APPENDIX Q

AQUATIC RESOURCES MITIGATION PLAN

AES Sparrows Point LNG
Mid-Atlantic Express Pipeline
September 2008

DRAFT Aquatic Resources Mitigation Plan
AES Sparrows Point LNG Terminal & Mid-Atlantic Express Pipeline

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1 INTRODUCTION

This DRAFT Aquatic Resources Mitigation Plan ("ARMP") describes impacts on wetlands, waterbodies, essential fish habitat ("EFH"), and other aquatic resources resulting from the construction of the AES Sparrows Point LNG and Mid-Atlantic Express Pipeline Projects. The compensatory mitigation guidelines and standards utilized in development of this ARMP emphasize use of best available science, promote innovation, and focus on results. AES has designed the Project to adhere to the "mitigation sequence" of "avoid, minimize, and compensate." AES focused its efforts with respect to both the LNG Terminal and the Pipeline Route to first avoid sensitive resources, then to minimize impacts, and then to compensate for unavoidable impacts. This ARMP addresses specific restoration, mitigation, and monitoring measures that will be employed by AES to mitigate for the unavoidable impacts. In all cases, it is the intent of this ARMP to identify and summarize the major actions producing impacts on the aquatic environment (such as dredging, pile driving, bulkhead building, wetlands crossings, stream crossing), describe the avoidance, minimization, and mitigation measures that will be implemented, and then describe how each measure will be monitored for success.

1.1 Project Description

AES Sparrows Point LNG, LLC ("Sparrows Point LNG") proposes to construct, own, and operate a new liquefied natural gas ("LNG") import, storage, and regasification terminal ("LNG Terminal") at the Sparrows Point Industrial Complex situated on the Sparrows Point peninsula east of the Port of Baltimore in Maryland. LNG will be delivered to the LNG Terminal by LNG marine vessels, offloaded from these vessels to shoreside storage tanks, regasified to natural gas on the LNG Terminal site ("Terminal Site"), and the regasified natural gas transported to consumers by pipeline. The LNG Terminal will have a regasification capacity of 1.5 billion standard cubic feet of natural gas per day ("bscfd"), with the potential to expand to 2.25 bscfd. Regasified natural gas will be delivered to markets in the Mid-Atlantic Region and northern portions of the South Atlantic Region through an approximately 88-mile, 30-inch outside diameter interstate natural gas pipeline ("Pipeline") to be constructed and operated by Mid-Atlantic Express, L.L.C. ("Mid-Atlantic Express"). The Pipeline will extend from the LNG Terminal to points of interconnection with existing interstate natural gas pipeline systems near Eagle, Pennsylvania. Together the LNG Terminal and Pipeline projects are referred to as the Sparrows Point Project or Project. Both Sparrows Point LNG and Mid-Atlantic Express (hereinafter collectively referred to as "AES") are subsidiaries of The AES Corporation.

The Project footprint is located in the counties of Baltimore, Harford, and Cecil in Maryland and the counties of Lancaster and Chester in Pennsylvania. The Terminal Site, which is located entirely within Baltimore County, is a parcel located within a former shipyard. The route proposed for the Pipeline ("Pipeline Route"), which crosses all of the listed counties, includes industrial, commercial, agricultural, and residential lands. Together, the Terminal Site and the Pipeline Route comprise the Project Area.

Construction of the LNG Terminal will include widening and deepening the existing approach channel leading off of the Brewerton Channel and creating a turning basin immediately offshore of the Terminal Site to accommodate the ships expected to deliver LNG at the LNG Terminal.

This document provides a conceptual aquatic resources/wetland mitigation plan to compensate for permanent losses of forested wetland with in the right-of-way ("ROW") of the Sparrows Point LNG Terminal/Mid-Atlantic Express Pipeline Projects ("Project").

1.2 Project Filings to Date

Filings, which will be used throughout the life of the Project unless otherwise changed in accordance with appropriate regulations, include, but are not limited to, the following:

Major Permits, Approvals and Consultations for the AES Sparrows Point Dredging Project		
AGENCY	**PERMIT APPLICATION/DATE REQUEST RESPONSE**	**FILING DATE**
PROJECT PERMITS		
Federal Energy Regulatory Commission (FERC)	AES's Application for Certificate of Public Convenience and Necessity	January 2007
	AES's Responses to the FERC's March 16, 2007 Environmental Information Request	April 2007
	AES's Responses to the FERC's July 11, 2007 Environmental Information Request	July 2007
U.S. Army Corps of Engineers (ACOE)	AES's Application for Clean Water Act (CWA) Section 404 dredge or fill permit (issued jointly with MDE) and Rivers and Harbors Act Section 10 authorization Note: CWA Section 401 – Done by MDE	January 2007
	REVISED - AES Application for Clean Water Act (CWA) Section 404 dredge or fill permit (issued jointly with MDE) and Rivers and Harbors Act Section 10 authorization	April 2007
	AES's responses to Minutes from the Meeting on Dredging /Dredged Material Disposal with FERC, the ACOE, the U.S. Environmental Protection Agency ("EPA") and Maryland Department of Environment ("MDE") that were posted to the FERC website on June 12, 2007.	June 2007
	AES's Responses to the ACOE Data Request dated July 6, 2007	July 2007
	Report on AES Sparrows Point August 2007 Sediment Sampling and Results submitted to ACOE	September 2007
	Addendum to Report on AES Sparrows Point August 2007 Sediment Sampling and Results submitted to ACOE	October 2007
Maryland Department of Environment ("MDE")	AES's Application to MDE under the Maryland Coastal Facilities Review Act ("CFRA")	January 2007
	AES's Responses to MDE's May 7, 2007 Data Request	May 2007
	AES's Responses to MDE's August 15, 2007 Data Request 2	August 2007
DREDGING OPERATIONS PERMITS		

Major Permits, Approvals and Consultations for the AES Sparrows Point Dredging Project		
AGENCY	**PERMIT APPLICATION/DATE REQUEST RESPONSE**	**FILING DATE**
U.S. Army Corps of Engineers/ Maryland Department of Environment	Joint Federal State Permit for Alternation of a Tidal Wetland in Maryland	Included as part of January ACOE Section 404/10 Permit Application and MDE CFRA Applications in January 2007
DREDGED MATERIAL PROCESSING FACILITY PERMITS		
Maryland Department of Environment	General Permit for Stormwater Discharge Associated with Construction Activities	Included as part of AES's MDE CFRA Applications in January 2007
	State Water Quality Certificate	Included as part of AES's MDE CFRA Applications in January 2007
	Air Quality Permit to Construct	Included as part of AES's MDE CFRA Applications in January 2007

2 SITE SETTING

This section will provide an overview of sediment and water quality in the vicinity of the proposed LNG Terminal and natural gas pipeline. The summary of information below taken from various documents filed by AES in its permit applications includes sediment description, water quality analysis, aquatic species, habitat descriptions and other pertinent background information.

2.1 Offshore Aquatic Resources

2.1.1 Sediment Quality

As described in the AES Dredge Materials Management Plan, AES reviewed information from the various federal, state, and local environmental databases using the electronic database service First Search. Maryland has listed Baltimore Harbor and the Patapsco River as "impaired," because of excess contaminants, sediments or nutrients, or all three. In spring of 2002, researchers from the University of Maryland Center for Environmental Science (“UMCES”) analyzed sediment samples from locations throughout Baltimore Harbor, and used the data to create a map of contaminant locations and concentrations. Below is a summary of identified chemical hotspots, including concentrations of various organic compounds and heavy metals. This study also found throughout the Harbor persistent levels of chlordane. The organic and heavy metal compounds detected in the UMCES analysis include:

- Polychlorinated biphenyls (“PCBs”) and poly aromatic hydrocarbons (“PAHs”) appeared in high concentrations in the Inner Harbor, which is reported to reflect the influence of stormwater runoff carried to the Harbor from Jones Falls. PAHs were reported in the references as elevated in sediment on the southern shore of Sparrows Point, and in Bear Creek sediments, probably due to heavy industry in these areas. PCB concentrations were reported as elevated in Bear Creek and Curtis Creek, relative to other sites along the Patapsco River.

- Zinc and chromium were reported as elevated in Bear Creek and at several sites in Northwest Branch.

- Nickel exhibited high values at 70 percent of the sites sampled across the area.

- Mercury was reported as highest at the entrance to the Inner Harbor, likely due to stormwater runoff; high concentrations also occurred in Curtis Creek, Bear Creek, and Back River.

- Copper was highest in Northwest Branch and Curtis Creek.

Water flow in the area of the Sparrows Point peninsula is primarily influenced by Patapsco River input from the west and Bear Creek input from the north. The confluence of the two waterbodies is located north and west of the Terminal Site, and the combined surface water flow generally carries surface water and entrained sediment into and past the western shores of the Sparrows Point peninsula. In addition, a low tidal range (approximately ± two feet) introduces some flux contrary to the river/creek flows (i.e., incoming tide will somewhat offset outgoing river and/or creek flow). Thus, inputs of compounds of concern from urban sources will, in

general, always flow toward the main portions of the Chesapeake Bay. The chemical nature of different compounds of concern, and geochemical interactions as they affect environmental migration within the system, are further described below.

The Baltimore Harbor system, including the Patapsco River estuary, is surrounded by the Baltimore metropolitan region. During the past several years, extensive studies have been conducted of the levels of metals, mercury, and organic contaminants in Baltimore Harbor sediments (Ashley and Baker, 1999; McGee et al.; 1999; Mason and Lawrence; 1999) and surface waters (Bamford et al.; 1999).[1] These studies showed large spatial gradients in contaminant levels in the sediments due to relatively poor mixing that resulted in areas near storm water outfalls and industrial areas where contaminant concentrations were higher than in other areas where better mixing occurs. For example, elevated levels of PAHs and metals were indicated to be found around Sparrows Point, which historically has been the site of intensive coal coking and steel production. (CERP, 2002)

Organochlorine compounds, including PCBs, were shown to be at elevated levels adjacent to Harbor storm water outfalls. Forty percent of the sites characterized within the Baltimore Harbor have PCB levels that exceed the "effects range-medium" value of Long, et al. (1995). Survival of the estuarine amphipod *Leptocheirus plumulosus* was reduced in seven of twenty-five Baltimore Harbor sediment sites studied by McGee et al. (1999). Further, the reported toxicity of sediment at monitoring stations in Bear and Colgate Creeks was determined to potentially have been due to sediment-associated metals, while sediment toxicity in the Inner Harbor was likely due to both metals and organic contaminants (PAHs).

AES performed two site specific sediment sampling events in June 2006 and August 2007. A comparison of the June 2006 and August 2007 vibracore sampling event data shows that the data collected from the August 2007 event directly correlates to the information presented to the ACOE, Maryland Department of Natural Resources ("MDNR"), MDE, and FERC in the various permit application materials submitted to those agencies in January 2007. Specifically, the PAHs and metals detected during the August 2007 event are within the same range of those constituents detected during the June 2006 sampling event as well as other historical dredge projects conducted in the Chesapeake Bay Area. The additional sampling performed by AES at the request of the ACOE confirms and further substantiates that the original classification of the sediment quality by AES in the proposed dredge area is accurate and comprehensive as presented in the Resource Report 2, *Water Use and Quality*, of the FERC Filing in January 2007.

In summary, the data illustrates that the highest concentrations of chemical constituents, primarily semi-volatile PAHs and heavy metals, are found in the shallow, fine-grained sediments with high organic carbon content that accumulate in low-energy depositional areas that tend to be close to the shore. Constituent concentrations generally decrease with depth at all locations, and decrease with distance from shore. The depth range of sediments with elevated constituent concentrations also appears to decrease further away from the shore, consistent with net import and deposition of fine-grained sediments close to the shore, rather than net scour and export of these sediments.

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[1] Other historical studies have been performed for the general areas surrounding the Terminal Site. Focus is given to the referenced studies due to the closer proximity in time and applicability of location as compared to those other studies. Site-specific testing, described in Resource Report 2, *Water Use and Quality*, Section 2.4.3.2, was conducted by AES to confirm the results of the referenced studies.

The results indicate that the removal of the shallow and some of the intermediate sediment during dredging operations will improve overall bottom sediment conditions in the areas where dredging is planned.

2.1.2 Marine Biota

Additionally, as discussed in the FERC filing, specifically, Resource Report 2, *Water Use and Quality*, Section 2.4.8.2, and in Resource Report 3, *Vegetation and Wildlife*, Sections 3.3.2, 3.3.3, and 3.4.3, as well as in Resource Report 3, Appendix 3B, Essential Fish Habitat Report, and Appendix 3A, Aquatic Finfish/Epibenthic Invertebrate Sampling Data Report, there is no submerged aquatic vegetation ("SAV") located within approximately two miles of the LNG Terminal and no negative impacts to SAV along the proposed LNG marine traffic transit routes are expected as no SAV beds have been documented along the proposed ship transit route. The closest SAV location recently reported by Orth et al. (2005) was approximately three miles south of the LNG Terminal on the western side of the Patapsco River in Stony Creek. Older records suggest a similar lack of SAV historically within three miles of the LNG Terminal (Orth et al. 1994). All dredging associated with the Project will occur within approximately one mile of the Terminal Site.

As reported in Resource Report 3, *Vegetation and Wildlife*, Appendix A, marine field surveys were performed by AES between June 27 and June 30, 2006 that confirmed the absence of SAV within approximately two miles of the LNG Terminal. The presence or absence of SAV beds was determined by evaluating a series of transects located within and adjacent to the proposed footprint of the LNG Terminal, and extending radially approximately two miles into the Patapsco River estuary. Furthermore, sample locations surveyed outside of the proposed LNG Terminal footprint, but in the general vicinity of the LNG Terminal, included the eastern side of the Patapsco River. Sampling consisted of visual observations and the towing of a small chain for approximately 0.3 nm per transect at a speed of approximately two knots. At the completion of each transect, any vegetation collected was identified to the species level.

As discussed in the FERC filing, specifically, Resource Report 2, *Water Use and Quality*, Section 2.4.8.2, and in Resource Report 3, *Vegetation and Wildlife*, Sections 3.3.2, 3.3.3, and 3.4.3, as well as in Resource Report 3, *Vegetation and Wildlife*, Appendix 3B, Essential Fish Habitat Report, and Appendix 3A, Aquatic Finfish/Epibenthic Invertebrate Sampling Data Report, there is little in the way of non-transitory animal species in the vicinity of the Terminal Site. The species that do exist, the polychaete, *Streblospio benedicti* (which was present in high numbers due to its affinity and association with high pollution levels), barnacles (subclass Cirripedia), fan worms (*Sabella spp.*), and zebra mussels (*Dreissena polymorpha*), were the most abundant. These species, and species that use the non-transitory species as a source of food, are unlikely to suffer negative impacts as recolonization rates for the non-transitory species are both rapid and high.

AES evaluated the potential for siltation from dredging and impact on resources in the general area of the LNG Terminal. The Fort Carroll oyster reef restoration project, or Project 64, is an education-based oyster reef restoration project on upper Chesapeake Bay oysters (NOAA 2006) that is located about 1,500 feet away from the closest area proposed to be dredged (West Northwest from the approach channel). Multiple studies (Borrowman (2006), Dredge Research, Ltd. (2003), Tubman & Corson (2000) and Collins (1995)) have reported turbidity plumes from dredging activities, including dredging from clamshell, hydraulic, and hopper dredging within soft sediments are highest within the dredge site and decrease with distance away from the site.

These studies furthermore determined that at a distance of about 400 meters (1,200 feet) or greater away from the dredge site, turbidity levels were generally negligible and had little to no impact on oyster bed survival and growth (Kennedy and Breisch 1981). Given that the closest point of any dredging activity to the oyster restoration site is at least 1,500 feet away from the dredging site, it is anticipated that there will be no negative impacts on the Fort Carroll oyster restoration project. As such, the underwater aquatic resources are not of concern as submerged aquatic vegetation was not identified and the impact area will not affect biotal communities. In addition, during a call on August 21, 2008, Mr. John Nichols of NFMS indicated he had spoken with the NOAA restoration project staff who indicated there were no remaining oysters at the Fort Carroll oyster restoration site. This additional information makes it entirely certain that the Fort Carroll oyster restoration project will not be impacted by the Project, i.e., there are no oysters left to impact.

2.1.3 Shoreline Environment

A king pile steel sheet pile bulkhead will be installed along the western limits of the upland facility. The steel sheets will be driven with either a vibratory or impact pile driving hammer. Where accessible, the piles will be driven from a land based rig. In locations where access is from the waterside only, the piles will be driven by a rig based on a floating construction barge. The barge can be anchored into location with spud piles to provide a stable working area. Templates will be used to ensure that the sheet piles are driven in the proper location and that plumbness is maintained within acceptable limits.

Demolition of selected structures at the existing Terminal Site will be needed to prepare the site for construction. The shipyard formerly consisted of 10 slips used for ship construction and/repair. Slips No. 1 through No. 5 are demolished and the area they occupied is at a common grade. Portions of the remaining slips (No. 6 through 10) are used for hauling out and dismantling barges.

As described in Section 1.3.3.1 of Resource Report 1, *General Project Description*, for development of the LNG Terminal, the remaining slip structures on shore will be demolished and the associated area leveled to the site's common grade. Portions of existing finger piers and low-level relieving platforms that lie along the waterline of the new bulkhead alignment will be removed as may be required for facility construction. To the extent removal may be needed, biologic evaluation of existing finger pier and relieving platform elements has been performed and does not indicate the elements provide significant substrate for benthic, encrusting or pelagic communities (see below within this Section 2.4.8.2). The LNG Terminal will make use of an existing pier located at the northern end of the Terminal Site. The existing pier will be modified to accommodate mooring of LNG ships. The modifications will consist of repairing existing piles, resurfacing the deck, and building an unloading platform and pipe trestle on top of the pier.

The pier will have two berths, one on the north side of the pier and the other on the south side. The main components of the marine facilities at the Terminal Site will include the following:

- An existing finger pier that will support an elevated pipeway and spill containment system, an elevated unloading platform and gangways; the pier will also support the mooring of the LNG ships and provide a roadway to the loading platform area;

- Dredged areas for ship access;

- Aids to navigation;
- A retractable security barrier; and
- Mechanical systems.

Data for the three largest Maryland commercial fisheries (Blue Claw, Oyster, and Striped Bass) were available through the Maryland Commercial Fisheries Annual Landings Data Set (MDNR 2005a) that were pertinent to the proposed Project Area (Patapsco River and the north-central Chesapeake Bay) and are summarized below by fishery and total annual landings in pounds.

- Blue crab (*Callinectes sapidus*): 2004 total landings of 31,987,749 pounds with 0.002 percent (48,417 pounds) of total catch harvested in Patapsco River.
- Atlantic Oyster (*Crassotrea virginica*): 2004 total landings of 63,057 pounds with 0.03 percent (1,956 pounds) of total catch harvested in north-central Chesapeake Bay region (not part of proposed project area).
- Striped bass (*Morone saxatilis)*: 2004 total landings of 1,924,470 pounds with 0.003 percent (5,659 pounds) of total catch harvested in Patapsco River.

Currently, the Patapsco River, including Baltimore Harbor, has been closed indefinitely to shellfish harvest; therefore, the proposed pier demolition will pose no immediate impact on the harvesting of any shell-fisheries within or adjacent to the Project Area. Commercial harvest of migratory species such as blue crab and striped bass is minimal in the Patapsco, accounting for only 0.002 percent and 0.003 percent, respectively, of the total harvest for the State of Maryland. Because any resulting impact from the proposed demolition will be temporary, and time of year constraints may be imposed (if deemed necessary), it is unlikely that any harvesting of these fisheries occurring within or adjacent to the proposed Project Area will be negatively impacted. Additionally, multiple species of herring and shad, yellow perch, white perch, and American eel, are of commercial and recreational importance within the Chesapeake Bay system. Similar to striped bass, these species are highly mobile and migratory and will most likely not suffer any negative impact as a result of the proposed pier demolition, especially because species migration schedules will be factored into the proposed demolition timeline.

2.2 Watersheds

The Project is located within the Chesapeake Bay Watershed based on data provided from the EPA, MDNR, and Pennsylvania Watersheds Data System. The Chesapeake Bay Basin encompasses 64,000 square miles of land and is the largest watershed on the eastern seaboard of North America. The Bay basin includes parts of six states (Maryland, Virginia, New York, Pennsylvania, West Virginia, and Delaware) and the District of Columbia. An estimated 94 percent of the land in Maryland drains to the Chesapeake Bay. Maryland derives a significant economic benefit from the Chesapeake Bay, including income from the harvesting of fish and shellfish, commercial shipping, and recreational boating.

A large watershed like the Chesapeake Bay Watershed is composed of numerous sub-watersheds that are drained by tributary streams and rivers. The Project is located within five sub-watersheds: the Lower Susquehanna Basin (HUC 02030506), Schuylkill Basin (HUC 02040203), Brandywine-Christina Basin (HUC 02040205), Chester-Sassafras Basin (HUC 02060002), and the Gunpowder-Patapsco Basin (HUC 02060003) as shown on Figure 2-1.

2.3 Soils

Soils crossed by the Project were determined by soils survey data available from the United States Department of Agriculture ("USDA") and Natural Resource Conservation Service. Electronic data was utilized from ("NRCS") State Soil Geographic ("STATSGO") and Soil Survey Geographic ("SSURGO") information.

Based on the STATSGO database, the soil associations traversed by the Pipeline are shown on Figure 2-2, and are summarized by characteristics as follows (along with associated Map Unit ID for each state in parentheses):

- Othello-Elkton-Mattapex (MD005): This association consists of moderately well drained and poorly drained fine-silty, mixed soils that are nearly level or are gently sloping. These soils are deep and have moderately slow to slow permeability. Soil acidity is strongly acidic to extremely acidic unless limed (USDA 1994a).

- Sunnyside-Christiana-Muirkirk (MD007): This association consists of very deep, well drained to somewhat excessively drained, moderately slow to slowly permeable soils on uplands. These soils have slopes from zero to fifty percent and are well drained to somewhat excessively drained. Most of this association lies in wooded or idle fields (USDA 1994a).

- Beltsville-Croom-Leonardtown (MD002): This association consists of deep to very deep soils which range in drainage from poor to well drained and have variable permeability. These soils are found in coastal plains and uplands. Slopes range from nearly level to moderately sloping. Most of the association is not used as cropland and there is high erosion potential for much of this association (USDA 1994a).

- Neshaminy-Lehigh-Glenelg (MD029): Soils in this association are deep to very deep and well drained to somewhat poorly drained fine-loamy. Permeability is moderately slow to slow. This association ranges from forested and very stony to cultivated soils. Soils are nearly level to steep. Most of this association has high erosion potential (USDA 1994a).

- Manor-Glenelg-Chester (MD011): This association consists of deep to very deep, steep to gently sloping, somewhat excessively drained and well drained soils. This association occurs on hilly uplands. Most of this association has high erosion potential. Most of the soils are used for farming and a limited amount for pasture (USDA 1994a).

- Chrome-Conowingo-Neshaminy (MD030, PA086): Soils in this association are moderately deep to very deep, somewhat poorly drained to well drained soils. Much of this association has high erosion potential. This association consists of nearly level to moderately sloping soils in well dissected uplands. Much of this association is used for farming and pasture. Other areas are wooded or used for urban and suburban communities (USDA 1994a,b).

- Chester-Glenelg-Manor (PA061): This association consists of deep to very deep, gently sloping to steep soils. These soils are well drained to excessively drained. Most of the land area is used as cropland and to a limited extent, pasture. There is a high potential of erosion for approximately fifty percent of the association (USDA 1994b).

- Hagerstown-Duffield-Clarksburg (PA058): This association consists of deep and very deep, well drained soils with moderate permeability. Some areas are less well drained with slow to moderately slow permeability. These soils weathered mostly from limestone. Most of this association is used as cropland or pasture (USDA 1994b).

- Edgemont-Highfield-Buchanan (PA066): This association consists of deep and very deep, well drained soils. These soils formed from light colored rocks, notably quartzite. They have moderate to moderately rapid permeability. This association is located on sloping to steep hills, ridges, and valleys and can be stony. Land use is a mixture of wooded areas and cleared areas for crops and orchards (USDA 1994b).

2.4 Wetland Surveys & Results

The ACOE and EPA jointly define wetlands as "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that in normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." For an area to be defined as a jurisdictional wetland, it must, under normal circumstances, possess positive indicators of each of three parameters: hydrophytic vegetation, wetland hydrology, and hydric soils. Wetlands generally include swamps, marshes, bogs, and similar areas.

Environmental field surveys were conducted between May 18 and October 10, 2006 along the proposed Pipeline Route. Approximately 71 miles of the total 87.57 miles of the proposed Pipeline Route were accessible and field surveyed for wetlands and water resources.

Field wetland delineation methodology was based on the ACOE 1987 Wetland Delineation Manual (Environmental Laboratory 1987) and classified according to the United States Fish and Wildlife Service ("USFWS") classification system (Cowardin et al. 1979). Survey included an area 150 feet wide generally centered on the proposed Pipeline centerline, and within 100 feet of the boundary of aboveground facility and pipe yard/staging areas.

Wetlands were identified using a hierarchy of sources to produce the most accurate and comprehensive wetlands inventory possible. Prior to performance of environmental field surveys, the Project Area was evaluated in relation to USFWS, National Wetlands Inventory ("NWI") maps. Wetland types and locations were noted and compared with recent aerial photography. AES also obtained soils surveys for the Project Area from the USDA, Natural Resources Conservation Service in Harford and Cecil Counties, Maryland, and Lancaster and Chester Counties, Pennsylvania. Table 2-1 lists the wetlands crossed by or adjacent to the proposed Project in the accessible areas surveyed.

In general, the Pipeline crosses the majority of the major palustrine wetland types, along with a small amount of estuarine wetland at the southern terminus. Palustrine wetland areas were the dominant type encountered across the Pipeline Route and included several types of emergent (PEM) , scrub-shrub (PSS) , and forested wetlands (PFO), including open water marshes, semi-open emergent marshes, emergent marshes, herbaceous wet meadows, shrub-emergent meadows, wooded swamps, and floodplain forests.

Open aquatic marshes are dominated by arrowhead (*Sagittaria latifolia*), arrow arum (*Peltandra virginica*), narrow-leaf cattail (*Typha angustifolia*) and broad-leaf cattail (*Typha latifolia*). Semi-open emergent marshes and emergent marshes areas are dominated by awl sedge (*Carex stipata*), tussock sedge (*Carex stricta*), lurid sedge (*Carex lurida*), fringed sedge (*Carex*

crinata), rice cutgrass (*Leersia oryzoides*), creeping spike rush (*Eleocharis acicularis*), soft rush (*Juncus effuses*), reed canary grass (*Phalaris arundinacea*), fowl meadow grass (*Poa palustris*), woolgrass (*Scirpus cyperinus*), manna grass (*Glyceria striata*), eastern joe-pye weed (*Eupatoriadelphus dubius*), New England aster (*Aster novae-angliae*), boneset (*Eupatorium perfoliatum*), blueflag iris (*Iris versicolor*), sweetflag (*Acorus calamus*), sensitive fern (*Onoclea sensibilis*), and cinnamon fern (*Osmunda cinnamomea*).

Shrub emergent marshes are dominated by similar species found in emergent marsh areas with the addition of a strong woody shrub component. Dominant shrub species within these areas include silky dogwood (*Cornus amomum*), winterberry (*Ilex verticillata*), common elderberry (*Sambucus canadense*), speckled alder (*Alnus rugosa*), swamp rose (*Rosa palustris*), and buttonbush (*Cephalanthus occidentalis*).

Wooded swamps and floodplain forests encountered are typically forested wetlands with a strong shrub component. Dominant species include red maple (*Acer rubrum*), American elm (*Ulmus americana*), pin oak (*Quercus palustris*), green ash (*Fraxinus pennsylvanica*), black gum (*Nyssa sylvatica*), sweetgum (*Liquidambar styraciflua*), arrowwood viburnum (*Viburnum dentatum*), witch hazel (*Hamamelis virginiana*), highbush blueberry (*Vaccinum corymbosum*), winterberry (*Ilex verticillata*), and silky dogwood (*Cornus amomum*).

Estuarine wetlands encountered across the route included intertidal emergent wetlands and scrub-shrub wetlands. Intertidal emergent wetland habitats are dominated by common reed (*Phragmites australis*). Scrub-shrub wetlands are typically dominated by common reed, groundsel tree (*Baccharis halimifolia*) and marsh elder (*Iva frutescens*).

2.5 Waterbody Surveys & Results

An assessment of surface water resources was conducted for the Project Area through field reconnaissance and review of available maps and reference materials. Referenced materials include United States Geological Survey ("USGS") Topographic Maps, the MDE surface waters database, and the PDEP eMapPA v.4.0 web-based mapping application. This technical information was used in conjunction with field data to identify and characterize the surface waterbodies summarized on Table 2-2.

2.6 Routing Studies & Impact Avoidance

The proposed Pipeline Route generally parallels rights-of-way for existing highways, overhead electric transmission lines, and pipelines. In considering alternatives to the proposed Project to determine whether it might be possible to reduce the human and environmental impacts, AES evaluated alternative routes for placement of the Pipeline. Alternatives that were considered include four major route alternatives and numerous route variations. Figure 2-3 identifies the location of the proposed route for the Pipeline. As proposed, the route consists of four main segments:

- The proposed route exits the former Sparrows Point Shipyard and steel mill property and travels north to northeast for approximately two miles (MP 0.0 to 2.0);

- For approximately six miles (MP 2.0 to 8.0), the proposed route follows Route I-695 in a north and northwest direction, except for minor deviations necessary to avoid highway interchanges (sections of this route will require coordination with Maryland Department of Transportation ("MDOT") for scheduling of safety vehicles to support

crossing activities. Due to the length and coordination required for these limited sections, less than 3 miles, AES does not anticipate that this will lead to any delays in construction or potential impacts to overall Pipeline completion);

- Near the Back River crossing, the proposed route heads north to northeast and follows a BG&E overhead transmission corridor for approximately 24.5 miles (MP 8.0 to 32.5); and

- At the intersection with the right-of-way ("ROW") for an existing Columbia pipeline, the proposed route heads northeast and generally parallels the existing pipeline ROW for approximately 54 miles (MP 32.5 to 87.6) to its terminus near Eagle, Pennsylvania.

2.6.1 Route Alternatives

AES assessed each route alternative using a 100-foot wide corridor centered on the proposed alignment for the majority of the constraints. The analysis was conducted using existing resource information available on USGS 7.5-minute series topographic quadrangle maps; Maryland Geographic Information System ("GIS") data layers; other available federal, state, and county resource maps; recent high resolution aerial photography; and unmapped data. The analysis focused on an evaluation of route length, feasibility of using existing corridors, extent of crossing existing transportation features, the presence of wetlands and waterbodies, threatened and endangered species and significant habitat, land uses and vegetation cover types, the presence of Federal and states lands, and several other special land uses. The major route alternatives are summarized on Figure 2-4. A tabular summary of this analysis is included within Table 2-3.

Using the standard screening criteria specified by the Commission in its guidance, AES identified four major route alternatives to the proposed route, which - as in the case of its proposed route - included following existing ROW and greenfield construction.

As described in Resource Report 10, *Alternatives*, four pipeline system alternatives to the proposed Pipeline were evaluated, none of which is considered to be a viable alternative. In accordance with conventional pipeline routing principles, collocation with existing utility corridors to the maximum extent possible was the primary routing strategy. The primary strategy was supplemented by evaluation of a range of environmental, engineering, and socio-economic variables.

Additionally, through the FERC DEIS review process, AES has continued to evaluate additional route variations and alternative construction techniques as requested by FERC, other agencies and affected landowners.

3 OFFSHORE AQUATIC RESOURCES IMPACTS AND MITIGATION

3.1 Dredging Operations

Dredge equipment and support vessels (tugs and fuel tenders) will be mobilized to the Terminal Site along with aboveground storage tanks for fuel oil storage during the initial stages of site preparation. The fuel storage tanks will arrive in a ready for placement condition and will be installed and secured according to manufacturer's recommendation.

Construction of the LNG Terminal will include widening and deepening the existing approach channel and turning basin offshore of the Terminal Site to accommodate the LNG ships expected at the LNG Terminal, which will be larger than the ships that have utilized the existing shipyard, floating dry dock and graving yard/coal channel (south of the proposed Terminal Site) to date.

The Brewerton Channel, the existing approach channel, and certain areas offshore of the proposed Terminal Site, have been dredged in the past and currently are the subject of dredging permits issued by the ACOE and a Water Quality Certification from the State of Maryland, allowing the performance of dredging using either hydraulic or mechanical techniques. Dredging of the approach channel and areas offshore of the proposed Terminal Site is allowed under these existing permits for maintenance and waterfront operations, to a depth of 39 feet below MLLW. In addition, on May 6, 2005, the ACOE issued the BWI Permit that specifically allowed the following:

- Mechanical or hydraulic dredging of a channel, turning basin, and berthing areas to -39 feet MLLW;
- Placement of approximately 600,000 cubic yards ("CY") of dredge material at the Hart-Miller Island disposal site; and
- Installation of sheet piling and construction of fendering systems.

The permit also approved a subsequent phase, consisting of the deposit of approximately 2.6 million CY of dredge material at disposal sites yet to be determined. The near-shore dredging approved under the BWI Permit overlaps almost entirely the near-shore dredging proposed by AES.

As described above, actual volume to be dredged and material handling requirements may be less than discussed by this Consolidated Dredge Plan depending on bathymetric configuration of this area at the time of LNG Terminal construction. The approach envisioned here has been developed to anticipate dredge operations based on current bathymetry (i.e., bathymetry as of January 2007). AES has also allowed for methods that may be needed if dredge volumes are greater than projected, and/or if the environmental quality of dredge material in sections of the dredge area is degraded relative to currently permitted dredge materials. AES will follow procedures for dredge performance consistent with recent past dredge approvals for this location, as updated based on data collected for this project. AES has analyzed the existing sediment conditions in the proposed dredge area. Additionally, AES has evaluated past dredge practices, recently approved dredge permits (including the BWI Permit and other permits issued for activities in the Port of Baltimore), existing dredge technology, anticipated impacts, and proposed mitigation strategies, as described in Section 2.4.8 of Resource Report 2, *Water Use and Quality,* of the FERC filing.

The approach channel expansions will be performed primarily by use of mechanical clamshell dredge, with some limited areas near shore excavated by backhoe dredge.

3.1.1 Potential Impacts

3.1.1.1 Contaminated Sediments and Turbidity

For the reasons discussed in more detail in Section 3.4 of the AES Consolidated Dredge Plan, AES intends to use conventional mechanical dredge techniques because chemical analyses obtained for dredge planning indicate sediment quality is not any more degraded than is allowed by current dredge permits both in the immediate area proposed to be dredged and in other areas of the Port of Baltimore where conditions are more impaired.

Dredging will be conducted utilizing a mechanical (clamshell) dredge or environmental bucket, where feasible, rather than by hydraulic means. A directional GPS will be used to locate the channel limits and to identify shoaled areas. Sediment will be removed to the design depth of 45 feet below MLLW. Computer-controlled recording software will track the progress of the dredging and will ensure complete coverage of the area to be dredged.

Information concerning short-term and long-term impacts on water quality and aquatic biota associated with the dredging proposed by AES, including substantiation that the dredging will improve conditions for water circulation and dissolved oxygen levels, is presented below.

3.1.1.2 Predicted Short-Term Impacts to Water Quality and Aquatic Biota

The potential short-term impacts to water quality from dredging activities typically involve the following:

- Turbidity; and
- Resuspension of contaminants sorbed to sediment particles.

The potential short-term impacts to aquatic biota typically include the following:

- Disturbance/removal of established sediment habitat;
- Disturbance/removal of established benthic macroinvertebrate communities;
- Disturbance/loss of aquatic vegetation;
- Disturbance/degradation of nearby habitat through transport and sedimentation of suspended particles; and
- Disruption of migration/foraging by fish.

3.1.1.3 Dissolved Oxygen

MDE has recently completed a nutrient Total Maximum Daily Load (“TMDL”) for Baltimore Harbor and determined that water quality standards for dissolved oxygen (“DO”) were not achievable. This is a consequence of excessive nutrients and the inability of the bottom waters to mix with the upper layers where atmospheric oxygen and algal-generated oxygen can replenish losses of oxygen associated with bacterial decomposition of organic matter. Even with the removal of all human impacts, the navigation channel cannot achieve dissolved oxygen standards because of a lack of mixing caused by the configuration of the channel (its relative depth) and the high-density saline waters entering along the channel bottom from the

Chesapeake Bay[2]. Accordingly, there are no additional impacts expected to occur as a result of AES's dredging of an additional 118 acres of Baltimore Harbor bottom vis-à-vis dissolved oxygen as that area has no potential for supporting aquatic life.

While the existing relatively shallow bottom is restricted in quality by contaminants and low oxygen caused by excessive nutrients (as a reference, the long-term mean bottom dissolved oxygen concentration at the MDNR's monitoring station near the Key Bridge (WT5.1) is below 5 mg/L (the State standard) between April and October and less than 1 mg/L from June through August), the TMDL has been prepared for the entire Harbor and is serving as the foundation of a plan to restore the aquatic life through reductions in nutrient and other contaminant loadings from both point and non-point sources. AES has evaluated the potential impact of surface water run-off from the site has developed a strategy to reduce stormwater flow to a level 50% less than current conditions as further described in section 3.1.2.2 of this document.

3.1.1.4 Sea Turtles

Based on correspondence from the NMFS dated May 3, 2006, several species of sea turtles are known to be present in the Chesapeake Bay from April 1 through November 30 each year. However, as noted in Resource Report 3, *Vegetation and Wildlife*, negative impacts to marine mammals or reptiles are not anticipated to occur within the proposed Terminal Site, as sightings or captures of these animals are rare in that area. Moreover, marine reptiles such as turtles prefer habitat that is primarily composed of submerged aquatic vegetation ("SAV"), which is notably absent within the vicinity of the Terminal Site, making any long-term occupation improbable. As such AES does not anticipate the need for seasonal construction restrictions in the vicinity of the dredge area. However, per correspondence with NMFS AES will be proactive and implement additional protective measures outlines in Section 3.1.2.3.

3.1.2 Mitigation Strategy

3.1.2.1 Contaminated Sediments and Turbidity

As noted above, there is no SAV in the area proposed to be dredged by AES; thus, there will be no direct impacts to this resource due to disturbance/removal or disturbance/loss.

To minimize potential transport and sedimentation impacts to water quality and aquatic biota to the greatest extent feasible, AES has proposed to make use of techniques that will greatly reduce the release of suspended sediments into the water column within and adjacent to the construction site. For the dredging proposed by AES, both the recent extensive characterizations performed by AES, including elutriate testing, and background data indicate that the dredging will encounter both recently deposited (Holocene) sediments as well as underlying "native" sand materials that are not expected to negatively impact the environment or human health, with the exception of select locations in the dredge area that have exhibited concentrations of contaminants at levels above the established PEL. Dredging will be conducted utilizing a mechanical (clamshell) dredge or an environmental bucket, as noted below, rather than by hydraulic means.

[2] Letter from MDNR to FERC dated June 16, 2008 entitled: "Docket Nos. CP07-62-000, CP07-63-000, CP07-64-000 and CP07-65-000 – Comments on the Draft Environmental Impact Statement (DEIS) for the proposed AES Sparrows Point LNG Terminal and Pipeline Project".

Due to contaminated sediment concerns, AES will employ an environmental bucket for digging soft sediment. An estimated 810,000 CY of silt material would be dredged utilizing the environmental bucket. The environmental bucket will be constructed with sealing gaskets or overlapping seals at the jaws, and seals or flaps positioned at the vent openings to minimize the loss of sediment during transport through the water column and into the hopper scow. The environmental bucket will also be equipped with a sensor to ensure complete bucket closure prior to hoisting.

The bucket hoist speed will be limited to 2 feet per second to limit introduction of sediment into the water column. The bucket will be lifted in a continuous motion through the water column and into the hopper scow. The dredge bucket will be lowered to the level of the gunwales prior to opening to reduce potential to reintroduce sediment to the water body. No barge overflow will be allowed.

The remaining volume of dredged material (underlying sand and clay deposits) will be dredged using conventional "hard-digging" buckets. AES will not employ silt curtains during dredging operations.

A directional GPS will be used to locate the channel limits and to identify shoaled areas. Sediment will be removed to the design depth of 45 feet below MLLW. Computer-controlled recording software will track the progress of the dredging and will ensure complete coverage of the area to be dredged.

Note that these supplemental mitigation techniques have not been used by dredge operations at this same location and nearby areas in past ACOE and Maryland permitted dredging; therefore, the proposed dredging will be taking control steps beyond those used with other projects here in the past.

Water quality impacts associated with suspended sediment are also possible if contaminants preferentially leach to the water column from exposed contaminated dredge material. Elutriate testing of sediment to be dredged was performed as described above. This testing has shown that minimal water quality impacts may be possible from only two heavy metal contaminants that were detected slightly above water quality standards. This indicates that very limited impacts may be possible in the short term; i.e., the time frame during dredging when sediment is actively disturbed and contaminated sediment may dynamically come in contact with the water column. One additional potential water quality impact was the detection of tributyltin in one sample (HA-123 shallow interval) where the exceedance was 1 part per billion. The soft sediments at this shallow location will be removed utilizing the environmental bucket as desribed above which will furter reduce the potential of sediment re-suspension. Because the tributyltin was not detected in the deep elutriate sample interval at this location (14-16 feet), the removal of the shallow sediments during dredging operations will improve bottom sediment conditions by eliminating the possibility of remobilization. Once dredging is complete in an area, suspended sediment resettles, re-equilibrates with sediment pore water, and the potential for release of contaminants that may remain to the pore water becomes limited. Thus, no other short and no long term water quality impacts would be anticipated.

Disturbance and degradation (through transport and sedimentation of suspended particles) of established benthic habitat and invertebrate communities is unavoidable in any dredging operation, whether intended for navigational or remedial purposes. The Maryland Department of the Environment (2004) has determined that "Navigation Channel" status is applicable to the dredged portions of the river extending from the mouth of the Patapsco River (confluence with

Chesapeake Bay) to Curtis Bay and Creek, and the Middle and Northwest Branches. A "Navigation Channel" designation acknowledges the instability of the benthic community within outer and inner deep-dredged channel areas due to the historic dredging activities associated with the Harbor. In such areas, opportunistic species generally comprise the benthic community. New disturbances in areas such as proposed to be dredged by AES, i.e., those designated as a "Navigation Channel" because they are unstable and periodically disturbed, will result in recolonization by the same type of opportunistic species as existed immediately prior to the disturbance. Where recolonization of disturbed areas occurs, it would take place within short timeframes. The techniques described above for minimization of suspended particles will ensure that even these expected short term impacts are reduced to the greatest extent feasible.

It is anticipated that there will be no negative sedimentation impacts in areas located more than 1,200 feet from the dredge activities, and impacts that may exist would diminish with distance from the dredge activities. Importantly, the Fort Carroll oyster restoration project that is located about 1,500 feet away from the closest area proposed to be dredged (west northwest from the approach channel) would not be impacted by the dredging proposed by AES. In this regard, consultation with NMFS is ongoing and AES has requested the concurrence of NMFS regarding the lack of anticipated impacts associated with the proposed dredging activity on the Fort Carroll oyster reef restoration project. In a call on August 21, 2008, Mr. John Nichols of NFMS indicated he had spoken with the NOAA restoration project staff who indicated there we no remaining oysters at the Fort Carroll oyster restoration site, therefore the Fort Carroll oyster restoration project will not be impacted by the project.

Finally, construction will be scheduled such that short-term impacts to fish known to migrate through these waterways should be minimal. AES is in going consultations with NFMS regarding potential seasonal construction windows for the dredge project.

3.1.2.2 Dissolved Oxygen

AES has initiated consultations with both MDE and MDNR regarding the potential for impacts on DO as a result of the proposed dredging activities. The factors that influence seasonal hypoxia/anoxia conditions are geographically large and well beyond the scope of the dredging proposed for the Project. AES does not anticipate that the Project will have a noticeable long term incremental effect on the occurrence of seasonal anoxia/hypoxia, but at worst may change the shape of the local area where these conditions occur. The dredge activities will not change the circulation patterns up the Chesapeake that contribute to the occurrence of hypoxic and anoxic conditions; nor will the dredge activities negatively affect the inflow of nutrients from the Patapsco watershed that contribute to elevated suspended sediment or organic input.

The Sparrows Point Shipyard and Industrial Complex ("BWI"), located on the Patapsco River (a tributary of the Chesapeake Bay), has a decades-long history as a working maritime industrial site. The site consists of several warehouses, an electrical shop, sheet metal shop, fabrication shop, paint shop, pipe shop, scrap processing yard, four piers several slipways and a graving dock. The facility is used for shipbuilding, repair, retrofit and decommissioning. The BWI Sparrows LLC shipyard currently holds a discharge permit under the National Pollutant Discharge Elimination System ("NPDES"), State Discharge Permit No. 97-DP-0398 (NPDES Permit MD0001180), which was reissued on 30 August 2006. The permit is for discharge of non-contact ballast waters, storm water, steam condensate, and air conditioning condensate. The facility discharges these waste waters through 17 outfalls to the waters of the State. BWI also discharges storm water runoff from "non-process" areas, including the 45 acres of upland proposed for use by AES, directly to the Patapsco River, in accordance with their permit

conditions.

The AES Sparrows Point LNG Terminal will occupy approximately 45 acres of upland area on the BWI site. Approximately 50 percent of the site will categorized as process area in which the associated storm water runoff will be collected and treated on site prior to discharge to the POTW. The redirection of the process area storm water runoff will result an approximately 50 percent reduction in storm water currently being discharged to the Patapsco River. This will significantly reduce localized runoff which may contribute to seasonal hypoxic and anoxic conditions.

Additionally, the occurrence of low DO is both a natural and man-exacerbated condition of the Chesapeake and its major tributaries and is influenced by many factors (basin configuration in the bay and tributaries, water stratification from both temperature and salinity, inputs associated with runoff like agricultural nutrients and suspended sediment, wind driven mixing, etc.). Currently no standards exist for mitigation of DO impacts. AES has committed to continue to work with MDE and MDNR to address this issue and come to a mutually agreeable mitigation strategy through the State of Maryland permitting process.

3.1.2.3 Sea Turtles

As a protective measure during operations, AES will incorporate the NMFS's 2006 "Sea Turtle and Smalltooth Sawfish Construction Conditions" into its LNG Fuel Supply Agreement.

As a preventative measure, for construction/dredging in areas identified as being sensitive for the presence of sea turtles, a sea turtle monitoring plan will implemented from April 1 through November 30. AES has committed to develop a NMFS-approved training program to qualify persons to be endangered species observers. Observation personnel will be trained on how to recognize sea turtles as well as avoidance, record keeping and notification measures. AES has requesting the assistance of NFMS to identify any additional guidance documents that would be helpful or preferred for use in the development of the sea turtle monitoring training program. A draft outline of the proposed AES sea turtle monitoring training program was submitted to NMFS for review in June 2008 and is included as Appendix D. AES will continue to work with NMFS to establish a satisfactory training program. The final training program will be completed and filed with FERC at least 90-days prior to initiation of dredging activities. Implementation of these monitoring measures will ensure impacts to sea turtles are avoided.

3.2 Bulkhead Construction

3.2.1 Potential Impacts

A king pile steel sheet pile bulkhead will be installed along the western limits of the upland facility. The steel sheets will be driven with either a vibratory or impact pile driving hammer. Where accessible, the piles will be driven from a land based rig. In locations where access is from the waterside only, the piles will be driven by a rig based on a floating construction barge. The barge can be anchored into location with spud piles to provide a stable working area. Templates will be used to ensure that the sheet piles are driven in the proper location and that plumbness is maintained within acceptable limits.

This construction phase will result in temporarily increased turbidity levels, as sheet piles and associated structures are constructed on land. The construction plan will incorporate available methods for minimizing and/or monitoring the scale of these disturbances. These will include

use of best management practices for minimizing/localizing turbidity (e.g., limiting need for construction vessels that may suspend shallow sediments with propeller wash), and by limiting bottom-disturbing activities to seasonal windows when these activities would cause the least impact to natural communities. AES is in going consultations with NFMS regarding potential seasonal construction windows for the dredge project. Potential impacts to and mitigation measures for marine biota resulting from construction and operation of the LNG Terminal are discussed in Section 3.3.3.1 of Resource Report 3, *Fish, Wildlife and Vegetation*.

Demolition of selected structures at the existing Sparrows Point site will be needed to prepare the site for construction. The shipyard formerly consisted of ten slips used for ship construction and/repair. Slips No. 1 through No. 5 are demolished and the area they occupied is at a common grade. Portions of the remaining slips (No. 6 through 10) are used for hauling out and dismantling barges.

As described in Section 1.3.3.1 of Resource Report 1, *General Project Description*, for development of the LNG Terminal, the remaining slip structures on shore will be demolished and the associated area leveled to the site's common grade. Portions of existing finger piers and low-level relieving platforms that lie along the waterline of the new bulkhead alignment will be removed as may be required for facility construction. To the extent removal may be needed, biologic evaluation of existing finger pier and relieving platform elements has been performed and does not indicate the elements provide significant substrate for benthic, encrusting or pelagic communities. The LNG Terminal will make use of an existing pier located at the northern end of the Terminal Site. The existing pier will be modified to accommodate mooring of LNG ships. The modifications will consist of repairing existing piles, resurfacing the deck, and building an unloading platform and pipe trestle on top of the pier.

The pier will have two berths, one on the north side of the pier and the other on the south side. The main components of the marine facilities at the Terminal Site will include the following:

- An existing finger pier that will support an elevated pipeway and spill containment system, an elevated unloading platform and gangways; the pier will also support the mooring of the LNG ships and provide a roadway to the loading platform area;
- Dredged areas for ship access;
- Aids to navigation;
- A retractable security barrier; and
- Mechanical systems.

This demolition will impact previously disturbed marine bottom. Specifically, during construction of the LNG pier, AES will install a sheet pile bulk head wall to establish a new vertical edge of the shoreline. During this process approximately 44,733 square feet of materials will be dredged to create new bottom area on the water ward side of the bulkhead. The bulkhead wall will continue south of the pier structure, which will result in removal of additional land features on the water ward side of the bulkhead, and the creation of approximately 22,202 square feet of new marine bottom area. To the south of the berthing area a sheet pile wall will be driven to a depth of approximately 45 feet to create a vertical structure, so that the landward side can be filled to the proposed final grade of the site. The alignment of

the proposed bulkhead will be coincident with the existing waters edge and, therefore, there will be no additional impacts to the marine bottom.

3.2.2 Mitigation Strategy

During installation of the sheet pile bulkhead, AES will install, as required, silt curtains in the shallow water area, to prevent sedimentation impacts in the area of construction. AES anticipates this construction will take approximately six months to complete. Based on the biological surveys performed, as described in Resource Report 3, *Vegetation and Wildlife*, there is no submerged aquatic vegetation and benthic biota are not located in the immediate vicinity of the construction area. Additionally, all filling activities will be conducted on the landward side of the sheet pile wall, resulting in no filling of marine areas. Potential impacts and mitigation measures from installation of the king sheet pile bulkhead are addressed below in Section 3.3.

3.3 Pile Driving

3.3.1 Potential Impacts

Impacts to fish from sound or pressure waves resulting from demolition/construction noise are possible, but unlikely. Changes in ambient water pressure during pile driving could have negative impacts on finfish species with gas-filled swim bladders that are in near-proximity to the proposed Project Area during demolition/construction activities. For aquatic species, risk of injury or mortality resulting from noise is generally related to the effects of rapid pressure changes, especially on gas-filled spaces in the animal's body (Carlson et al 2005). The main sensory organ used by fish to detect low-frequency (less than 100 Hz) waterborne signals is the lateral-line. The lateral-line organ is mostly involved in processing acoustic signals when the source is within a few body lengths of the fish. Otoliths located within the skull of the fish are sensitive to vibration rather than sound pressure. In fish species that contain gas-filled swim bladders, pressure waves are converted to vibrations via the swim bladder and are transferred to the otoliths, allowing the fish to detect both sound and vibration. High energy waves that may result from demolition activities may disturb these sensory systems; however, this is unlikely in the case of finfish species with swim bladders that are reduced or altogether absent (demersal species such as flounder typically do not have swim bladders and tend to be less susceptible to blast impacts) (ACOE 2004; Popper and Clark 1976). Field tests have shown the weight of the charge and distance from the detonation or distance from pile driving are the most important factors affecting the extent of injury and mortality to local finfish, although water depth, substrate, depth of the fish, and size and species of fish are also important (ACOE 2004; Keevin and Hempen 1997; Wiley et al. 1981; Teleki and Chamberlain 1978). However, during previous sampling efforts of the proposed Project Area, minimal numbers of finfish were collected within 50 meters of the finger piers. Additionally, a pier inspection involving divers equipped with self-contained underway breathing apparatus and underwater video indicated that no finfish were present in or around the finger piers surveyed, therefore decreasing the potential for negative effects of construction related noise and pressure emissions on local fish. These measures will also be protective of sea turtles which may be present in the vicinity of the dredge project.

3.3.2 Mitigation Strategy

In order to provide protection to aquatic species (fin-fish, sea turtles, etc) near the Terminal Site by allowing them to vacate the area, AES will adopt and implement NOAA's recommended

measure of a "soft start up" technique during sheet pile driving activities for bulkhead construction.

By implementing the ''soft start'' practice, pile driving would be initiated at an energy level less than full capacity (i.e., approximately 40 to 60 percent energy levels) for a one to two minute period before gradually escalating to full capacity. This would encourage marine life in the area to vacate the construction zone without causing harm. During the final construction design phase, AES will also investigate the need for other protective measures such as installation of silt curtains and fish netting to keep fish from entering the immediate work area and use of bubble curtains to further mitigate impacts from pressures waves associated with the sheet pile driving for construction of the bulkhead. During final construction design, AES will investigate the potential underwater noise levels associated with the sheet pile driving activities and determine the precise mitigation measures necessary, which may include any one or combination of techniques described above.

4 WETLAND & WATERBODY CROSSING CONSTRUCTION AND RESTORATION

In general, impacts to wetland vegetation resulting from the proposed Pipeline will be minimal and temporary in nature. The majority of the impacts will occur in forested wetlands because Pipeline installation will require the removal of trees and shrubs. Permanent impacts will occur within the permanent ROW, where the wetlands will be maintained for the life of the Pipeline as emergent/scrub-shrub communities. The following construction and mitigation procedures will minimize impacts to wetlands during Pipeline construction and restoration. AES has performed an evaluation of the potential Bog Turtle habitat along the project route and has attempted to avoid Bog Turtle habitat to the maximum extent practicable. Should the project work area be in the vicinity of known Bog Turtle habitat, AES will implement the Bog Turtle Management Plan included in Appendix E.

4.1 Wetland Construction Procedures

The construction technique used to cross wetlands with stable, unsaturated soils at the time of construction will be similar to those used in dry upland areas. Soils may be dry and stable enough to support equipment without additional timber mat and/or rip-rap equipment support, and pipe may be strung along the ROW on skids through the wetland. Construction procedures will adhere to Best Management Practice ("BMP") Drawings located in Appendix A and will include, but are not limited to, conventional wetland crossing and the push-pull staging methods.

AES will ensure that construction-related impacts to wetlands are kept to a minimum and will adhere to the following wetland crossing procedures which are based on the Commission's Wetland and Waterbody Construction Procedures:

- Vegetation will be cut off at ground level, leaving existing root systems intact, and the cut vegetation will be removed from the wetlands for disposal.
- Pulling of tree stumps and grading activities will be limited to that area directly over the trench, and to a lesser extent, to the work or travel area. Where, in the judgment of the Chief Inspector or Environmental Inspector, construction safety would be compromised, stumps will be pulled in the workspace outside of the trench line.
- AES will attempt to use no more than two layers of timber rip-rap or prefabricated timber mats within the work area to stabilize the ROW.
- All corduroy pads, prefabricated equipment pads, and geotextile fabric overlain with gravel will be removed upon completion of construction.
- The top 12 inches of topsoil from the trench will be segregated and then returned to its original position on top of the trench, except in areas where tree roots and stumps, standing water, or saturated soils prevent this.
- Sediment barriers will be installed and maintained at the edge of all wetlands until upslope ROW revegetation is completed. Permanent slope breakers will be installed at the base of all slopes adjacent to wetlands.

- Permanent trench breakers will be installed at the point where the trench enters and exits the wetland to help preserve the wetland's hydrologic characteristics and to control sediment discharges into the wetlands.

- Backfilling of the trench within the wetlands will be performed in such a manner that excess backfill will not be mounded, and that the wetlands will be returned, to the extent possible, to original contours and flow patterns.

- Excess fill material resulting from trench excavation and backfilling must not be discharged or otherwise disposed of in waters of the United States and jurisdictional wetlands.

- Due to relatively deep soils traversed along much of the Project Area, shallow bedrock conditions are not expected to be common. This is particularly the case with wetlands that typically occur in low lying areas and floodplains with deep soils. In the event that bedrock occurs near to the surface in wetlands, AES will minimize impacts by using construction BMPs for shallow bedrock areas, including use of rippers, back-hoe mounted hammers, and blasting where necessary.

4.2 Wetland Restoration

On-site restoration will be implemented for all wetlands temporarily impacted by the Project. Wetland crossing areas will be returned to approximate pre-existing contours within 48 hours of backfilling the trench. Work mats, wood mats, and other construction materials will be removed from the ROW. Restoration activities will take place as weather permits immediately after construction so to not prolong any temporary or permanent impact to wetland areas. AES will perform restoration activities in accordance with FERC permits and environmental inspection standards.

In general re-vegetation of most wetland areas disturbed during construction should occur naturally as roots will remain undisturbed by construction. Tree canopy and vegetation in temporary workspace should be allowed to re-establish naturally post-construction. Mowing will be restricted within the ROW in wetland areas; instead they will be maintained by hand-trimming. Scrub-shrub vegetation should be able to re-establish within the 50-foot ROW and will be limited to 15 feet in height.

Wetlands will be stabilized with annual ryegrass, allowing the wetland’s native seed and rhizomes (contained in the topsoil) to reestablish dominance over time. No lime, fertilizer, or mulch will be applied in wetlands. If revegetation is not successful at the end of a three year monitoring period, AES will develop and implement (in consultation with a professional wetland ecologist) a remedial revegetation plan, including, but not limited to the use of a native wetland seed mix

4.3 Waterbody Crossing Construction Procedures

The 177 waterbodies identified during field reconnaissance, including perennial, intermittent and ephemeral streams, will be crossed during construction using one of the crossing methods described below. The selected method will provide the least disturbance and most expedient crossing to minimize overall impact. The crossing methods below are further described in Appendix B - Environmental Construction Plan (ECP) and Appendix A - Best Management Practice (BMP) Drawings. The ECP and BMPs were developed by AES based on the FERC’s

requirements in the Wetland and Waterbody Construction and Mitigation Procedures (January 17, 2003). Crossing methods for each of the waterbodies are indicated on Table 2-2 and crossing plans for select crossing locations are included in Appendix C – Site Specific Construction Plan (SCP). The Pipeline Route will include two major waterbody crossings -- the Susquehanna River and the Back River.

- Horizontal Directional Drilling ("HDD"). For this type of crossing, a specialized drill rig is used to advance a shallow-angled borehole below the stream to be crossed and, using a telemetry guidance system, the borehole is "steered" beneath the stream and then back to the ground surface. The hole is then reamed to a size adequate for the pipe to pass through, and the pipeline is then pulled back through the borehole. This method provides the maximum protection to surface waterbodies. In areas requiring additional geologic data for construction design, including HDD crossings, geotechnical studies will be completed prior to construction. The results of these investigations will be filed with FERC when available. Following these investigations, AES will develop specific details regarding HDD crossings, including entry and exit pit locations and size, site-specific plans (to scale) with areas of disturbance, and contingency mitigation measures to contain and clean up inadvertent release of drilling mud (in the unlikely event that an inadvertent release of drilling mud occurs).

- Conventional Bore. A conventional bored crossing requires the excavation of bore pits on each side of the stream being crossed. Drilling equipment is used to install a horizontal borehole from one bore pit to the other. The pipe is then pulled through the borehole. For a general description of the conventional bore crossing method see BMP Drawing Number 14. This method is commonly used where open cut trenching is impractical or undesirable. Use of a bored crossing should not be time-restricted because it involves no work within or impact to the streambed or stream banks.

- Dam & Pump Crossing Method. This method may be used in situations where pumps are able to adequately transfer water around the work area and there are no concerns about sensitive species passage. The dam and pump crossing method ensures stream flow is maintained. Potential water quality impacts are minimized or avoided by screening pump intakes and preventing streambed scour at the pump discharge by utilizing an energy dissipater (see BMP Drawing Number 17, Appendix A).

- Flume Stream Crossing Method. This method requires installation of a flume pipe to convey water across the trench and a diversion structure to funnel water into the flume pipe(s). The flume crossing method ensures stream flow is maintained. This method may be used in situations where there are concerns about sensitive species passage. Water quality impacts are minimized because trench spoil does not come into contact with stream water and therefore stream sediment is not mobilized (see BMP Drawing Number 16, Appendix A).

- Dry Non-Specified Crossing. This crossing method designation means that either dam and pump crossing method or the flume crossing method will be utilized, and the selection will be determined in the field at the time of crossing by the contractor and AES's environmental inspector.

- Multi-Flume Method. This crossing method may be implemented where stream flow is too high to be accommodated by a single flume. Similar to the flume crossing method, in which a single flume pipe is installed to convey water across the trench, the multi-flume crossing method utilizes several flumes in areas of high flow. Water quality impacts are minimized by limiting trench spoil contact with stream water. All in-stream pipe fabrication is completed prior to stream ditching to minimize duration of stream diversion. In-stream pipe is installed at least five feet below the designed drain bottom.

4.4 Seasonal Construction Restrictions

To the greatest extent practicable, the construction method utilized for each waterbody crossing will be compatible with the environmental sensitivity and physical characteristics of each waterbody. Construction and restoration at waterbody crossings will be completed as quickly as practicable and in accordance with the FERC's time limits, where applicable, unless additional time is expressly permitted by federal and state agencies, or unforeseen circumstances (e.g., inclement weather) should dictate otherwise. Short construction time frames will limit the spatial and temporal extent of sedimentation and turbidity impacts on fish, other in-stream biota and aquatic habitat.

Based on prior consultation with the U.S. Fish and Wildlife Service ("FWS") and National Marine Fisheries Service ("NMFS"), AES has developed seasonal construction restrictions to protect spawning fish in sensitive waterbodies. AES evaluated crossing restrictions for Back River, Little Gunpowder Falls, Susquehanna River, Deer Creek, White Marsh Run, Octoraro Creek, Buck Run, East Branch Brandywine Creek and West Branch Brandywine Creek. The seasonal construction restrictions are listed below in Table 1. AES has consulted with various agencies including FERC, ACOE, NMFS, NOAA, MDNR, MDE, and PADEP regarding the potential impacts of project construction on seasonal spawning/migratory periods for anadromous fish. Based on consultations with these agencies AES will implement the seasonal restrictions below:

Table 1:
Seasonal Construction Restrictions

Waterbody	Construction Excluded	
Big Gunpowder Falls	15-Feb	14-Jun
Susquehanna River	21-Apr	15-Jun
Deer Creek	15-Feb	14-Jun
White Marsh Run	15-Feb	14-Jun
Moores Run	15-Feb	14-Jun
Octoraro Creek	15-Feb	14-Jun
Stemmers Run	15-Feb	15-Jun

4.5 Waterbody Crossing Restoration

Restoration activities associated with all stream crossings will be performed after completion of Pipeline installation in accordance with the ECP, Appendix B. Channel stability is not perceived as a construction or restoration problem at any of the surface crossing locations observed to date. During clearing operations, vegetative strips will be maintained along the bank of the waterbody as shown in BMPs 21 and 22. Trees will be cut flush with the surface, but no stumps or roots will be removed. The length of actual, temporary bank disturbance will be limited to the width of excavation necessary to place fabricated pipe in the crossing (typically less than 10 feet). Native stone will be used to the extent possible during stream crossing restoration and stabilization. During the operational phase, native plant species, with the exception of deep rooting trees, will be allowed to reestablish along the banks of the waterbody. The bank conditions will be inspected twice annually during the operational phase of the Project. AES will address any evidence of bank instability caused by Pipeline construction or that poses a threat to the Pipeline in accordance with the ECP, Appendix B.

Hydrostatic Testing

AES will be required to perform hydrostatic static of both the Proposed LNG Tanks and the natural gas pipeline. AES has developed the Hydrotesting and Pre-Commissioning Plan included as Appendix F to this document which documents sources of hydrostatic test water, potential impacts and mitigation measures. Additionally, based on a request from NMFS, AES has that where practicable, the water withdrawals from the Susquehanna River will be avoided from April 21 through June 15, during the approximate period of Conowingo Dam fish lift operation and potential anadromous fish spawning in the Conowingo Pool.

5 WETLAND MITIGATION

5.1 Mitigation Approach

On April 10, 2008, a Final Rule was published in the Federal Register by the EPA and the ACOE that introduced new standards to promote no net loss of wetlands by improving wetland restoration and protection policies, increasing the effective use of wetland mitigation banks and strengthening the requirements for the use of in-lieu fee mitigation (Federal Register / Vol. 73, No. 70 / Thursday, April 10, 2008 / Rules and Regulations). These new wetlands compensatory mitigation standards emphasize best available science, promote innovation and focus on results. AES has designed the Project in accordance with the intent of the newly published rule to adhere to the "mitigation sequence" of "avoid, minimize and compensate". As described in section 2.6, AES focused the project routing to first avoid sensitive resources then to minimize impacts, and then to compensate for unavoidable impacts.

The total number of wetlands crossed is presented in Table 2-1. As described in Resource Report 10, Alternatives, during the Project route selection, AES avoided or minimized impacts to wetlands to the extent practicable. Wetland areas are temporarily impacted by construction activities within the ROW and within additional temporary workspace areas ("ATWS"). On-site restoration will be implemented for all wetlands temporarily impacted by the project. Wetland crossing areas will be returned to pre-existing contours within 48hrs of backfilling the trench. A summary of impacts, both temporary and permanent is included in Section 4.1

5.2 Temporary & Permanent Impacts

Temporary impacts to wetlands have been minimized to the maximum extend practicable through route selection and development and implementation of appropriate construction techniques as described in Section 3.3. Restoration activities will take place as weather permits immediately after construction so to not prolong any temporary or permanent impact to wetland areas. AES will perform restoration activities in accordance with FERC permits and environmental inspection standards.

In general, re-vegetation of most wetland areas disturbed during construction should occur naturally as roots will remain undisturbed by construction. Tree canopy and vegetation in temporary workspace should be allowed to re-establish naturally post-construction. Mowing will be restricted within the ROW in wetland areas; instead they will be maintained by hand-trimming.

Permanent impacts to wetland areas occur in forested wetland areas that will be converted to other wetland types (palustrine emergent and scrub-shrub wetlands). Forested wetlands affected by construction are considered a permanent impact as they take several years to "re-establish" and the tree height of the wetland area along the ROW will be restricted to 15 feet in height. Emergent and Scrub-shrub type communities tend to come back in fewer growing seasons. AES will compensate for these permanent wetland losses according to state mitigation guidance.

A total of 23.75 acres of wetlands will be impacted by construction of the Project. The temporary impacts will affect 19.31 acres while permanent impacts have been limited to 4.44 acres. Permanent and temporary impact by cover type is shown in the table below:

	Maryland		Pennsylvania	
Wetland Cover Type [a]	**Temporary (acres)**	**Permanent (acres)**	**Temporary (acres)**	**Permanent (acres)**
PEM	5.2	0	1.9	0
PEM/PFO	2.65	1.12	0.66	0.44
PEM/PSS	1.13	0	0.02	0
PSS	0.05	0	0.08	0
PFO	5.53	2.1	1.47	0.6
PFO/PEM	0.16	0.04	0.36	0.14
POW/PEM	0.03	0	0.07	0
Project Total	**14.75**	**3.26**	**4.56**	**1.18**

AES proposes to mitigate areas of temporary impact through restoration of the affected areas at a 1:1 ration according to FERC Wetland and Waterbody Construction Procedures as described 3.1 and 3.2. AES will mitigate for the permanent conversation of forested wetland to emergent and scrub-shrub wetland through implementation of compensatory mitigation projects to offset the 4.44 acres of permanent wetland type conversion.

5.3 Compensation

Under 40 CFR 230, the ACOE reviews proposals using a "sequencing" procedure: avoidance, minimization, and, finally, compensation for unavoidable impacts.

AES will compensate for temporary impacts to wetlands through restoration and for permanent impacts through compensatory mitigation. The goal of the wetland mitigation program is to ensure no net loss of wetland functional value for the wetlands affected by construction of the Project. Approximately 4.44 acres will require some sort of compensatory mitigation AES has reviewed the Maryland Compensatory Mitigation Guidance dated August 1994 as well as the recent Final Rule published in the Federal Register and from the mitigation ratio present on the MDE Wetland Mitigation website[3]. A breakdown of Project impacts and proposed compensatory mitigation for permanent impacts is presented below.

Wetland Cover Type [a]	Replacement Ratio (acres)	Permanent MD (acres)	Permanent PA (acres)	Mitigation Proposed MD (acres)	Mitigation Proposed PA (acres)
PEM	1:1	0	0	0	0
PEM/PFO	2:1	1.12	0.44	2.24	.88
PEM/PSS	2:1	0	0	0	0
PSS	2:1	0	0	0	0
PFO	2:1	2.1	0.6	4.2	1.2
PFO/PEM	2:1	0.04	0.14	.08	.28
POW/PEM	1:1	0	0	0	0
Project Total		**3.26**	**1.18**	**6.52**	**2.36**

[3] http://www.mde.state.md.us/Programs/WaterPrograms/Wetlands_Waterways/regulations/mitigation.asp accessed on August 21, 2008

To further understand wetland impact by region, AES has refined the total impacts to wetland systems based on the watershed sub-basin in which they occur. Permanent wetland impacts to wetland systems will occur within five sub-basins of the Chesapeake Bay Watershed as shown in the table below:

Chesapeake Bay Watershed Sub-Basin	Permanent Impact (acres)
Gunpowder-Patapsco Basin	1.85
Lower Susquehanna Basin	1.41
Chester-Sassafras Basin	.55
Brandywine-Christina Basin	.43
Schuylkill Basin	.2
Total Impact	**4.44 acres**

Compensatory mitigation can be carried out through four methods: the restoration of a previously-existing wetland or other aquatic site, the enhancement of an existing aquatic site's functions, the establishment (i.e., creation) of a new aquatic site, or the preservation of an existing aquatic site. There are multiple mechanisms for providing compensatory mitigation including habitat restoration or creation, mitigation banks and in-lieu fee mitigation. Based on the recent guidance published by EPA and ACOE, AES has focused the proposed mitigation strategy on habitat restoration or creation and mitigation banks. In-lieu fee mitigation is not a proposed form of compensatory mitigation for the Project impacts. AES has establish a mitigation hierarchy where mitigation projects will be identified with the priority focused on on-site mitigation, then off-site in sub-watershed mitigation, then off-site in watershed mitigation and finally wetland mitigation banking.

5.3.1 On-site In-kind restoration or creation

As described in Section 3 above, AES will mitigate for temporary impacts associated with Project construction through on-site in kind wetland restoration. These wetlands will be restored to their original state following installation of the pipeline. Where practical, AES will attempt to conduct habitat restoration of creation project at areas adjacent to or contiguous to project permanent impacts.

5.3.2 Off-site in sub-watershed in-kind restoration or creation

When on-site mitigation is not practical, AES will attempt to perform off-site mitigation projects within the sub-watershed where the permanent impacts will occur. Each of the sub-watersheds and total permanent impacts are presented in Section 4.3. Offsite mitigation projects could include enhancement of existing wetland areas or creation of new wetland habitat.

5.3.3 Off-site, in watershed in-kind restoration or creation

If mitigation projects are not viable within the same sub-watershed as the impact, AES will attempt to perform off-site mitigation within the Chesapeake Bay watershed.

5.3.4 Wetland Mitigation Bank

If it is determined through consultations with ACOE and MDE that the preferred method for mitigation would be investment in a mitigation bank with ongoing restoration and creation projects, then AES will coordinate with ACOE and MDE to identify an appropriate mitigation bank or multiple banks as well as to identify the appropriate compensatory mitigation amount.

5.4 Compensatory Mitigation Projects

Whether compensatory mitigation is on-site, off-site, in-kind, or out-of-kind, AES will ensure the mitigation project meets the following criteria:

- Is sustainable in the context of adjacent land uses;
- Is sustainable in the context of natural processes, particularly with respect to hydrology;
- Has little or no adverse impacts on the environment.
- Includes good stewardship and long-term protection provisions (e.g., financial assurances, site protection mechanisms, monitoring and contingency provisions, etc.); and,
- Has clear goals, with specifically defined measurable performance standards, in order to ensure mitigation effectiveness.

6 REGULATORY CONSULTATION

6.1 Development of Detailed Site Mitigation Plans

AES has consulted with ACOE, MDE, and various Pennsylvania regulatory agencies throughout the permitting process and will continue to work with the appropriate agencies to develop detailed site specific mitigation plans as Project permits are issued with specific requirements for mitigation planning.

AES initiated additional consultations with the ACOE, NMFS, FWS, EPA, MDE, and PDEP regarding the AES Aquatic Resources Mitigation Plan ("ARMP") in a letter dated May 12, 2008. Based on comments received from FERC, AES has updated the plan and submitted a revised copy to FERC, COE, MDE, MDNR, PA DEP, PFBC, PDCNR, CCCD, CCPC and Lancaster County Planning Commission for review and comment on August 29, 2008. AES will follow up with each agency and update the plan as required based on the ongoing consultation process.

Additionally based on consultations with NMFS, AES has included the requested seasonal restrictions for select waterbody crossings, hydrostatic test water intake and discharge as well as included NMFS's requested soft start up procedures for installation of the sheet pile bulkhead and onshore pile driving activities. AES is still engaged in ongoing consultations with NFMS regarding the Draft Vessel Strike Avoidance Plan and the Sea Turtle Monitoring Training Program.

AES Representatives met with PA DEP – Chester County on July 10, 2008 to discuss the wetland and waterbody crossings in Chester County and the permitting process. PA DEP provided guidance on the information they require as part of the permitting process and requested AES provide them updated information once the RT&E surveys in Chester County were complete. When the materials are complete AES will draft the submission for PA DEP and continue the consultation process.

AES had continued consultations with Chester County Planning Commission, Chester County Water Resources Authority, Chester County Parks and Recreation and initiated consultations with Chester County Conservation District regarding the proposed project and potential impacts and mitigation measures.

AES received an e-mail from Greg Golden of MDNR on June 16, 2008 that raise additional concerns relative to dissolved oxygen and identified potential local contacts that may need to be involved in final mitigation planning. AES has continued ongoing consultations with MDNR through telephone conversations with Mr. Bruce Michael. AES has addressed the concerns raised in MDNR's June 16, 2008 letter to the FERC with comments on the DEIS in the revised ARMP. AES indicated to Mr. Michael that the ARMP was being revised to address multiple issues raised by FERC and other contributing agencies and when complete would be sent to his attention for review by his staff. Once their review is complete AES has committed to holding a meeting with MDNR, currently anticipated late September/early October, to review the plan and begin discussions regard specific mitigation strategies.

AES has been working with the COE to perform Jurisdictional Determinations and filed evaluations of wetland delineations throughout the Spring and Summer 2008 survey season. AES is currently awaiting confirmation from COE when they can return to the field to review the remaining wetland areas. Based on the review conducted date some new wetland areas were

identified and wetland boundaries modified. AES held a conference call with representatives of the COE on Tuesday August 26, 2008. During this call AES discussed the Draft ARMP with Ms. Kathy Anderson and Mr. Joe DaVia of the COE. AES explained the intent of the plan as tool to begin discussions regarding the final mitigation that will be required as part of the project. The COE representatives indicated that they understand the intent of the plan and are willing to continue to work with AES to develop a mitigation plan that will meet their requirements. COE referenced the new rule regarding mitigation that requires site specific mitigation plans to be completed prior to permit issuance. The AES project submitted its permit applications before the promulgation of the final rule and would therefore be "grandfathered" under the previous regulations; however Ms. Anderson indicated she wants to see as much detail as possible regarding site specific mitigation and would prefer if AES complied with the new rule. AES acknowledged the request and committed to review the rule and consider it when revising the Draft ARMP. AES expects that it will continue to receive comments as the Project moves forward and other issues arise or are resolved.

6.2 Monitoring and Reporting

Monitoring activities may include, but are not limited to, evaluation of surface water and ground water elevations, integrity of inlet/outlet structures, plant health, presence of invasive species, and vegetation ground cover.

Newly created and restored sites will be monitored and progress will be recorded and reported annually and submitted to the ACOE, MDE, and Pennsylvania regulatory agencies, as required, for the first five years following the first growing season.

Wetland restoration within the ROW will be monitored and recorded annually for three years post-construction or until wetland restoration is deemed successful. A report will be filed with FERC documenting the status of the wetland restoration activities, including problems encountered and percent cover achieved.

6.3 Performance Standards and Development of Performance Plans

According to the FERC guidelines, wetland restoration will be considered successful if the cover of herbaceous and/or woody species is at least 80 percent of the type, density, and distribution of the vegetation in adjacent wetland areas not disturbed by construction. If revegetation is not successful after three years for a non forested wetlands and ten years for a forested wetland, a remedial investigation plan will be developed in consultation with a professional wetland ecologist and submitted to the agencies.

7 PLAN SUMMARY AND CONCLUSIONS

It is AES's intention to avoid impacts to aquatic resources, to minimize those impacts where avoidance is impossible or impractical, and then compensate for those unavoidable impacts. AES has proposed compensatory mitigation at the ratios presented in this Aquatic Resource Mitigation Plan to offset the unavoidable permanent impacts from the Project. Through routing and selection of construction techniques, AES has minimized the total impact permanent impact of the project to the conversion of less than 4.5 acres of forested wetland to emergent or scrub-shrub wetland. These impacts will be compensated for in accordance with the Plan and procedures described above. The final mitigation measures and detailed site-specific mitigation plans will be developed through continued consultations with the ACOE, MDE, and various Pennsylvania regulatory agencies to ensure the goals of each program are met and that there is not net loss of wetland habitat or functional value.

REFERENCES

C:\Documents and Settings\rty\Desktop\DRAFT ARMP August 2008.doc

APPENDIX A

Best Management Practices
(Documents Originally Included as Appendix 2B1 of Resource Report 2, will be included in the Final Version of the Document)

APPENDIX B

Environmental Construction Plan
(Document Originally Included as Appendix A of Resource Report 2, will be included in the Final Version of the Document)

APPENDIX C

Site Specific Crossing Methods
(Documents Originally Included as Appendix 2B2 of Resource Report 2, will be included in the Final Version of the Document)

APPENDIX D

DRAFT Sea Turtle Monitoring Program
(Documents will be included in the Final Version of the Document)

APPENDIX E

Bog Turtle Management Plan
(Documents will be included in the Final Version of the Document)

APPENDIX E

Hydrotesting and Pre-Commissioning Plan
(Documents will be included in the Final Version of the Document)