CONSULTATION LETTERS

In the course of preparing this EIS, interaction efforts with Native American tribes and state and federal agencies were necessary to discuss issues of concern or other interests that could be affected by the Proposed Action, obtain information pertinent to the environmental impact analysis of the Proposed Action, 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]

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

[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.

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 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

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.

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.

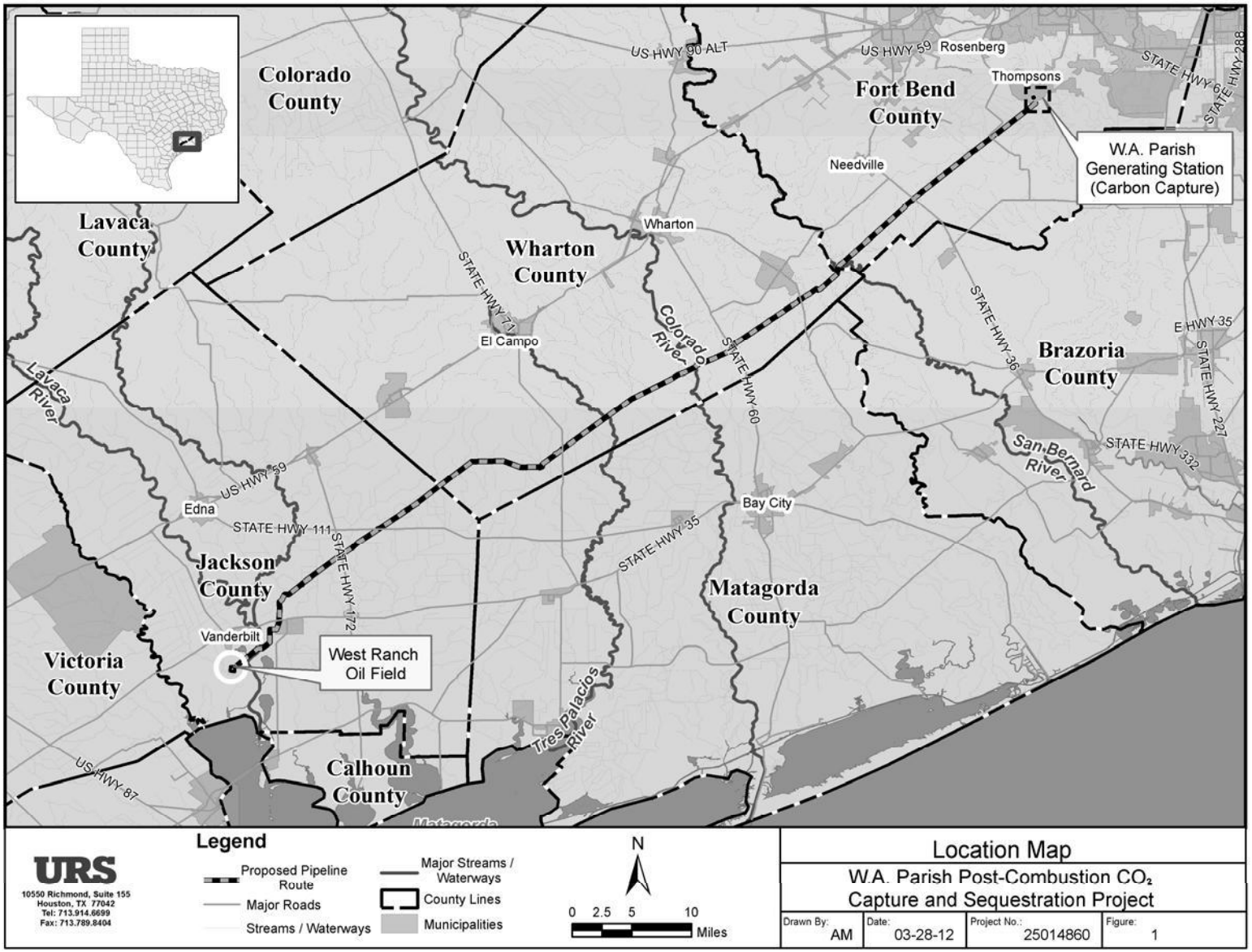
Sincerely,

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.

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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

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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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Sincerely,

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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. 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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Rob Lackowicz - URS

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NATIONAL ENERGY TECHNOLOGY LABORATORY
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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.

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

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NATIONAL ENERGY TECHNOLOGY LABORATORY
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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:

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Project Description

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NEPA Document Manager

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NATIONAL ENERGY TECHNOLOGY LABORATORY
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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:

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Mark W. Lusk
NEPA Document Manager

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NATIONAL ENERGY TECHNOLOGY LABORATORY
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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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C.2 PROTECTED SPECIES CONSULTATION

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NATIONAL ENERGY TECHNOLOGY LABORATORY
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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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Project Details

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Project Schedule

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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

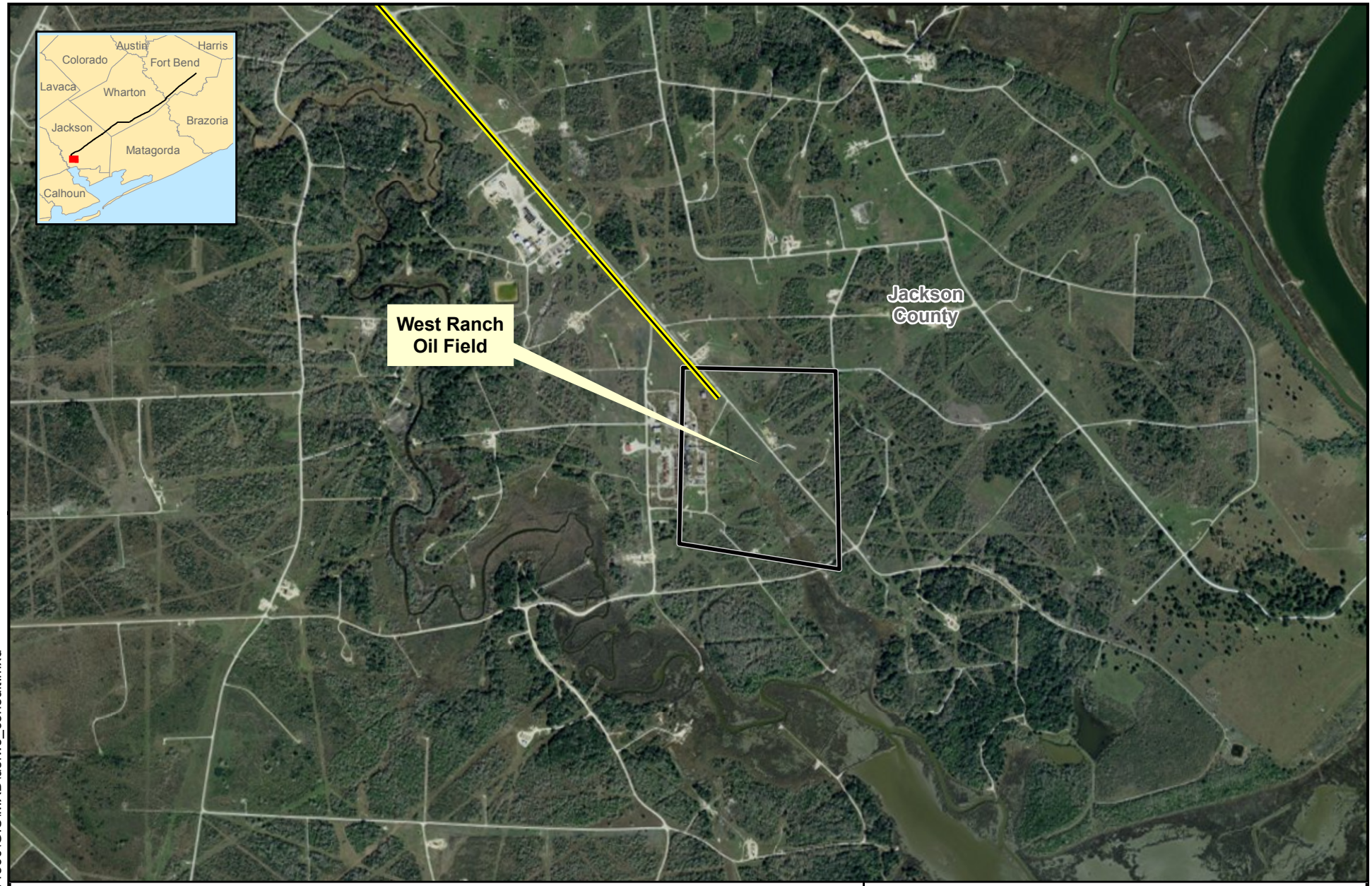
1 in = 1,500 feet

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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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	7 of 8

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
- Major Roads
- Streams / Waterways
- Major Streams / Waterways
- County Lines
- Municipalities

N

0 2.5 5 10 Miles

Location Map

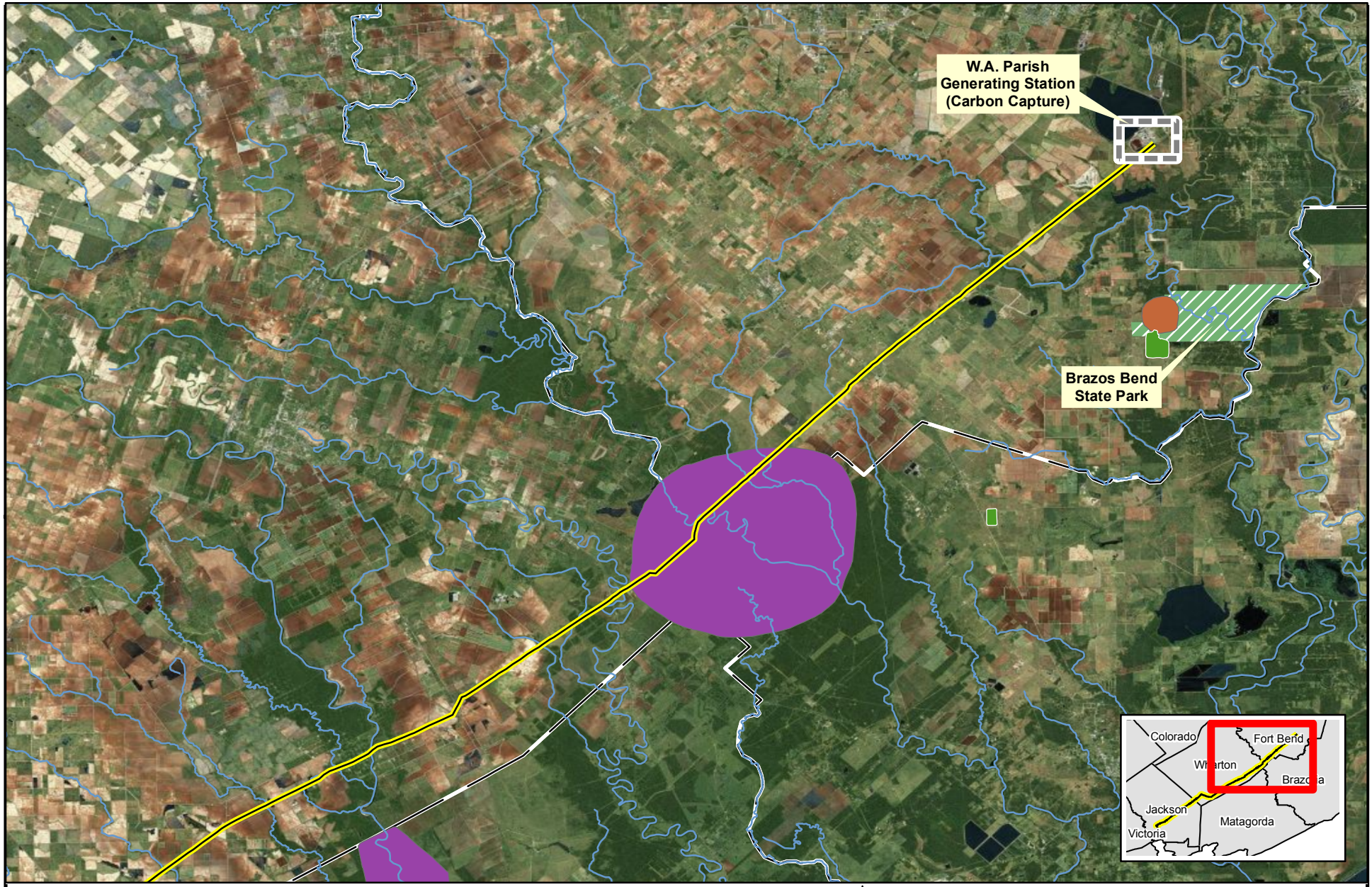
W.A. Parish Post-Combustion CO Capture and Sequestration Project

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

ATTACHMENT 2

T&E SPECIES LIST/TXNDD MAPS

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



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

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

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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Willow Flycatcher
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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:

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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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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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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

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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).

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 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

TEXAS PARKS & WILDLIFE

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March 20, 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:

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,

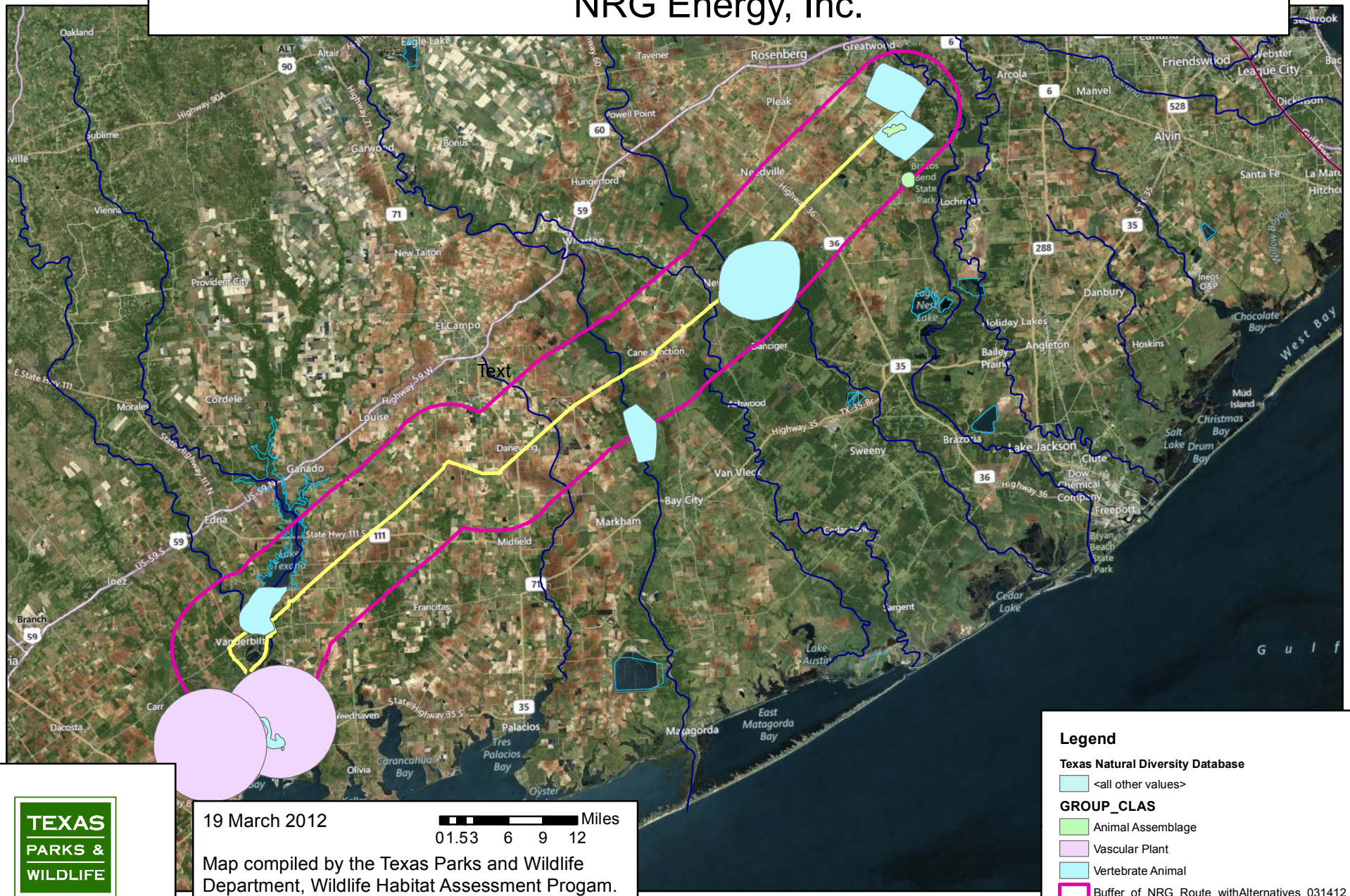
Amy Turner

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.

TEXAS PARKS & WILDLIFE

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Legend

Texas Natural Diversity Database

<all other values>

GROUP_CLAS

Animal Assemblage

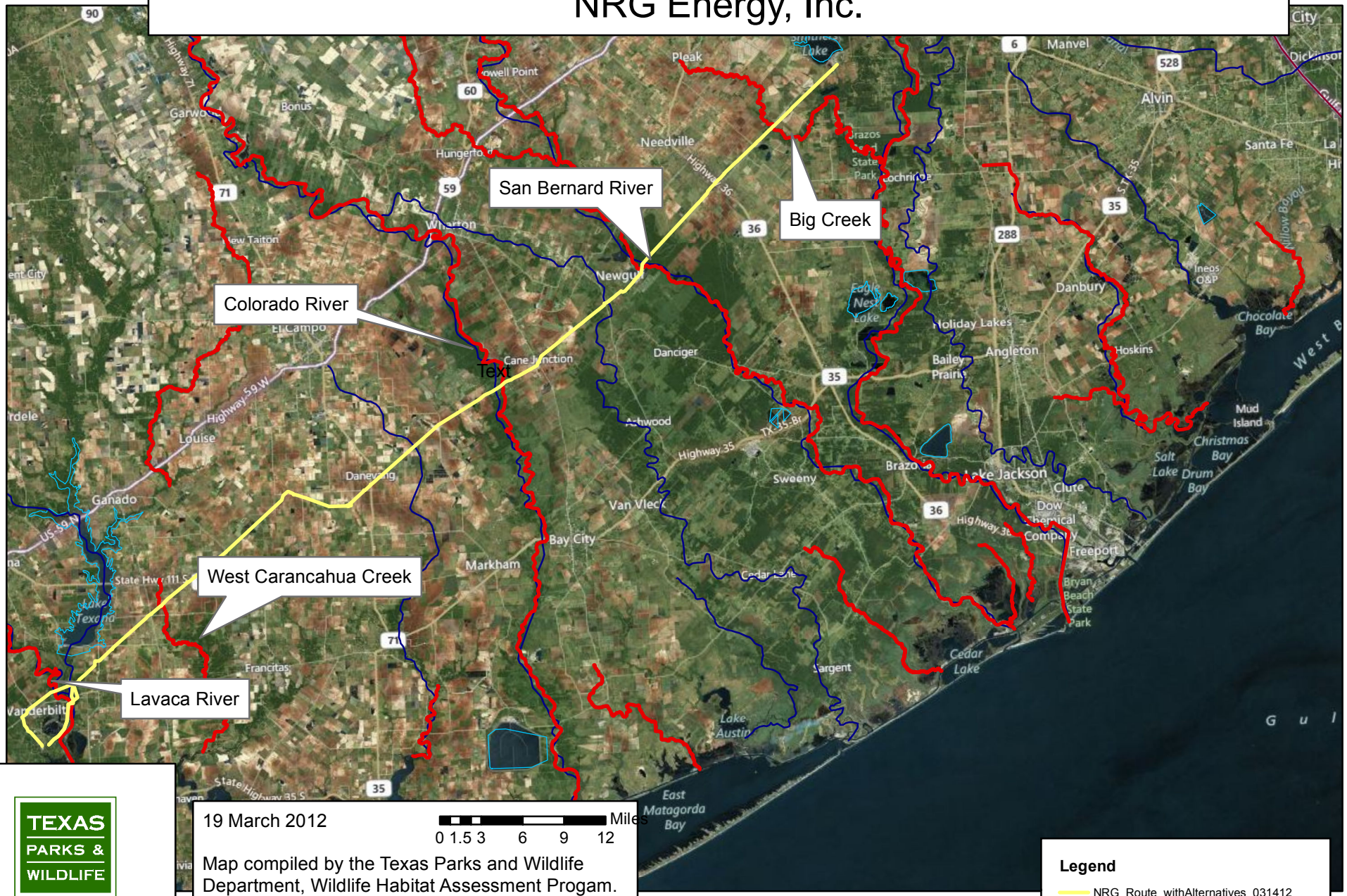
Vascular Plant

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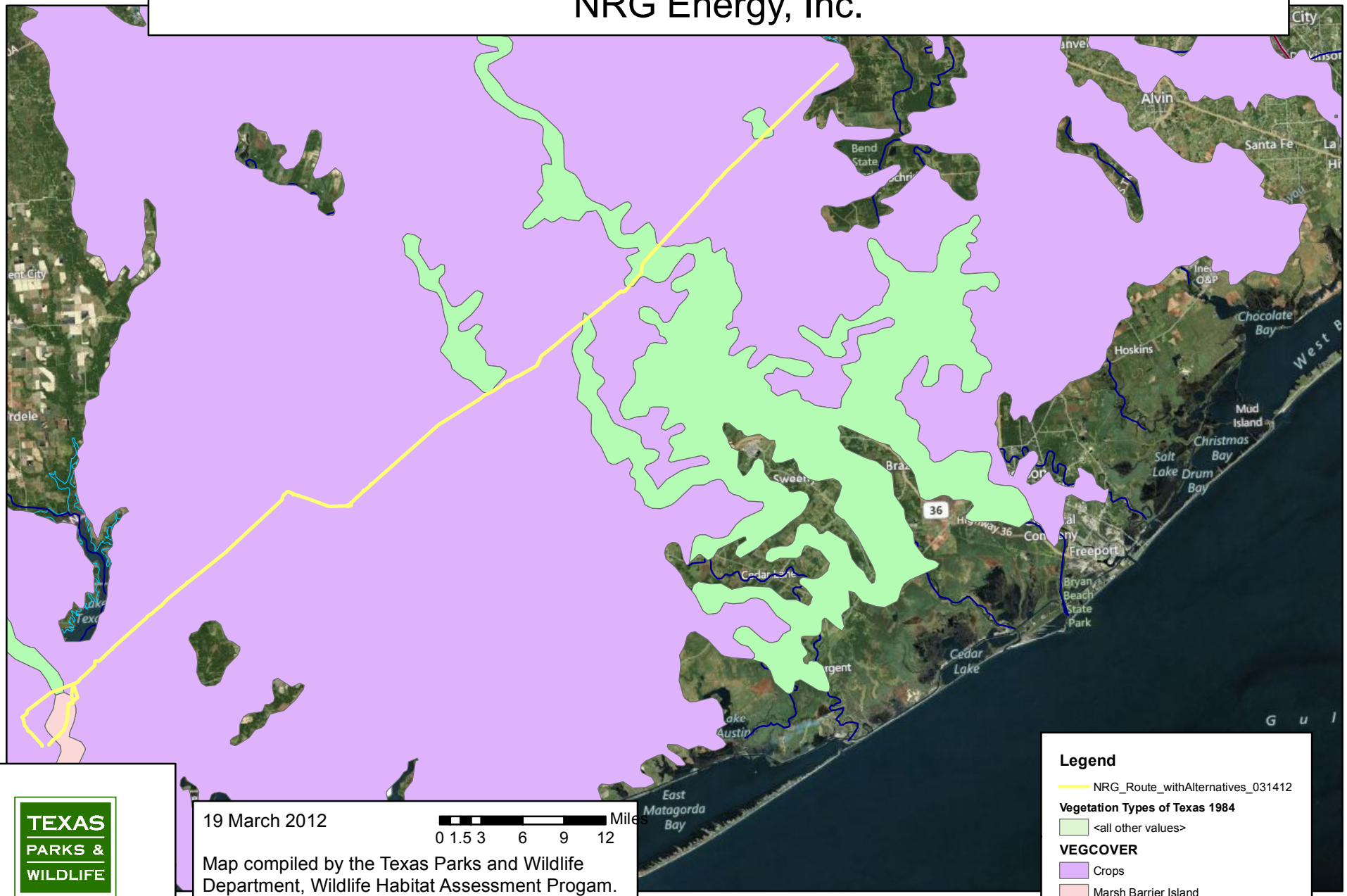
Figure 3
Vegetation Types of Texas 1984
W.A. Parish Post- Combustion Carbon Capture and Storage Project
NRG Energy, Inc.



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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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