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November 13, 2009

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Re: Permit Application Number SWG-2009-00945
White Stallion Energy Center, LLC

Texas Parks and Wildlife Department (TPWD) has reviewed permit application number SWG-2009-00945 dated October 13, 2009. White Stallion Energy Center, LLC proposes to construct a 1320 megawatt, base-load, solid fueled stream electric power generating station seven miles south of Bay City, Texas in Matagorda County.

Please be aware that a written response to a TPWD recommendation or informational comment received by a state governmental agency on or after September 1, 2009 may be required by state law. For further guidance, please see Texas Parks & Wildlife Code Section 12.0011 at http://www.statutes.legis.state.tx.us/Docs/PW/htm/PW.12.htm.

This facility would be located on a 1,214-acre site, upstream of the Gulf Intercoastal Waterway (GIWW) at Mile Marker 14 on the Colorado River. The facility would utilize petroleum coke produced by oil refineries blended with high quality bituminous coal to produce electricity and solid ash. According to the applicant, a circulating fluidized bed (CFB) boiler will be utilized to remove sulfur dioxide during the combustion process by adding limestone to the boiler. The low combustion design temperature prevents the formation of much of the nitrogen oxides, and selective non-catalytic reduction will be used to reduce nitrogen oxide emissions. Particulate emissions are proposed to be captured by "bag houses", mercury is to be controlled by activated carbon, and a polishing scrubber is proposed to control acid gas emissions. Both railroad and barge transportation options are being considered for construction and future fuel operational needs of this plant. Power transmission lines are proposed to be installed along the entire southern portion of the property that contains forested wetlands. A water intake canal to transfer water from Lower Colorado River Authority's (LCRA) water supply is proposed to be constructed along the northern portion of the property. The applicant has indicated the water consumption required for operation and maintenance of this plant and the cooling system for electric generation would be 13,600 gallons per minute or 19.6 million gallons per day. They also indicated that more water may be used during the summer season while less water may be used during the winter. The TCEQ water discharge permit (WQ-04882) for this facility indicates that 5.24 million gallons per day of treated waste water effluent and storm water run-off from the fly ash and coal pile storage areas would be returned to the Colorado River through two outfall structures. Both railroad and barge traffic transportation systems are proposed to be constructed on site.

TPWD conducted a site visit to the proposed project area on October 26, 2009 and also reviewed pertinent information provided in the public notice and information provided by the applicant. The proposed project area is located within the Columbia Bottomlands region of Texas in the Colorado River watershed. Soils in this region typically contain large amounts of clay minerals that swell and shrink considerably on wetting and drying. TPWD noted that although forested wetlands remain along the southern boundary of the

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property much of the native forested wetlands associated with this property have been converted to agricultural or pasture uses. An existing earthen levee currently separates the property so the eastern portion of the landscape is now located outside of the 100-year flood plain according to the Federal Emergency Management Agency (FEMA) map for this area. Elevated gravel dirt roads traverse the entire property and provide access from County Road 2668 to the proposed plant site, barge dock and outfall areas adjacent to the Colorado River. The two streams described in the plan drawings have been modified for agricultural use through channelization of the perennial stream and impoundment of the intermittent stream which is supplemented by pumped well water. Although TPWD was able to conduct a review of the barge terminal and outfall area, we were not able to conduct an adequate assessment of the habitats along the two stream areas or the proposed transmission line corridor area due to weather constraints.

According to the applicant approximately, 3,050 linear feet of perennial stream and 208 linear feet of intermittent stream could not be avoided in order to locate the 450-acre footprint of the plant site outside of the 100-year floodplain and behind an existing man-made levee. The plant was located towards the mid-section of the property to minimize the distance required to transport solid materials from the barge terminal and also minimize the distance for wastewater and storm water run-off to be discharged at the two designated outfalls. In order to construct the base foundation for the power plant facility, the applicant requests authorization to discharge 19,000 cubic yards of fill material into 8.133 acres of jurisdictional wetlands and waters of the United States. This activity will also change the natural drainage through two existing streams on the property. Specifically the applicant proposes to place dirt and concrete fill materials in 2.75 acres of palustrine emergent wetlands, 4.95 acres of open water habitat, 0.461 acres of perennial stream, and 0.017 acres of intermittent stream.

In order to develop water access for delivering solid fuel materials to the site, the applicant proposes to construct a barge dock facility that will impact approximately 1,200 linear feet of Colorado River waterfront. Approximately 1.19 acres (56,000 cubic yards) of upland forest along the bluffs of the Colorado River will be excavated to a depth below the ordinary high water mark (OHWM). Approximately 2.42 acres (60,520 cubic yards) acres will also be excavated from shallow water habitat along the Colorado River to a depth of 11 feet below OHWM for the barge dock facility. According to the applicant two mooring support structures will also be placed close to the bank below the OHWM to secure barges while they are unloading solid materials. These supports will be constructed with sheet pile driven in a circle and then filled with concrete. These two supports will fill 0.02 acres (11,600 cubic yards) of the Colorado River bottom.

The applicant also proposes to construct two water discharge outfall structures along the Colorado River shoreline which includes: a 24-inch wastewater outfall (001) and a 60-inch coal pile storm water outfall (002). These two outfalls structures will be constructed of rock rip-rap and concrete aprons that will be placed below the OHWM and fill 0.006 acres (15 cubic yards) along the shoreline of the Colorado River. Excavation and fill placed in the Colorado River for the barge and outfall area will impact a total of 2.446 acres of shallow water open water habitat.

The applicant has stated that the footprint of the plant site, access roads, and rail line was revised several times in order to minimize and avoid as many potential jurisdictional wetland (PJW) areas as possible. The impacts to PJWs have been reduced by these

revisions from 22 acres to 8.13 acres. The applicant has proposed to compensate for these habitat losses by purchasing credits from an approved mitigation bank or providing an alternative mitigation proposal if an approved bank is not available for the lost functions of these habitats. This alternative mitigation proposal includes negotiation of an agreement with the National Fish and Wildlife Foundation (NFWF) to purchase ecologically sensitive areas offsite in Matagorda County that will be donated to the United States Fish and Wildlife Service (USFWS).

According to the plan drawings (as shown in Figure 11 of 15 Section A) the applicant has proposed to compensate for the loss of perennial stream functions by relocating and recreating approximately 3,900 linear feet of stream bed with a 15-foot wide OHWM, with bank slopes of 3:1, and planting native herbaceous wetland vegetation associated with the existing stream on site. According to the plan drawings (as shown in Figure 11 of 15 Section B) the applicant has also proposed to relocate and recreate the intermittent stream by creating a 25-foot wide OHWM drainage channel, with bank slopes of 1:1, that is planted with native herbaceous wetland vegetation on site and will be located adjacent to the existing earthen levee on site. The public notice description for this proposed perennial stream restoration does not match the previously described "proposed perennial stream restoration plans". The public notice mistakenly describes a recreated 25-foot wide OHWM for the perennial stream restoration plan. The design plans for recreating these two streams are not adequately portrayed by scale or bank slope and width in order to determine if the natural stream conditions, or hydrogeomorphic features of these streams will appropriately compensate for changes in natural sheet flows through the property from the Colorado River watershed or whether these streams have the capacity to handle additional sheet flows from the impermeable surfaces of the concrete surfaces of the proposed plant site.

TPWD's review of the wetland delineation report supplemented by the applicant's consultant (Natural Resource Constraints Analysis, White Stallion Energy Project, Matagorda County, Texas prepared by Whitenton Group, Inc.) shows that the forested wetlands remaining on site are fragmented through agricultural changes in the landscape. However, some of the larger remnants of forested wetlands (14.64 acres) on the southern portion of the property include the following dominant species: *Fraxinus pennsylvanica* (green ash), *Ulmus crassifolia* (cedar elm), *Juglans nigra* (black walnut), *Celtis laevigata* (sugarberry), *Smilax bona-nox* (saw greenbrier), *Carex cherokeensis* (Cherokee sedge), and *Paspalum langei* (rustyseed paspalum). Although there have been some modifications to the natural drainage from the perennial stream, there were adequate hydrologic features reported that demonstrate there is adequate sheet flow across the property to support the forested wetlands along the property line. Although the applicant has located the plant site in order to avoid filling or removing the majority of the forested wetlands remaining on site, the transmission line corridor is proposed to be located directly over this habitat and the railroad line is proposed to be installed between several fragmented forested wetland tracts. There is no description of what clearing will have to be performed in order to construct these structures or what measures will be taken to avoid secondary or indirect impacts to these forested wetlands from the construction of the plant site, transmission towers, and the railroad tracks.

TPWD has collected fisheries data in the upstream tidal portions of the Colorado River adjacent to the proposed project site that indicate these open water areas and bottom substrate provide important nursery habitat for red drum (*Sciaenops ocellatus*), southern

flounder (*Paralichthys lethostigma*), blue crab (*Callinectes sapidus*), brown shrimp (*Farfantepenaeus azetecus*), and white shrimp (*Litopenaeus setiferus*). Excavation of the shallow water areas along the bank will result in nursery and benthic habitat loss that has not been addressed in the current application. Increased barge traffic (three per day) will also result in increased scouring of the shallow water habitats along the river at both the proposed project site and also along the 14 mile barge route from the GIWW.

Although the barge dock facility is to be installed through excavation of existing forested uplands along the bank, the trees observed during the site visit; *Fraxinus pennsylvanica* (green ash), *Celtis laevigata* (sugarberry), and *Quercus virginiana* (live oak); are located within the 100 year floodplain and provide important erosion protection of the shoreline and habitat for nesting bald eagles (*Haliaeetus leucocephalus*). Bald eagles have been noted along the tree line of the high bluffs over looking the Colorado River directly across and adjacent to this property on previous surveys by TPWD biologists (Ortego et al. 2009). Nest building and maintenance activities for bald eagles in Texas begin in late September to early October but would not be visible even to trained ornithologists in the dense canopy cover until November when the foliage is less dense according to TPWD biologists (Ortego et al. 2009). Bald eagles only raise one brood of young per season although replacement clutches are possible if eggs are destroyed early during incubation. Timing of egg laying and length of the breeding season varies by latitude, beginning as early as October and as late as April. Incubation typically lasts 35 days and requires protection of the parent birds. Disturbances from vehicle traffic or loud mechanical equipment within one mile of the nesting site during this time period have the potential to endanger the survival of young.

All potential habitat impacts for the proposed project have not been addressed in this public notice. TPWD does not have adequate information at this time to determine the full extent of potential impacts on fish and wildlife resources from this proposed project. TPWD recommends the applicant provide the following information for our review:

1. Detailed information concerning the water intake canal or pipeline from LCRA's water supply or off-channel distribution system.
2. Potential habitat impacts outside of the project foot-print from LCRA's water distribution system used to reach the project site.
3. Potential numbers of commercially, recreationally, and ecologically important species that might be entrained in the intake water transfer system from LCRA's water supply to this facility.
4. Plans for handling species inadvertently transferred from LCRA's water supply in upstream non-tidal areas of the Colorado River to the proposed project site at a downstream tidal area of the Colorado River.
5. Potential long term impacts to the fish and wildlife resources of the Colorado River and Matagorda Bay from commercial water usage by the plant.
6. Potential water quality changes and water currents created by the facility's discharges that may have significant cumulative impacts to open water habitat of the Colorado River and indirectly affect fisheries and benthic organisms utilizing these down stream areas and Matagorda Bay.
7. Size and type of particulate emissions that are proposed to be captured by "bag houses" and how these waste products are to be contained on site or removed.
8. Potential types of mercury that are to be controlled by activated carbon and how these waste products are to be contained or removed from site.

9. Potential for bioaccumulation of mercury, mercury derivatives, and other pollutants in the local plant communities through aerial deposition of fly-ash waste products that may create secondary impacts to the wildlife that utilize these types of habitats.
10. Potential bioaccumulation of mercury and other pollutants in the fish and invertebrates in the Colorado River through potential non-point discharge of storm water run-off from solid waste materials stored on site that are not addressed in the proposed TCEQ wastewater discharge permit.
11. Potential increased erosion and loss of habitat along the Colorado River shoreline from increased barge traffic.
12. Detailed plans for control of invasive species (such as but not limited to Chinese tallow (*Triadica sebifera*) and deep-rooted sedge (*Cyperus entrerianus*) to minimize their competition with native species during restoration efforts of wetland habitats on site.
13. Detailed construction plans of the slope and fill used on the railroad line as well as culverts or other measures used to maintain sheet flow to forested wetland habitats on site.
14. Detailed construction plans for installation of the transmission line corridor and documentation of any clearing or permanent loss of trees during construction or maintenance operations.
15. Detailed mitigation plans for compensating permanent loss of trees from forested wetlands on site.
16. Detailed mitigation plans for compensating permanent loss of emergent wetlands and open water habitats on site.
17. Potential for short and long term impacts to migratory birds and wildlife from strikes into the proposed aerial electrical lines, transmission towers, and any storage tanks on site.
18. Potential secondary impacts to all habitats and fish and wildlife resources as a result of the proposed project.
19. Dredge material management plan for all phases/portions of the project and maintenance material for a minimum of fifty years including any beneficial use of the material within the Colorado River watershed.
20. On-site stormwater management plan, which also documents the rates and locations of stormwater run-off for the project site as well as for all alternatives.
21. Detailed information on the potential re-suspension and redistribution of contaminated sediments during the construction process of the project and during facility operations.

Regarding project mitigation, TPWD recommends that the applicant consider on-site wetland functions lost as separate from restoration of lost "on-site stream functions". TPWD recommends the applicant use "natural stream design" principles based on fluvial geomorphic methods and in accordance to criteria established by Rosgen (1996) to compensate for the loss functions of the two streams impacted by the proposed project. These natural stream design criteria include creation of meanders, slopes and stream bed features that exceed what the existing on-site perennial stream provides in order to address the time lag required to restore lost water quality and filtration functions. This stream restoration plan should also include a minimum five year monitoring plan to ensure that the lost functions and values of the impacted stream are adequately replaced. TPWD also recommends planting a diverse woody vegetative buffer adjacent to the

stream bank's vegetative cover, which are stabilized through native plants; and creation of a wildlife buffer along this restored riparian corridor.

TPWD also recommends the applicant provide mitigation for all permanent wetland functions lost on site through negotiation of an agreement with the NFWF to purchase ecologically sensitive areas offsite in Matagorda County which will be donated to the USFWS. TPWD recommends that permanent loss of emergent marsh be compensated at a 2:1 ratio, that loss of open water habitat be compensated at 0.5:1 ratio, and that loss of forested wetlands be compensated at 5:1 ratio.

Regarding potential disruption of migratory birds and raptors nesting activities on site and adjacent lands during construction, TPWD recommends that the applicant conduct a survey for migratory bird nest sites and sensitive areas prior to construction and any future maintenance activities at the proposed plant site, transmission corridor, and barge facility, and on adjacent lands within 1500-feet of proposed project area TPWD prefers that bald eagle nesting surveys be conducted in November when tree canopy does not conceal nests. If nesting activities are observed, these events should be reported to TPWD and USFWS immediately and precautions taken for minimizing disturbances to the area. If nesting sites are located during this survey, then TPWD recommends:

1. Construction activities as well as vegetation clearing, trampling, or maintenance should occur outside the April 1- July 15 migratory bird nesting season during and after construction that continues for the life of the project.
2. Construction activities should be excluded for a minimum zone of 100 meters around any raptor nest during the period of February 1- July 15.
3. All bright lighting and security lighting at the facility be shaded or directed towards the facilities so as to minimize impacts on resident and migratory species, and nocturnal wildlife patterns in adjacent wetlands and the Colorado River.

Bald eagles and raptors typically establish flight corridors along and within river and creek drainages that are similar to those available on the proposed project site. The location of the transmission corridor along the southern property line extends across the Colorado River and may impact these species native flight corridors in addition to encourage detrimental nesting activities. TPWD recommends incorporation of the following preventative measures to protect these species as documented in Avian Power Line Interaction Committee (2006):

1. Installation of electrocution preventatives along portions of the transmission corridor route including phase covers, bushing covers, arrester covers, cutout covers, jumper wire hoses, and covered conductors.
2. Installation of perch discouragers may be used to deter birds from landing on hazardous pole locations where covers or other insulating techniques cannot be used.
3. Alternative installation of use of wood or non-conducting cross arms for distribution lines that minimize the possibility of electrical contact with perching birds.
4. Installation of electrical equipment on the bottom cross-arms of distribution lines in order to allow the top cross-arms for perching.

5. Installation of nesting platforms on or near power structures to provide nesting sites for several protected species while minimizing the risks of electrocution, equipment damage, or outages.
6. Installation of line markers on transmission lines at river crossings or closest points to the drainages in order to reduce the potential of collisions by birds flying along or near the drainage corridors.
7. The height of transmission lines located in an area with tall trees should not be taller than the trees to reduce collision risks.
8. Transmission lines should be located to avoid separating feeding and nesting areas or alternatively transmission lines should be clearly marked to minimize avian collisions with the lines.
9. Transmission lines should be buried, when practical, to reduce the risks of avian collisions.

Texas Parks and Wildlife Department in conclusion recommends that this permit as presented in the project plans be denied. TPWD believes the impacts to the environment including wetland fill, stream relocation, air pollution impacts, water quality and water quantity impacts, transmission line corridor impacts, railroad line installation impacts, and the potential long term impacts to wildlife and fisheries will be significant. Therefore, TPWD requests that the USACE evaluate the direct, indirect and cumulative impacts from this proposed project in an Environmental Impact Statement.

Questions can be directed to Dr. Jan Culbertson at (281) 534-0111 or Mr. Jamie Schubert at (281) 534-0135 in our Dickinson Marine Laboratory.

Sincerely,

Rebecca Hensley
Regional Director, Ecosystem Resources Program
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RH:WJS:JC

References

Avian Power Line Interaction Committee (APLIC). 2006. Suggested Practices for Raptor Protection on Power Lines: the State of the Art in 2006.

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Rosgen, D. (1996). Applied river morphology. Wildlife Hydrology, Pagosa Springs, CO.