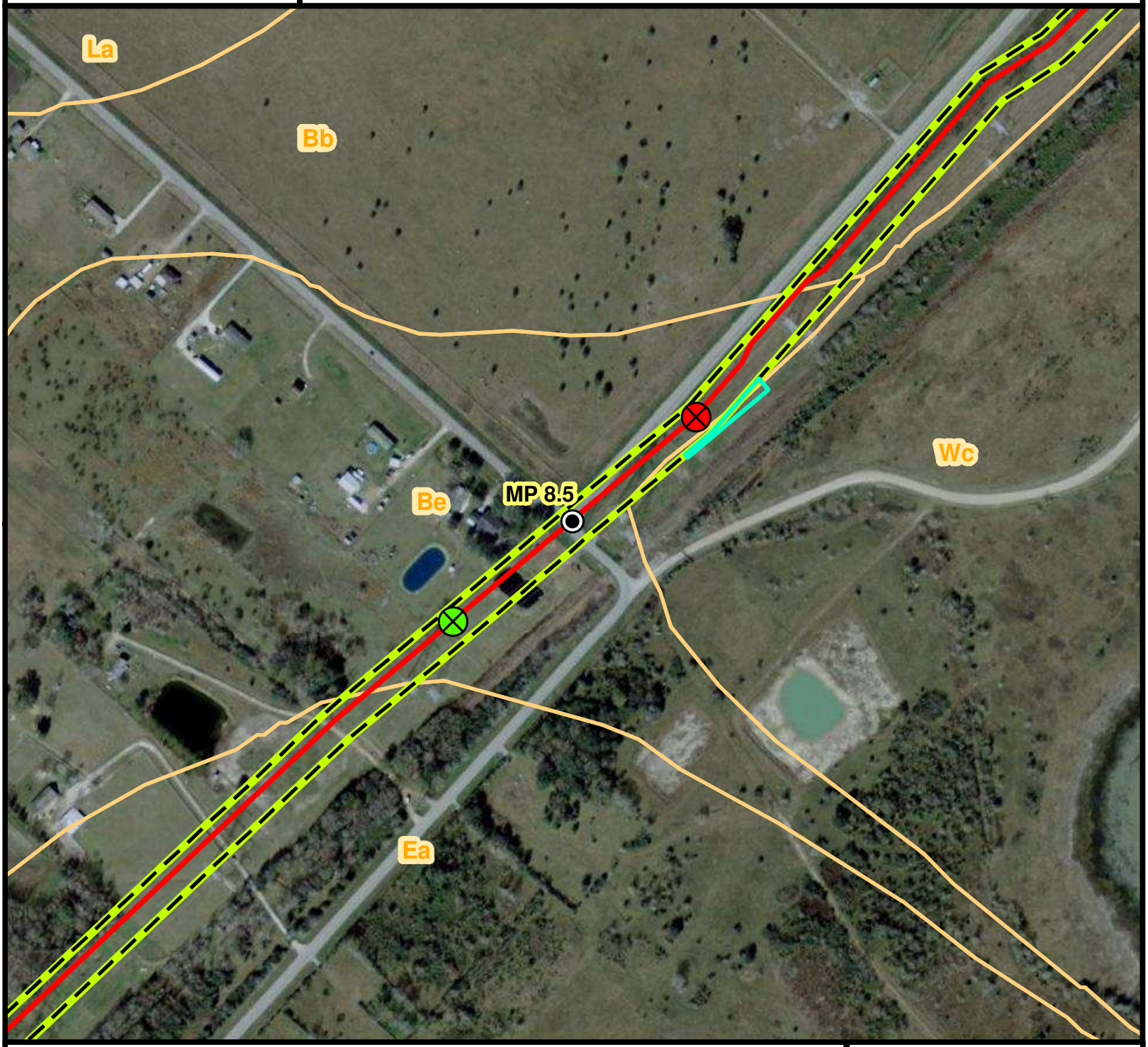
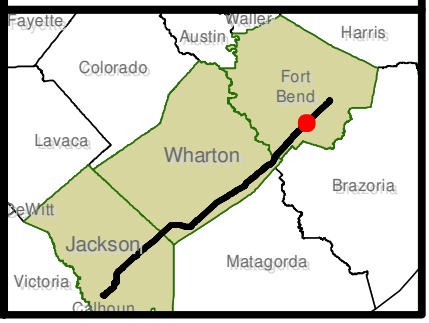
NRG W. A. Parish CO_2 Pipeline



- Proposed HDD Entry
- Proposed HDD Exit
- Soil
- Proposed ATWS
- Proposed Pipeline Centerline
- Proposed Pipeline Corridor

Location Map



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FM 1994 HDD Entry/ Exit Points

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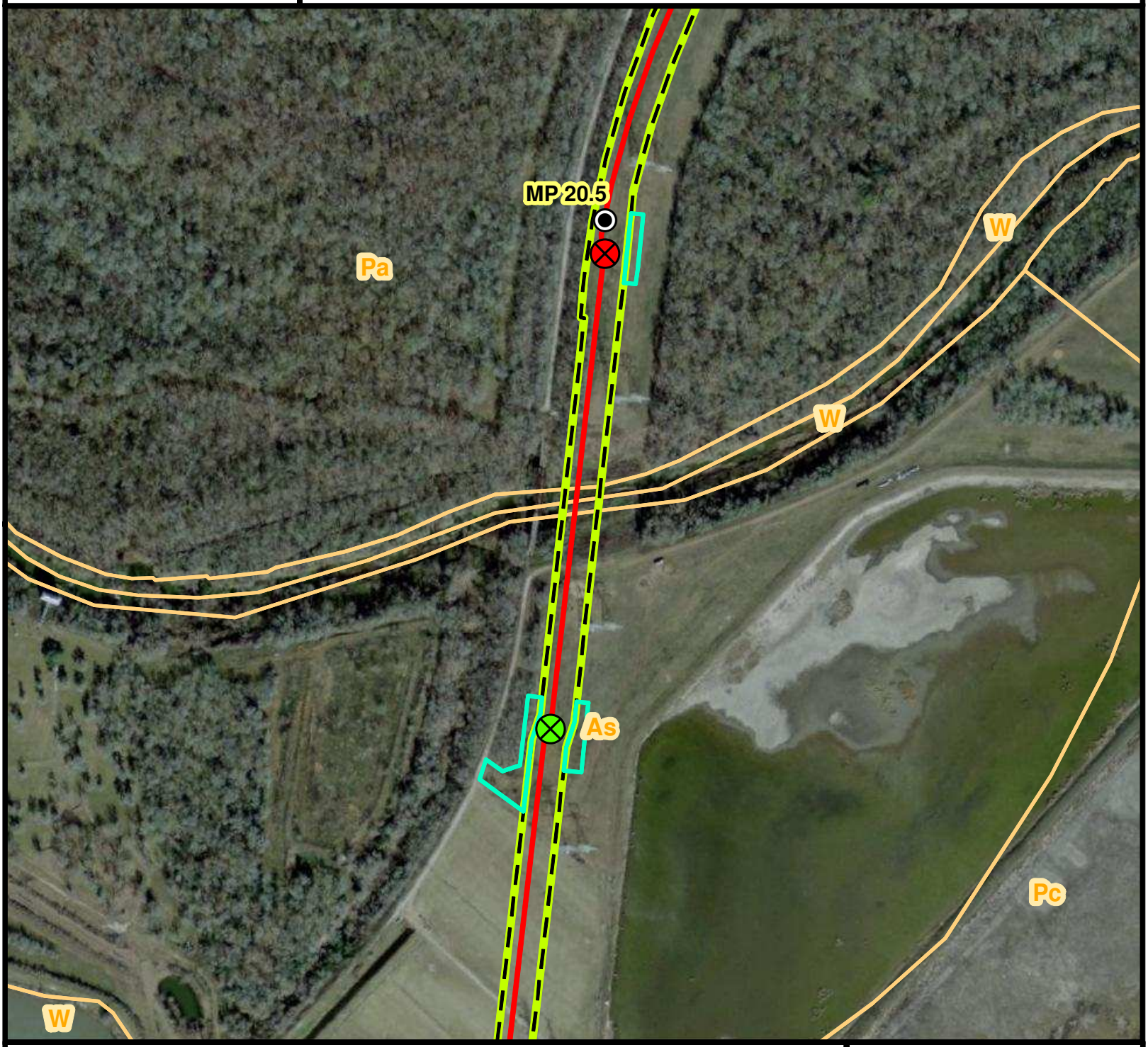
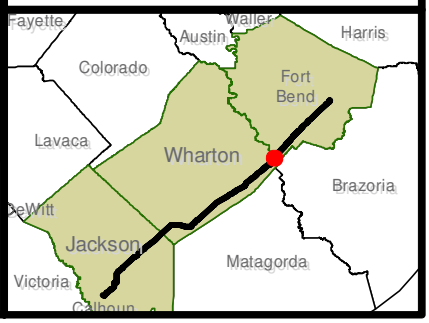
NRG W. A. Parish CO_2 Pipeline



- Proposed HDD Entry
- Proposed HDD Exit
- Soil
- Proposed ATWS
- Proposed Pipeline Centerline
- Proposed Pipeline Corridor

Location Map



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San Bernard River HDD Entry/ Exit Points

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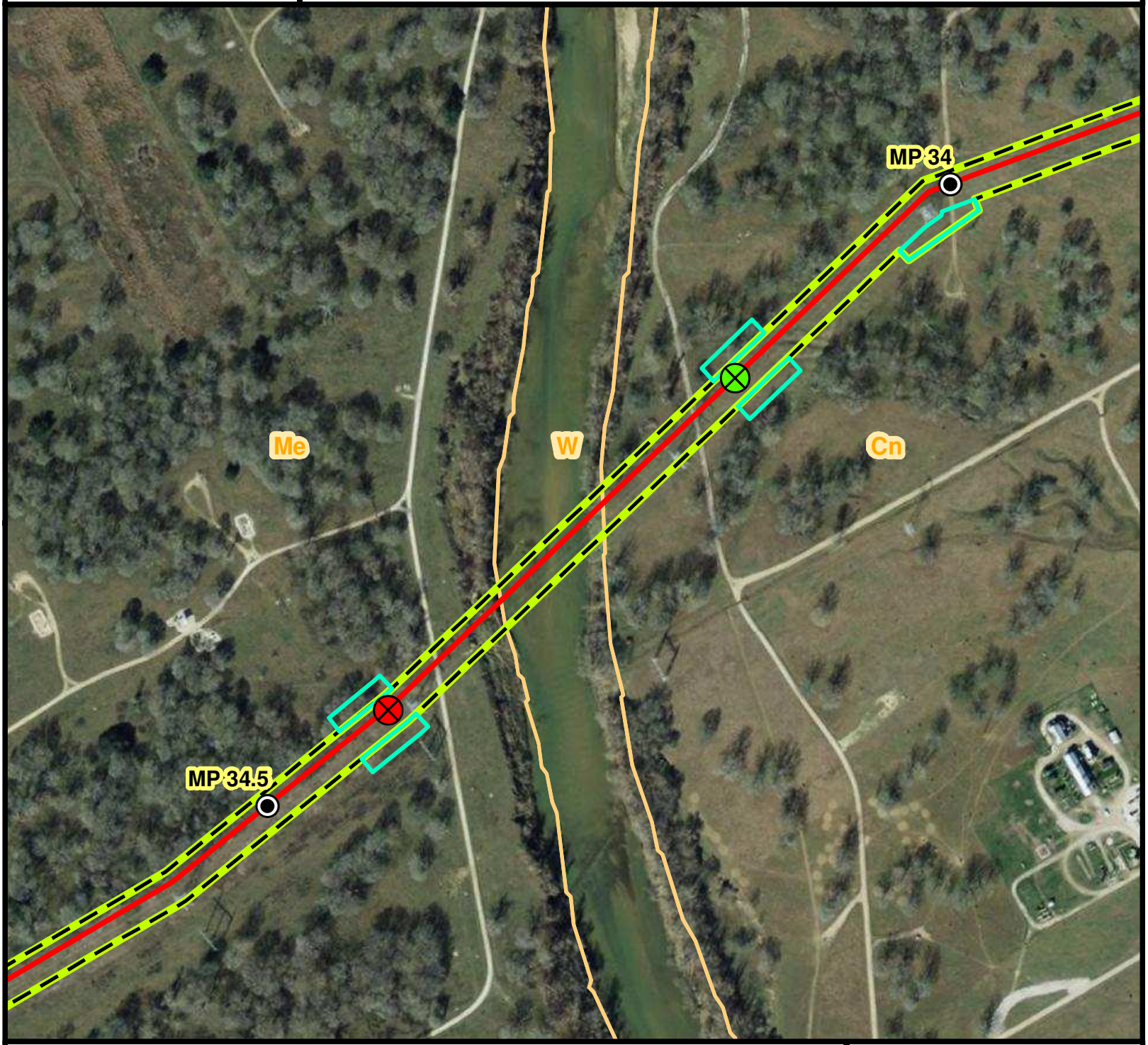
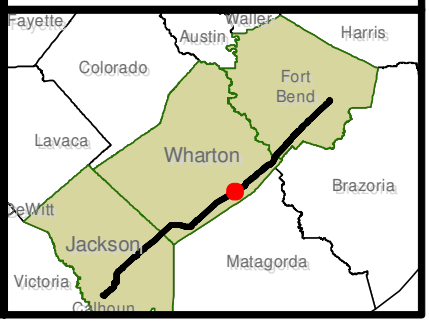
NRG W. A. Parish CO_2 Pipeline



Proposed HDD Entry
Proposed HDD Exit
Soil
Proposed ATWS
Proposed Pipeline Centerline
Proposed Pipeline Corridor

Location Map



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Colorado River HDD Entry/ Exit Points

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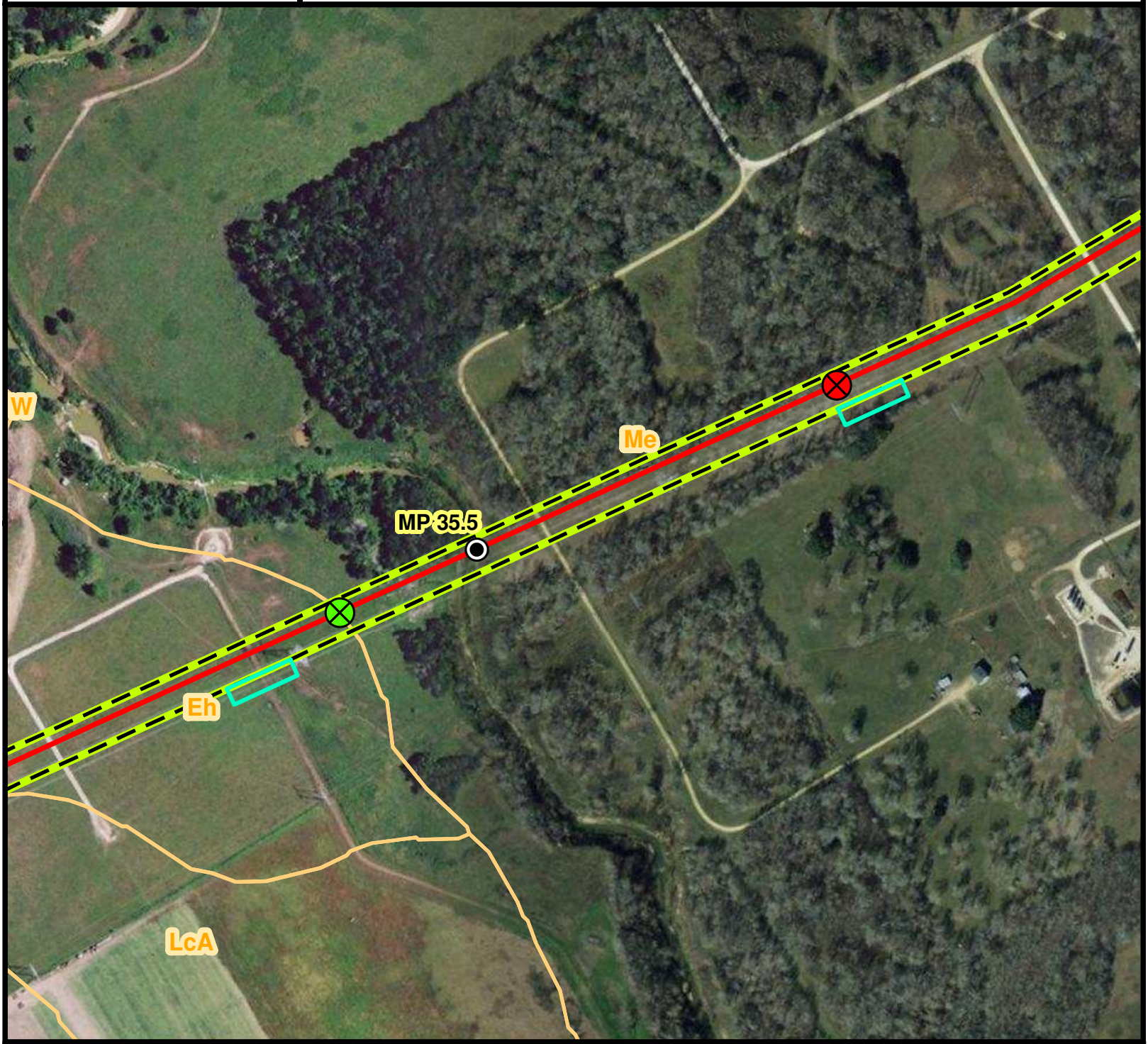
NRG W. A. Parish CO_2 Pipeline



- Proposed HDD Entry
- Proposed HDD Exit
- Soil
- Proposed ATWS
- Proposed Pipeline Centerline
- Proposed Pipeline Corridor

Location Map

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Zone 14

Jones Creek HDD Entry/ Exit Points

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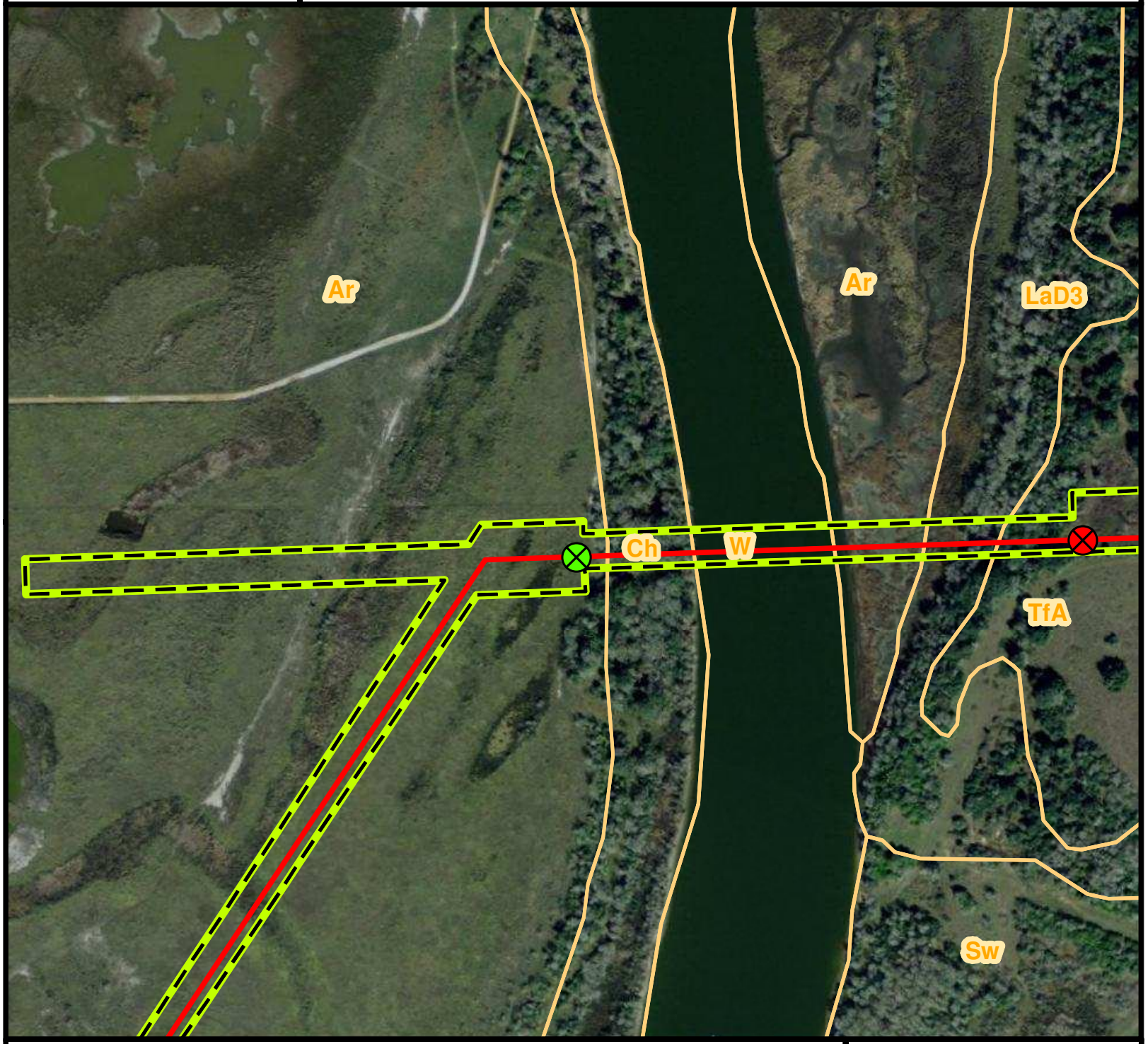
NRG W. A. Parish CO_2 Pipeline



- Proposed HDD Entry
- Proposed HDD Exit
- Soil
- Proposed ATWS
- Proposed Pipeline Centerline
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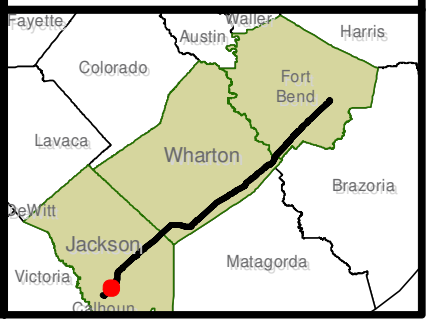
Location Map



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Lavaca River HDD Entry/ Exit Points

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RECEIVED
MAY 01 2012
Texas Historical Commission

April 25, 2012

Mr. Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission
1511 Colorado St.
Austin, Texas 78701

Subject: Response to Texas Historical Commission Request for Backhoe Trenching; Proposed Phase I Cultural Resources Inventory Scope of Work for the W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Mr. Wolfe,

In correspondence from your office dated February 23, 2012, the Texas Historical Commission (THC) recommended that "backhoe trenching be conducted in areas adjacent to waterways where there is the potential for deeply buried cultural resources. In areas where directional drilling will be utilized to pass underneath waterways backhoe trenching should take place at the location of the bore holes entrance and exit points where deep sediments are observed or suspected."

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The FM 1994 HDD would cross under a man-made pond and would be completed in Bernard-Edna Complex soil (Table 1), which is associated with an upland landform. Therefore, the U.S. Department of Energy (DOE) proposes that no deep testing would be required for the FM 1994 HDD. Additionally, the HDD exit points for the Big Creek and Lavaca River crossings are characterized by the Edna fine sandy loam and Telferner fine sandy loam, respectively (Table 1). Both of these soils are affiliated with ancient (i.e., pre-Holocene) meander ridges on the Beaumont Formation. Based on their landform characteristics and age, no additional deep testing is considered warranted for the HDD exit locations at the Big Creek and Lavaca River crossings.

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The soils encountered at the remaining eight HDD entry and exit locations (i.e., the entry locations for the Big Creek and Lavaca River HDDs and the entry and exit locations for the San Bernard River, Colorado River, and Jones Creek HDDs) are associated with well-defined floodplain deposits that may contain more deeply buried cultural resources. As recommended by THC, DOE proposes that additional deep testing via backhoe trenching be conducted at these eight locations. Table 1 summarizes the recommendations for each HDD entry and exit location.

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		Soil Symbol	Soil Name	Deep Testing Proposed	Soil Symbol	Soil Name	Deep Testing Proposed
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Source: U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (NRCS) soil survey data for Fort Bend, Wharton, and Jackson Counties, Texas. URL: http://soildatamart.nrcs.usda.gov. Accessed April 2012.

The deep testing methodology for the eight proposed testing locations would be confined to the approximate boundaries of the proposed entry/exit points. The HDD borehole size is anticipated to be approximately 20 to 24-in (51 to 61-cm) in diameter. During pipeline construction, a pit measuring approximately 10-ft by 10-ft (2.6-m by 2.6-m) in areal extent and approximately 4-ft (1.2-m) in depth would be excavated at each HDD entry and exit point to contain drilling muds. Based on this project design, DOE proposes to excavate a 10-ft-long, 4-ft-deep trench, oriented perpendicular to the pipeline corridor, within the planned entry/exit pit at each of the eight deep testing locations. Trenching would be conducted utilizing a rubber-tired or tracked backhoe, depending upon soil and weather conditions, with a smooth (i.e., clean-up) bucket measuring approximately 3-ft (0.9-m) in width. The trenches would be excavated in approximately 6-in (15-cm) intervals to allow for examination of the exposed trench soils and sidewalls. Any exposed archaeological materials and/or subsurface features would be noted and recorded during this procedure and representative soil profiles would be drawn and photographed for each exposed trench face once the maximum depth of 4-ft (1.2-m) is reached.

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We hope that the above rationale and trenching methodology address THC's recommendation for deep soil testing. DOE and NRG Energy, Inc., plan to proceed with this work as soon as possible (i.e., beginning around May 1, 2012) and are providing this approach to your office for informational purposes. Should you have any questions regarding the proposed backhoe trenching, please contact Mr. Rob Lackowicz (URS National Historical Preservation Act consultant) at 225-935-2974 or by email at rob.lackowicz@urs.com. You can also reach me for comment at the address listed on the front page, by telephone at (304) 285-4145, or by email at mark.lusk@netl.doe.gov.

Sincerely,

Mark W. Lusk
NEPA Document Manager/NEPA
Compliance Officer

Attachment

cc:
Jeff Durst - THC
Ted McMahon - DOE
Jon Barfield - NRG
Anthony Armpriester - NRG
Rob Lackowicz - URS
Martin Handly - URS
Pete Conwell - URS

NO HISTORIC
PROPERTIES AFFECTED
PROJECT MAY PROCEED
by
for Mark Wolfe
State Historic Preservation Officer
Date 5/14/12
Track#

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

U.S. DEPARTMENT OF ENERGY

June 19, 2012

Mr. Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission
1511 Colorado Street
Austin, Texas 78701

Subject: Section 106 Determination for Proposed Project Activities within Previously Developed Lands at the W.A. Parish Plant (Fort Bend County) and West Ranch Oil Field (Jackson County) for the W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project

Dear Mr. Wolfe:

This letter supplements my earlier communication to your office, dated February 10, 2012, regarding the above-referenced project proposed by NRG Energy (NRG). The U.S. Department of Energy's (DOE) proposed action would provide NRG with a cost-shared award for the project. DOE is currently preparing a draft environmental impact statement (EIS) to comply with the *National Environmental Policy Act of 1969* (NEPA). DOE also intends to coordinate its obligations under Section 106 of the *National Historic Preservation Act of 1966* (NHPA) with the NEPA process.

NRG's proposed project would include the following four primary components:

1. *Carbon Dioxide (CO_2) Capture Facility*

The proposed project would construct a post-combustion CO_2 capture system to treat a slipstream from one of the W.A. Parish Plant's existing coal-fueled units (Unit 8). A new natural gas-fired cogeneration plant, estimated to be 80-megawatts in size, would also be constructed to produce the auxiliary power needed to drive the proposed CO_2 capture system. These activities would occur within the existing 4,880-acre W.A. Parish Plant site.

2. *CO_2 Transport*

Captured CO_2 would be transported via a new, approximately 80-mile-long pipeline to the West Ranch oil field. The anticipated pipeline route includes mostly sparsely developed rural and agricultural lands in Fort Bend, Wharton, and Jackson Counties in Texas. Currently, NRG plans to collocate the pipeline within expanded or existing mowed/maintained utility rights-of-way (ROW) to minimize environmental impacts and avoid sensitive resources to the greatest extent practical for approximately 85 percent of the route. New ROW would be used for the remaining 15 percent.

3. *Enhanced Oil Recovery (EOR) Operations*

Up to 1.6 million tons of CO_2 per year would be delivered to the existing West Ranch oil field, located in Jackson County. The CO_2 would be injected into the 98-A, 41-A, and Greta sand units of the Frio Formation, which lie approximately 5,000 to 6,300-feet below ground surface. The oil field has operated since 1938 and the portions of the West Ranch oil field in which EOR operations would be conducted are currently owned or leased by Hilcorp Energy Company (HEC). A joint venture

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between NRG and HEC, known as Texas Coastal Ventures LLC (TCV), would conduct the EOR operations. TCV would also operate the pipeline.

4. *CO_2 Monitoring Program*

TCV would implement a program to monitor the injection and migration of CO_2 within the geologic formations at the West Ranch oil field EOR area. The CO_2 monitoring program may consist of a variety of monitoring and modeling activities.

The proposed pipeline route listed above as Project Component 2 is currently being assessed through a Phase I cultural resource field investigation. DOE expects the results of that survey to be reported to you in the near future for separate comment. The results will also be summarized in the draft EIS.

Project Components 1, 3 and 4, as listed above, are described further in the enclosed document to afford the Texas Historical Commission a reasonable opportunity to comment before the draft EIS is issued. Given the level of existing land disturbance and the types of activities to be conducted as part of these project components, it is the opinion of DOE that the activities proposed to occur within these two project areas (i.e., the W.A. Parish Plant and the West Ranch oil field) will not impact historic properties meeting the criteria of significance for listing on the National Register of Historic Places. Please reply whether your office concurs with this determination of No Historic Properties Present or Affected. Again, please refer to the attached enclosure for more details regarding the background and proposed activities at these two locations.

Should you have any technical questions regarding the enclosed letter report, please contact Mr. Martin Handly (NHPA consultant–URS Group, Inc.) at (225) 276-4826 or by email at martin.handly@urs.com. You can also reach me for comment by email at mark.lusk@netl.doe.gov, by telephone at (304) 285-4145, or at the address listed on the front page.

Sincerely,

Mark W Lusk
NEPA Document Manager/NEPA Compliance Officer

Enclosure

cc: J. Barfield - NRG
A. Armpriester - NRG
T. McMahon - DOE
M. Handly - URS
Rob Lackowicz - URS
Pete Conwell - URS

URS

June 18, 2012

Mark W. Lusk
NEPA Document Manager
3610 Collins Ferry Road
P.O. Box 880
Morgantown, West Virginia 26507

Re: NRG Energy W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project; W.A. Parish Plant (Fort Bend County) and West Ranch Oil Field (Jackson County) - Assessment of Project Activities Impacting Historic Properties.

Dear Mr. Lusk:

The purpose of this letter is to communicate the results of an evaluation of the W.A. Parish Plant in Fort Bend County and the West Ranch oil field in Jackson County (Figure 1) for their potential to contain and impact significant cultural resources, defined as historic properties under Section 106 of the National Historic Preservation Act (NHPA) and the National Register of Historic Places (NRHP) criteria for evaluation (36 CFR Part 800 and 36 CFR 60.4). Section 106 of the NHPA, as amended, requires the lead federal agency with jurisdiction over an undertaking to consider impacts to historic properties before the undertaking occurs. In this case, the undertaking is the U.S. Department of Energy's (DOE's) proposed financial assistance grant to NRG for the W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project (project), under the American Recovery and Reinvestment Act of 2009.

Project Introduction

Under the American Recovery and Reinvestment Act of 2009, the DOE has made funding available for certain large-scale carbon dioxide (CO_2) capture and storage projects. With DOE's cost-shared support, NRG Energy (NRG) proposes to capture CO_2 at NRG's existing W.A. Parish Plant in Fort Bend County, Texas. The captured CO_2 would be delivered via an approximately 80-mile pipeline to the West Ranch oil field in Jackson County, Texas where it would be used for enhanced oil recovery (EOR) and ultimately sequestered. NRG's proposed project would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology for use in EOR operations and long-term geologic storage.

The project would use an advanced amine-based absorption technology to capture approximately 90 percent of CO_2 annually (i.e., approximately 1.6 million tons of CO_2 per year) from a 250-megawatt equivalent (MWe) flue gas slip stream taken from the 650 megawatt (MW) Unit 8 at the W.A. Parish Plant. Up to 5,475 tons per day of captured CO_2 would be dried, compressed, and transported via pipeline to the West Ranch oil field where it would be used in EOR operations. The primary components of the project include the following:

1. *CO_2 Capture Facility*
   The proposed project would retrofit one of the W.A. Parish Plant's existing coal-fueled units (Unit 8) with a post-combustion CO_2 capture system that would be constructed within the existing 4,880-acre W.A. Parish Plant. A new natural gas-fired cogeneration plant, estimated to be 80 MW in size, would be constructed to produce the auxiliary power needed to drive the proposed CO_2 capture system.

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Fax: 225.922.5701
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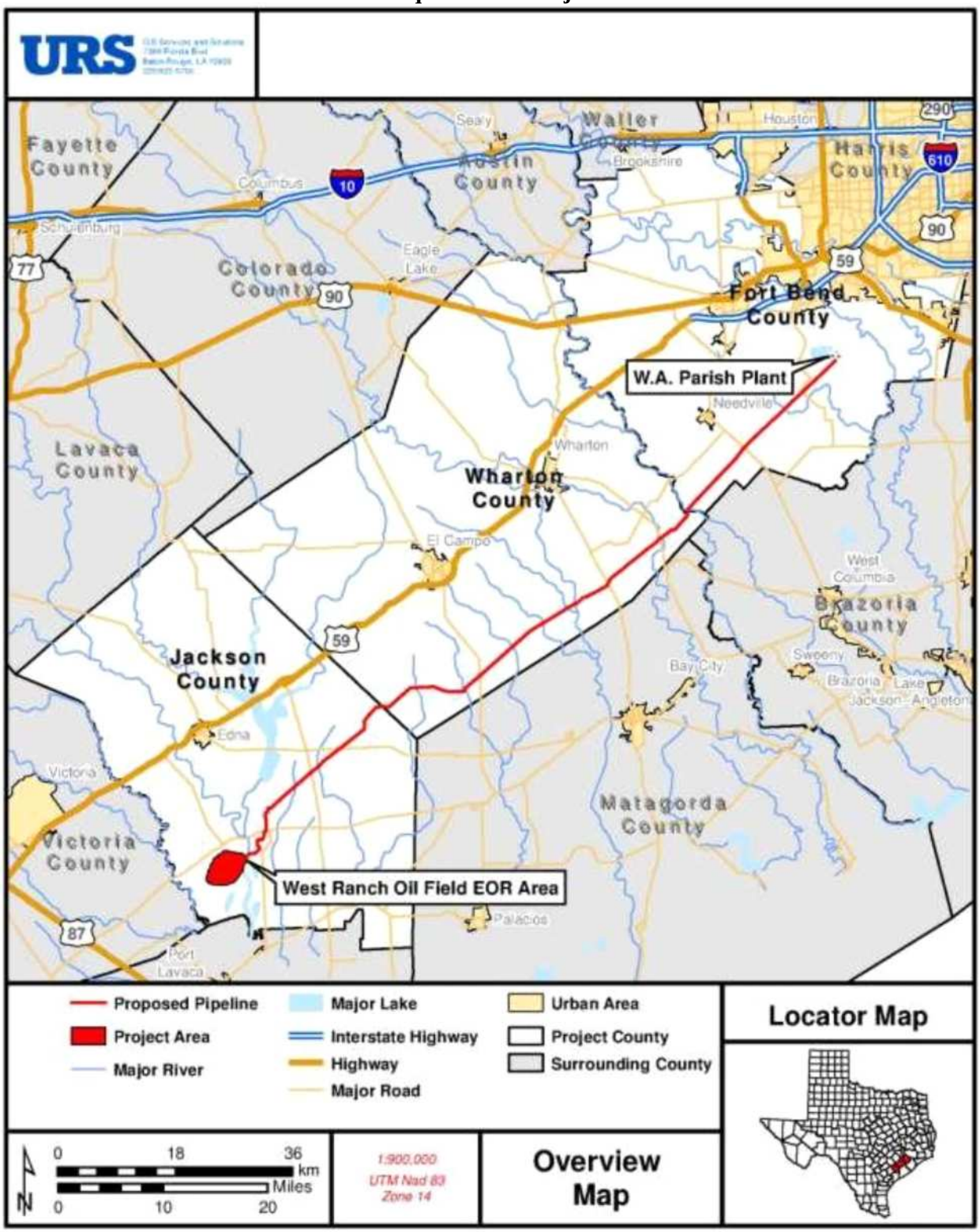
Figure 1. Overview Map of NRG Energy W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project



2. CO_2 Transport

Captured CO_2 would be transported via a new, approximately 80-mile-long pipeline to the West Ranch oil field. The anticipated pipeline route includes mostly rural and sparsely-developed agricultural lands in Fort Bend, Wharton, and Jackson Counties in Texas. NRG plans to use existing mowed/maintained utility rights-of-way (ROWs) to minimize environmental impacts and avoid sensitive resources to the greatest extent practical.

3. EOR Operations

The proposed project would deliver up to 1.6 million tons of CO_2 per year to the existing West Ranch oil field, located in Jackson County, where the CO_2 would be injected through injection wells into the 98-A, 41-A, and Greta sand units of the Frio Formation, which lie approximately 5,000 to 6,300 feet below ground surface (bgs). The oil field has operated since 1938 and the portions of the West Ranch oil field in which EOR operations would be conducted are currently owned or leased by Hilcorp Energy Company (HEC). A joint venture between NRG and HEC, known as Texas Coastal Ventures LLC (TCV), would conduct the EOR operations. TCV would also operate the pipeline.

4. CO_2 Monitoring Program

TCV would implement a CO_2 monitoring program to monitor the injection and migration of CO_2 within the geologic formations at the West Ranch oil field EOR area. The CO_2 monitoring program may consist of a variety of monitoring and modeling activities.

The pipeline portion of this project, listed above as Project Component 2, was referred to the THC for evaluation on February 10, 2012 and is currently being assessed by URS Group (URS) through a Phase I cultural resource field investigation. The results of that survey will be reported to the DOE, THC and applicable Native American Tribes upon its completion. This letter report examines project activities anticipated within the W.A. Parish Plant (i.e., Project Component 1) and West Ranch oil field (i.e., Project Components 3 and 4).

Description of Project Areas

CO_2 Capture Facility, W.A. Parish Plant, Fort Bend County

The W.A. Parish Plant is located in Thompsons, Texas along the southeast shore of Smithers Lake, a 2,430-acre man-made water body used for plant cooling water. The CO_2 capture facility includes the following nine project components, totaling approximately 29 acres in extent, all of which lie within the boundaries of the existing W.A. Parish Plant (Figures 2 and 3): North Laydown Area (8.8 acres); South Laydown Area (13 acres); CO_2 Capture Area (3.3 acres); Warehouse (1.6 acres); Road Relocation (0.83 acres); 138kV Switchyard (0.23 acres); CO_2 Compressor (0.20 acres); Combustion Turbine/Heat Recovery Steam Generator (CT/HRSG) (0.44 acres); Pipe Rack (0.07acres); Rail Unloading Area (0.26 acres); and Flue Tank and Dump (0.01 acres). The Area of Potential Effect (APE) associated with the CO_2 capture facility is defined as the 29 acres within these proposed project areas. All of the above listed project components are situated within lands that have been disturbed by ongoing power generating operations, including leveling, road construction, and building construction.

A review was conducted by URS on May 17, 2012 of data on file at the THC via the online Texas Archeological Sites Atlas, along with the online records of the NRHP. This research was undertaken to identify previously completed cultural resources surveys and cultural resources recorded within one mile (1.6 km) of the proposed project activities. According to these sources, no State Archeological Landmarks, Texas Historic Landmarks, National Register historic buildings or historic structures have been identified within one mile (1.6 km) of the W.A. Parish Plant.

Figure 2. Topographic Map – Proposed W.A. Parish Plant Project Areas

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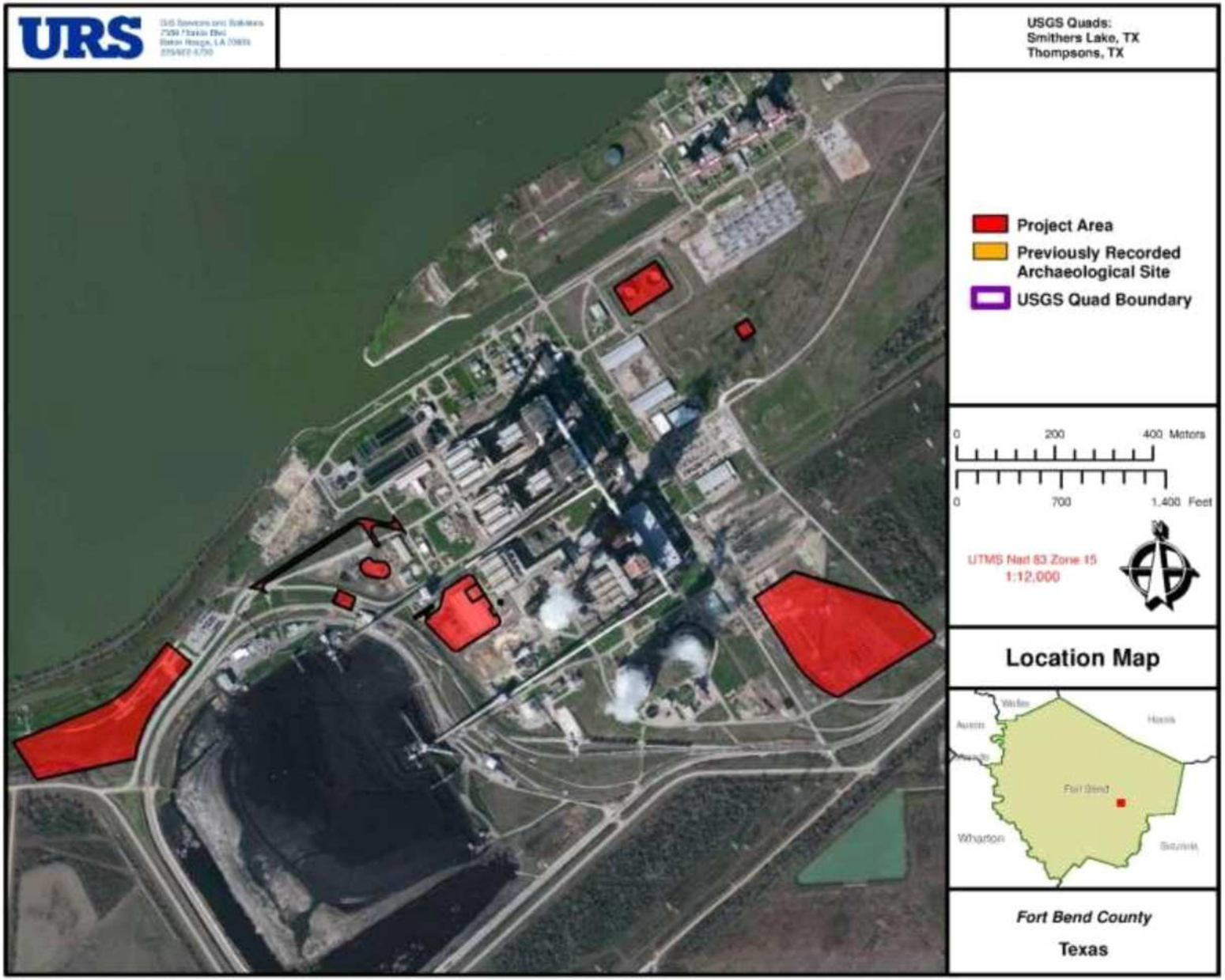
CONFIDENTIAL INFORMATION

Figure 3. Aerial Overview – Proposed W.A. Parish Plant Project Areas



Three prehistoric lithic artifact scatters (Sites 41FB225, 41FB226, and 41FB227) are situated within one mile (1.6 km) of the W.A. Parish Plant (Figure 3). They were recorded between 1994 and 1995 by the Fort Bend Archaeological Society and these sites are positioned along the southern shore of Smithers Lake (Site 41FB225) and Dry Creek/Rabbs Bayou (Sites 41FB226 and 41FB227). However, none of these sites was considered eligible for listing in the NRHP.

EOR Operations and CO_2 Monitoring Program, West Ranch Oil Field, Jackson County

The West Ranch oil field is located roughly 3.2 miles south of the community of Vanderbilt, between Venado Creek (west) and the Lavaca River (east), within Jackson County (Figures 4a to 4d and 5a to 5d). HEC currently operates the West Ranch oil field, which was first developed in 1938. The oil field covers approximately 11,500 acres, but only 5,500 acres are currently targeted for EOR operations, as shown in Figures 4 and 5. The CO_2 generated by the proposed project would be injected by TCV within the West Ranch oil field. The project will involve a CO_2 monitoring program, which will be carried out by TCV.

The currently defined locations of any active, inactive, temporarily abandoned, and/or plugged and abandoned wells are shown for the West Ranch oil field in Figure 5. Numerous unused wells are available for conversion and use as part of EOR or CO_2 monitoring operations. Existing wells that are unable to accommodate the pressure increase from the CO_2 injection will be remediated by TCV prior to initiating CO_2 injection.

At this time, all of the CO_2 monitoring program activities are expected to be limited to existing drilled well sites and therefore minimal to no new land impacts are expected for this phase of the NRG project. Also, approximately 130 existing injection wells and 130 existing production wells may be utilized, with approximately 10 to 13 monitoring wells being utilized in the CO_2 monitoring program (i.e., one monitoring well for every 10 to 15 injection wells). In general, existing wells would be utilized (i.e., refurbished or deepened as needed) to the extent practicable, so that few new injection, production, or monitoring wells would be needed. New wells, if required, would be installed on existing well pads to the extent practicable. Existing roads would be used to the extent practical to access EOR and CO_2 monitoring areas within the West Ranch Oil Field; therefore, no new road construction is currently anticipated. Finally, any new CO_2 distribution piping would be installed, to the extent practicable, along the existing piping corridors. The APE associated with the West Ranch oil field is defined as the proposed 5,500-acre EOR area shown on Figures 4 and 5.

A review of the online Texas Archeological Sites Atlas and NRHP was performed by URS on May 17, 2012. This research was undertaken to identify previously completed surveys and cultural resources in proximity to the proposed project activities. According to these sources, no State Archeological Landmarks, Texas Historic Landmarks, National Register historic buildings or historic structures have been identified within one mile (1.6 km) of the West Ranch oil field.

A total of 14 archaeological sites have been identified within one mile (1.6 km) of the West Ranch oil field (i.e., Sites 41JK2, 41JK35, 41JK38, 41JK39, 41JK61 to 41JK63, 41JK114, 41JK115, 41JK126, 41JK127, 41JK129, 41JK138, and 41JK139), as shown in Figure 5. The majority of these sites appear to be prehistoric lithic and ceramics scatters situated along the Lavaca River Bluff (eight sites), Venado Creek (three sites), Menefee Lake (two sites), and Redfish Lake (one site). Four of these sites were considered Not Eligible for listing in the NRHP (i.e., sites 41JK115, 41JK126, 41JK127, and 41JK139) and an additional four sites did not provide any information concerning their eligibility (i.e., 41JK2, 41JK35, 41JK38, and 41JK39). The remaining six sites (i.e., 16JK61, 16JK62, 16JK63, 16JK114, 16JK129, and 16JK138) were recommended for additional testing to determine their eligibility status by the previous researchers.

Figure 4a. Topographic Map – Proposed West Ranch Oil Field EOR Area

FIGURE DELETED TO REMOVE
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Figure 4b. Topographic Map – Proposed West Ranch Oil Field EOR Area

FIGURE DELETED TO REMOVE
CONFIDENTIAL INFORMATION

Figure 4c. Topographic Map – Proposed West Ranch Oil Field EOR Area

FIGURE DELETED TO REMOVE
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Figure 4d. Topographic Map – Proposed West Ranch Oil Field EOR Area

FIGURE DELETED TO REMOVE
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Figure 5a. Aerial Overview – Proposed West Ranch Oil Field EOR Area

FIGURE DELETED TO REMOVE
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Figure 5b. Aerial Overview – Proposed West Ranch Oil Field EOR Area

FIGURE DELETED TO REMOVE
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Figure 5c. Aerial Overview – Proposed West Ranch Oil Field EOR Area

FIGURE DELETED TO REMOVE
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Figure 5d. Aerial Overview – Proposed West Ranch Oil Field EOR Area

FIGURE DELETED TO REMOVE
CONFIDENTIAL INFORMATION

In addition, a further nine archaeological sites have been identified within the boundary of the West Ranch oil field (i.e., Sites 41JK128 and 41JK130 to 41JK137), as shown in Figure 5. Most of these sites (i.e., eight sites) are located along the boundaries of Venado Creek, with a single site associated with Menefee Bayou (i.e., Site 16JK128). All of these sites are identified as prehistoric lithic scatters, except for Site 16JK128, which also contained prehistoric ceramics. None of the site forms provided information on their eligibility for listing in the NRHP.

Findings and Recommendation

URS has conducted an office review of the potential for the proposed project areas at the W.A. Parish Plant in Fort Bend County and the West Ranch oil field located in Jackson County, Texas to contain and impact historic properties as defined under Section 106 of the NHPA. A records review found that no historic properties are currently plotted within the project areas.

Based on a review of the proposed project activities and their locations, it is our opinion that a very low likelihood exists of unrecorded historic properties being situated within the Areas of Potential Effect associated with these two proposed project areas. This opinion for the W.A. Parish Plant is based on the level of existing ground disturbance within this operating facility, which includes extensive grading as well as facility, road, and building construction. For the West Ranch oil field, our opinion is based on project plans that anticipate re-using existing well sites for the proposed monitoring program; therefore, little to no new land impacts are expected. To the extent practicable, any proposed new wells would be installed on existing well pads, existing built roads would be used to access EOR and CO_2 monitoring areas, and any new CO_2 distribution piping would be installed along the pre-existing piping corridors. We therefore recommend that no further archaeological or architectural studies are warranted for these project components as currently defined. If additional rights-of-way for new well pads, access roads, or CO_2 distribution piping are required within the West Ranch oil field for this undertaking, beyond what has already been disturbed, TCV would initiate consultation with the THC to determine whether any further cultural resources investigations would be necessary.

If you have any questions or concerns regarding this study, please do not hesitate to contact Mr. Martin Handly at 225-276-4826 or by email at martin.handly@urs.com.

Sincerely,

Martin Handly, M.A.
Principal Investigator
URS Group

Rob Lackowicz, M.A.
Principal Investigator
URS Group

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

U.S. DEPARTMENT OF ENERGY

RECEIVED
JUN 26 2012
Texas Historical Commission

June 19, 2012

Mr. Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission
1511 Colorado Street
Austin, Texas 78701

Subject: Section 106 Determination for Proposed Project Activities within Previously Developed Lands at the W.A. Parish Plant (Fort Bend County) and West Ranch Oil Field (Jackson County) for the W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project

Dear Mr. Wolfe:

This letter supplements my earlier communication to your office, dated February 10, 2012, regarding the above-referenced project proposed by NRG Energy (NRG). The U.S. Department of Energy's (DOE) proposed action would provide NRG with a cost-shared award for the project. DOE is currently preparing a draft environmental impact statement (EIS) to comply with the *National Environmental Policy Act of 1969* (NEPA). DOE also intends to coordinate its obligations under Section 106 of the *National Historic Preservation Act of 1966* (NHPA) with the NEPA process.

NRG's proposed project would include the following four primary components:

1. *Carbon Dioxide (CO_2) Capture Facility*

The proposed project would construct a post-combustion CO_2 capture system to treat a slipstream from one of the W.A. Parish Plant's existing coal-fueled units (Unit 8). A new natural gas-fired cogeneration plant, estimated to be 80-megawatts in size, would also be constructed to produce the auxiliary power needed to drive the proposed CO_2 capture system. These activities would occur within the existing 4,880-acre W.A. Parish Plant site.

2. *CO_2 Transport*

Captured CO_2 would be transported via a new, approximately 80-mile-long pipeline to the West Ranch oil field. The anticipated pipeline route includes mostly sparsely developed rural and agricultural lands in Fort Bend, Wharton, and Jackson Counties in Texas. Currently, NRG plans to collocate the pipeline within expanded or existing mowed/maintained utility rights-of-way (ROW) to minimize environmental impacts and avoid sensitive resources to the greatest extent practical for approximately 85 percent of the route. New ROW would be used for the remaining 15 percent.

3. *Enhanced Oil Recovery (EOR) Operations*

Up to 1.6 million tons of CO_2 per year would be delivered to the existing West Ranch oil field, located in Jackson County. The CO_2 would be injected into the 98-A, 41-A, and Greta sand units of the Frio Formation, which lie approximately 5,000 to 6,300-feet below ground surface. The oil field has operated since 1938 and the portions of the West Ranch oil field in which EOR operations would be conducted are currently owned or leased by Hilcorp Energy Company (HEC). A joint venture

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mark.lusk@netl.doe.gov • Voice (304) 285-4145 • Fax (304) 285-4216 • www.netl.doe.gov

between NRG and HEC, known as Texas Coastal Ventures LLC (TCV), would conduct the EOR operations. TCV would also operate the pipeline.

4. CO_2 Monitoring Program

TCV would implement a program to monitor the injection and migration of CO_2 within the geologic formations at the West Ranch oil field EOR area. The CO_2 monitoring program may consist of a variety of monitoring and modeling activities.

The proposed pipeline route listed above as Project Component 2 is currently being assessed through a Phase I cultural resource field investigation. DOE expects the results of that survey to be reported to you in the near future for separate comment. The results will also be summarized in the draft EIS.

Project Components 1, 3 and 4, as listed above, are described further in the enclosed document to afford the Texas Historical Commission a reasonable opportunity to comment before the draft EIS is issued. Given the level of existing land disturbance and the types of activities to be conducted as part of these project components, it is the opinion of DOE that the activities proposed to occur within these two project areas (i.e., the W.A. Parish Plant and the West Ranch oil field) will not impact historic properties meeting the criteria of significance for listing on the National Register of Historic Places. Please reply whether your office concurs with this determination of No Historic Properties Present or Affected. Again, please refer to the attached enclosure for more details regarding the background and proposed activities at these two locations.

Should you have any technical questions regarding the enclosed letter report, please contact Mr. Martin Handly (NHPA consultant–URS Group, Inc.) at (225) 276-4826 or by email at martin.handly@urs.com. You can also reach me for comment by email at mark.lusk@netl.doe.gov, by telephone at (304) 285-4145, or at the address listed on the front page.

Sincerely,

Mark W Lusk
NEPA Document Manager/NEPA Compliance Officer

Enclosure

cc: J. Barfield - NRG
A. Armpriester - NRG
T. McMahon - DOE
M. Handly - URS
Rob Lackowicz - URS
Pete Conwell - URS

NO HISTORIC PROPERTIES AFFECTED
PROJECT MAY PROCEED
by
for Mark Wolfe
State Historic Preservation Officer
Date 7/11/12
Track#

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

U.S. DEPARTMENT OF ENERGY

August 2, 2012

Mr. Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission
1511 Colorado St.
Austin, Texas, 78701

Re: Section 106 Determination for Proposed CO_2 Pipeline in Fort Bend, Wharton, and Jackson Counties for the W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project and Submittal of the Draft Phase I Cultural Resources Investigation Report

Dear Mr. Wolfe:

This letter supplements my earlier communication to your office dated June 19, 2012, regarding the above-referenced project proposed by NRG Energy, Inc. (NRG). The U. S. Department of Energy's (DOE) proposed action would provide NRG with a cost-shared award for the project. DOE is currently preparing a draft environmental impact statement (EIS) to comply with the *National Environmental Policy Act of 1969* (NEPA). DOE also intends to coordinate its obligations under Section 106 of the *National Historic Preservation Act of 1966* (NHPA) with the NEPA process.

NRG's proposed project would include the following four primary components:

1. *Carbon Dioxide (CO_2) Capture Facility*
The proposed project would construct a post-combustion CO_2 capture system to treat a slipstream from one of the W.A. Parish Plant's existing coal-fueled electric generation units (Unit 8). A new natural gas-fired cogeneration plant, estimated to be 80-megawatts in size, would also be constructed to produce the auxiliary electricity and steam needed for the proposed CO_2 capture system. These activities would occur within previously developed areas of the existing 4,880-acre W.A. Parish Plant site in Fort Bend County.

2. *CO_2 Transport*
Captured CO_2 would be transported via a new, approximately 80-mile-long pipeline from the W. A. Parish Plant to the West Ranch oil field in Jackson County. The anticipated pipeline route would mostly cross sparsely developed rural and agricultural lands in Fort Bend, Wharton, and Jackson Counties. Currently, NRG plans to collocate approximately 85 percent of the pipeline within expanded or existing mowed/maintained utility rights-of-way (ROW) to minimize environmental impacts and avoid sensitive resources to the greatest extent practical. New ROW would be used for the remaining 15 percent of the route. A joint venture between NRG and Hilcorp Energy Company (HEC), known as Texas Coastal Ventures LLC (TCV), would operate the pipeline.

3. *Enhanced Oil Recovery (EOR) Operations*
Up to 1.6 million tons of CO_2 per year would be delivered to the existing West Ranch oil field. The CO_2 would be injected into the 98-A, 41-A, Glasscock, and Greta sand units of the Frio Formation, which lie approximately 5,000 to 6,300-feet below ground surface. The oil field has operated since 1938 and the portions of the West Ranch oil field in which EOR operations would be conducted are currently owned or leased by TCV. HEC has been contracted to conduct the EOR operations.

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4. CO_2 Monitoring Program

TCV would implement a program to monitor the injection and migration of CO_2 within the geologic formations at the West Ranch oil field EOR area. The CO_2 monitoring program may consist of a variety of monitoring and modeling activities.

DOE's review of NRG project components 1, 3, and 4 (i.e., activities limited to the W.A. Parish Plant and the West Ranch oil field) were sent to you in my letter on June 19, 2012. On July 11, 2012, your office concurred with the determination of no historic properties affected for these project components and approved proposed project activities to proceed at the W.A. Parish Plant and the West Ranch oil field. The proposed pipeline route, listed as project component 2 above, was assessed through a Phase I cultural resource field investigation that is reported in the attached draft cultural resources investigation report. Results of the report will be summarized in the draft EIS and the full report will be included as an appendix, along with all correspondence with your office.

The backhoe trenching requested by your office in previous correspondence will be conducted within the next month according to the work plan submitted to you on April 25, 2012. Your office approved the work plan on May 14, 2012. DOE will submit the results of that investigation to you as an addendum to the attached report for your review and concurrence once the backhoe trenching activities have been completed.

Given the results of the Phase I cultural resource investigation activities completed to date, it is the opinion of DOE that the activities proposed in project component 2 (i.e., the proposed CO_2 pipeline construction ROW, additional temporary workspace areas, and access roads) would not impact historic properties meeting the criteria of significance for listing on the National Register of Historic Places. Please reply within 30 days whether your office concurs with this determination of No Historic Properties Affected for the surveyed areas.

Should you have any technical questions regarding the enclosed report, please contact Mr. Martin Handly (NHPA consultant–URS Group, Inc.) at (225) 276-4826 or by email at martin.handly@urs.com. You can also reach me for comment by email at mark.lusk@netl.doe.gov, by telephone at (304) 285-4145, or at the address listed on the front page.

Sincerely,

Mark W. Lusk
NEPA Document Manager/NEPA Compliance Officer

Enclosure

DISTRIBUTION:
J. Barfield – NRG
A. Armpriester – NRG
T. McMahon – NETL/DOE
M. Handly – URS
R. Lackowicz – URS
P. Conwell – URS

(See EIS Appendix G for a copy of the July 2012
Phase I Cultural Resources Investigation Draft Report)

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September 14, 2012

Mark Lusk
U.S. Department of Energy
P.O. Box 880
Morgantown, WV 26507

Re: Project review
Draft report: *Phase I Cultural Resources Investigation Proposed NRG Energy W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project, Fort Bend, Wharton, and Jackson Counties, Texas.*

Dear Mr. Lusk:

Thank you for allowing us to review the report referenced above. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission.

The review staff, led by Jeff Durst, has completed its review. After reviewing the documentation, we concur that newly recorded prehistoric sites 41WH106 and 41JK192 that will be impacted by construction are ineligible for inclusion in the National Register of Historic Places (NRHP) based on the lack of buried deposits, cultural features, or temporally diagnostic materials. We also concur that newly recorded historic period sites 41WH103, 41WH105, and 41JK193 are also ineligible for inclusion in the NRHP based on the lack of intact buried deposits or cultural features.

THC staff disagrees with the National Register of Historic Places (NRHP) determinations of eligibility for resources HSS-FB-6 and HSS-WH-3. The railroad bridge (HSS-FB-6) is lacking its historic setting, but without more information about that abandoned rail line's history in Fort Bend County, we find the information inconclusive. For the house identified as HSS-WH-3, we feel the building is eligible under Criterion A and Criterion C at the local level of significance based on its ties to the Danevang community and its architectural integrity. The pipeline project does not seem like it will impact these resources, though, so we are not requesting any additional information at this time. Should the alignment change in a way that would adversely impact them, please provide additional information to clarify NRHP eligibility and documentation about project impacts.

The draft report that you have submitted is accepted and this project may proceed without further consultation with this office, provided that no significant archeological deposits are encountered during construction and development of the property and that the pipeline alignment does not change.

Thank you for your cooperation in this review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If we may be of further assistance, please call Jeff Durst of our staff at 512/463-8884.**

Sincerely,

for
Mark Wolfe, State Historic Preservation Officer

MW/jjd

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

U.S. DEPARTMENT OF ENERGY

December 14, 2012

Mr. Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission
1511 Colorado Street
Austin, TX 78701

Subject: Transmittal of Addendum Letter Report No. 1 - Additional Cultural Resource Survey for the Proposed NRG Energy W. A. Parish Post-Combustion CO_2 Capture and Sequestration Project (Fort Bend, Wharton, and Jackson Counties, Texas)

Dear Mr. Wolfe:

The primary route for the above proposed project was surveyed by URS Corporation, Inc. (URS) and reported by the U.S. Department of Energy (DOE) to the Texas Historical Commission (THC) earlier this year. An additional cultural resource assessment was conducted in association with proposed changes to the pipeline route and, as requested by THC, near horizontal drilling sites for proposed pipeline river crossings. URS conducted the additional cultural resource surveys from September to November 2012 for an additional 11.68 miles of proposed corridor, 10.63 acres of additional temporary workspace, 6.71 miles of proposed access roads, and seven deep testing locations associated with the proposed project located in Fort Bend, Wharton and Jackson counties in Texas. No historic structures, features, or archaeological materials were identified during the investigation. The purpose of the enclosed *Addendum Letter Report No. 1* is to communicate the results of the additional Phase I cultural resource field surveys to your office for review.

As of November 21, 2012, only a single proposed 0.14 mile long access road and a proposed 2.3 mile long pipeline corridor reroute, all located in Wharton County, remain to be surveyed for this project. Once land access has been granted for the remaining access road and pipeline corridor reroute, cultural resources fieldwork will be initiated and a second addendum report will be prepared and submitted to your office for review and comment. Since these locations occur in low probability areas and near where no findings have occurred to date, we don't anticipate finding anything significant. Additional reroutes will be handled on a case-by-case basis as need arises.

Based on the findings to date, DOE anticipates that the proposed project would have no effect on historic properties within the area of potential effects. Should you have any technical questions regarding *Addendum Letter Report No. 1*, please contact Mr. Martin Handly (URS National

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Historic Preservation Act consultant) at 225-231-6328 or by email at martin.handly@urs.com. You can also reach me for comment at the address listed on the front page, by telephone at (304) 285-4145, or by email at mark.lusk@netl.doe.gov.

Sincerely,

Mark W. Lusk
NEPA Document Manager/NEPA Compliance Officer

Enclosure:
(2) Addendum Letter Report No. 1

e-mail cc:
Jon Barfield - NRG
Anthony Armpriester - NRG
Ted McMahon - DOE
Rob Lackowicz - URS
Martin Handly - URS
Kerry Winkler - URS

(See EIS Appendix G for a copy of the December 2012
Cultural Resources Investigation Addendum 1)

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NATIONAL ENERGY TECHNOLOGY LABORATORY
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U.S. DEPARTMENT OF ENERGY

January 2, 2013

Mr. Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission
1511 Colorado St.
Austin, Texas 78701

Dear Mr. Wolfe:

RE: Transmittal of Addendum Letter Report No. 2 - Additional Cultural Resource Survey for the Proposed NRG Energy W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project (Wharton County, Texas.

The primary route for the above-proposed project was surveyed by URS Corporation, Inc. (URS) and reported by the U.S. Department of Energy (DOE) to the Texas Historical Commission (THC) earlier this year. URS conducted a cultural resource survey in mid-December 2012 for an additional 2.3 miles of proposed corridor associated with the NRG Energy (NRG) W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project, located in Wharton County, Texas, as a result of proposed changes to the proposed pipeline alignment routing. No historic structures, features, or archaeological materials were identified during the investigation. The purpose of the attached Addendum Letter Report No. 2 is to communicate the results of the additional Phase I cultural resource field survey to your office for review.

As of December 19, 2012, only a single additional temporary workspace, located in Wharton County, remained to be surveyed for this project. Once land access has been granted for the remaining workspace, cultural resources fieldwork will be initiated and a third, addendum report will be prepared and submitted to your office for review and comment.

Based on the findings to date, DOE anticipates that the proposed project would have no effect on historic properties within the area of potential effects. Should you have any technical questions regarding the attached, please contact Mr. Martin Handly (URS NHPA consultant) at (225) 231-6328 or by email at martin.handly@urs.com. You can also reach me using the information listed below.

Sincerely,

Mark Wfusk

3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507
Mark.Lusk@netl.doe.gov • Voice (304) 285-4145 • Fax (304) 285-4403 • www.netl.doe.gov

Mark W. Lusk
NEPA Document Manager/NEPA Compliance Officer

Enclosure
By e-mail cc: Jon Barfield - NRG
Anthony Armpriester - NRG
Ted McMahon - DOE
Rob Lackowicz - URS
Martin Handly - URS
Kerry Winkler - URS

(See EIS Appendix G for a copy of the December 2012
Cultural Resources Investigation Addendum 2)

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U.S. DEPARTMENT OF ENERGY

RECEIVED
DEC 27 2012
Texas Historical Commission

December 14, 2012

Mr. Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission
1511 Colorado Street
Austin, TX 78701

Subject: Transmittal of Addendum Letter Report No. 1 - Additional Cultural Resource Survey for the Proposed NRG Energy W. A. Parish Post-Combustion CO_2 Capture and Sequestration Project (Fort Bend, Wharton, and Jackson Counties, Texas)

Dear Mr. Wolfe:

The primary route for the above proposed project was surveyed by URS Corporation, Inc. (URS) and reported by the U.S. Department of Energy (DOE) to the Texas Historical Commission (THC) earlier this year. An additional cultural resource assessment was conducted in association with proposed changes to the pipeline route and, as requested by THC, near horizontal drilling sites for proposed pipeline river crossings. URS conducted the additional cultural resource surveys from September to November 2012 for an additional 11.68 miles of proposed corridor, 10.63 acres of additional temporary workspace, 6.71 miles of proposed access roads, and seven deep testing locations associated with the proposed project located in Fort Bend, Wharton and Jackson counties in Texas. No historic structures, features, or archaeological materials were identified during the investigation. The purpose of the enclosed *Addendum Letter Report No. 1* is to communicate the results of the additional Phase I cultural resource field surveys to your office for review.

As of November 21, 2012, only a single proposed 0.14 mile long access road and a proposed 2.3 mile long pipeline corridor reroute, all located in Wharton County, remain to be surveyed for this project. Once land access has been granted for the remaining access road and pipeline corridor reroute, cultural resources fieldwork will be initiated and a second addendum report will be prepared and submitted to your office for review and comment. Since these locations occur in low probability areas and near where no findings have occurred to date, we don't anticipate finding anything significant. Additional reroutes will be handled on a case-by-case basis as need arises.

Based on the findings to date, DOE anticipates that the proposed project would have no effect on historic properties within the area of potential effects. Should you have any technical questions regarding *Addendum Letter Report No. 1*, please contact Mr. Martin Handly (URS National

3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507
mark.lusk@netl.doe.gov • Voice (304) 285-4145 • Fax (304) 285-4403 • www.netl.doe.gov

Historic Preservation Act consultant) at 225-231-6328 or by email at martin.handly@urs.com. You can also reach me for comment at the address listed on the front page, by telephone at (304) 285-4145, or by email at mark.lusk@netl.doe.gov.

Sincerely,

Mark W. Lusk
NEPA Document Manager/NEPA Compliance Officer

Enclosure:
(2) Addendum Letter Report No. 1

e-mail cc:
Jon Barfield - NRG
Anthony Armpriester - NRG
Ted McMahon - DOE
Rob Lackowicz - URS
Martin Handly - URS
Kerry Winkler - URS

NO HISTORIC
PROPERTIES AFFECTED
PROJECT MAY PROCEED
by
for Mark Wolfe
State Historic Preservation Officer
Date 1/17/13
Track#

DRAFT REPORT
ACCEPTABLE

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

U.S. DEPARTMENT OF ENERGY

RECEIVED
JAN 0 8 2013
Texas Historical Commission

January 2, 2013

Mr. Mark Wolfe
State Historic Preservation Officer
Texas Historical Commission
1511 Colorado St.
Austin, Texas 78701

Dear Mr. Wolfe:

RE: Transmittal of Addendum Letter Report No. 2 - Additional Cultural Resource Survey for the Proposed NRG Energy W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project (Wharton County, Texas.

The primary route for the above-proposed project was surveyed by URS Corporation, Inc. (URS) and reported by the U.S. Department of Energy (DOE) to the Texas Historical Commission (THC) earlier this year. URS conducted a cultural resource survey in mid-December 2012 for an additional 2.3 miles of proposed corridor associated with the NRG Energy (NRG) W.A. Parish Post-Combustion CO_2 Capture and Sequestration Project, located in Wharton County, Texas, as a result of proposed changes to the proposed pipeline alignment routing. No historic structures, features, or archaeological materials were identified during the investigation. The purpose of the attached Addendum Letter Report No. 2 is to communicate the results of the additional Phase I cultural resource field survey to your office for review.

As of December 19, 2012, only a single additional temporary workspace, located in Wharton County, remained to be surveyed for this project. Once land access has been granted for the remaining workspace, cultural resources fieldwork will be initiated and a third, addendum report will be prepared and submitted to your office for review and comment.

Based on the findings to date, DOE anticipates that the proposed project would have no effect on historic properties within the area of potential effects. Should you have any technical questions regarding the attached, please contact Mr. Martin Handly (URS NHPA consultant) at (225) 231-6328 or by email at martin.handly@urs.com. You can also reach me using the information listed below.

DRAFT REPORT
ACCEPTABLE

Sincerely,

Mark Wolfe

NO HISTORIC
PROPERTIES AFFECTED
PROJECT MAY PROCEED
by William A. Martin
for Mark Wolfe
State Historic Preservation Officer
Date 1/18/13
Track#

3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507
Mark.Lusk@netl.doe.gov • Voice (304) 285-4145 • Fax (304) 285-4403 • www.netl.doe.gov

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C.4 OTHER CONSULTATION

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

U.S. DEPARTMENT OF ENERGY

February 10, 2012

Rhonda M. Smith
U.S. Environmental Protection Agency, Region 6
Chief, Office of Planning and Coordination (6EN-XP)
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202

Re: Request for Consultation for the Proposed W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

To Ms. Smith:

The U.S. Department of Energy (DOE) proposes to provide funding to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology for use in EOR operations and long-term geologic storage.

DOE proposes to provide NRG with approximately $167 million of cost-shared funding, which includes *American Recovery and Reinvestment Act of 2009* (ARRA) funds, to implement the Project. DOE selected the Project for a financial assistance award through a competitive process under the Clean Coal Power Initiative (CCPI) Program. The estimated total project cost is $845 million.

DOE is preparing an environmental impact statement (EIS) to assess the potential environmental impacts associated with the proposed Project. As part of the *National Environmental Policy Act of 1969* (NEPA) process, DOE will consult with interested federal, state, regional, and local agencies; as well as Native American tribes. As a result, DOE requests consultation with the U.S. Environmental Protection Agency (USEPA) regarding potential environmental impacts or other considerations in the vicinity of the Project.

Project Details

NRG proposes to design, construct, and operate a commercial-scale CO_2 capture facility at its Parish Plant and deliver the CO_2 via an approximately 80-mile-long, 12.75-inch (outside diameter) pipeline to the West Ranch oil field in Jackson County, Texas. The enclosed maps (Attachment 1) illustrate the proposed project areas.

The Project would use an advanced amine-based absorption technology to capture 90 percent (approximately 1.6 million tons) of CO_2 annually from a 240-megawatt (MW) equivalent flue gas slip stream taken from the 617-MW Unit 8 at the Parish Plant. Up to 5,475 tons per day of

captured CO_2 would be dried, compressed, and transported via a new pipeline to the West Ranch oil field where it would be used in EOR operations.

The primary components of the Project include the following:

1. Carbon Capture Facility

The proposed Project would retrofit one of the Parish Plant's existing coal-fueled units (Unit 8) with a post-combustion CO_2 capture system that would be constructed within the existing 4,880-acre Parish Plant. A new natural gas-fired combined-cycle power plant, estimated to be 80-MW in size, would be constructed to produce the auxiliary power needed to drive the proposed carbon capture system.

2. CO_2 Transport

Captured CO_2 would be transported via a new approximately 80-mile-long pipeline to the West Ranch oil field. The anticipated pipeline route includes mostly sparsely-developed rural and agricultural lands in Fort Bend, Wharton, and Jackson Counties in Texas. The majority (approximately 95 percent) of the planned pipeline route will utilize existing mowed/maintained utility rights-of-ways (ROWs) to minimize environmental impacts and avoid sensitive resources to the greatest extent practical. Although the proposed pipeline will be located within existing ROWs for the majority of its length, NRG may need to review existing landowner agreements along the route to negotiate for widening of the ROW for construction of the pipeline in some areas.

3. EOR and CO_2 Sequestration

The proposed Project would deliver up to 1.6 million tons of CO_2 per year to the existing West Ranch oil field, located in Jackson County. The oil field has been in operation since 1938, and Texas Coastal Ventures, LLC, a joint venture between NRG and Hilcorp Energy Company, would conduct the EOR operations.

4. CO_2 Monitoring, Verification, and Accounting Program

NRG would implement a monitoring, verification, and accounting (MVA) program to monitor the injection and migration of CO_2 within the geologic formations at the EOR site. The MVA program must meet specific regulatory and CCPI Program requirements, and may consist of a variety of monitoring and modeling activities.

Project Schedule

NRG plans to start construction of the Project in November 2012 and begin commercial operations (demonstration phase) by 2015. The schedule is contingent on NRG receiving the necessary permits and regulatory approvals, as well as financial closing on all the necessary funding sources, including DOE's financial assistance.

Maps showing the expected footprint for the proposed carbon capture site, the proposed pipeline route, and the existing oil field area are provided in Attachment 1. Biological and cultural

resource surveys along the proposed pipeline route are scheduled between January and March 2012. DOE and NRG have contracted with URS Group, Inc., to provide environmental and cultural resources services to support development of the EIS and other regulatory compliance requirements for the Project.

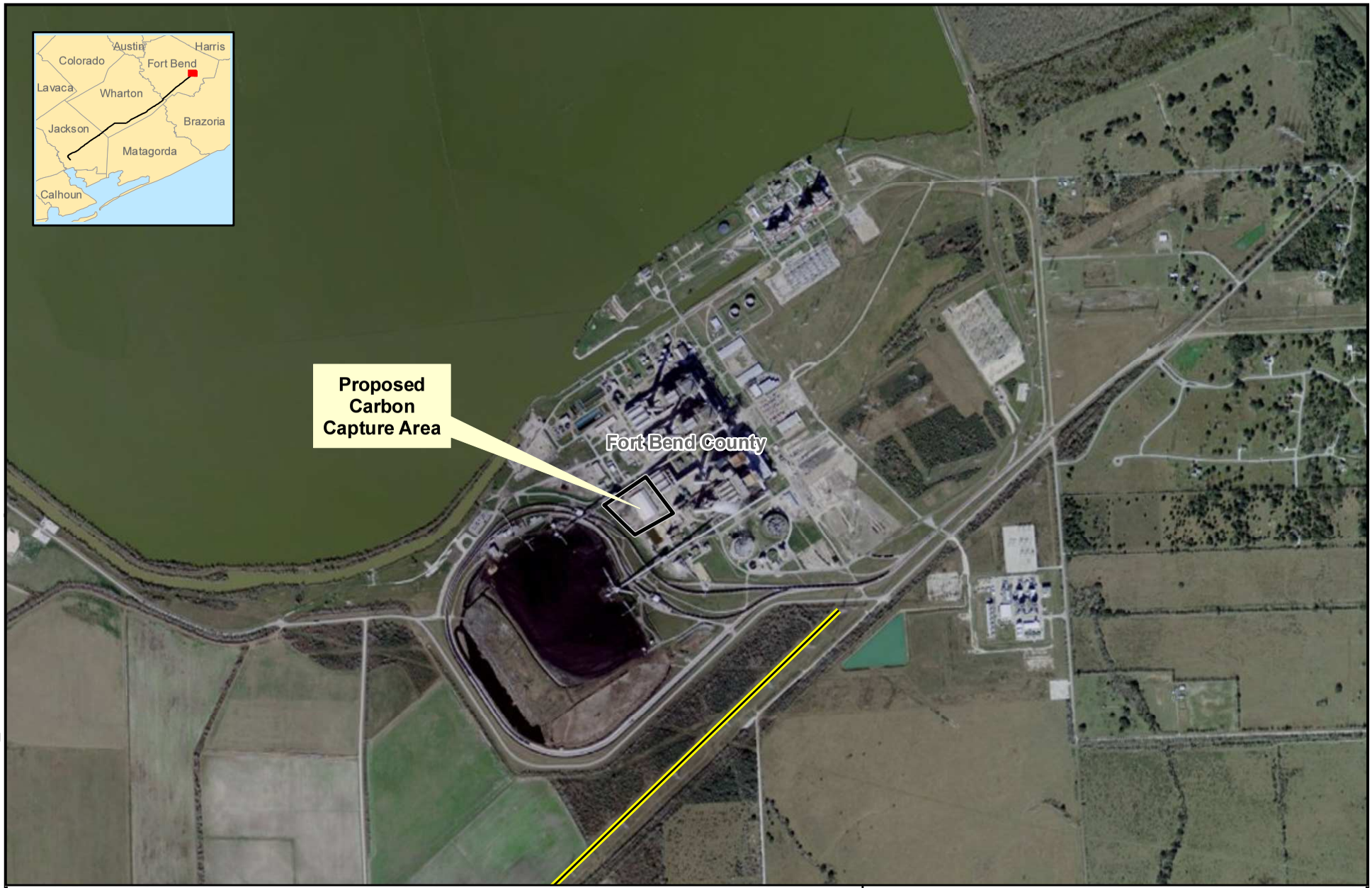
DOE respectfully requests that the USEPA provide any opinions or site-specific information concerning natural resources or other environmental considerations within the vicinity of the proposed Project in Fort Bend, Wharton, and Jackson Counties. Information provided by the USEPA will assist DOE in the preparation of an EIS and with fulfillment of its regulatory responsibilities under NEPA. DOE also intends to provide your office with a copy of the draft EIS for the Project for review and comment. All correspondence with your office will be included in an appendix to the EIS. We would appreciate your participation and request a response as soon as practical to help us more quickly identify potential issues. You can reach me by email at mark.lusk@netl.doe.gov, by telephone at (304) 285-4145, or at the address listed on the front page with any questions or comments.

Sincerely,

Mark W. Lusk
NEPA Document Manager / NEPA Compliance Officer

Attachment: Project Location Maps

cc:
Jon Barfield - NRG
Anthony Armpriester - NRG
Ted McMahon - DOE
Rob Lackowicz - URS
Pete Conwell - URS



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URS
10550 Richmond, Suite 155
Houston, TX 77042
Tel: 713.914.6699
Fax: 713.789.8404

Legend

Proposed Pipeline Route

0 375 750 1,500 Feet

1 in = 1,500 feet

N

Proposed Pipeline Route Map

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

Drawn By:	Date:	Project No.:	Figure:
AM	12-16-11	25014860	5 of 8

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URS
10550 Richmond, Suite 155
Houston, TX 77042
Tel: 713.914.6699
Fax: 713.789.8404

Legend

Proposed Pipeline Route

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1 in = 1,500 feet

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Proposed Pipeline Route Map

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

Drawn By:	Date:	Project No.:	Figure:
AM	12-16-11	25014860	7 of 8

URS
10550 Richmond, Suite 155
Houston, TX 77042
Tel: 713.914.6699
Fax: 713.789.8404

Legend

- Proposed Pipeline Route
- Major Roads
- Streams / Waterways
- Major Streams / Waterways
- County Lines
- Municipalities

N

0 2.5 5 10 Miles

Location Map

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

Drawn By:	Date:	Project No.:	Figure:
AM	12-16-11	25014860	1

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U.S. DEPARTMENT OF ENERGY

February 13, 2012

Johnny Ortega
Floodplain Administrator
Fort Bend County Engineering Department
1124 Blume Road
Rosenberg, TX 77471-1449

Re: Request for Consultation for Proposed W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Mr. Ortega:

The U.S. Department of Energy (DOE) proposes to provide funding to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology and use of the CO_2 with EOR operations and long-term geologic storage.

DOE proposes to provide NRG with approximately $167 million of cost-shared funding, which includes *American Recovery and Reinvestment Act of 2009* funds to help implement the Project in Fort Bend, Wharton, and Jackson Counties, Texas. DOE selected the Project for a financial assistance award through a competitive process under the Clean Coal Power Initiative (CCPI) Program. The estimated total project cost is approximately $845 million.

DOE is preparing an environmental impact statement (EIS) to assess the potential environmental impacts associated with the proposed Project. As part of the *National Environmental Policy Act of 1969* (NEPA) process, the DOE will consult with interested federal, state, regional, and local agencies; as well as Native American tribes. As a result, NRG requests early consultation with the Fort Bend County floodplain administration regarding your opinion on potential environmental impacts or other considerations in the vicinity of the Project.

Project Details

NRG proposes to design, construct, and operate a commercial-scale CO_2 capture facility at its Parish Plant and deliver the CO_2 via an approximately 80-mile-long, 12.75-inch (outside diameter) pipeline to the West Ranch oil field in Jackson County, Texas.

3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507
mark.lusk@netl.doe.gov • Voice (304) 285-4145 • Fax (304) 285-4216 • www.netl.doe.gov

The Project would use an advanced amine-based absorption technology to capture 90 percent (approximately 1.6 million tons) of CO_2 annually from a 240-megawatt (MW) equivalent flue gas slip stream taken from the 617-MW Unit 8 at the Parish Plant. Up to 5,475 tons per day of captured CO_2 would be dried, compressed, and transported via a new pipeline to the West Ranch oil field where it would be used in EOR operations.

The primary components of the Project include the following:

1. *Carbon Capture Facility*

   The proposed Project would retrofit one of the Parish Plant's existing coal-fueled units (Unit 8) with a post-combustion CO_2 capture system that would be constructed within the existing 4,880-acre Parish Plant. A new natural gas-fired combined-cycle power plant, estimated to be 80-MW in size, would be constructed to produce the auxiliary power needed to drive the proposed carbon capture system.

2. *CO_2 Transport*

   Captured CO_2 would be transported via a new approximately 80-mile-long pipeline to the West Ranch oil field. The anticipated pipeline route includes mostly sparsely-developed rural and agricultural lands in Fort Bend, Wharton, and Jackson Counties in Texas. The majority (approximately 95 percent) of the planned pipeline route will utilize existing mowed/maintained utility rights-of-ways (ROWs) to minimize environmental impacts and avoid sensitive resources to the greatest extent practical. Although the proposed pipeline would be located within existing ROWs for the majority of its length, NRG may need to review existing landowner agreements along the route to negotiate for widening of the ROW for construction of the pipeline in some areas.

3. *EOR and CO_2 Sequestration*

   The proposed Project would deliver up to 1.6 million tons of CO_2 per year to the existing West Ranch oil field, located in Jackson County. The oil field has been in operation since 1938, and Texas Coastal Ventures, LLC, a joint venture between NRG and Hilcorp Energy Company, would conduct the EOR operations.

4. *CO_2 Monitoring, Verification, and Accounting Program*

   NRG would implement a monitoring, verification, and accounting (MVA) program to monitor the injection and migration of CO_2 within the geologic formations at the EOR site. The MVA program must meet specific regulatory and CCPI Program requirements, and may consist of a variety of monitoring and modeling activities.

Project Schedule

NRG plans to start construction of the Project in November 2012 and begin the demonstration phase of commercial operations by 2015. The schedule is contingent on NRG receiving the necessary permits and regulatory approvals, as well as financial closing on all the necessary funding sources, including DOE's financial assistance.

Maps showing the expected footprint for the proposed carbon capture site, the proposed pipeline route, and the existing oil field area are provided in Attachment 1. Biological and cultural resource surveys along the proposed pipeline route are scheduled between January and March 2012. DOE and NRG have contracted with URS Group, Inc., to provide environmental and cultural resources services to support development of the EIS and other regulatory compliance requirements for the Project.

DOE respectfully requests that the Fort Bend County Floodplain Administration provide any opinions or site-specific information concerning the proposed Project's potential floodplain and related environmental impacts within Fort Bend County. The information provided will assist DOE in the preparation of an EIS. DOE also intends to provide a copy of the draft EIS for the Project to your office for review and comment. All correspondence with your office will be included in an appendix to the EIS.

DOE would appreciate your participation and requests a response as soon as practical to help identify potential floodplain impacts in the vicinity of the Project. You can reach me for comment by email at mark.lusk@netl.doe.gov, by telephone at (304) 285-4145, or at the address listed on the front page.

Sincerely,

Mark W. Lusk
NEPA Document Manager / NEPA Compliance Officer

Attachment: Project Location Maps

cc:
Jon Barfield - NRG
Anthony Armpriester - NRG
Ted McMahon - DOE
Pete Conwell - URS

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

U.S. DEPARTMENT OF ENERGY

February 13, 2012

Floodplain Administration
Jackson County Permit & Inspection Department
115 West Main St. RM 104
Edna, TX 77957

Re: Request for Consultation for Proposed Petra Nova W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

To Whom It May Concern:

The U.S. Department of Energy (DOE) proposes to provide funding to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology and use of the CO_2 with EOR operations and long-term geologic storage.

DOE proposes to provide NRG with approximately $167 million of cost-shared funding, which includes *American Recovery and Reinvestment Act of 2009* funds to help implement the Project in Fort Bend, Wharton, and Jackson Counties, Texas. DOE selected the Project for a financial assistance award through a competitive process under the Clean Coal Power Initiative (CCPI) Program. The estimated total project cost is approximately $845 million.

DOE is preparing an environmental impact statement (EIS) to assess the potential environmental impacts associated with the proposed Project. As part of the National *Environmental Policy Act of 1969* (NEPA) process, the DOE will consult with interested federal, state, regional, and local agencies; as well as Native American tribes. As a result, NRG requests early consultation with the Fort Bend County floodplain administration regarding your opinion on potential environmental impacts or other considerations in the vicinity of the Project.

Project Details

NRG proposes to design, construct, and operate a commercial-scale CO_2 capture facility at its Parish Plant and deliver the CO_2 via an approximately 80-mile-long, 12.75-inch (outside diameter) pipeline to the West Ranch oil field in Jackson County, Texas.

3610 Collins Ferry Road, P.O. Box 880, Morgantown, WV 26507
mark.lusk@netl.doe.gov • Voice (304) 285-4145 • Fax (304) 285-4216 • www.netl.doe.gov

The Project would use an advanced amine-based absorption technology to capture 90 percent (approximately 1.6 million tons) of CO_2 annually from a 240-megawatt (MW) equivalent flue gas slip stream taken from the 617-MW Unit 8 at the Parish Plant. Up to 5,475 tons per day of captured CO_2 would be dried, compressed, and transported via a new pipeline to the West Ranch oil field where it would be used in EOR operations.

The primary components of the Project include the following:

1. Carbon Capture Facility

The proposed Project would retrofit one of the Parish Plant's existing coal-fueled units (Unit 8) with a post-combustion CO_2 capture system that would be constructed within the existing 4,880-acre Parish Plant. A new natural gas-fired combined-cycle power plant, estimated to be 80-MW in size, would be constructed to produce the auxiliary power needed to drive the proposed carbon capture system.

2. CO_2 Transport

Captured CO_2 would be transported via a new approximately 80-mile-long pipeline to the West Ranch oil field. The anticipated pipeline route includes mostly sparsely-developed rural and agricultural lands in Fort Bend, Wharton, and Jackson Counties in Texas. The majority (approximately 95 percent) of the planned pipeline route will utilize existing mowed/maintained utility rights-of-ways (ROWs) to minimize environmental impacts and avoid sensitive resources to the greatest extent practical. Although the proposed pipeline would be located within existing ROWs for the majority of its length, NRG may need to review existing landowner agreements along the route to negotiate for widening of the ROW for construction of the pipeline in some areas.

3. EOR and CO_2 Sequestration

The proposed Project would deliver up to 1.6 million tons of CO_2 per year to the existing West Ranch oil field, located in Jackson County. The oil field has been in operation since 1938, and Texas Coastal Ventures, LLC, a joint venture between NRG and Hilcorp Energy Company, would conduct the EOR operations.

4. CO_2 Monitoring, Verification, and Accounting Program

NRG would implement a monitoring, verification, and accounting (MVA) program to monitor the injection and migration of CO_2 within the geologic formations at the EOR site. The MVA program must meet specific regulatory and CCPI Program requirements, and may consist of a variety of monitoring and modeling activities.

Project Schedule

NRG plans to start construction of the Project in November 2012 and begin the demonstration phase of commercial operations by 2015. The schedule is contingent on NRG receiving the necessary permits and regulatory approvals, as well as financial closing on all the necessary funding sources, including DOE's financial assistance.

Maps showing the expected footprint for the proposed carbon capture site, the proposed pipeline route, and the existing oil field area are provided in Attachment 1. Biological and cultural resource surveys along the proposed pipeline route are scheduled between January and March 2012. DOE and NRG have contracted with URS Group, Inc., to provide environmental and cultural resources services to support development of the EIS and other regulatory compliance requirements for the Project.

DOE respectfully requests that the Jackson County Floodplain Administration provide any opinions or site-specific information concerning the proposed Project's potential floodplain and related environmental impacts within Jackson County. The information provided will assist the DOE in the preparation of an EIS. DOE also intends to provide a copy of the draft EIS for the Project to your office for review and comment. All correspondence with your office will be included in an appendix to the EIS.

DOE would appreciate your participation and requests a response as soon as practical to help quickly identify potential floodplain impacts in the vicinity of the Project. You can reach me for comment by email at mark.lusk@netl.doe.gov, by telephone at (304) 285-4145, or at the address listed on the front page.

Sincerely,

Mark W. Lusk
NEPA Document Manager / NEPA Compliance Officer

Attachment: Project Location Maps

cc:
Jon Barfield - NRG
Anthony Armpriester - NRG
Ted McMahon - DOE
Pete Conwell - URS

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

U.S. DEPARTMENT OF ENERGY

February 13, 2012

Monica Martin
Wharton County Floodplain Administrator
Permit & Inspection Department
1017 North Alabama St.
Wharton, TX 77488

Re: Request for Consultation for Proposed Petra Nova W.A. Parish Post-Combustion Carbon Capture and Storage Project in Southeastern Texas (Fort Bend, Wharton, and Jackson Counties)

Dear Ms. Martin;

The U.S. Department of Energy (DOE) proposes to provide funding to NRG Energy, Inc. (NRG) and its subsidiary, Petra Nova, LLC, for a project that would capture carbon dioxide (CO_2) at NRG's W.A. Parish Generating Station (Parish Plant) in Fort Bend County, Texas. 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 (EOR) and ultimately sequestered. This proposed project, known as the W.A. Parish Post-Combustion Carbon Capture and Storage Project (Project), would demonstrate an integrated commercial-scale deployment of post-combustion CO_2 capture technology and use of the CO_2 with EOR operations and long-term geologic storage.

DOE proposes to provide NRG with approximately $167 million of cost-shared funding, which includes *American Recovery and Reinvestment Act of 2009* funds to help implement the Project in Fort Bend, Wharton, and Jackson Counties, Texas. DOE selected the Project for a financial assistance award through a competitive process under the Clean Coal Power Initiative (CCPI) Program. The estimated total project cost is approximately $845 million.

DOE is preparing an environmental impact statement (EIS) to assess the potential environmental impacts associated with the proposed Project. As part of the *National Environmental Policy Act of 1969* (NEPA) process, the DOE will consult with interested federal, state, regional, and local agencies; as well as Native American tribes. As a result, NRG requests early consultation with the Fort Bend County floodplain administration regarding your opinion on potential environmental impacts or other considerations in the vicinity of the Project.

Project Details

NRG proposes to design, construct, and operate a commercial-scale CO_2 capture facility at its Parish Plant and deliver the CO_2 via an approximately 80-mile-long, 12.75-inch (outside diameter) pipeline to the West Ranch oil field in Jackson County, Texas.

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The Project would use an advanced amine-based absorption technology to capture 90 percent (approximately 1.6 million tons) of CO_2 annually from a 240-megawatt (MW) equivalent flue gas slip stream taken from the 617-MW Unit 8 at the Parish Plant. Up to 5,475 tons per day of captured CO_2 would be dried, compressed, and transported via a new pipeline to the West Ranch oil field where it would be used in EOR operations.

The primary components of the Project include the following:

1. Carbon Capture Facility

The proposed Project would retrofit one of the Parish Plant's existing coal-fueled units (Unit 8) with a post-combustion CO_2 capture system that would be constructed within the existing 4,880-acre Parish Plant. A new natural gas-fired combined-cycle power plant, estimated to be 80-MW in size, would be constructed to produce the auxiliary power needed to drive the proposed carbon capture system.

2. CO_2 Transport

Captured CO_2 would be transported via a new approximately 80-mile-long pipeline to the West Ranch oil field. The anticipated pipeline route includes mostly sparsely-developed rural and agricultural lands in Fort Bend, Wharton, and Jackson Counties in Texas. The majority (approximately 95 percent) of the planned pipeline route will utilize existing mowed/maintained utility rights-of-ways (ROWs) to minimize environmental impacts and avoid sensitive resources to the greatest extent practical. Although the proposed pipeline would be located within existing ROWs for the majority of its length, NRG may need to review existing landowner agreements along the route to negotiate for widening of the ROW for construction of the pipeline in some areas.

3. EOR and CO_2 Sequestration

The proposed Project would deliver up to 1.6 million tons of CO_2 per year to the existing West Ranch oil field, located in Jackson County. The oil field has been in operation since 1938, and Texas Coastal Ventures, LLC, a joint venture between NRG and Hilcorp Energy Company, would conduct the EOR operations.

4. CO_2 Monitoring, Verification, and Accounting Program

NRG would implement a monitoring, verification, and accounting (MVA) program to monitor the injection and migration of CO_2 within the geologic formations at the EOR site. The MVA program must meet specific regulatory and CCPI Program requirements, and may consist of a variety of monitoring and modeling activities.

Project Schedule

NRG plans to start construction of the Project in November 2012 and begin the demonstration phase of commercial operations by 2015. The schedule is contingent on NRG receiving the necessary permits and regulatory approvals, as well as financial closing on all the necessary funding sources, including DOE's financial assistance.

Maps showing the expected footprint for the proposed carbon capture site, the proposed pipeline route, and the existing oil field area are provided in Attachment 1. Biological and cultural resource surveys along the proposed pipeline route are scheduled between January and March 2012. DOE and NRG have contracted with URS Group, Inc., to provide environmental and cultural resources services to support development of the EIS and other regulatory compliance requirements for the Project.

DOE respectfully requests that the Wharton County Floodplain Administration provide any opinions or site-specific information concerning the proposed Project's potential floodplain and related environmental impacts within Wharton County. The information provided will assist DOE in the preparation of an EIS. The DOE also intends to provide a copy of the draft EIS for the Project to your office for review and comment. All correspondence with your office will be included in an appendix to the EIS.

DOE would appreciate your participation and requests a response as soon as practical to help quickly identify potential floodplain impacts in the vicinity of the Project. You can reach me for comment by email at mark.lusk@netl.doe.gov, by telephone at (304) 285-4145, or at the address listed on the front page.

Sincerely,

Mark W. Lusk
NEPA Document Manager / NEPA Compliance Officer

Attachment: Project Location Maps

cc:
Jon Barfield - NRG
Anthony Armpriester - NRG
Ted McMahon - DOE
Pete Conwell - URS

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March 22, 2012
100809-6515 WO01

Monica Martin
Floodplain Manager
Permit and Inspections Department
Wharton County
315 E. Milam, Suite 102
Wharton, Texas 77488

Subject: **NRG Energy W.A. Parish Post-Combustion Carbon Capture & Storage Project**

Ms. Martin:

At your request Halff Associates is responding to a letter request you received from the National Energy Technology Laboratory (NETL), a division of the U.S. Department of Energy for opinions or site-specific information concerning the proposed NRG Energy W.A. Parish Post-Combustion Carbon Capture & Storage Project pipeline that will traverse through the southerly portion of Wharton County. Specifically, the NETL requested information on potential floodplain and environmental impacts the pipeline may have within the County.

The proposed 12.75-inch diameter pipeline will carry carbon dioxide. It will enter Wharton County at the eastern boundary, approximately 2-miles north of the southerly County line. It traverses along the southerly portion of the County for approximately 40 miles, leaving the County at the western boundary, approximately 4-miles north of the southerly County line. Construction is projected to begin in November 2012 with pipeline operations starting in 2015.

Potential impacts the pipeline may have through the County are based on a letter size exhibit in the NETL letter showing the proposed pipeline route. The image was scanned and geo-referenced in GIS to the Wharton County GIS geo-database. Stream crossings where impacts to the floodplain may be possible were considered in this review. The extent of impacts the pipeline will have on floodplain and environmental features will depend on the final route of the pipeline as well as type of crossings and construction methods. At this time, there is not sufficient information to determine the type or exact number of development permits that will be required. A conservative estimate would be to assume that each stream crossing is a major creek crossing. It would be expected that wetlands and other possible environmentally sensitive features will be located within the pipeline corridor.

The following is a list of stream crossings that fall under the Drainage Ordinance, potentially requiring a development permit. There was 5 other stream crossings noted that were not within mapped floodplain and may not require a development permit. Starting at the easterly County line, moving westward, the following stream crossings were noted within Wharton County:

1. San Bernard River
2. Lower Caney Creek
3. Quinine Slough
4. Water Hole Creek
5. Colorado River

HALFF ASSOCIATES, INC.
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6. Jones Creek
7. Dry Creek
8. Blue Creek
9. Blue Creek Tributary
10. Tres Palacios Creek
11. Juanita Creek
12. Willow Creek
13. East Carancahua Creek
14. East Carancahua Tributary 1

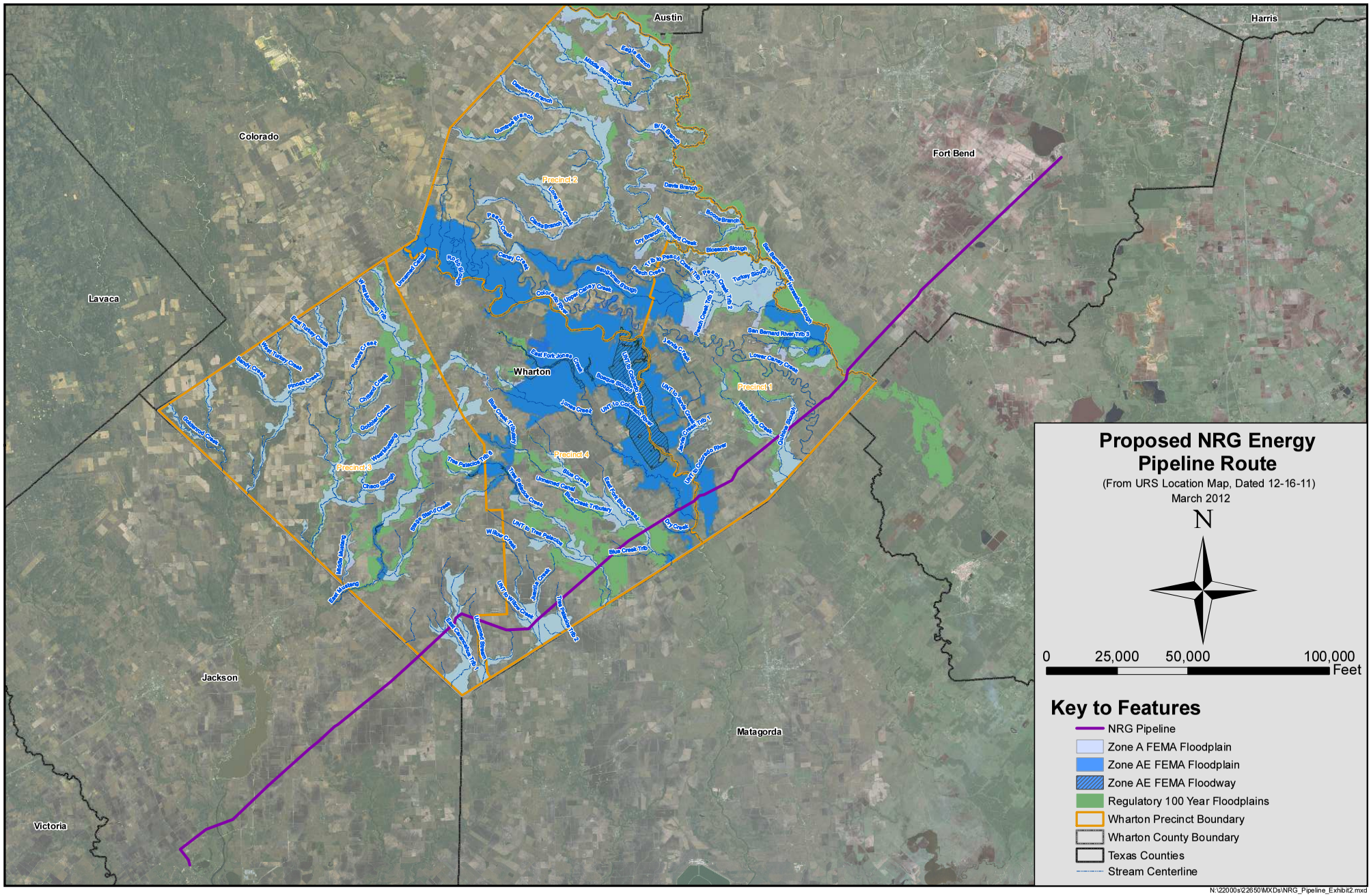
Please feel free to contact me at (512) 777-4583 if you have any questions.

Sincerely,

Halff Associates, Inc.

Mark W. McGraw, P.E.
Project Manager

attachments: NRG Pipeline Route and Floodplain Exhibit
NETL Consultation Request Letter


Austin
Harris
Colorado
Fort Bend
Lavaca
Wharton
Jackson
Matagorda
Victoria
Precinct 1
Precinct 2
Precinct 3
Precinct 4
Proposed NRG Energy Pipeline Route
(From URS Location Map, Dated 12-16-11)
March 2012
N
0
25,000
50,000
100,000
Feet
Key to Features
NRG Pipeline
Zone A FEMA Floodplain
Zone AE FEMA Floodplain
Zone AE FEMA Floodway
Regulatory 100 Year Floodplains
Wharton Precinct Boundary
Wharton County Boundary
Texas Counties
Stream Centerline
N:\22000s\22650\MXDs\NRG_Pipeline_Exhibit2.mxd

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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.

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.

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:

- 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.

- 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.

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

- 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:

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

- 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

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:

- 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:

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

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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