



ENERCON SERVICES, INC.

PROJECT REPORT  
COVER SHEET

No. TXUT-001-PR-015

REV. 1

PAGE NO. 1 of 19

**WETLAND AND OTHER POTENTIALLY  
JURISDICTIONAL WATERBODY IDENTIFICATION  
AND DELINEATION**

**Comanche Peak Nuclear Power Plant  
Somervell and Hood Counties, Texas**

**For**

**Luminant Generation Company, LLC  
Comanche Peak Nuclear Power Plant**

Independent Review Required: Yes

**No**

Prepared by: Rebecca Carroll  
Rebecca Carroll

Date: 03/10/2009

Reviewed by: Melinda Harris  
Melinda Harris

Date: 03/10/2009

Reviewed by: NA  
Independent Reviewer

Date: \_\_\_\_\_

Approved by: Stacy H. Burgess  
Project Manager or Designee

Date: 03/10/2009



<b><u>PROJECT REPORT REVISION STATUS</u></b>		
<b><u>REVISION</u></b>	<b><u>DATE</u></b>	<b><u>DESCRIPTION</u></b>
1	03/10/2009	Statement to include wetland functionality was included in several places throughout the document.
<b><u>PAGE REVISION STATUS</u></b>		
<b><u>PAGE NO.</u></b>	<b><u>REVISION</u></b>	
1	"and is considered to be a marginally functional wetland" was added to	
4	"Wetland functionality is influenced by the time necessary for water to move through the wetland, the size of the wetland, and vegetative diversity. The functionality of these narrow wetlands is limited and they are therefore considered to be of poor quality. Wetlands that are located at the inlets of streams that consistently flow into SCR, are larger in area, have greater plant species diversity, support aquatic dependent species, and help to stabilize sediment such as those at the north end of SCR where Squaw Creek enters the reservoir are considered of higher quality than the narrower fringe wetlands surrounding SCR." was added to the last paragraph	
5	"Because this wetland is dominated by cattails, is small in size, and the stream leading into SCR through the wetland area only maintains limited intermittent flow, it is considered to be a marginally functional wetland." was added to the second full paragraph.	
6	"The functionality of these narrow wetlands is limited and they are therefore considered to be of poor quality." was added to the first full paragraph.	
6	"marginally functional" was inserted into the first sentence of the second full paragraph "Although this wetland is not considered highly functional" was added to the last sentence same paragraph.	
<b><u>APPENDIX REVISION STATUS</u></b>		



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**APPENDIX NO. PAGE NO. REVISION NO. APPENDIX NO. PAGE NO. REVISION NO**

# WETLAND AND OTHER POTENTIALLY JURISDICTIONAL WATERBODY IDENTIFICATION AND DELINEATION

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- Figure 1 – Delineation Site Map
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## **EXHIBITS**

- Exhibit A – Wetlands Table
- Exhibit B – Site Photographs

## 1.0 Executive Summary

- Luminant Generation Company, LLC (Luminant) proposes to construct and operate two (2) Mitsubishi Heavy Industries (MHI) US-APWR reactors (Units 3 and 4) at Luminant's Comanche Peak Nuclear Power Plant (CPNPP).
- The vicinity of the site was primarily rural consisting of grasslands, deciduous and evergreen forests, and some agricultural cropland.
- A total of 48 littoral wetlands were identified along the shores of Squaw Creek Reservoir (SCR) totaling approximately 53 acres (Figure 1 and Exhibit A).
- One (1) littoral wetland, identified at the mouth of an intermittent stream (identified as Stream 1 on Figure 2) along the southwest shoreline of the peninsula where the proposed cooling tower structures are to be located, may be partially impacted by construction activities (shown on Figures 1, 2, and 3). The southwest wetland totaled approximately 0.78 acre and is considered to be a marginally functional wetland. On February 2, 2009, David Madden with the United States Army Corps of Engineers (USACE) stated the wetland would be considered under the jurisdiction of USACE.
- Five (5) mapped streams and two (2) unmapped intermittent streams were identified on the CPNPP site flowing into SCR. One (1) of these unmapped intermittent streams was identified along the southwest shoreline of the peninsula where the proposed cooling tower structures are to be located and is expected to be affected by construction activities (Stream 1 on Figure 2). David Madden with the USACE stated on February 2, 2009, the stream would be considered under the jurisdiction of USACE.
- Two (2) unmapped intermittent streams were identified on the CPNPP site flowing into Squaw Creek below the reservoir dam. Depending upon where the blowdown treatment facility is to be located, these streams could be affected. Jurisdiction has yet to be determined on streams in this area.
- Field reconnaissance in the location of the proposed blowdown treatment facility identified a small (0.25 acre) wetland associated with seepage accumulating below the dam that formed an old stock pond. The pond appeared to be isolated with no hydrological connection to any potentially jurisdictional waterbody. After viewing the area on February 2, 2009, David Madden of the USACE stated the pond is isolated and non-jurisdictional and the area below the pond would not be considered a wetland.

## **2.0 Location and Description of the Proposed Action**

Luminant proposes to construct and operate two (2) MHI US-APWR reactors (Units 3 and 4) at Luminant's CPNPP. The CPNPP site consists of 7950 acres and is located approximately 40 miles southwest of Fort Worth in rural Somervell and Hood counties, in north central Texas.

The proposed construction area was located within the Limestone Cut Plain subecoregion of the Cross Timbers ecoregion in Texas. The Cross Timbers ecoregion is a transitional area between the once prairie, now winter wheat growing regions to the west, and the forested low mountains or hills of eastern Oklahoma and Texas. The region stretches from southern Kansas into central Texas, and contains irregular plains with some low hills and tablelands. It is a mosaic of forest, woodland, savanna, and prairie. The transitional natural vegetation of little bluestem grassland with scattered blackjack oak and post oak trees is used mostly for rangeland and pastureland, with some areas of woody plant invasion and closed forest. Oil production has been a major activity in this region for over eighty years (Griffith et al., 2004).

## **3.0 Potentially Jurisdictional Waters Evaluation**

Section 404 of the federal Clean Water Act (CWA) authorizes the USACE, to issue permits for the discharge of dredged or fill material into the waters of the United States (waters of the U.S.), including wetlands. However, the list of features covered under the CWA and implementing regulations was changed in 2001 as the result of a January 9, 2001 ruling by the U.S. Supreme Court (*Solid Waste Agency of Northwestern Cook County v. United States Army Corps of Engineers et al.*; hereafter referred to as the SWANCC decision) and a subsequent guidance memorandum issued by the USACE (USACE, 2001). Presently, "waters of the United States" are defined to include (non-wetland "Waters") waterways, streams, and (wetland "Waters") wetlands that have a connection to navigable waters, and tributaries to these waters. In tidal waters, USACE jurisdiction extends to the high tide line. In non-tidal waters, the limits of jurisdiction under the category of "Waters" are "ordinary high water marks" (OHWM) that are identified through field observation of features such as shelving and debris deposits. Where wetlands occur above high tide or high water marks, they are considered "adjacent wetlands", and are included within USACE jurisdiction, as long as such features are connected to navigable waters or their tributaries. The USACE has interpreted the SWANCC decision very narrowly, focusing on the court's holding. As a result, the USACE no longer regulates non-navigable, isolated intra-state wetlands or other waters, but continues to regulate tributary non-navigable waterways, streams and wetlands.

For the purpose of the onsite investigation, the criteria used for identification of potential waters of the U.S. (except for wetlands) included: any drainage areas mapped on the U.S. Geological Survey (USGS) 7.5-Minute Series Topographic Map, any natural or human-made reservoirs, ponds, etc., or any other drainage path with a visibly defined stream bed and banks whether dry or wet.

Five (5) mapped streams flow into SCR. Two (2) unmapped intermittent streams (Figure 2) were also identified on either side of the peninsula on which cooling tower construction is currently scheduled (Stream 1 and Stream 2 on Figure 2). Approximately 0.3 mile of Stream 1 on the southwest side of the peninsula would be impacted by the current construction plans. However, construction plans are under review and not yet finalized. Informally, David Madden of the USACE stated this stream would be considered jurisdictional.

Two (2) unmapped intermittent streams were also identified flowing into Squaw Creek below the reservoir dam. Construction of a blowdown treatment facility in that area has been proposed, which may affect one or both streams. Some portions of the stream had defined bed and banks and an ordinary high water mark but other downstream areas lacked defined bed and banks and an ordinary high water mark. The blowdown treatment facility is currently in the conceptual phase and the exact size and location have yet to be determined. A jurisdictional determination from the USACE and finalized construction plans are necessary before impacts can be determined.

Numerous definitions of wetlands have been proposed over the years, but presently the USACE technical guidelines for defining wetlands are contained in the USACE Wetland Delineation Manual (USACE, 1987). The manual cites prior regulatory guidelines to define a wetland as a site that is “inundated or saturated...at a frequency and duration sufficient to support...vegetation typically adapted for life in saturated soil conditions...” Under the procedures and criteria in the manual, a feature must normally satisfy three criteria to be classified as a wetland. These criteria are further defined as follows:

Wetland hydrology is determined to exist if an area is inundated either permanently or periodically during the growing season of the prevalent vegetation. Field indicators of wetland hydrology are described in the manual and include flow data, direct observation, and/or indirect evidence of flow or saturation, such as high water marks, drift lines, or sediment deposits.

Wetland soil conditions are considered to be present if the soils are hydric or have characteristics that are associated with reducing chemical processes. Field indicators of wetland soil conditions are described in the manual, and include a range of criteria for color and mottling. The 1987 manual also specifies that a hydric soil “may be either drained or undrained, and a drained hydric soil may not continue to support hydrophytic vegetation. Therefore, not all areas having hydric soils will qualify as wetlands. Only when a hydric soil supports hydrophytic

vegetation and the area has indicators of wetland hydrology may the soil be referred to as a 'wetland' soil."

Hydrophytic vegetation is defined as "macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils of sufficient duration to exert a controlling influence on the plant species present". The vegetation criterion is evaluated in terms of presence and dominance of certain plant species that are associated, to various degrees, with wetlands. This evaluation is based on regional lists (USFWS, 1996). In order to meet the federal criterion that defines wetland vegetation, at least 50 percent of the plant species must be composed of species that are on the regional list as Obligate (OBL – occurs almost always in wetlands), Facultative Wetland (FACW – usually occurs in wetlands), or Facultative (FAC – equally likely to occur in wetlands or non-wetlands). Collectively, plant species that fall into these categories are referred to as hydrophytic. Conversely, upland species are classified as Upland (UPL – occurs almost always in uplands), or Facultative Upland (FACU – usually occurs in uplands). Plus (+) or minus (-) signs next to these designations indicates slight variations from these categories. Plant species that are not designated (ND) in relation to wetland status are usually considered as upland species, for practical purposes.

For the purpose of the onsite investigation, the criteria used for identification of wetlands included: hydric soils identified by the presence of reducing conditions; hydrology indicated by visible signs such as standing water, seasonal flooding, watermarks, etc.; and hydrophytic vegetation identified by changes in predominant vegetation where other indicators are present such as depressions, or areas near streams.

A total of 48 littoral wetlands were identified and delineated along the shores of SCR, only one (1) of which may be partially impacted by the proposed construction activities (Figure 1 and Exhibit A). Wetlands associated with the CPNPP site were fringe wetlands associated with SCR and dominated by similar emergent macrophytic plants. The herbaceous layer was dominated by southern cattail (*Typha domingensis*) (OBL) and broadleaf cattail (*Typha latifolia*) (OBL), along with Roosevelt weed (*Baccharis neglecta*) (FAC), bushy bluestem (*Andropogon glomeratus*) (FACW), and spikerush (*Eleocharis* spp.). The tree and shrub layers were dominated by black willow (*Salix nigra*) (FACW), buttonbush (*Cephalanthus occidentalis*) (OBL), cottonwood (*Populus deltoides*) (FAC), and salt cedar (*Tamarix chinensis*) (FACW) (Exhibit B).

The total cumulative area of wetlands delineated on the site was approximately 53 acres. The majority of wetlands associated with SCR is located at the reservoir perimeter and are dominated by cattails. Wetland functionality is influenced by the time necessary for water to move through the wetland, the size of the wetland, and vegetative diversity. The functionality of these narrow

wetlands is limited and they are therefore considered to be of poor quality. Wetlands that are located at the inlets of streams that consistently flow into SCR, are larger in area, have greater plant species diversity, support aquatic dependent species, and help to stabilize sediment such as those at the north end of SCR where Squaw Creek enters the reservoir are considered of higher quality than the narrower fringe wetlands surrounding SCR.

Due to inundation, a complete soil profile could not be obtained on all wetlands delineated. For the purposes of this evaluation, soils of identified inundated wetlands were conservatively assumed to be hydric on the basis of the other two positive indicators; hydrophytic vegetation and hydrology.

One (1) littoral wetland totaling 0.78 acre (Figures 1, 2, and 3) was identified at the mouth of an intermittent stream along the southwest shoreline of the peninsula where the proposed cooling tower structures are to be located. Portions of this wetland may be impacted by construction activities. Dominant vegetation associated with this wetland included black willow (*Salix nigra*), salt cedar (*Tamarix chinensis*), and Texas ash (*Fraxinus texensis*) in the tree and shrub layer. The herbaceous layer was comprised of southern cattail (*Typha domingensis*), broadleaf cattail (*Typha latifolia*), bushy bluestem (*Andropogon glomeratus*), and Roosevelt weed (*Baccharis neglecta*). The Munsell soil matrix color was 2.5Y 3/1. The Munsell notation order was hue (2.5Y), value (3), and chroma (1). Soils ending with a chroma of 1 are always designated as hydric soils in accordance with the 1987 USACE Wetland Delineation Manual (USACE, 1987). Current construction plans indicate a portion of this wetland may be affected, however; plans are still under review (Figure 3). An informal jurisdictional determination by David Madden on February 2, 2009 stated this wetland would be considered jurisdictional by the USACE. Because this wetland is dominated by cattails, is small in size, and the stream leading into SCR through the wetland area only maintains limited intermittent flow, it is considered to be a marginally functional wetland.

Field reconnaissance in the location of the proposed blowdown treatment facility identified a small wetland (0.25 acre) associated with seepage accumulating below the dam that formed an old stock pond. The pond appeared to be isolated with no hydrological connection to any potentially jurisdictional waterbody. After viewing the area on February 2, 2009, David Madden of the USACE stated the pond is isolated and non-jurisdictional and the area below the pond would not be considered a wetland.

#### **4.0 Conclusion**

Luminant proposes to construct and operate two (2) MHI US-APWR reactors (Units 3 and 4) at Luminant's CPNPP. The CPNPP site consists of 7950 acres and is located approximately 40 miles southwest of Fort Worth in rural Somervell and Hood counties, in north central Texas.

The vicinity of the site was primarily rural consisting of grasslands, deciduous and evergreen forests, and some agricultural cropland.

A total of 48 littoral wetlands were identified along the shores of SCR, only one (1) of which may be partially impacted by the proposed construction activities. The total cumulative area of wetlands delineated on CPNPP property was approximately 53 acres. The functionality of these narrow wetlands is limited and they are therefore considered to be of poor quality.

One (1), potentially impacted, marginally functional, littoral wetland (0.78 acre) was identified at the mouth of an unmapped intermittent stream along the southwest shoreline of the peninsula where the proposed cooling tower structures are to be located. Although this wetland is not considered highly functional, on February 2, 2009, David Madden with the USACE stated that the wetland would be considered under the jurisdiction of USACE.

Five (5) mapped streams and two (2) unmapped streams were identified on the CPNPP site flowing into SCR. One (1) unmapped intermittent stream was identified along the southwest shoreline of the peninsula where the proposed cooling tower structures are to be located and is expected to be affected by construction activities. David Madden with the USACE stated on February 2, 2009 the stream would be considered under the jurisdiction of USACE. Approximately 0.3 mile of linear stream would be affected by current construction plans.

Two (2) unmapped intermittent streams were identified on the CPNPP site flowing into Squaw Creek below the reservoir dam. Depending upon where the blowdown treatment facility is to be located, these streams could be affected. Jurisdiction has yet to be determined on streams in this area. Field reconnaissance in the location of the proposed blowdown treatment facility also identified a small wetland (0.25 acre) associated with seepage accumulating below the dam that formed an old stock pond. The pond appeared to be isolated with no hydrological connection to any potentially jurisdictional waterbody. After viewing the area on February 2, 2009, David Madden of the USACE stated the pond is isolated and non-jurisdictional and the area below the pond would not be considered a wetland.

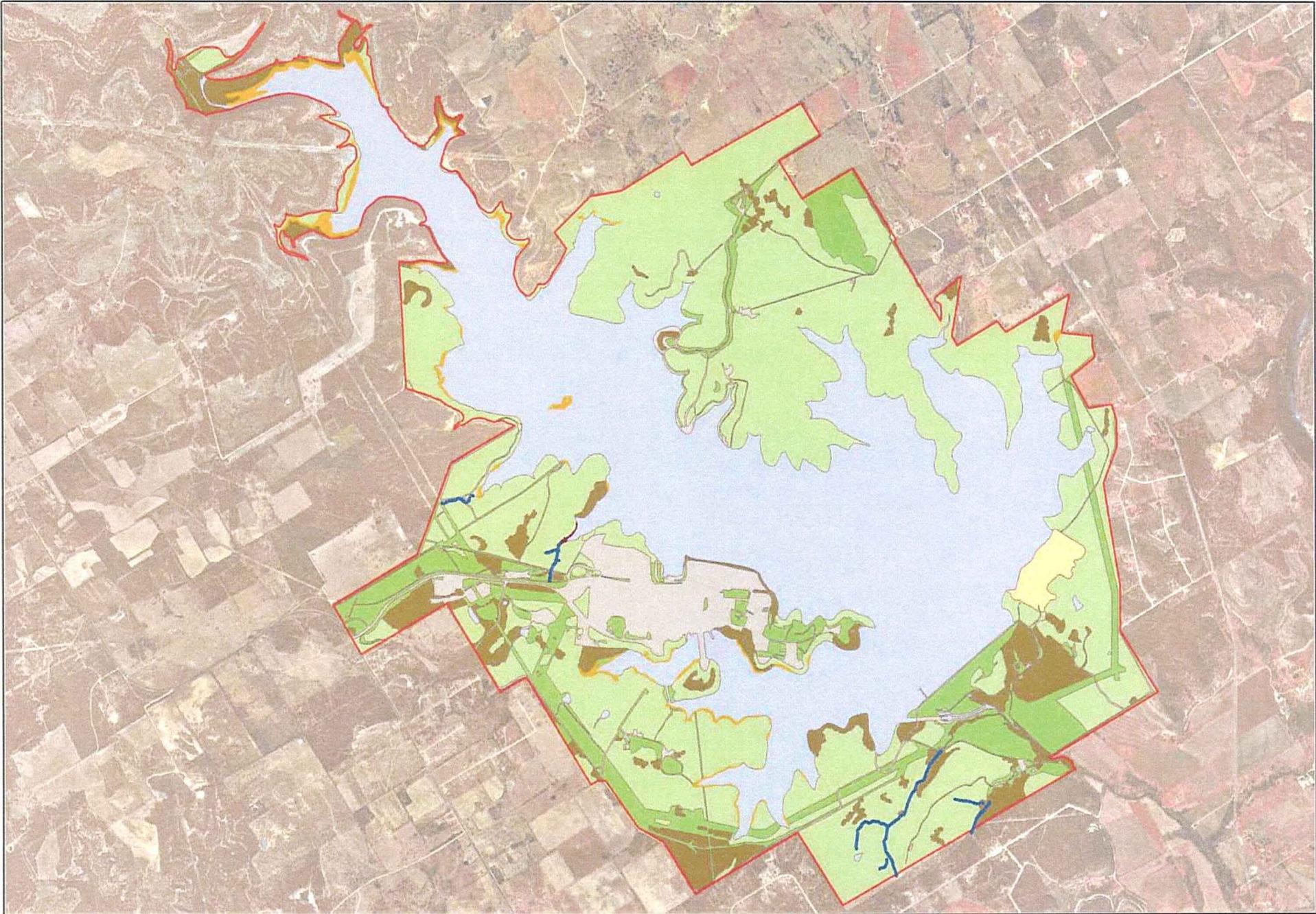
## **5.0 Literature Cited**

Griffith, G.E., Bryce, S.A., Omernik, J.M., Comstock, J.A., Rogers, A.C., Harrison, B., Hatch, S.L., and Bezanson, D. 2004. Ecoregions of Texas (color poster with map, descriptive text, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:2,500,000).

United States Department of the Army, Corps of Engineers (USACE). 2001. Memorandum No. 2 regarding SWANCC decision. <<http://www.epa.gov/owow/wetlands/swancc-ogc.pdf>>.

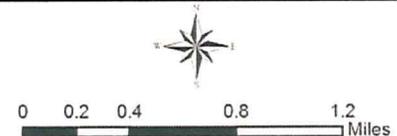
United States Department of the Army, Corps of Engineers (USACE). 1987. Corps of Engineers, Wetland Delineation Manual. Wetlands Research Program Technical Report Y-87-1. U.S. Army Corps of Engineers Waterways Experiment Station, Vicksburg, MS. 100pp. and appendices.

United States Fish and Wildlife Service (USFWS). 1996. "1996 National list of Vascular Plant Species That Occur in Wetlands." <<http://www.fws.gov/nwi/bha/list96.html>>.



- Legend**
- Site Streams
  - Southwest Peninsula Wetland
  - Site Boundary
  - Ashe Juniper
  - Developed
  - Grassland
  - Mixed Hardwood
  - Previously Disturbed
  - Water
  - Wetland

Comanche Peak Nuclear Power Plant  
 Squaw Creek Reservoir  
 Wetland Delineation  
 Figure 1

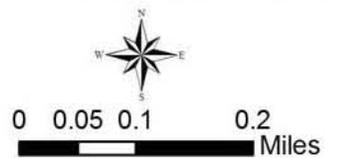


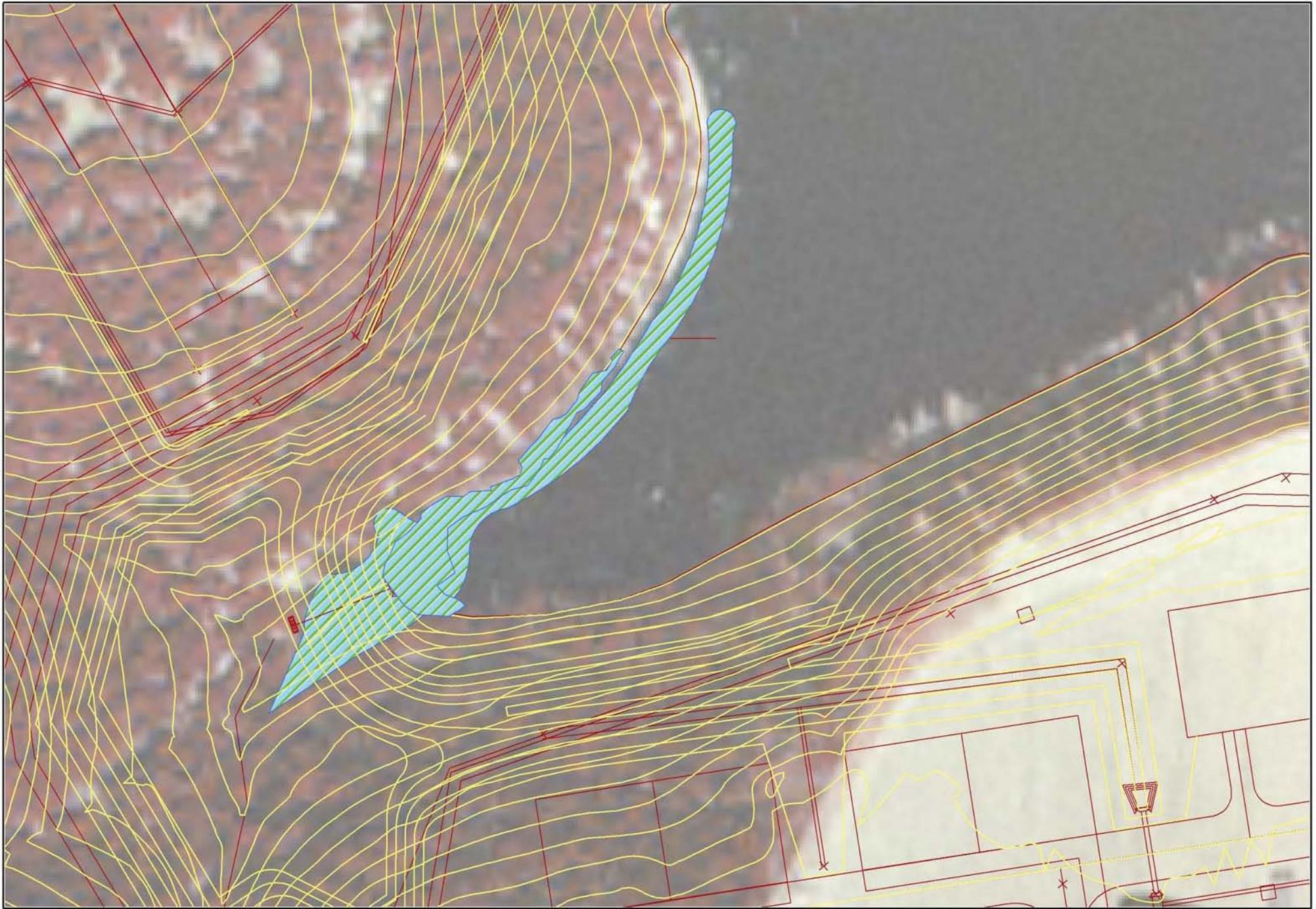


**Legend**

- |                             |                  |                    |                    |
|-----------------------------|------------------|--------------------|--------------------|
| Stream 1                    | New Structures   | Landfills          | Site Plot Plan     |
| Stream 2                    | Heavy Haul Road  | Laydown Areas      | Construction Areas |
| Southwest Peninsula Wetland | Evaporation Pond | Parking            | Site Boundary      |
| Wetlands                    | Switchyard       | Construction Roads |                    |

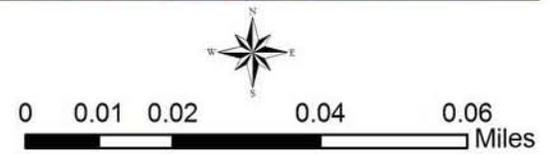
Comanche Peak Nuclear Power Plant  
 Squaw Creek Reservoir  
 Wetland Delineation  
 Figure 2





- Legend**
- Topography
  - Site Plot Plan
  - Southwest Peninsula Wetland

Comanche Peak Nuclear Power Plant  
Squaw Creek Reservoir  
Wetland Delineation  
Figure 3



**Exhibit A**  
**Wetlands Table**

Wetland	Area Acres
1	0.06
2	0.07
3	0.07
4	0.08
5	0.08
6	0.10
7	0.10
8	0.11
9	0.12
10	0.14
11	0.15
12	0.17
13	0.17
14	0.17
15	0.21
16	0.21
17	0.22
18	0.25
19	0.25
20	0.27
21	0.29
22	0.29
23	0.31
24	0.35
25	0.49
26	0.52
27	0.54
28	0.62
29	0.77
30	0.78
31	0.80
32	0.82
33	0.85
34	0.88
35	0.96
36	0.96
37	1.01
38	1.08
39	1.14
40	1.45
41	2.07
42	2.66
43	2.86
44	2.93
45	3.65
46	7.91
47	12.46
48	0.47
Total	52.95

**Exhibit B**  
**Photo Log**



Photo #1: View of the small island wetland # 8 in the middle of SCR.



Photo #2: View of fringe littoral wetland # 17 along the shore of SCR.



Photo #3: View of an alligator in a fringe littoral wetland.



Photo #4: View of a fringe littoral wetland along the shore of SCR.