

APPENDIX E

DRAFT WETLAND MITIGATION PLAN

May 18, 2005

Ms. Shannon Dunn
Federal Energy Regulatory Commission (FERC)
888 1st Street, N.E., Room 6H05
Washington D.C. 20426

RE: Ingleside Energy Center LLC LNG Terminal and San Patricio Pipeline LLC Project Wetland Mitigation Plan

Dear Ms. Dunn:

Ingleside Energy Center LLC (IEC) and San Patricio Pipeline LLC (SPP) submit for your review and authorization the following proposed Wetland Mitigation Plan. This plan is intended to provide a final action plan for completing mitigation requirements associated with the construction of the Ingleside Energy Center LNG Terminal and San Patricio Pipeline project. As directed by the permitting agencies, mitigation has been developed as a joint review effort of the United States Army Corps of Engineers (USACE), U.S. Fish and Wildlife Service (USFWS), United States Environmental Protection Agency (USEPA), Texas Parks and Wildlife (TPW), National Oceanic Atmospheric Administration (NOAA), and Federal Energy Regulatory Commission (FERC). IEC and SPP will mitigate for permanent conversion and loss of wetlands through off-site wetland preservation as described in the following report sections.

PURPOSE AND NEED

IEC has applied to the FERC for authorization under Section 3 of the Natural Gas Act (NGA) to construct, own, operate, and maintain an LNG receiving terminal and associated facilities near Ingleside, Texas to handle imported LNG. IEC is proposing to modify certain facilities at Occidental Chemical Corporation's (OxyChem) in order to install and support the LNG terminal. The LNG terminal will be sized to send out approximately one billion cubic feet per day (BCFD) of natural gas. A volume of natural gas equivalent to approximately 10 percent of the LNG send-out will be used by the adjacent cogeneration facility and chemical plant. The balance will be put into San Patricio Pipeline LLC's 26-mile pipeline for delivery to the interstate and intrastate natural gas transmission grid.

SPP (an Occidental Energy Ventures Corp. company) will install and operate approximately 26.4

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miles of 26-inch-diameter, high-pressure natural gas pipeline in San Patricio County, near Ingleside, Texas. The proposed pipeline will be capable of moving approximately one billion standard cubic feet per day (1 bscfd) of regasified LNG from the proposed terminal northwesterly to tie-in locations with multiple inter- and intrastate gas pipelines for delivery to market. Metering and pressure regulation facilities will be installed at each delivery point along the pipeline. Route preference, major aboveground facilities, associated construction areas (proposed pipe yards and contractor yards), access roads, pipeline right-of-way configuration cross sectional drawings, topography, and nearby towns are shown on the maps concurrently submitted with the initial USACE Permit Application filed on March 11, 2005 and as part of the FERC Section 3 and Section 7 applications in Docket Nos. CP05-13-000 and CP05-11-000, CP05-12-000, CP05-14-000, respectively, filed on October 25, 2004.

Impacted Areas

The areas of wetland impact for the construction of the IEC Terminal and San Patricio Pipeline and its appurtenances are detailed in the attached Table 1. The total length of this proposed route is approximately 26.4 miles, of which approximately 86.7% is situated adjacent to and parallel with existing utility or road rights-of-way. Land use along the majority of the route is primarily cropland and open space, including rangeland, pasture, and mesquite shrublands. There are no urban or residential areas materially impacted along this route. There are no individual residences within 50 feet of any construction workspace or right-of-way. The pipeline crosses several Federal, state, county, or private roads, two railroads, and numerous other pipelines. It also crosses Chiltipin Creek and Oliver Creek, as well as several unnamed drainage/irrigation ditches. Horizontal Directional Drill (HDD) installations are proposed for Oliver and Chiltipin Creeks and the drainage canals in order to avoid significant construction or operational impacts. Approximately nine HDDs are planned, totaling 9,600 feet in length.

Environmental field surveys were completed in February 2004 using guidelines outlined in the USACE Wetland Delineation Manual (Environmental Laboratory 1987) for wetland and waterbody determinations and assessments. Wetland areas were found during field surveys of the IEC terminal and SPP area. Data was collected to complete the necessary impact assessments and permit applications. A total of 5.51 acres of wetland habitat will be permanently impacted during construction of the project. Table 1 provides a list of the wetlands impacted by the project. Wetland 001 was identified as non jurisdictional and will have minimal impacts due to construction. Wetland 002 is located on the eastern edge of the ROW and will be avoided entirely during pipeline

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construction. Construction of the ship berthing area for the terminal will result in permanent impacts to a small fringing coastal wetland, coastal tidal flat, and seagrass beds. Figure 1-1 provides a general illustration of proposed dredging impacts and Figure 2-1 provides a detailed illustration of dredge impacts to wetlands and seagrasses associated with the proposed LNG Terminal Site.

Table 1. Wetlands Impacted by the Project

Project Component/ MP or Location	ID	NWI Classification	Field Classification	Crossing Width (feet)	Temporary Impact (Construction)	Permanent Impact (Operation)
MP 1.1 ¹	W002	L2USKhs	PEM	0	0	0
MP 24.7	W001	(Not Identified)	PEM	3.0	0.01	0.02
Terminal	WF001	E2EM1	EEM	0	0	1.36
Terminal	WF001	E2SB4	Tidal Flat	0	0	3.08
Terminal	La Quinta Channel	E2AB3L	Seagrass Beds	0	0	1.07
Total						5.51

¹ Wetland avoided by the construction ROW.

PROPOSAL

In discussions and meetings with the above referenced agencies, IEC and SPP were provided with a recommended approach for investigating, developing and proposing a mitigation plan for these projects. Based on this information, a goal was established that wetland impacts should be offset by some activity aimed at providing wetland functions similar to those affected by a permitted project. The agencies recommended that mitigation options include and are usually prioritized as follows: 1) enhancement of degraded wetlands or restoration of historic wetlands; 2) creation of wetlands; or 3) preservation of other wetlands. The Section 404(b) (1) guidelines under the Clean Water Act, prepared by the USEPA and administered by the USACE, also define mitigation as a tiered process. The first tier is avoidance of wetland impacts. If wetland impacts cannot be avoided, the project purpose and need is evaluated. Once purpose and need has been accepted, a project alternative analysis is conducted. Wetland impacts are then minimized along the selected project site(s). The Section 404(b) (1) mitigation process has been followed throughout the IEC and SPP Project as

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described in this report and further detailed in other project documents.

JUSTIFICATION

Each project brings with it a set of unique circumstances that should dictate the type of mitigation implemented. In an effort to address these unique circumstances, IEC has consulted with representatives from the Coastal Bends Bays and Estuaries to determine the availability of potential mitigation sites within the Corpus Christi Bay ecosystem. For the specific case of the IEC and San Patricio Pipeline projects, the company believes that mitigation would be most successful via preservation of existing wetlands within the region.

Additionally, IEC met and consulted with the United States Army Corps of Engineers Galveston District, Texas Parks and Wildlife, U.S. Fish and Wildlife Department, Texas General Land Office, National Oceanic and Atmospheric Administration (NOAA) in March 2005 to determine mitigation options. The agencies indicated that IEC could use preservation of existing wetlands as a mitigation option. However, several conditions should be considered in evaluating potential sites. These include: 1) the selected site should be within the same watershed area; 2) the site should have similar habitat components; and, 3) the site should meet the mitigation ratios and in-kind habitat requirements. USACE indicated that the mitigation for this project should include "in-kind" mitigation for all impacts to seagrasses, coastal wetlands, and tidal flat areas. Mitigation ratios should be considered at least a 3:1 exchange rate for seagrasses and a 1:1 exchange rate for coastal wetlands and tidal flats. IEC understands that mitigation ratios associated with preservation projects are subject to higher ratios which in some cases maybe as high as 10:1.

Based on the discussions, recommendations and available options presented during these meetings and communications IEC proposes to provide funding for the purchase of two tracts (Tract #2 and #3) of land totaling 32.83 acres from the Portland Harbors Corporation to meet mitigation requirements associated with the IEC and San Patricio Pipeline projects (see Figures 3-1 and 3-2). The proposed site has been selected by the Coastal Bends Bays and Estuaries Program for future mitigation projects and would provide an excellent candidate for this project. The two tracts are located along Highway 35 on the southern shoreline of Nueces Bay near the City of Portland, San Patricio County, Texas see Figures 4-1 and 4-2.

Land development has occurred on private property adjacent to the tracts most of which has been left abandoned with old pilings and remnants of old foundations. In addition, the tracts of land along the

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highway are currently used by advertising billboard signs. No significant development has occurred on the subject property; however with the recent completion of the Highway 35 expansion the proposed tracts of land should increase in value for future real estate development. Significant features near the proposed mitigation site include Indian Point Park and Sunset Lake Park located immediately south of the property along Hwy 35. The two parks were established to help preserve and restore essential coastal habitats along the northern Corpus Christi Bay shoreline. Currently, these parks provide public access for recreational fishing, scenic viewing, and many other recreational water activities. From an environmental perspective both parks have placed essential nesting and feeding habitats in protective status to prevent further habitat loss. Sunset Lake currently supports significant populations of endangered and/or threatened species that include the piping plover (*Charadrius melodus*).

The proposed site is used by recreational and commercial fishermen, birders, water recreation activities such as canoeing and kayaking, and offroad vehicle activities. There is an old boat ramp present in the site; however, the ramp is not maintained. No additional public access areas are present to support vehicle traffic associated with these activities. Vehicles routinely drive through the tidal/sand flat areas throughout the property. Continued or long term vehicle use will lead to significant disturbances and permanent losses of natural habitat, disturbances of wildlife communities utilizing the habitat, and can lessen the aesthetic value to the site. Pedestrian surveys of the site indicate that significant disturbances associated with vehicular traffic and other human activities have already occurred throughout the property. In the Corpus Christi Bay Natural Estuaries Program Living Resources Report seven priority problems were identified as human influences affecting living natural resources. Of the seven three were identified as presently and commonly occurring in the proposed site. These problems include: destruction or loss of wetlands and other critical habitats, point source and non-point source pollution, and bay debris. Although water quality surrounding the property appears to be of good quality it can be expected that should existing activities be allowed to continue without preservation or conservation practices being incorporated that degradation of water quality in the area will occur.

The tracts of land are comprised of coastal emergent marsh and tidal sand and mud flat areas. These habitats play a vital role in the ecology of bay by providing breeding, nesting, and feeding grounds for a variety of bird, wildlife, and fish species. Additional benefits of the wetlands and tidal sand and mud flats include providing a significant link between primary producers and higher consumers such as bird and fish. Tidal flats within the Corpus Christi Bay system are inundated and exposed mostly in

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response to winds rather than astronomical tides. Because of the irregular and extreme tidal inundation macrophytic plant communities cannot develop and biological activity within the tidal flats is restricted to mats of blue-green algae which contribute to primary productivity. Wetter flats are second level habitats that are important biomass conversion sites that convert primary production to animal biomass for secondary consumers. Despite the absence of macrophytic vegetation, primary productivity in these tidal flats is comparable to seagrass meadows. Organisms that utilize these habitats and play an important role either in converting the biomass or serving as a direct food source to the birds, wildlife, and fish include: polychaete worms, insect larvae, and amphipods. When the tidal flats become flooded, vertebrate and invertebrate nekton may be present depending on water depth and salinity. Recreational species such as black drum (*Pogonias cromis*), red drum (*Sciaenops ocellata*), striped mullet (*Mugil cephalus*) play a vital role breaking up the algal mats and feeding on many of the primary consumers. In addition to the recreational fish species, several commercially important invertebrate species such as the brown shrimp (*Farfantepenaeus aztecus*), white shrimp (*Litopenaeus setiferus*), pink shrimp (*Farfantepenaeus duorarum*), and blue crab (*Callinectes sapidus*) will feed on converted biomass. An important role of the wetlands and tidal flats is providing essential foraging habitats for wintering and migratory shorebirds and wading birds many of which are important to state and federally listed endangered, threatened and/or species of concern including: piping and snowy plovers (*Charadrius alexandrinus*), reddish egret (*Egretta rufescens*), White-tailed Hawk (*Buteo albicaudatus*), and Peregrine Falcon (*Falco peregrinus*), to name a few.

Pedestrian surveys and review of current and relevant data were used to determine the extent of wetland, tidal flat, seagrass coverage, and to determine the overall condition of the proposed site, see attached Site Assessment Report. Smooth cordgrass comprises 8 acres, mixed coastal vegetative communities comprise 18 acres and tidal flats and non-vegetative areas comprise 5-6 acres of the plant communities within the proposed site. A detailed survey of seagrasses was not conducted; however, visual observations of seagrass beds were documented and estimates of coverage were determined to be between 3 to 5 acres. It is anticipated that any seagrasses occurring in open waters adjacent to the property will fall under jurisdiction of the State of Texas and would not be included in the overall mitigation proposal. In addition, some of the fringing marshes may also be subject to state jurisdiction. Although the amount of wetland or habitat loss could not be determined from this survey it is evident that vehicle activity within the site is creating ruts and displacing existing vegetation. A comparison of historical aerial photographs (1995 to 2003) revealed that no significant changes in habitat such as shoreline erosion and wetland and habitat loss have occurred since 1995.

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Based on these acreages, it is anticipated that the mitigation exchange rate will exceed the 1:1 ratio for coastal wetlands and tidal flats. Out-of-kind mitigation for seagrass impacts are proposed with the purchase and preservation of this site. Consultations with the agencies suggest that the areas of seagrasses identified during the pedestrian survey cannot be considered part of the property. In spite of not meeting the in-kind mitigation for seagrasses, the proposed mitigation site would provide a net ecosystem benefit by placing the proposed property into a conservation easement program. Ecological gains would include preservation of significant wetlands and critical habitats by preventing further vehicular access to the property and preventing future development of the land, prevention of further point source and non-point source pollution, and removal of bay debris. Additional benefits will include working with local authorities to remove advertising billboards, development of environmentally friendly public access areas that allow full use by fishermen and other recreational activities such as public boat access, canoe and kayak trails, and development of public outreach and educational use facilities. Ownership of the land will be maintained by a government entity or conservation organization/land trust with restrictive covenants to ensure preservation of the wetlands and allows for future development of restoration projects adjacent to the property.

SUMMARY

As stated in the previous paragraphs the selection of this site for mitigation was made through consultations with the agencies and with support from the CBBEP. The site has been selected by the CBBEP for future preservation and/or mitigation projects. From a regional stand point the site is located in an environmentally significant region with the risk of future development that could result in the loss of wetlands and critical habitats. The site is regionally located to Sunset Lake Park and Indian Point Park both of which are conservation and preservation projects. Habitats identified in the property are vital to the overall productivity of the Nueces Bay ecosystem. Tidal flats and coastal marshes in the property provide essential components important to the ecosystems food chain and provide critical habitat for nesting, feeding, and breeding for many birds, fish, and wildlife species, some of which are listed as state and federal threatened and endangered or species of concern. Preservation of this property will allow for long term ecological net gain back to the Nueces Bay ecosystem. In addition, preservation of this property coupled with future restoration or other habitat management projects would further enhance the overall productivity in the region and prevent the losses of these important habitats.

NEXT STEPS

To clarify status of property boundaries associated with the two tracts of land Oxy will initiate surveys

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by a Licensed State Land Surveyor (LSLS) to determine actual boundaries and total acreage of the property. Final total acreages proposed for habitat preservation will be determined upon completion of this survey.

Oxy is currently negotiating with the CBBEP on the placement of the proposed property into a conservation easement program and at this time have not finalized plans. Current negotiations include terms of the conservation easement, stewardship fees, transfer of funds, and mitigation compliance. Oxy will maintain negotiations with CBBEP and will provide an update to the agencies once finalized.

In summary, Occidental believes that this plan will fully satisfy compensatory mitigation requirements and will undertake further consultation with the USACE and other regulatory agencies to confirm their acceptance.

Sincerely,

A handwritten signature in black ink, appearing to read "Jeff Hanig". The signature is stylized and cursive.

Jeff Hanig

Director

Occidental Energy Ventures Corp.

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Attachments: - Figures

Figure 1-1 Proposed LNG Terminal Site-Dredge Impacts

Figure 2-1 Wetland and Seagrass Features

Figure 3-1 Proposed Mitigation Tracts

Figure 3-2 Proposed Mitigation Tracts

Figure 4-1 General Site Location

Figure 4-2 Aerial

Wetland Mitigation Plan Proposed Site Assessment Report

cc: Jon Schmidt-ENSR, Bill Gorham-ENSR, Larisa Ford – USFWS, Kay Jenkins-TPWD, Cheryl Jaynes – USACE, Janet Thomas-Botello, Shannon Dunn – FERC, Barbara Keeler – USEPA, Rusty Swafford – NOAA, Tammy Brooks – TxGLO, Steve Buschang – TxGLO, Jesse Solis - TxGLO

Non-Internet Public

FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE PROPOSED INGLESIDE ENERGY CENTER LNG TERMINAL AND PIPELINE PROJECT

Docket Nos. CP05-11-000, et al.

Draft Wetland Mitigation Plan

Figure 1-1 – Proposed LNG Terminal Dredge Impacts

Figure 2-1 – Wetland and Seagrass

Figures 3-1 and 3-2 - Proposed Mitigation Tracts

Figure 4-1 – General Site Location

Figure 4-2 - Aerial

Public access for the above information is available only through the Public Reference Room, or by e-mail at public.referenceroom@ferc.gov.

Ingleside Energy Center LLC LNG Terminal and San Patricio Pipeline LLC Project Wetland Mitigation Plan Proposed Site Assessment Report

Occidental proposes the purchase of 32.83 acres of coastal wetlands for preservation as mitigation for wetland losses associated with the Ingleside Energy Center LNG terminal currently being permitted in San Patricio County, Texas. This site is proposed to offset wetland losses because it contains plant communities, soils, and functional values closely similar to those whose loss is being mitigated. On behalf of Ingleside, ENSR conducted a site assessment to document the conditions of the property and the communities present. This report contains the results of that survey.



Location

The proposed mitigation site lies on a peninsula on the southwest side of the City of Portland, between Portland and the City of Corpus Christi. The peninsula serves as the northern abutment of the Nueces Bay Causeway which connects the two municipalities. The site lies on the northwestern side of the peninsula in Neuces Bay.

General Site Overview

The site is linear in orientation, running between the edges of the causeway to the south and Nueces Bay to the north. The site consists of 32.83 acres of halophytic vegetated flats, tidal flats, and salt marsh. The width of the wetland, between Nueces Bay and the causeway, is an average of approximately 300 feet, with an undulating shoreline that appears undisturbed. Current conditions on the property include numerous areas that have been disturbed by offroad vehicle traffic. These disturbances include tire ruts, tracks, and semi-developed vehicle pathways. In addition, there are numerous areas of bay debris and evidence of household debris strewn throughout the site.

Plant Communities

The plant communities on this site are relatively consistent along the entire length of the site. Six maritime shore species dominate the vegetative ground cover: ox-eye (*Borrchia frutescens*), sea purslane (*Sesuvium maritimum*), saltgrass (*Distichlis spicata*), shoregrass (*Monanthochloa littoralis*), dwarf glasswort (*Salicornia bigelovii*), annual glasswort (*Salicornia virginica*), and saltwort (*Batis maritima*). These occur in a mosaic of concentrations throughout the interior of the site. A community of smooth cordgrass

(*Spartina alternanthera*) exists along the Nueces Bay edge in a mostly solid, undulating strip covering 8 acres. The inner marsh complex is comprised of approximately 18 acres of mixed vegetative communities of which 8 acres is dominated mostly by glasswort and the remaining 10 acres is comprised by saltgrass, ox-eye, sea purslane, shoregrass and saltwort *mix with* the larger glasswort stands. In addition to these vegetated areas, there are numerous circular pools, tidal flats, and non-vegetated channels that meander throughout the site and cover approximately 5-6 acres.



Seagrass Communities

Seagrass communities were observed along the shoreline and in the open water areas of the site. The primary species documented were shoalgrass (*Halodule beaudettei*) and manatee-grass (*Syringodium filiforme*). Based on visual observations, estimates of seagrass coverage in the area of the proposed mitigation site is between 3 to 5 acres.

Ecology

The site was found to be excellent foraging habitat for a large diversity of wading birds. The following species were observed while surveying the site: Willet (*Catoptrophorus semipalmatus*), reddish egret (*Egretta rufescens*), black-necked stilt (*Mimantopus mexicanus*), snowy plover (*Charadrius alexandrinus*), sandpipers (*Calidris spp.*), great blue heron (*Ardea herodias*), great egret (*Ardea alba*), snowy egret (*Egretta thula*), American oystercatcher (*Haematopus palliatus*), black skimmer (*Rynchops niger*), clapper rail (*Rallus longirostris*), Wilson's phalarope (*Phalaropus tricolor*), marbled godwit (*Limosa fedoa*), black-bellied plover (*Pluvialis squatarola*), tri-colored heron (*Egretta tricolor*), and several terns (*Sterna spp.*). A plover chick was also sighted, suggesting nesting grounds on-site. Hermit crabs were numerous along the bay edge of the smooth cordgrass community. A strong macroinvertebrate community is otherwise implied by the presence of numerous wading bird species that forage on these animals. Soils are comprised of Barrada-Tatton associations along the shoreline regions of the property and Dianola soils in the upper marsh complex. Barrada-Tatton associations are comprised of poorly drained soils on undulating low coastal tidelands. These areas are mostly long and narrow and border bays and lagoons. Dianola soils are poorly drained soils on coastal lowlands and are affected for short periods by abnormally high tides and high tides caused by storms.



Enhancement Opportunities

There appears to be vehicular access to both ends of this wetland site. Vehicle tracks are visible and are apparently impacting some of the tidal flats and glasswort stands closer to the causeway. It would represent an enhancement to this wetland if, as part of the mitigation process, vehicular access to the flats could be permanently blocked. In addition, this site holds potential as an environmental education resource and/or birding site. With some simple facilities ranging from restricted parking to boardwalks and interpretive signage, this site could be an attraction to the many birders that migrate to southern Texas every year, as well as an opportunity for environmental education for the local community.

Wetland Mitigation Site Photo Gallery

