September 14, 2009

MEMORANDUM TO: Gregory P. Hatchett, Branch Chief
Environmental Projects Branch 1
Division of Site and Environmental Reviews

FROM: Michael H. Willingham, Project Manager **/RA/**
Environmental Projects Branch 1
Division of Site and Environmental Reviews

SUBJECT: TRIP REPORT - ECOLOGY SITE AUDIT AND ALTERNATIVE SITES VISIT RELATED TO THE REVIEW OF LUMINANT'S COMBINED LICENSE APPLICATION FOR COMANCHE PEAK NUCLEAR POWER PLANT, UNITS 3 AND 4

On December 12, 2008, the U.S. Nuclear Regulatory Commission (NRC) issued a notice of intent (NOI) to prepare an environmental impact statement (EIS) and to conduct scoping for the Comanche Peak Nuclear Power Plant (CPNPP), Units 3 and 4 combined license (COL) application submitted by Luminant Generation Company, LLC (Luminant). In support of the NRC staff's environmental review of the CPNPP, Units 3 and 4 COL application and the development of the EIS, an ecology site audit and alternative sites visit was held February 2, 2009 through February 6, 2009 at the CPNPP Site in Granbury, Texas.

The NRC ecology site audit environmental review team consisted of two subject matter experts from the NRC, two from Oakridge National Laboratory (ORNL), and one from Information Systems Laboratories (ISL). The alternative sites visit environmental review team consisted of four subject matter experts from the NRC, four from ORNL, and three from ISL. A list of participants from the NRC and contracted staff; the applicant and associated contract staff; and Federal, State, and local representatives at the ecology site audit and alternative sites visit is available in Enclosure 1, Comanche Peak Nuclear Power Plant, Units 3 and 4 Combined License Application Ecology Site Audit and Alternative Sites Visit Trip Report.

On February 2, 2009, an ecological site audit was conducted at the CPNPP Site in Granbury, Texas. The site audit included a presentation on site safety; an ecological orientation of the CPNPP Site; site tours and discussions with emphasis on ecological cover types, wetlands, aquatic resources, transmission line corridors, pipeline corridor, and potential threatened and endangered species habitats that may occur on site. The alternative sites visit began on February 3, 2009 and ended on February 5, 2009. The alternative sites visit included a tour of three alternative sites identified in the environmental report (ER) submitted by Luminant; an alternative sites selection process presentation, alternative sites specific presentations, and discussions. An agenda for both the ecology site audit and alternative sites visit are provided in Enclosure 1.

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The purpose of the ecology site audit and alternative sites visit was to review references and documents related to the ecological and alternative sites sections of the ER submitted as part of the COL application, to review data and conclusions made in the ER to ensure that environmental requirements in Title 10 of the *Code of Federal Regulations* Part 51 (10 CFR Part 51) are met, to interface with representatives from Federal, State, and local government agencies to obtain related information, and to collect information that will aid in writing the EIS.

Docket Nos. 52-034 and 52-035

Enclosures: As stated

The purpose of the ecology site audit and alternative sites visit was to review references and documents related to the ecological and alternative sites sections of the ER submitted as part of the COL application, to review data and conclusions made in the ER to ensure that environmental requirements in Title 10 of the *Code of Federal Regulations* Part 51 (10 CFR Part 51) are met, to interface with representatives from Federal, State, and local government agencies to obtain related information, and to collect information that will aid in writing the EIS.

Docket Nos.: 52-034 and 52-035

Enclosures: As stated

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Comanche Peak Nuclear Power Plant
Units 3 and 4
Combined License Application
Ecology Site Audit and Alternative Sites Visit
February 2 – 4, 2009
Trip Report

Table of Contents:

Enclosure 1

1 List of Attendees, Comanche Peak Nuclear Power Plant, Units 3 and 4, Combined License Application, Ecology Site Audit - February 2, 2009

NRC STAFF AND CONTRACTORS

Name	Affiliation
Michael Willingham	U.S. Nuclear Regulatory Commission (NRC)
Harriet Nash	NRC
Greg Zimmerman	Oakridge National Laboratory (ORNL)
Harry Quarles	ORNL
Steve Dillard	Information System Laboratories (ISL)
Roberta Hurley	ISL

LUMINANT STAFF AND CONTRACTORS

Name	Affiliation
Bobby Bird	Luminant
John Conly	Luminant
Bob Reible	Luminant
Bruce Turner	Luminant
Matt Weeks	Luminant
Bill Atchison	Enercon
Melinda Harris	Enercon
Stacey Burgess	Enercon
Chris Byerman	Enercon
Joe Mancinelli	Enercon
Blair Baker	Enercon

STATE REPRESENTATIVES

Name	Affiliation
Karen Hardin	Texas Parks & Wildlife Dept. (TPWD)
Tom Heger	TPWD

FEDERAL REPRESENTATIVES

Name	Affiliation
David Madden	U.S. Army Corps of Engineers (USACE)
Moni Belton	U.S. Fish and Wildlife Service (USFWS)
Sean Edwards	USFWS

OTHERS

Name	Affiliation
Kazuya Hayashi	Mitsubishi Nuclear Energy Services (MNES)
Putsumi Ishida	MNES
Ron Reynolds	MNES
Joe Tapia	MNES

2 List of Attendees, Comanche Peak Nuclear Power Plant, Units 3 and 4, Combined License Application, Alternative Sites Visit - February 3-5, 2009

NRC STAFF AND CONTRACTORS

Name	Affiliation
Michael Willingham	NRC
Harriet Nash	NRC
John Fringer*	NRC
Barry Zalcman*	NRC
Greg Zimmerman	ORNL
Harry Quarles	ORNL
Barry Shumpert	ORNL
Ellen Smith	ORNL
Steve Dillard*	AECOM
Roberta Hurley*	AECOM
Robert Dover*	AECOM

*Not present for visit to Coastal Site on Feb. 5

LUMINANT STAFF AND CONTRACTORS

Name	Affiliation
Don Woodlan*	Luminant
John Conly*	Luminant
Bob Reible*	Luminant
Bruce Turner	Luminant
Matt Weeks	Luminant
Gary Spicer	Luminant
Terry Kesterson	Luminant

*Present only for Alternative Site Discussion and Tradinghouse Site Tour on Feb. 3

3 Agenda, Comanche Peak Nuclear Power Plant, Units 3 and 4, Combined License Application, Ecology Site Audit and Alternative Sites Visit - February 2 - 6, 2009

Monday, February 2, 2009

0730 Introductions

0800 CPNPP Ecological Orientation

0900 Comanche Peak Nuclear Power Plant Site Tour

1200 Lunch

1300 Pipeline and Transmission Line Tour

1600 Discussions

1730 End of Ecology Site Audit Summary

1800 Adjourn for the day

Tuesday, February 3, 2009 - Trading House Alternative Site

0800 Introductions

0830 Alternative Sites Selection Process Presentation and Trading House Alternative site Presentation

1000 Trading House Alternative Site Tour

1200 Lunch provided

1300 Discussions on Alternative Sites Selection Process

1500 Daily Summary

1530 Meetings Adjourned For the Day

Wednesday, February 4, 2009 - Pineland Alternative Site

0800 Introductions

0830 Pineland Alternative Site Presentation

1000 Pineland Alternative Site Tour and Discussions

1230 Meetings Adjourned For the Day

Thursday, February 5, 2009 - Coastal Alternative Site

0800 Introductions

0830 Coastal Alternative Site Presentation

1000 Coastal Alternative Site Tour and Discussions

1200 Alternative Sites Visit Summary

1230 Adjourn Alternative Sites Visit

4 Report Summary

On December 12, 2008, the U.S. Nuclear Regulatory Commission (NRC) issued a notice of intent (NOI) to prepare an environmental impact statement (EIS) and to conduct scoping for the Comanche Peak Nuclear Power Plant (CPNPP), Units 3 and 4 combined license (COL) application submitted by Luminant Generation Company, LLC (Luminant). In support of the NRC staff's environmental review of the CPNPP, Units 3 and 4 COL application and the development of the EIS, an ecology site audit and alternative sites visit was held February 2nd through February 6th, 2009, at the CPNPP Site in Granbury, Texas. The purpose of the ecology site audit and alternative sites visit was to review references and documents related to the ecological and alternative sites sections of the environmental report (ER) submitted as a part of the COL application; to review data and conclusions made in the environmental report (ER), to ensure that environmental requirements in Title 10 of the *Code of Federal Regulations* Part 51 (10 CFR Part 51) are met, and to interface with representatives from Federal, State, and local government agencies to obtain related information. The NRC's guidance for implementing provisions of 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," related to nuclear power plants is described in NUREG-1555, "Environmental Standard Review Plan," Revision 1, dated July 2007.

5 Ecology Site Audit

On February 2, 2009, staff from the U.S. Nuclear Regulatory Commission (NRC), Oak Ridge National Laboratory (ORNL), and the Information Systems Laboratory (ISL) visited the Comanche Peak Nuclear Power Plant Site in Glen Rose, Texas. A list of attendees is provided in Section 1 of this report and a description of the agenda is provided in Section 3.

5.1 Scope

The ecology site audit included presentations by staff from Luminant and their contractor over site safety and an ecological orientation of the CPNPP Site. After the presentations, the NRC staff and contractors were provided with a tour of the CPNPP Site. The tour included existing support facilities for CPNPP, Units 1 and 2, proposed sites for units 3 and 4, proposed support facilities for units 3 and 4, existing transmission line corridor, existing pipeline corridor, and proposed site for intake and discharge structures on Lake Granbury. The NRC staff and contractors participated in discussions regarding land use, hydrology, water quality, access corridors, and principal ecological features. The discussions and tours provided input to characterize the site and vicinity's ecology, impacts from construction and operation of the proposed new units and support facilities, cumulative impacts, and monitoring programs.

5.2 Observations

As a result of the site audit focus on ecological issues, the NRC staff and contractors identified areas where additional characterization of the site vicinity will be needed, as well as ecological impacts related to the construction and operation of the nuclear power plant. The NRC staff is expected to characterize in the habitat types, aquatic communities on the Brazos River, existing conditions on Lake Granbury that affect fisheries, variations in water

quality, impacts to wetlands, and impacts to raptors in the EIS. Additionally, the NRC staff will need to discuss impacts resulting from the operation and maintenance of transmission lines, impacts from construction and operation of support facilities, and impacts resulting from pre-construction activities in its EIS.

6 Alternative Sites Visits

On February 3-5, the NRC staff and contractors from NRC, ORNL and ISL visited the three alternative sites identified in Luminant's Environmental Report (ER). These sites were identified as the Coastal Site, the Pineland Site, and the Tradinghouse Site, (labeled as Sites A, B, and C, respectively, in the ER). On the first day of the alternative sites visit, Luminant presented its site-selection process. The NRC staff and contractors discussed the site characterization of each site with the applicant during the visit.

6.1 Scope

Prior to the tour of the Tradinghouse alternative site, Luminant presented the process that it used to identify, evaluate, and select potential sites for nuclear power plant development. The site selection process was based on the *EPRI Siting Guide: Site Selection and Evaluation Criteria for an Early Site Permit Application*, dated March 2002 (Siting Guide). While the process described in the Siting Guide was used as a general basis, Luminant adapted this process based on its specific business needs.

The general approach applied a multi-step process:

- Step 1: Regional Analysis, including desktop review and helicopter reconnaissance to identify potential sites for evaluation;
- Step 2: Evaluation against screening criteria to develop a list of highly feasible sites to be visited;
- Step 3: Conduct of site visits and identification of alternative sites; and
- Step 4: Detailed evaluation of alternative sites to select proposed site.

Steps 1 and 2 of this process were repeated by Luminant. Once all potential sites within the Luminant service territory had been identified, the potential sites were subjected to a regional analysis including desktop review of available maps and data and helicopter reconnaissance. This process was performed in September 2006 and resulted in the identification of 47 sites which were subjected to a screening analysis. Evaluation of the 47 sites included screening against six criteria which included availability of land area and water, accessibility to transmission lines and rail connections, and acceptability of geotechnical and environmental characteristics. That process resulted in eight sites being characterized as "highly suitable."

Information obtained during this process was used to refine the definition of these eight sites. This included refining site boundaries and splitting some large properties into multiple sites for evaluation. Consequently, in October 2006, Luminant re-evaluated a total of 60 sites using Steps 1 and 2 of the process again. In addition to refining the definitions of the sites, Luminant also refined the screening criteria. At this stage, the 60 sites were screened against eight criteria including water availability, proximity of population, available area, railroad access, transmission line access, environmental considerations, geotechnical characteristics, and cost (primarily cooling water purchase cost). This

resulted in a total of 13 sites identified as being suitable and carried into Step 3 of the process.

The Luminant staff conducted site visits at the 13 sites to field check the information used in the screening process. The results of the field evaluations were used to establish four candidate sites for more detailed analysis and site selection. These four sites are the Comanche Peak Site, the Tradinghouse Site, the Pineland Site, and the Coastal Site.

The four candidate sites were subjected to the more detailed evaluation process. The evaluation criteria at this stage were derived from Chapter 3 of the Siting Guide and included 34 separate evaluations. The importance of each criterion was included in the assessment by incorporation of a criteria weighting factor. The result of the analysis was the selection of the Comanche Peak Site as the preferred site.

6.1.1 Tradinghouse Site

This site was identified as Site C in the ER and it is located about 10 miles east of Waco, Texas on a peninsula on the northern shore of Tradinghouse Lake. The Tradinghouse Site is also the location of two existing natural gas-fired power generating units (constructed in the 1970s) which provide peaking power only; the units were not in operation on the day of the site visit. Luminant owns the gas-fired power plant and the property. The Luminant staff stated that the two gas-fired units would be retired if a new nuclear power plant were to be constructed at this site. The team toured the site, as well as the dam which impounds the water in the reservoir.

Land Use

The site is located in McLennan County, Texas, in the Grand Prairie and Blackland Prairie regions. Tradinghouse Lake is a shallow reservoir constructed to provide water for the existing gas-fired power plant but it also supports public recreation (fishing, swimming, and passive recreation). Through an agreement with Luminant, McLennan County operates a picnic area across the reservoir and the Boy Scouts lease land on the upper reaches of the reservoir. Luminant does not anticipate closing the entire reservoir to public access if a new nuclear power plant were to be built at this location. The site is covered by grasses and forest. Primary infrastructure exists to support a new nuclear power plant with access to high voltage transmission lines, road access, and a rail line within 5 to 10 miles from the site.

Hydrology; Water Use and Water Quality

Tradinghouse Lake is an impoundment of Tradinghouse Creek, a tributary of the Brazos River. The lake is impounded by an earthen dam with a concrete control structure built in the early 1970s. The dam is owned by Luminant, but Luminant does not own the lake. The lake currently is a source of cooling water for Luminant's two existing natural gas-fired units. Stream flow is augmented by water from the Brazos River delivered by a pipeline from the river to the lake. The Brazos River intake is in a "lake" (i.e., a section of the river that is impounded). On the margins of Tradinghouse Lake, there are several small tributary dams on inlet creeks that hold water at elevations as much as 5 ft; about the elevation of the proposed plant site.

Water needs for a nuclear power plant would be supplied from Tradinghouse Lake and the Brazos River. A nuclear power plant at this site would likely use the same cooling system design as at the Comanche Peak Site. Luminant currently owns water rights to 27,000 ac-ft per year and anticipates that additional rights could be obtained from the Brazos River Authority. It is likely that somewhat less water would be available from the Brazos River at this site than the 82,000 ac-ft per year anticipated to be available at the Comanche Peak Site; however, the Comanche Peak Site is farther upstream and closer to the Possum Kingdom Reservoir, where flow regulation occurs. The existing pipeline would need to be expanded to accommodate the additional water requirements of a nuclear power plant. The volume of the existing reservoir, which is shallow and small, would not be sufficient, but the volume of the additional water storage was not determined; Luminant did not determine whether or not expansion would be achieved by deepening the lake or building an additional reservoir. There are thermal constraints on the Brazos River in the area of the intake. Peak river temperature was estimated to be about 95 ºF.

Potential discharge to the lake was not analyzed. There are salinity issues involving Tradinghouse Lake but data were not readily available. Salinity in the Brazos River is likely to be less of a concern at Tradinghouse than at the Comanche Peak Site; the Brazos River near Tradinghouse Lake is farther downstream from the portions of the upper watershed where large amounts of salt enter the river from natural sources. It is unclear whether an evaporation pond would be necessary at this site, as would be expected at Comanche Peak.

The public has recreational access to the lake; Luminant staff said that recreational use could be maintained if a nuclear power plant were developed on the site.

The lake water was relatively clear at the time of the visit. The water level was low. Data were requested regarding watershed size for the creek and total dissolved solids concentrations in Tradinghouse Lake.

The web site http://www.tpwd.state.tx.us/fishboat/fish/recreational/lakes/tradinghouse/ reports that Tradinghouse Lake has a surface area of 2,010 acres, a maximum depth of 42 feet, and was impounded in 1968. A useful source of information, http://www.tarleton.edu/~biology/MudCrab.html lists the salinities of Possum Kingdom and Lake Granbury as ranging between 1 and 2 ppt (1,000 to 2,000 ppm), while Tradinghouse Creek Reservoir generally ranges between 0.4 and 0.5 ppt (400 to 500 ppm).

Ecology (Aquatic and Terrestrial)

The shoreline of Tradinghouse Lake is predominantly undeveloped and wooded. In this area, the forest extends to the shoreline. The water level was below the high water line, leaving exposed an approximately 20-foot-wide beach of sand and mud covered by numerous bivalve shells. The applicant only performed an online search for protected species in the county. No information on protected or common species actually occurring in the reservoir was provided.

The proposed site lies on a portion of the peninsula containing a deteriorating aircraft runway. It would require little grading. Predominant vegetation in the area consists of a mixture of deciduous forest and brush containing post oak, mesquite, broomsedge, and other invasive species.

Numerous feral hogs were observed ranging over the site. The ER lists four federally listed endangered species as occurring in McLennan County, including the golden-cheeked warbler. Habitat likely to be suitable for this species was not observed. Luminant personnel stated that no threatened or endangered species were known to be present on the site. The site has power transmission rights-of-way nearby; wild turkeys were observed in the corridor. A coot and great blue heron were observed on Tradinghouse Lake in the vicinity of the proposed site and a cormorant was spotted at the location of the dam during the site visit.

6.1.2 Pineland Site

This site was identified as Site B in the ER and is located on a peninsula on the northern shore of the Sam Rayburn Reservoir near Pineland, Texas. Most of the peninsula is timberland (i.e., pineland), but there are some residential areas on the periphery of the peninsula. This site also includes remnants of a community that existed before the reservoir was built, as well as a more recent recreational subdivision near the tip of the peninsula. The peninsula is currently under commercial management for timber harvesting.

Luminant estimated that the peninsula could accommodate up to six nuclear units. The principal disadvantages of this site are: 1) the absence of adequate supporting infrastructure in that existing access and/or evacuation routes would need improvements before siting a new nuclear power plant on the peninsula and 2) the need for new road and rail construction and several miles of new electrical transmission lines.

Land Use

This green-field site is located in Angelina and Sabine Counties in the East Texas Timberland Region. Most of the peninsula is covered by pine forests and is used for timber harvest. The timber company owns the property along with all mineral rights. The area where the nuclear power plant would be located was recently cleared and was covered by pine saplings and grasses. Two privately-owned residential developments are located at the tip and along the eastern side of the peninsula. Access to these developments depended on a gravel road that bi-sected the potential nuclear power plant site. The road would require major upgrades to support construction and operation of the nuclear power plant. Sam Rayburn Reservoir and the surrounding lands are a valuable recreational resource, used for fishing, swimming, hiking, and camping. San Augustine Park, operated by the Corps of Engineers is located on an adjacent peninsula within a mile of the site. The nearest ERCOT 345-kV transmission line is located approximately 45 miles northwest of the site.

Hydrology; Water Use and Water Quality

Sam Rayburn Reservoir is an Army Corps of Engineers water project on the Angelina River in eastern Texas. The reservoir which has a watershed area of about 3,449 square miles is impounded by an earthen dam completed in 1965. According to an Army Corps brochure about the reservoir, the dam is 17,870 ft long (the earthen portion is 17,230 ft long), has a maximum height of 120 ft above the stream bed, is up to 750 ft wide at its base and has a minimum width of 42 ft at the crown. A parapet wall was added to the top of the dam in 1995-1996. The dam has a concrete spillway. The project's purposes include flood control, hydroelectric power, and water supply. The only major water user identified in the Army Corps brochure is the City of Lufkin, which is allocated 43,000 acre-ft out of the reservoir's total power pool capacity of 1,145,100 acre-ft.

The regional water authority with jurisdiction for this site is the Lower Neches Valley Authority. According to the siting study done for Luminant, up to 1 million acre-ft/year of water may be available from the basin; Luminant's staff stated that Luminant had been "offered" up to 200,000 acre-ft/year.

The reservoir would be the water source and effluent discharge site for the proposed nuclear station with the water intake on one side of the peninsula and the outfall on the other side. Luminant expects that mechanical draft cooling would be used, although once-through cooling might also be an option. No water quality issues were identified for this site; however, no water quality data were obtained during the site visit. The lake water appeared relatively clear.

Site soil is sandy, derived from local bedrock. The area of the lake shore that the team observed was fairly shallow characterized by sandy beaches. Water level in the lake appeared to be low at the time of the visit. According to the Army Corps brochure, the average range of annual water level fluctuation is 8.5 ft. The flood control pool of 173 ft MSL is 12 ft below the crest of the uncontrolled spillway, and draw-downs of up to15 ft below the 164.4 ft MSL power pool are possible.

Portions of the peninsula may be subject to flooding (both 100-year flood and Probably Maximum Flood). Candidate sites would be well above the reservoir so the flooding concern would not be related to the reservoir but to local drainages on the peninsula.

In the siting report, this site scored lower than the others on two different evaluation factors related to sediment quality and the potential for dredging to release toxins into the aquatic environment. The report indicates that possible sediment toxicity inferred that the water quality in some parts of Sam Rayburn Reservoir contained low dissolved oxygen levels and elevated mercury levels. These water quality parameters are not normally related to sediment characteristics, however. Given the absence of development near the reservoir and the dominance of sand-sized sediment observed during the visit, the reservoir sediments near the peninsula are unlikely to have elevated levels of heavy metals or other toxins.

Ecology (Aquatic and Terrestrial)

The shoreline of the Sam Rayburn Reservoir is predominantly undeveloped and wooded. The team visited the shore along the southeastern portion of the potential site boundary. In this area, forest extends close to the shore with the upper beach covered by grass. The water level was below the high water line, leaving exposed a sandy beach approximately 10-to-50-feet wide, with scattered tree stumps. The applicant only performed an online search for protected species in the county. No information on protected or common species actually occurring in the reservoir was provided.

The proposed site is in gently rolling topography currently covered by a loblolly pine plantation. Clearing and grading would be necessary to level the site for construction. No major power transmission lines or railroad lines were nearby, therefore in the event this site is developed, additional clearing would be associated with provision of these utilities.

An area containing mature pines on the eastern boundary of the peninsula has been preserved to protect habitat suitable for red-cockaded woodpecker which is both a Federal- and State-listed endangered species. This area lies outside the boundary of the proposed site. No federally listed endangered species are known to be present on the site or were observed. Members of the team reported sighting both pileated and red-bellied woodpeckers on the site during the visit. A bald eagle was also sighted on the east side of the peninsula; however, this species has been federally delisted due to recovery and no longer has Federal threatened or endangered status as of 2007.

6.1.3 Coastal Site

This site is identified as Site A in the ER, and it is located on a privately-owned greenfield site about 20 miles south of Victoria, Texas. The site is situated on the Gulf Coastal Plain near San Antonio Bay between the Guadalupe and San Antonio Rivers. The team was not able to view the actual location of this site because access permission was not available from the landowner. The team did have an opportunity to observe the lay of the land, the habitat and vegetation, and the local infrastructure. The team was also able to drive the local roads and view the nearby river-water irrigation canals which would be a source of cooling water for a nuclear power plant.

Land Use

The property and the surrounding area are characterized by generally flat topography covered by grasses, brush, and mesquite and are used primarily for cattle grazing. A number of natural-gas well facilities were observed in the area. Several pipelines cross the property and it is not clear if they would require relocation. There are multiple mineral leases on the site that would have to be negotiated separately from property acquisition. An existing rail line runs approximately 2.3 miles to the northwest and could be used to bring heavy equipment to vicinity of the site. A 345-kV transmission line is located approximately 2 miles southeast of the site.

Hydrology; Water Use and Water Quality

The Coastal Site lies within the jurisdiction of the Guadalupe-Blanco River Authority. Legal rights to the water required for the nuclear power plant would be obtained from the site landowner, who has senior rights to a large volume of water. These water rights are currently used for other purpose. Several possible physical sources of water exist including treated effluent from the City of San Antonio, water withdrawn from a nearby barge canal above the salt barrier on that canal (about 50,000 acre-ft/yr potentially available), or water withdrawn from the network of rice (irrigation) canals located in the coastal plain on the downstream side of the salt barrier (about 65,000 acre-ft/yr potentially available). The rice canal system (in "Region L") probably would be used. Effluent discharge would be directed to either the barge canal or one of the rivers.

The dimensions of the river and barge canal appeared (from a distance) to be adequate to provide a suitable water intake site. The rice canal that was observed appeared narrow and relatively shallow; significant dredging and other modifications would be needed to provide a suitable water intake for a nuclear power plant. Siltation is likely to be a considerable problem in the rice canal system, which appears to have sluggish flow. Although the canal water did not appear particularly turbid at the time of our site visit, we were advised that high suspended solids loads in this water source were expected to necessitate extensive pretreatment (i.e., settling) of cooling water.

According to Luminant and the siting study, high dissolved solids would constrain water cooling water discharge at this site and would increase the impacts of cooling tower drift relative to other sites. Potential cooling system design was not discussed.

The siting report indicates that (at about 55 ft elevation) the site is above the 100-year and 500-year floodplains of both rivers, as well as the zone potentially subject to storm surge from hurricanes. Near the site, the San Antonio River flood stage is 35 ft MSL.

Ecology (Aquatic and Terrestrial)

Because access to the site was not available, it was not visited by the ecologists. The applicant only performed an online search for protected species in the county. No information on protected or common species occurring in the river was provided.

The site lies on relatively level land between the Guadalupe and San Antonio Rivers and near their confluence. Although the site was not observed directly, the land in the surrounding region consists of a mixture of low-lying grassland interspersed with brush, as well as agricultural land. Due to the proximity to the coast and generally low elevation it is likely that this site would contain a greater percentage of wetland area than the other alternative sites. Luminant personnel report that there are nearby power transmission and railroad lines, so little additional land other than the actual plant location should be impacted. The ER lists six Federally-listed threatened or endangered species that could be present; however, none were observed during the visit.

6.2 Observations

Alternate site discussions were adequate for the purpose of placing the audit into context. Additional discussions will be conducted during the Environmental Site Audit with Luminant scheduled for the week of February 23 and will be summarized in the Environmental Site Audit report.

7 Exit Meeting Summary

On February 5, 2009, NRC staff debriefed Luminant staff and its contractors. Luminant acknowledged the issues presented during the ecology site audit and alternative sites visit. Materials made available to the NRC team members were retained by Luminant.