Florida Power & Light

City of Vero Beach
Municipal Power Plant
Phase I Environmental Assessment Report

September 2011

Phase I Environmental Site Assessment Report

City of Vero Beach Municipal Power Plant
100 17th Street
Vero Beach, Florida

September 1, 2011

Prepared for:
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Florida Power & Light
City of Vero Beach Municipal Power Plant
Phase I Environmental Assessment Report

Executive Summary

Camp Dresser & McKee Inc. (CDM) has completed a Phase I Environmental Site Assessment (ESA) for the facility identified as City of Vero Beach (CoVB) Municipal Power Plant located at 100 17th Street, in Vero Beach, Florida (the ESA site). CDM completed this Phase I ESA in accordance with the standard practice guidelines established in American Society for Testing and Materials (ASTM) Practice E 1527-05 and in general accordance with the 40 Code of Federal Regulations (CFR) 312.21. This Phase I ESA was performed for the purpose of satisfying the due diligence qualification requirements for the innocent landowner defense to liability under the federal Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as defined in 42 United States Code (USC) 9601 (35)(B).

This Phase I ESA has revealed the following evidence of recognized environmental conditions attributable to the City af Vero Beach Municipal Power Plant, in accordance with the ASTM Practice E 1527-05 , which may require additional investigation:

- REC-1: Cooling Water Discharge Outfall – Non-contact cooling water from the Indian River is discharged to a canal located on the northwestern corner of the property. This outfall represents a location of potential contamination accumulation in sediment, if contamination has historically entered the cooling water.

- REC-2: Machine Shop/Historic Solvent Use - A parts washer with a 35-gallon drum of solvent is located in the machine shop to the north of Unit 5. Based on information from CoVB employees, solvents are removed off-site and replaced by a contractor. Solvents have been historical used at this location dating back to at least the 1970s. Solvent disposal practices during that period are unknown. Additionally, the machine shop is the primary location for all custom parts manufacturing and repair activities. Stains were observed on the floor of the machine shop.

- REC-3: Electrical Shop/Historic Solvent Use – A parts washer with a 35-gallon drum of solvent is located in the electrical shop next to Unit 1. Based on information from CoVB employees, solvents are removed off-site and replaced by a contractor. The current housekeeping appears to be adequate; however, the use of solvents at this location has been reported back to the early operation of the facility. Historic solvent housekeeping and disposal practices are unknown.

- REC-4: Unit 1 Historic Solvent Use - A parts washer with a 35-gallon drum of solvent is located inside the power plant building that houses Unit 1. Based on information from CoVB employees, solvents are removed off-site and replaced by a contractor. The current housekeeping appears to be adequate; however, the use of solvents at this location has been reported back to the early operation of the facility. Historic solvent housekeeping and disposal practices are unknown.

- REC-5: Existing Fuel Oil Pipeline – Existing aboveground fuel oil pipelines are located north and east of the pump house. It was reported by CoVB employees that these pipelines have a below grade liner; however, based on the lack of berming and location on a side slope, it is unlikely that a properly constructed liner exists. The existing #2 fuel oil lines are single-walled.

- REC-6: Former Chemical AST Location – There is a concrete pad that formerly held an AST located to the southeast of the lead acid battery room. Based on information received from CoVB employees, this AST may have contained sulfuric acid and/or water. During the field visit, acid scarring was observed on the concrete pad, indicating that the tank has leaked in the past.

- REC-7: Neutralization Basin – The neutralization basin is a 70,000-gallon in-ground tank that receives wastewater and discharge from power plant floor drains. This basin is located east of Unit 5. Several oil leaks and stains were identified in the power plant. The neutralization basin is a potential point of accumulation and contamination discharge for spills of chemicals that may have been discharged to the drains inside the facility.

- REC-8: Former Underground Fuel Oil Pipeline – Based on FDEP documentation, former underground fuel oil pipes were located next to the pump house (south and west). These pipes carried fuel from the pump house to Unit 4. The pipes were located underground, and secondary containment was not likely utilized.

- REC-9: Open Manhole/Underground Piping – There is an open manhole located underneath above-ground fuel pipes to the north of the hazmat building. CoVB personnel reported that the open manhole was used as a seep pit for boiler 2 blow-down in the 1960's. A former pipeline was also reported in this location.

- REC-10: Current and Former Vehicle Fueling Facility – There are currently two (one gasoline, one diesel) ASTs located to the east of the pump house. These ASTs are used to fuel CoVB vehicles. Former gasoline and diesel ASTs were also located in this area. Historic leaks or spills associated with fuel dispensing are possible contamination sources.

- REC-11: Fuel Area Oil-Water Separator – There is an OWS for the containment system in the fuel delivery area. This OWS discharges to the #2 fuel oil containment basin. The OWS represents a potential location of contamination accumulation and discharge if not properly monitored and maintained.

- REC-12: Former Fuel Oil AST Locations – Previous fuel oil ASTs were located near the current fuel oil storage areas. There appears to be secondary containment based on historical aerial photography; however, the use and/or competency of lining is unknown.

- REC-13: No 2 Fuel Oil Containment Oil-Water Separator – There is an OWS for the #2 fuel oil containment basin. This OWS is located to the north of the basin and discharges to the northern canal. The OWS represents a potential location of contamination accumulation and discharge if not properly monitored and maintained.

- REC-14: Former Ash Pit – Closure of a former ash pit was coordinated with the Florida Department of Environmental Regulation (now FDEP) in 1983. Based on descriptions of the pit closure and review of historic aerial photographs, this ash pit may have been located in the northeast corner of the property near the current staging area.

- REC-15: Historic Landfilling Activities – Based on information provided by CoVB employees, a former landfill existed on the property. The location of the landfilling activities was identified as generally in the

northeastern portion of the property; however, the exact location was not identified. Additional interviews will be conducted prior to Phase II ESA activities to better define the location of the former landfilling activities.

- REC-16: Former Chemical Storage Area for Water Cooling Towers – Formerly, the chemical storage area was located on the south side of the water cooling towers. Based on information received from CoVB employees, this storage area had a concrete bottom and concrete block containment wall that was one-block high. Chemicals stored in this area included bromine, antifoam agent, dispersant, tolytriazole, and sulfuric acid. Acid scarring on the concrete was noted in the area that reportedly held sulfuric acid. The scarring indicates that leaks have occurred in the past. Based on the damage to the concrete pad, it is unlikely that proper containment was maintained.

- REC-17: Former Barge Offloading Area and Transfer Pipeline – Historically fuel oil was delivered to the CoVB Power Plant via barge delivery. The former docking area is reported to be near the end of the intake channel. The exact location of transfer piping has not been identified at this time, but will be located between the dock and former AST locations.

- REC-18: Natural Gas Operation – The current primary source of fuel for the power plant is natural gas. Several potential environmental hazards are possible related to natural gas and natural gas delivery systems. Further information gathering is necessary related to the delivery of natural gas, but the natural gas compound on the north central portion of the site is identified as a REC.

- REC-19: Unreported Historic Spill (1987)/Wastewater Lift Station – A spill of 252 gallons of #6 fuel oil was referenced in the 2011 Spill Prevention Control and Countermeasure (SPCC) Plan. The spill reportedly discharged to the lift station on the southeast corner of the facility. Historical records of this spill or the status of cleanup were not available on the FDEP database or in the provided records.

- REC-20: Unreported Historic Spill (1992)/Wastewater Lift Station – A spill of 1,000 gallons of lubricating oil was referenced in the 2011 SPCC Plan. The spill reportedly discharged to the lift station on the southeast corner of the facility. Historical records of this spill or the status of cleanup were not available on the FDEP database or in the provided records.

- REC-21: Asbestos Containing Materials – During the asbestos inspection, 142 homogeneous areas were identified as suspect, asbestos-containing materials, including, but not limited to areas in all five power generation units, outdoor above ground piping, indoor and outdoor concrete slabs and other concrete structures, and the outdoor picnic pavilion. Also, during this inspection, plant operators estimated that 10% of the remaining piping still contained asbestos.

- REC-22: Lead-Based Paint Containing Materials – Results of lead-based paint testing indicated that lead based paint was detected above 1.0 mg/cm^2 in 35 readings at the several testing areas, including the Generation Building Roof, Fifth Floor Interior, Turbine Deck (Floor 2), Level 1, Water Intake Area, Manatee Refuge Area, and Switch Yard.

1.0 Introduction

Florida Power & Light Company (FPL) retained Camp Dresser & McKee Inc (CDM) to complete a Phase I Environmental Site Assessment (ESA) of the City of Vero Beach (CoVB) Municipal Power Plant located at 100 17th Street, in Vero Beach, Florida. The purpose of the Phase I ESA is to determine the probability of contamination by pollutants or contaminants, petroleum or petroleum products, or controlled substances on the ESA site as part of the CoVB Asset Acquisition due diligence efforts. A Site Location Map (**Figure 1**) showing the general location of the Due Diligence Program sites, a Site Map (**Figure 2**) showing the current key site features at the ESA site, and a Local Area Map (**Figure 3**) showing the properties in the vicinity of the ESA site are provided in **Appendix A.**

1.1 Objective

CDM completed this Phase I ESA in accordance with the standard practice guidelines established in American Society for Testing and Materials (ASTM) Practice E 1527-05 and in general accordance with the 40 Code of Federal Regulations (CFR) 312.21 (see Section 1.4 for Limitations and Exceptions). This Phase I ESA was intended to satisfy one of the requirements to qualify for the "innocent landowner defense" of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as cited in the 1986 Superfund Amendments and Reauthorization Act (SARA) legislation, 42 USC 9601(35)(B).

The purpose of the Phase I ESA was to establish an information base for assessing the potential for "recognized environmental conditions" at the ESA site. This information will be used to evaluate potential environmental liabilities associated with the ESA site. The term includes hazardous substances or petroleum products even under conditions in compliance with laws. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

"Recognized environmental condition" means the presence or likely presence of any hazardous substances or petroleum products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any hazardous substances or petroleum products into structures on the Property or into the ground, groundwater, or surface water of the Property.

ASTM guidance defines **"material threat"** as "a physically observable or obvious threat, which is reasonably likely to lead to a release that, in the opinion of the environmental professional, is threatening and might result in impact to public health or the environment." It is not sufficient to establish a site feature as a "recognized environmental condition" just because it exists. In order to establish a site feature as a "recognized environmental condition", there "must be compelling evidence that either 1) the hazardous substance or petroleum product was released from its container or operation onto (or into) the surface or 2) by virtue of the condition of the container or state of the operation that stores or handles such products, there is reasonable concern in the foreseeable future that such materials will be released to the surface of the property"

Source(s): *New and Improved Site Assessment Standard, Revisions to the ASTM Phase I Standards Represent Significant Interpretive Changes for Both Users and Environmental Professionals, ASTM Standardization News Insight, March 2001, [www.astm.org/snews/march-2001/insight-mar01.html], Pages 3 and 4).*

1.2 Scope of Work

This Phase I ESA included the following ASTM standard components in order for CDM staff to assess the potential for "recognized environmental conditions" at the ESA site:

- CDM conducted a review of appropriate federal, state, and local environmental regulatory agency databases, public records, and client-provided data (if available) pertaining to the ESA site and the surrounding area, which could be obtained within a reasonable time frame. These data were used in an effort to identify off-site facilities or sites that have a potential risk to adversely impact the ESA site, and historical land usage and property occupancy information to aid with the identification of recognized environmental conditions in connection with the ESA site.

- CDM conducted interviews with local government officials from the local health department, fire department, and other appropriate local agencies, if applicable, about known environmental problems on the ESA site or in the area.

- CDM conducted a site reconnaissance visit of the ESA site to visually identify potential environmental concerns. The information gathered was used to identify potential environmental concerns that may likely indicate the presence of such items as hazardous or toxic materials, hazardous wastes, petroleum products, underground and above ground storage tanks, dry wells, septic tanks, PCB-containing equipment, areas of stained or discolored soil, surface water, pavement and/or flooring, and areas of stressed or dead vegetation, that could be visually identified on the ESA site. A visual assessment of the adjacent properties also was conducted from the adjacent public right-of-ways to detect the presence of off-site environmental concerns that potentially could have an adverse impact on the ESA site. Color photographs were taken to document the current conditions of the ESA site and adjoining properties at the time of the site reconnaissance (see **Appendix B**).

For this Phase I ESA, CDM also reviewed the following additional items identified in Section 12 of ASTM Standard E 1527-05: asbestos containing materials, lead based paint containing materials, radon, wetlands and surface waters, State historical preservation, listed species, local water use, and air emissions.

1.3 Significant Assumptions

Some information may not be attainable within the timeframe specified in ASTM E1527-05.

1.4 Limitations and Exceptions

The limitations and exceptions to the scope set forth in ASTM Practice E are described in Section 11.0. There were no additional limitations or exceptions identified in accordance with the scope set forth in ASTM Practice E 1527.

The Phase I ESA scope of work does not include lead in drinking water, industrial hygiene, health and safety, indoor air quality and mold, vapor encroachment screening, and other non-scope items.

1.5 Special Terms and Conditions

No investigation can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. **Consequently, this report in no way expresses any warranty or guarantee with respect to recognized environmental conditions at the ESA site.** However, the standard of care exercised for these professional services was performed in accordance with customary principles and accepted practices in the area of environmental science and engineering and in accordance with the ASTM Practice E

1527-05 for conducting Phase I ESAs. In addition, every reasonable effort was made to ensure that the information presented in this report is materially complete and accurate.

The conclusions of this report are based solely upon observations made during this evaluation. CDM's opinions should not be construed as relating to health and safety issues, directly. Should additional information become available, this information should be reviewed by CDM, and the conclusions herein modified, as appropriate. In addition, this report should not be construed as verification of compliance by the present owners or operators of the ESA site with federal, state, or local laws and regulations.

Information provided by third parties was used in assessing the ESA site conditions. The accuracy of the conclusions made from this information is inherently based on the accuracy of the information provided. It must be recognized that the limited scope of services may have precluded recognition of contamination at the ESA site. The absence of contamination recognition in this report cannot be interpreted as a warranty, expressed or implied, that no contamination exists at the ESA site, and CDM cannot be held liable for damages if contamination of some type is discovered in the future.

This report should not be considered as a recommendation to purchase, sell, or develop the ESA site, and the opinions contained herein are not legal opinions. To evaluate the information contained in this report, the reader must understand the limitations associated with this assessment. Specifically, the services included in this project have been performed in accordance with the Scope of Services and the contract agreement between FPL and CDM, with the limitations and exceptions outlined.

1.6 User Reliance

This report is provided for the sole use and benefit of the parties listed below and may not be used or relied upon by any other party whatsoever. Reliance on this report by a party other than FPL shall be at the party's sole risk unless that party has written authorization from CDM to use this document. The purpose of this restriction is to attempt to protect the interest of parties for whom the report may not be appropriately directed.

- Florida Power & Light Company
- Camp Dresser & McKee Inc.

2.0 Site Description

2.1 Location and Legal Description

The CoVB Municipal Power Plant is located at the northeast corner of 17th Street and Indian River Boulevard in Vero Beach, Florida. A separate Phase I ESA report was prepared for Substation 01, which is located on the western portion of the property along Indian River Boulevard. The approximate geographical coordinates for the property are 27 degrees, 38 minutes, 0.6 seconds North (Latitude) by 80 degrees, 22 minutes, 37.9 seconds West (Longitude). The property is comprised of three parcels that cover approximately 29.3 acres and includes the power plant property north of 17th Street and the water treatment facility property south of 17th Street. The power plant site is approximately 16.4 acres. Property information obtained from the Indian River County Property Appraiser is included in **Table 2-1**. A Site Location Map (Figure 1) showing the general location of the Due Diligence Program sites, a Site Map (Figure 2) showing the key site features at the ESA site, and a Local Area Map (Figure 3) showing the surrounding area to the ESA site are provided in Appendix A.

Table 2-1 Information Obtained from the Indian River County Property Appraiser

Current Owner	Parcel Number	Legal Description	Acreage
City of Vero Beach	33400600000004000005.0	GOV LOT 4, LESS SCHWEY AS DESC IN R BK269 PP 242 & W 10 A & ALSO WLY 38 FT STRIP AS IN OR BK 382, PP 431 & ALSO LESS THAT PART LYING N OF 17TH ST & W OF IND RIV BLVD & ALSO LESS THAT PART LYING S OF 17TH ST & W OF INDIAN RIVER BLVD. & ALSO LESS POR'S FOR R/W TO FL DOT(OR BK 1406 PG 2289)	26.9
City of Vero Beach	33400600000004000007.0	PART OF GOVT LOT 4 AS DESC IN OR BK 359,PP 503 & OR BK 361, PP 444	1.1
City of Vero Beach	33400600000004000006.0	PART OF GOV LOT 4 DESC AS FOLLOWS FROM NW COR OF GOV LOT 4 RUN S 89 DEG 49 MIN1S SEC E ALONG N LINE OF LOT 4, 1629.72 FT TO P.O.B. THENCE S 0 DEG 1 MIN 30 SE W 43 FT THENCE S 8 DEG 18 MIN 25 SEC E 123. 95 FT, S 0 DEG 51 MIN 35 5EC W 278 FT S 89 DEG 49 MIN 15 SEC E 117.57 FT S 0 DEG 51 MIN 35 SEC W 5.S4 FT S 89 DEG 49 MIN 15 SEC E 15 4.55 FT MORE OR LESS TO THE INDIAN RIVER THENCE MEANDERING THE INDIAN RIVER IN A NWLY DIRECTION TO THE INTERSECTION OF THE N LINE OF GOV LOT 4. 450 FT MORE OR LESS THENCE N 89 DEG 49 MIN 15 SEC W A DISTANCE OF 248 FMORE OR LESS TO P. O.B. AS DESC IN R BK 269 PP 242 & PARCEL OF SUBMERGED LAND A DESC IN OR BK 382, PP 682, LESS WLY 38 FT STRIP AS IN OR BK 382, PP 431 & PORTION AS DESC IN OR BK 359, PP 503 & OR BK 361 PP 444	1.3

Source(s): *Environmental Data Resources, Inc., The EDR Radius Map Report with Geocheck, Municipal/Customer Service/Substation 01, 100 17th Street, Vero Beach, FL 32960, Dated July 12, 2011.*

Indian River County Property Appraiser (http://www.ircpa.org/)

2.2 Site and Vicinity General Characteristics

According to the Indian River County Property Appraiser, the largest parcel is zoned "municipal, not parks etc." (M) and includes the CoVB power plant and the municipal water treatment facility. The smaller parcels are located east of the power plant facility and north of 17th Street and are zoned "util, gas, loc" (M). The property is

located along the western bank of the Indian River and is located in an area containing commercial businesses, office buildings, and residential housing. A Land Use Map (**Figure 4**) showing the general land use categories of the ESA site and surrounding area based on the Florida Land Use and Cover Classification System (FLUCCS) coverage obtained from St. Johns River Water Management District (SJRWMD) is provided in Appendix A.

Source(s): *CDM Site reconnoissance observations from July 18-19, 2011.*

Indian River County Property Appraiser (http://www.ircpa.org/)

St. Johns River Water Management District: Online Tools- GIS Data (http://www.sjrwmd.com/gisdevelopment/docs/themes.html).

2.3 Current Uses of Property

The ESA site is utilized as an electric generation facility and consists of five (5) generating units with a total generating capacity of 160 megawatts (MW). The primary source of fuel used for power generation is natural gas with back-up fuels of #2 and #6 fuel oils. See Section 4.0 below for historical use.

Source(s): *CDM Site reconnaissance observations from July 18-19, 2011.*

The City of Vero Beach, Florida, Facility –Specific Response Plan for Non-Transportation On-Shore Related Facility for Vero Beach Power Plant, Dated 2011.

2.4 Description of Structures, Roads, and Improvements

A reconnaissance of the ESA site was conducted on July 18-19, 2011. Site reconnaissance photographs of the ESA site are provided in **Appendix B**. The general layout of the property includes the power generation building (power plant building) located near the center of the property, the fuel oil storage area located east of the building, the switchyard (Substation 01) located west of the building, a machine shop located north of the power plant building, a storage room located north of the Substation 01, and various other structures, tanks, and pipeline.

According to the Facility-Specific Response Plan for Non-Transportation On-Shore Related Facility for Vero Beach Power Plant, the current power generation building consists of five separate power generation units. The oldest generation unit (Unit 1) was installed at the property in 1961. Units 2, 3, 4, and 5 were installed in 1964, 1970, 1974, and 1992, respectively. The current primary source of fuel for the power plant is natural gas. A natural gas operations area is located on the north-central portion of the site.

Oil, gasoline, and hazardous-substance containing tanks and reservoirs are located throughout the site. Two major fuel oil ASTs are located in the fuel storage area, east of the power plant building. The ASTs contain the back-up #2 and #6 fuel oils and have capacities of approximately 1.56 million-gallons and 3.1 million-gallons, respectively. The original #2 fuel oil tank was constructed in 1960 and the #6 fuel oil tank was constructed in 1974. Both ASTs were replaced in 1999. In addition, tanks and power generation equipment reservoirs are located inside the power plant building. Various tanks are also located with their own individual secondary containment structures throughout the remainder of the site. Details of the tanks are discussed in Sections 5, 6, and 9.

The property is maintained as a secure facility with access to plant equipment controlled and limited to authorized personnel. The site is surrounded by a 7-foot minimum height chain link fence along its entire perimeter (with the exception of a 20-foot length at the former barge unloading area). ESA site is accessed via eight access gates, including one vehicular access along Indian River Boulevard.

The wastewater from the power plant is discharged to the CoVB Wastewater Treatment Plant (WWTP). According to the City of Vero Beach Power Plant Slug Control Plan, the wastewater from the facility is comprised of one continuous stream and two batch streams. The continuous stream is the blowdown stream from the Unit 4 cooling tower. The second wastewater discharge from the power plant facility is a batch discharge from the Unit 5 wastewater lift station which discharges selected wastewaters from a neutralization basin. The third wastewater discharge is the sanitary lift station from the facility. All rainwater discharges are directed offsite to the surrounding waterway, with exception of discharges from select Unit 5 areas, which are diverted to a percolation system.

Source(s): *CDM Site reconnaissance observations from July 18-19, 2011.*

The City of Vero Beach, Florida, Facility –Specific Response Plan for Non-Transportation On-Shore Related Facility for Vero Beach Power Plant, Dated 2011.

The City of Vero Beach Power Plant Slug Control Plan.

2.5 Current Uses of Adjoining Properties

Details concerning the surrounding land use in the vicinity of the ESA site, as observed by CDM on July 18-19, 2011, are described below.

North: The ESA site is bordered to the north by a canal connected to the Indian River. Beyond the canal are an apartment complex and residential homes.

South: The ESA site is bordered to the south by 17th Street Causeway Bridge. Beyond the 17th Street Causeway Bridge is the CoVB WWTP, as noted in Section 2.1 this facility is on the same parcel as the power plant.

East: The ESA site is bordered to the east by the Indian River Lagoon.

West: The ESA site is bordered to the west by Indian River Boulevard. Beyond Indian River Boulevard is an office complex.

Source(s): *CDM Site reconnaissance observations from July 18-19, 2011.*

2.6 General Geologic Setting

The Environmental Data Resources, Inc., (EDR) Radius Map Report with GeoCheck (**Appendix C**) provides a summary of the dominant near surface soil type and composition that may be present at the ESA site or in the general area of the ESA site (see Appendix C, Pages A-5 through A-7 for details). This information was obtained by EDR from the United States Department of Agriculture's Soil Conservation Service (SCS). The dominant soil type is St. Augustine sand. This soil is in the Class C Hydrologic group, meaning it has slow infiltration rates. Soils in this class have layers impeding downward movement of water, or soils with moderately fine or fine texture. A Soils Map (**Figure 5**) showing the Hydrologic Group classification of soils with-in a one-mile radius of the site is provided in Appendix A.

The bedrock stratigraphic unit that underlies the unconsolidated soils at the ESA site was identified as a portion of the Quaternary System of the Cenozoic Era (see Appendix C, Page A-4). The series is the Pleistocene.

Source(s): *Environmental Data Resources, Inc., The EDR Radius Map Report with Geocheck, Municipol/Customer Service/Substation 01, 100 17th Street, Vero Beach, FL 32960, Dated July 12, 2011.*

St. Johns River Water Management District: Online Tools- GIS Data (http://www.sjrwmd.com/gisdevelopment/docs/themes.html).

2.7 General Hydrogeologic Setting

Based on the review of the USGS topographical map and topographical information provided by EDR in The EDR Radius Map Report with GeoCheck (see Appendix C, A-2), the regional groundwater flow direction is anticipated to be to the east. The local groundwater flow could also be influenced by local drainage features, seasonal groundwater level fluctuations, tidally influenced groundwater level fluctuations, subsurface geology, active pumping of area water-supply wells, if present, surface topography, and/or other local site features.

Site-specific data were reviewed from previous assessment studies conducted at the Power Plant property. Groundwater level measurements reported in the most recent investigation, 12th Quarter Sampling Event and Request for No Further Action report, prepared by Sarah M. Whitaker, P.G. and dated October 19, 2004, indicated that groundwater levels measured in monitoring wells east of the power plant building on September 17, 2004 were approximately 3 to 4 feet below land surface (bls) and groundwater flow direction was toward the southeast. Depth to groundwater and groundwater flow direction were similar in previous investigations at the power plant property. The Contamination Assessment Report for Vero Beach Municipal Power, prepared by TransAmerican Environmental Inc. and dated March 1994, indicated that based on previous environmental work conducted at the property, the range of observed seasonal fluctuations in the groundwater was approximately 1.5 feet.

Source(s): *Environmental Data Resources, Inc., The EDR Radius Map Report with Geocheck, Municipal/Customer Service/Substation 01, 100 17th Street, Vero Beach, FL 32960, Dated July 12, 2011.*

USGS, Topographic Map, 7.5-Minute Series, Vera Beach, Florida, 1983 Quadrangle.

Sarah M. Whitaker, P.G., 12th Quarter Sampling Event and Request for No Further Action, dated October 19, 2004.

TransAmerican Environmental Inc., Contamination Assessment Report for Vero Beoch Power Plant, dated March 1994.

2.8 Flood Plain Setting

A flood plain is the area adjoining a river, stream, drain, or lake that is utilized to convey floodwaters during high water events. The flood plain primarily is divided into two categories: (1) the 100-year flood zone and, (2) the 500-year flood zone. The 100-year flood zone is defined as having a one percent or higher chance of floodwaters reaching that level of floodwater conveyance.

Based on the review of the EDR Overview Map and the EDR Detail Map, the E5A site appears to be located within the limits of the 100-year zone (see Appendix C, Pages 2 and 3 for details).

Source(s): *Environmental Data Resources, Inc., The EDR Radius Map Report with Geocheck, Municipal/Customer Service/Substation 01, 100 17th Street, Vero Beach, FL 32960, Dated July 12, 2011.*

3.0 User Provided Information

3.1 Title Records

No title records were made available for preview within the scope of this Phase I ESA. The lack of available title records is considered a data gap, but is not considered a material limitation to the completion of this Phase I ESA report (see Section 11.0). Information obtained from the Indian River County Property Appraiser regarding current ownership of the ESA site is summarized in Table 2-1. A comprehensive title search is being conducted by FPL (Corporate Real Estate Department).

3.2 Environmental Liens or Activity and Use Limitations

No environmental liens or activity and use limitations were made available for preview within the scope of this Phase I ESA. The lack of environmental liens or activity and use limitations is considered a data gap, but is not considered a material limitation to the completion of this Phase I ESA report (see Section 11.0). A comprehensive search of potential environmental liens on the property is being conducted by FPL (Corporate Real Estate Department).

3.3 Owner, Property Manager and Occupant Information

According to information obtained from the Indian River County Property Appraiser, the current owner of the property is the CoVB (Table 2-1). CDM's contact for the site was Jim Stevens, Director of Power Resources for the CoVB.

Source(s): *Indian River County Property Appraiser (http://www.ircpa.org/)*

4.0 Site Historical Information

CDM reviewed appropriate historical sources and documentation in order to identify obvious uses of the ESA site from the present back to the site's obvious first developed use or back to 1940, whichever is earlier. The historical services consulted included, but were not limited to, aerial photographs, Sanborn fire insurance maps, historical USGS topographic maps, city directories, and local government records, where available. CDM's evaluation is summarized in the following subsections.

4.1 Historical Aerial Photographs

Aerial photographs are a historical resource that can provide a chronological "snapshot" of past land use and development and where potential environmental concerns may exist at a particular site or area. CDM obtained historical aerial photographs of the ESA site and surrounding properties from EDR and Indian River County. Please refer to **Table 4-1** for a summary of the aerial photography reviewed by CDM, and **Appendix D** for copies of the historical aerial photography made available by EDR in The EDR Aerial Photo Decade Package report and additional historical aerial photographs obtained from Indian River County.

Table 4-1 Historical Aerial Photography Observations

Year	Scale	Observations
1943	1 inch = 600 feet (Approx.)	The property and surrounding areas are undeveloped. A road oriented east-west along the northern property boundary and leads to a structure (possibly the former docking facility) located on the Indian River (Intracoastal Waterway) shoreline, which is immediately east of the property. North-trending and northwest-trending drainage ditches are visible on the property. A wetland area is visible in the southwest portion of the property.
1951	1 inch = 600 feet (Approx.)	The property and surrounding areas remain undeveloped. The north-trending ditch is no longer present. An east-west trending ditch has been added along the southern property boundary. A disturbed area is present in the east-central portion of the site. A small lagoon and connecting inlet has been excavated south of the docking facility. It appears that the excavated material was placed along the bank of the Intracoastal Waterway. Several drainage ditches have been constructed throughout the area.
1957	1 inch = 600 feet (Approx.)	A canal has been excavated along the northern and eastern boundaries of the property and is connected to the lagoon in the northeast corner of the property. Three buildings are present immediately north of the lagoon. A north-south trending canal has also been excavated through the approximate center of the property. A dirt road encompasses the power plant and water treatment facility sites.

Table 4-1 continued on next page

Year	Scale	Observations
1967	1 inch = 600 feet (Approx.)	The property is developed with several structures located on it, including two ASTs with secondary containment in east-central portion of the property. Units 1 and 2 of the power plant are visible. An embayment has been excavated into the southeastern corner of the Property. Water intake is visible in southwest corner of embayment and outfall structure is visible in northwest corner of Property. The lagoon and docking facility are still present in northeast corner, although only two buildings now exist. Additional ancillary structures on property in north-central portion of site, southwest and east of ASTs. The canal along the northern property boundary has been filled in. Large portions of the property have been disturbed. Wetland in southwest portion of property no longer exists. A new canal oriented east-west has been constructed north of the property. A water/waste water treatment facility is located south of the property and contains 4 tanks and two buildings. Extensive development exists west and northwest of the Property.
1969	1 inch = 600 feet (Approx.)	No significant changes noted from the 1967 aerial photograph.
1974	1 inch = 600 feet (Approx.)	Unit 3 of power plant has been constructed. A tank pad for a new AST is located east of existing ASTs. Three buildings are now located north of the power plant buildings with potential staining visible in their vicinity. A structure, resembling a construction trailer is southwest of the lagoon. Substation 01 equipment is located immediately west of power plant buildings. The water/waste water treatment facility has expanded development.
1984	1 inch = 600 feet (Approx.)	The construction of new AST is complete and secondary containment expanded. There are three cooling towers located at the southeast corner of the property. The lagoon in the northeast corner has been filled in and docking facility has been removed. The filling of the lagoon may be the landfilling activity identified during the site interview (See Section 9.2). Unit 4 has been added. A maintenance area has been constructed north of Unit 4. A road (17th Street) now runs along the southern property boundary, separating the site from the water/waste water treatment. Another road (Indian River Boulevard) now exists west of the property.
1999	1 inch = 604 feet (Approx.)	Unit 5 has been added. Two additional small tanks are now located northeast of the building. The northeastern corner of the property remains disturbed after the filling in of the lagoon. Two water storage tanks have been added to the adjacent treatment facility property.
2007	1 inch = 604 feet (Approx.)	The northeastern corner of the Property is grass covered and has two small structures located on it. A circular drive has been added on the Property in-between the tanks and southern property boundary. Small southwestern tank has been removed from the property. Building immediately east of water discharge structure appears to have been replaced by another structure (does not cast shadow). Three tanks have been removed from the adjacent water/waste water treatment facility.

CDM identified current electrical plant, current and former above ground storage tanks, secondary containment areas and the filled-in lagoon as potential areas of concern from the review of the historical aerial photography.

Source(s): *Environmental Data Resources, Inc., The EDR Aerial Photo Decade Package, Municipal/Customer Service/Substation 01, 100 17th Street, Vero Beach, FL 32960, Dated July 19, 2011.*

Supplemental Historical Aerial Photographs obtained from Indian River County: 1957, 1967, and 1974.

4.2 Sanborn Fire Insurance Maps

Fire insurance maps identify the locations and types of industrial, commercial and residential properties and identify potential fire hazards existing within individual structures. Many times, areas of potential environmental concern, such as the location of former above ground storage tanks (ASTs), USTs, or other areas of hazardous substance storage, can be identified by referencing the fire insurance maps.

CDM contacted EDR and requested a Sanborn fire insurance map search for the ESA site and surrounding properties. On July 12, 2011, EDR certified that a map search was conducted and no Sanborn fire insurance maps were available for the ESA site or surrounding properties. The lack of available Sanborn fire insurance maps from EDR is considered a data gap, but is not considered a material limitation to the completion of this Phase I ESA report (see Section 11.0).

Source(s): *Environmental Data Resources, Inc., Certified Sanborn Map Report, Municipal/Customer Service/Substation 01, 100 17th Street, Vero Beach, FL 32960, Dated July 12, 2011.*

4.3 Historical USGS Topographic Maps

USGS topographic maps are produced and published by the Department of the Interior at various scales for the entire United States. USGS topographic maps depict the topography of the Earth's surface that is portrayed by contour lines, which follow the land surface or the bottom of a body of water of constant elevation above or below sea level. USGS topographic maps also can include key map features such as buildings and other structural improvements; roadways; railroad; transmission lines; pipelines; state and federal landmarks or points of interest; vegetation; bodies of water; and local, state, and federal boundaries.

CDM contacted EDR and requested an USGS topographic map search for the ESA site and surrounding properties. On July 13, 2011, EDR certified that USGS topographic map coverage was available for the ESA site and surrounding properties. Please refer to **Table 4-2** for a summary of the USGS topographic maps reviewed by CDM, and Appendix D for copies of the historical USGS topographic maps made available by EDR in the EDR Historical Topographic Map Report.

Table 4-2 Historical USGS Topographic Map Observations

Year	Scale	Observations
1950	1:24,000	The property and adjacent properties are undeveloped wetlands. The Indian River is directly east of the property and extensive development associated with the CoVB exists to the west.
1970	1:24,000	A few structures are located on the property. Two inlets have been constructed along the eastern property boundary. Several canals have been constructed north of the property along the western shore of the Indian River. One of these canals serves as the northern property boundary. A few small structures that resemble tanks are located south of the Property.

Year	Scale	Observations
1983	1:24,000	There are additional buildings on the property. A sewage disposal facility is located south of the property. Indian River Boulevard borders the property on the west side. Residential development has continued throughout the area.

CDM identified no apparent recognized environmental conditions from the review of the historical topographic maps.

Source(s): *Environmental Data Resources, Inc., EDR Historical Topographic Map Report, Municipal/Customer Service/Substation 01, 100 17th Street, Vero Beach, FL 32960, Dated July 13, 2011.*

4.4 City Directories

City directories list the resident's name, street address, and sometimes even the resident's occupation for a given year. They also frequently contain similar information about commercial and business establishments, thus providing specific names and addresses of commercial or business establishments over time. City directories allow a researcher to build a history of a property and surrounding area over time, and may give an indication if an area has been occupied by an occupant that may have caused potential environmental problems at or near the ESA Site. CDM contacted EDR, and requested a city directory search for the ESA site and surrounding properties. On July 19, 2011, EDR certified that city directory coverage was available for the ESA site and surrounding properties.

According to The EDR-City Directory Abstract report provided by EDR, the property where the ESA site is located was identified as the CoVB Power Plant in 1974, 1995, and 2005. No earlier records were identified for the ESA site property. Surrounding properties included the CoVB Wastewater/Sewage Treatment Plant from as early as 1969 to 2005, office buildings, and residential listings.

CDM identified the CoVB Power Plant as an apparent recognized environmental condition for the ESA site from the review of the city directories.

Source(s): *Environmental Data Resources, Inc., The EDR-City Directory Abstract, Municipal/Customer Service/Substation 01, 100 17th Street, Vero Beach, FL 32960, Dated July 19, 2011.*

5.0 Environmental Records Review

CDM conducted a review of the appropriate federal and state environmental records in accordance with the ASTM Practice E 1527-05 and the 40 CFR 312.26 minimum search distance, in order to identify sites or facilities of known environmental conditions, which could have an adverse impact on the ESA site. These data, obtained from a contracted data research firm, EDR, are summarized in The EDR Radius Map Report with GeoCheck (the EDR report) provided in Appendix C.

In addition, CDM conducted a review of supplemental federal, state, and local environmental records to enhance and supplement the federal and state sources required within the ASTM Practice E 1527-05, including information obtained from federal and state databases searched by EDR and summarized in the EDR report; county or local environmental records obtained from the CoVB; state environmental records obtained from FDEP; and site-specific data records (if available) obtained from the CoVB.

5.1 Standard Federal and State Environmental Record Sources

The standard (or required) federal and state environmental record sources and the approximate minimum search distances are as follows:

Table 5-1 Standard Federal and State Environmental Record Sources

Standard Federal Database Sources		
Record Source	**Date of Active List [1]**	**Approximate Minimum Search Distance (miles)**
National Priority List (NPL)	6/14/11	1.0
Proposed National Priority List Sites (Proposed NPL)	6/14/11	1.0
Federal Superfund Liens (NPL LIENS)	3/30/94	Target Property
National Priority List Deletions (Delisted NPL)	6/14/11	1.0
Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS)	2/16/11	0.5
Federal Facility Site Information Listing (FEDERAL FACILITY)	2/16/11	1.0
CERCLIS No Further Remedial Action Planned (CERCLIS-NFRAP)	5/2/11	0.S
Corrective Action Report (CORRACTS)	6/14/11	1.0
Resource Conservation and Recovery Act – Treatment Storage and Disposal (RCRA-TSDF)	5/2/11	0.5
RCRA – Large Quantity Generators (RCRA-LQG)	5/2/11	0.25
RCRA – Small Quantity Generators (RCRA-SQG)	5/2/11	0.25
RCRA – Conditionally Exempt Small Quantity Generators (RCRA-CESQG)	5/2/11	0.25
Engineering Controls Sites List (US ENG CONTROLS)	6/14/11	0.5
Sites with Institutional Controls (US INST CONTROL)	6/14/11	0.5
Emergency Response Notification Systems (ERNS)	6/14/11	Target Property
Standard State and Tribal Database Sources		
Record Source	**Date of Active List [1]**	**Approximate Minimum Search Distance (miles)**
Florida's State-Funded Action Sites (SHWS)	6/24/11	1.0

Solid Waste Facility Database (SWF/LF)	5/25/11	0.5
Leaking Underground Storage Tank Incident Reports (LUST)	6/6/11	0.5
Leaking Aboveground Storage Tank Listing (LAST)	6/6/11	0.5
Leaking Underground Storage Tanks on Indian Land (INDIAN LUST)	5/2/11	0.5
Registered Underground Storage Tanks (UST)	6/20/11	0.25
Registered Aboveground Storage Tanks (AST)	6/20/11	0.25
Underground Storage Tanks on Indian Land (INDIAN UST)	5/2/11	0.25
Underground Storage Tank Listing (FEMA UST)	4/12/10	0.25
Federal Facilities Listing (FF TANKS)	5/23/11	0.25
Institutional Controls Registry (ENG CONTROLS)	5/23/11	0.5
Institutional Controls Registry (INST CONTROLS)	5/23/11	0.5
Voluntary Cleanup Sites (VCP)	3/29/11	0.5
Brownfield Areas (BROWNFIELDS)	6/1/11	0.5

(1) The "Date of Active List" refers to the date the data referenced in the applicable federal or state database was made active and available by EDR. See the EDR report in Appendix C for further details.

Upon inspection of the ESA site vicinity and receipt and review of the standard database information, CDM was able to determine that there are two RCRA-SQG facilities, two AST facilities, and one ERNS facility (the Power Plant property) within the minimum search distances on the queried lists.

Table 5-2 provides a summary of sites identified in the EDR report that are either in the immediate vicinity (within 1/2-mile) and/or upgradient (generally to the west) of the site.

Table 5-2 Sites Identified from Standard Federal and State Environmental Record Sources

Facility or Site Name	Facility or Site Address	Proximity to Property	Database Source(s)
City of Vero Beach Municipal Power Plant	**100 17th Street**	**This facility is identified as the power plant property.**	**ERNS**
City of Vero Beach Wastewater Treatment Plant	17 17th Street	East-southeast 1/8 – 1/4 mile	RCRA-SQG, AST
5th Avenue Dry Cleaners	2146 5th Avenue	Northwest 1/4 – 1/2 mile	RCRA-SQG, AST

Note: **Bold text** indicates a recognized environmental condition.

CDM identified the following recognized environmental conditions from the review of the Standard Federal and State Environmental records:

- The CoVB Municipal Power Plant property was identified in the ERNS database for a release of approximately 2,900 gallons of diesel on December 17, 1997. Following remediation and groundwater monitoring activities, No Further Action (NFA) was issued for this discharge on June 17, 2005. In addition, a release or approximately 50 gallons of #6 fuel oil to the surface water from a leak in a fuel line at the barge loading facility occurred on July 10, 1999. According to the Facility-Specific Response Plan for Non-Transportation On-Shore Related Facility for Vero Beach Power Plant, boats were utilized to deploy

absorbent booms and pads. Upgrades to the facilities fuel storage tanks were completed in December 1999 and included removal or proper abandonment of the pipe associated with the barge unloading facility. Cleanup activities were completed with no evidence of residual oil in the area.

Source(s): *Environmental Data Resources, Inc., The EDR Radius Map Report with Geocheck, Municipal/Customer Service/Substation 01, 100 17th Street, Vero Beach, FL 32960, Dated July 12, 2011.*

The City of Vero Beach, Florida, Facility –Specific Response Plan for Non-Transportation On-Shore Related Facility for Vero Beach Power Plant, Dated 2011.

5.2 Supplemental Federal, State, and Local Environmental Record Sources

Supplemental environmental records may be checked at the discretion of the environmental professional to enhance and supplement the federal and state sources identified above in Section 5.1. The review of other federal, state, or local environmental records are consistent with the standard practice guidelines established in the ASTM Practice E 1527-05.

The following supplemental sources were reviewed:

Table 5-3 Supplemental Federal, State, and Local Environmental Record Sources

Supplemental Federal Database Sources		
Record Source	Date of Active List [1]	Approximate Minimum Search Distance (miles)
Local Brownfield Lists (US BROWNFIELDS)	6/14/11	0.5
Open Dump Inventory (ODI)	9/17/04	0.5
Recycling Centers (SWRCY)	10/27/09	0.5
Report on the Status of Open Dumps on Indian Lands (INDIAN ODI)	1/24/08	0.5
Clandestine Drug Labs (US CDL)	5/2/11	Target Property
National Clandestine Laboratory Registry (US HIST CDL)	3/30/09	Target Property
CERCLA Lien Information (LIENS 2)	5/2/11	Target Property
Land Use Control Information System (LUCIS)	1/11/07	0.5
Hazardous Materials Information Reporting System (HMIRS)	2/25/11	Target Property
RCRA – Non Generators (RCRA-NonGen)	5/2/11	0.25
Incident and Accident Data (DOT OPS)	5/2/11	Target Property
DOD Department of Defense Sites (DOD)	1/11/07	1.0
Formerly Used Defense Sites (FUDS)	12/2/10	1.0
Superfund (CERCLA) Consent Decrees (CONSENT)	6/14/11	1.0
Records of Decision (ROD)	3/21/11	1.0
Uranium Mill Tailings Sites (UMTRA)	1/28/11	0.5
Mines Master Index File (MINES)	5/2/11	0.25
Toxic Chemical Release Inventory System (TRIS)	3/21/11	Target Property
Toxic Substances Control Act (TSCA)	12/2/10	Target Property
FIFRA/TSCA Tracking System (FTTS)	5/11/09	Target Property
FIFRA/TSCA Tracking System Administrative Case Listing (HIST FTTS)	4/10/07	Target Property
Section 7 Tracking System (SSTS)	2/25/11	Target Property
Integrated Compliance Information System (ICIS)	3/21/11	Target Property

PCB Activity Database System (PADS)	2/16/11	Target Property
Material Licensing Tracking System (MLTS)	5/27/10	Target Property
Radiation Information Database (RADINFO)	2/16/11	Target Property
Facility Index System/Facility Registration System (FINDS)	5/27/10	Target Property
RCRA Administrative Action Tracking System (RAATS)	8/7/95	Target Property
Indian Reservations (INDIAN RESERV)	1/11/07	1.0
State Coalition for Remediation of Drycleaners Listing (SCRD DRYCLEANERS)	5/2/11	0.5
PCB Transformer Registration Database (PCB TRANSFORMER)	5/29/09	Target Property
Coal Combustion Residues Surface Impoundments List (COAL ASH EPA)	3/21/11	0.5
Sleam-Electric Plan Operation Data (COAL ASH DOE)	10/22/09	Target Property
Supplemental State and Tribal Database Sources		
Record Source	**Date of Active List [1]**	**Approximate Minimum Search Distance (miles)**
Sites List (FL SITES)	8/4/94	1.0
Priority Ranking List (PRIORITYCLEANERS)	6/6/11	0.5
Oil and Hazardous Materials Incidents (SPILLS)	5/23/11	Target Property
Underground Injection Wells Database Listing (UIC)	6/7/11	Target Property
Dry Cleaning Facilities (DRYCLEANERS)	6/6/11	0.25
Ethylene Dibromide Database Results (DEDB)	2/28/11	0.5
Wastewater Facility Registration Database (NPDES)	6/6/11	Target Property
Permitted Facilities Listing (AIRS)	6/6/11	Target Property
Tier 2 Facility Listing (TIER 2)	5/25/11	Target Property
Cattle Dipping Vats (FL Cattle Dip. Vats)	7/11/07	0.5
Financial Assurance Information Listing (FINANCIAL ASSURANCE)	6/6/11	Target Property
Local/Other Database Sources		
Record Source	**Date of Active List [1]**	**Approximate Minimum Search Distance (miles)**
Manufactured Gas Plants	Not Reported	1.0

[1] The "Date of Active List" refers to the date the data referenced in the applicable federal or state database was made active and available by EDR. See the EDR report in Appendix C for further details.

Upon inspection of the ESA site vicinity and receipt and review of the supplemental database information, CDM was able to determine that there is one TRI5/FTTS/HIST FTTS/PCB Transformer/TIER 2/AIRS/ICIS facility (the Power Plant property), two FINDS facilities, one Financial Assurance facility, and one Priority Cleaners/Dry Cleaners facility within the minimum search distances on the queried lists.

Table 5-4 provides a summary of sites identified in the EDR report that are either in the immediate vicinity (within 1/2-mile) and/or upgradient (generally to the west) of the site.

Table S-4 Sites Identified from Supplemental Federal, State, and Local Environmental Record Sources

Facility or Site Name	Facility or Site Address	Proximity to Property	Database Source(s)
City of Vero Beach Municipal Power Plant	**100 17th Street**	**This facility is identified as the power plant property.**	**TRIS, FTTS, HIST FTTS, PCB TRANSFORMER, TIER 2, AIRS, ICIS**
City of Vero Beach Wastewater Treatment Plant	17 17th Street	East-southeast 1/8 – 1/4 mile	FINDS, FINANCIAL ASSURANCE
5th Avenue Dry Cleaners	2146 5th Avenue	Northwest 1/4 – 1/2 mile	FINDS, PRIORITY-CLEANERS, DRYCLEANERS

Note: **Bold text** indicates a recognized environmental condition.

CDM identified the following recognized environmental conditions from the review of the Standard Federal and State Environmental records:

- The CoVB Municipal Power Plant property was identified in the TIER 2 database for several current and former tanks located either inside or east of the building. A variety of tank contents were reported, including diesel fuel oil, #6 fuel oil, sodium hydroxide, and sulfuric acid. No information regarding leaks was reported.

Source(s): *Environmental Data Resources, Inc., The EDR Radius Map Report with Geocheck, Municipal/Customer Service/Substation 01, 100 17th Street, Vero Beach, FL 32960, Dated July 12, 2011.*

5.3 Environmental File Review

City of Vero Beach Online Database

As part of the environmental due diligence effort, the CoVB submitted all relevant documents related to the power generation and transmission properties to FPL. FPL provided CDM access to review the documents in an online database (FPL database).

The majority of documents were related to power plant activities and included information related to, but not limited to, historical maintenance logs, permit information, regulatory inspection reports, historical spill documentation, various procedural/emergency response documents (Facility-Specific Response Plan, Slug Control Plan, Oil Spill Prevention Control and Countermeasure (SPCC) Plan, etc.), and various environmental protection plans (Manatee Protection Plan, Stormwater Pollution Prevention Plan, Best Management Practices 3 Plan, etc.). Specific items identified from the various documents are discussed below. Relevant supplemental environmental records are provided in **Appendix E.**

Four historic oil spills were identified and discussed in the SPCC Plan and Facility-Specific Response Plan:

- On September 17, 1987, a fuel line ruptured inside a trough which resulted in approximately 252 gallons of #6 fuel oil to drain to the lift station on the southeast corner of the facility. The lift station transferred the #6 fuel oil to the Municipal WWTP. An emergency response oil spill clean-up team (Danmark, Inc.) worked with both the power plant and WWTP departments to complete cleanup. No description of clean-up activities was provided. Historical records of this spill or the status of cleanup were not available on the FDEP database (see below) or in the provided records.

- On October 15, 1992, 1,000 gallons of lubricating oil was spilled onto the floor in Unit 5 and into the lift station on the southeast corner of the facility through the floor drains. Absorbent pads, oil dry, and a vacuum truck were used to clean the spill. The oil dry, absorbent pads, and all oil-contaminated rags were properly discarded. Historical records of this spill or the status of cleanup were not available on the FDEP database (see below) or in the provided records.

- On December 17, 1997, 3,000 gallons of diesel fuel was spilled in the ground as a result of a broken underground fuel line. As a result of the spill, a site assessment was performed and remedial actions were initiated. A discussion of this spill is provided in Section 6.2.

- On July 10, 1999, approximately 50 gallons of #6 fuel oil was discharged to the surface water through a small hole in the barge unloading pipeline at the barge unloading station. Boats were utilized to deploy absorbent booms and pads. The pipeline was removed, or properly abandoned in place during upgrades to the Plant's fuel storage tank systems in December 1999. According to the Facility-Specific Response Plan, cleanup activities were completed with no evidence of residual oil in the area. Historical records of this spill or the status of cleanup were not available on the FDEP database (see below) or in the provided records.

A maintenance log for the CoVB Power Plant indicated that, in March 2010, an oil leak was repaired on a transformer associated with Unit 5 and located on the west side of the building. The maintenance log also indicated that the leak was entering a pit, which is presumably the secondary containment structure. During field reconnaissance, it was noted that several of the secondary containment structures did not have proper contamination prevention equipment (e.g. petrol plugs) installed.

CDM identified the following recognized environmental conditions from the environmental file review:

- September 1987 unreported #6 fuel oil spill to the lift station located at the southeast corner of the facility.

- October 1992 unreported lubricating oil spill to the lift station located at the southeast corner of the facility.

- Former barge offloading area and transfer pipe.

- In March 2010, an oil leak was repaired at the transformer located north of the northeast corner of Substation 01. According to the maintenance log, the leaking oil was entering a pit/secondary containment.

Freedom of Informatian Act Requests

An initial request to review public records under the Freedom of Information Act (FOIA) was submitted by CDM via phone conversation to the CoVB, Indian River County, and Indian River County Fire Rescue on July 21, 2011. The purpose of this FOIA request was to obtain potential environmental data, if available, concerning environmental concerns, if present, that may be associated with the ESA site that was reported. As a follow up to the telephone conversations with Indian River County and the Indian River County Fire Rescue, written requests for data were filed via e-mail on July 21, 2011 with Linda Chewicz of the County's Attorney's office and with Susan Barker of the Indian River County Fire Rescue Administration Office. FOIA request documentation and responses are included in Appendix E.

CDM was contacted via e-mail by John Lee, Customer Services Manager for the CoVB, who indicated that all files from the CoVB pertaining to the power plant and substations were provided on the CoVB FPL Database (see discussion above).

The Indian River County Attorney's office circulated the FOIA request to various departments within the county government. CDM was contacted via e-mail by Alan Polackwich, Sr., Indian River County Attorney who attached responses from various departments within Indian River County government indicating that no records were available for the various properties. In addition, CDM was contacted via e-mail by Charles Vogt, an environmental specialist from the Indian River County Health Department who indicated that all known discharges at the power plant property were assessed and promptly remediated.

CDM was contacted via e-mail by Susan Barker, Operations Staff Assistant for the Indian River County Fire Rescue, who indicated that there are no records available pertaining to any fires or Haz-Mat responses at the ESA site.

Source(s): *John Lee, Customer Service Manager, as representative for the City of Vero Beach. Personal correspondence. July 26, 2011.*

Alan Polackwich, Sr., County Attorney, as representative for Indian River County. Personal correspondence. July 27-28, 2011.

Charles Vogt, Environmental Specialist, as representative for Indian River County Health Department. Personal correspondence. August 1, 2011.

Susan Barker, Operotions Staff Assistant, as representative for Indian River County Fire Rescue. Personal correspondence. Jul 25, 2011.

Florida Department of Environmental Protection Databases

CDM reviewed records from the Florida Department of Environmental Protection (FDEP) Division of Waste Management (DWM) and Division of Water Resource Management (DWRM) databases. Several records related to historic activities (sludge disposal at a former ash pit) and spills (1993 diesel fuel spill and 1997 diesel fuel spill) at the property were identified. A discussion of the historic activities and spills is included in Section 6.2.

Source(s): *FDEP DWM Document Management System (http://dwmedms.dep.state.fl.us/).*

FDEP DWRM website (http://wrmedms.dep.state.fl.us/Oculus/)

6.0 Previous Environmental Investigations

Several previous environmental investigations were performed at the CoVB Municipal Power Plant related to past inspections, due diligence assessments, and spills. Information related to specific investigations are provided in Sections 6.1 and 6.2 below.

6.1 Previous Environmental Site Assessment(s)

On January 26, 2011, FPL Environmental Services (JES) conducted a site walk and spoke with power plant staff as part of an environmental due diligence effort. An Air Media Review, Water Media Review, Waste Media Review, and Tanks Review were included in the City of Vero Beach Generation Assets Environmental Due Diligence Report, which is provided in Appendix E. No recognized environmental conditions were reported; however, JES recommended a Phase I Environmental Site Assessment to be completed.

On September 10, 2010, a multi-program inspection of the facility was conducted by the FDEP. The inspection was conducted in response to an anonymous complaint that, in July 2010, Unit 4 had leaked 500 gallons of oil that subsequently was discharged to the Indian River and that the facility was generating amounts of carbon dioxide gas greater than allowed. The results of the inspection were that the facility was determined to be in compliance with State and Federal Environmental Regulations in the areas of Air Resource Management, Hazardous Waste, and National Pollutant Discharge Elimination System (NPDES) Industrial Wastewater Facility Permit. A copy of the FDEP inspection report is provided in Appendix E.

In addition, previous environmental assessments were completed at the property related to historic disposal of sludge and discharges of diesel fuel in 1993 and 1997. A discussion of the assessment and corrective actions for each spill is provided in Section 6.2.

Source(s): *Florida Power & Light Environmental Services, City of Vero Beach Generation Assets Environmental Due Diligence Report, Dated February 25, 2011.*

Florida Department of Environmental Protection, Multimedia Inspection of Vero Beach Municipal Power Plant, Dated December 3, 2010.

6.2 Corrective Action or Remedial Investigation(s)

1983-1984 – Ash Pit Closure

Several records related to the closure of an ash pit were obtained from the FDEP DWM Document Management System (OCULUS database). In 1976, the CoVB constructed a wastewater pit (commonly referred to as the "ash pit") which measured approximately 18 feet by 18 feet wide and approximately 3 feet deep to neutralize wastewater from plant cleaning operations. According to records, the pit was lined with an artificial liner and was located near the northeast corner of the property.

In 1982, the City installed a new sewer lift station and a new 20,000-gallon fiberglass tank to neutralize wastewater from cleaning operations. In 1983, the CoVB Municipal Power Plant requested permission of the Florida Department of Environmental Regulation (FDER) (now FDEP) to close the waste pit. The FDER required the City to collect vertical sludge core samples and water samples to ensure that the pit was properly closed to avoid any potential groundwater contamination. The results of water sampling indicated that a detection of arsenic (63 µg/L) above the former maximum contaminant level (MCL) of 50 µg/L and current MCL of 10 µg/L. In addition, the method detection limits (MDLs) for mercury and selenium were above their respective MCLs.

According to additional records, at a June 8, 1984 meeting, it was decided that a letter from the City Manager stating that no hazardous wastes had ever been used by the plant nor placed in the pit would preclude the need

for more extensive testing. In a July 2, 2984 letter, Mr. John V. Little, the City Manager, indicated that the CoVB has never discharged hazardous waste material or chemical of any nature into the wastewater pit. On July 26, 1984, the FDER provided approval for the CoVB to dispose non-hazardous material on the property as per Rule 17-7.03(2)(a)1 and indicated that "no permit shall be required for disposing solid waste resulting from your own activities on your own property."

CDM identified the former ash pit as a potential recognized environmental condition based on the results of laboratory analysis and uncertainty related to the materials used to fill in the former ash pit.

Source(s): *FDER Letter dated June 21, 1983, Re: Hazardous waste generator status.*

FDER Interoffice Memorandum dated January 11, 1984, Subject: Vero Beach Municipal Power Plant FLD 000 798 868.

FDER Letter dated Jonuory 11, 1984, Re: Indian River County – HW, Vero Beach Municipal Power Plont FLD 000 798 868.

City of Vero Beach Letter dated April 16, 1984, Re: Results of water sample analyses.

FDER Interoffice Memorandum dated June 7, 1984, Subject: Indian River County – HW, Vero Beach Municipal Power Plant FLD 000 798 868.

City of Vero Beach, City Manager Letter dated July 2, 1984.

FDER Letter dated July 26, 1984, Re: Indian River County – HW, Vero Beach Municipal Power Plant FLD 000 798 868.

1993 Diesel Spill

On November 4, 1993, approximately 70 gallons of diesel fuel was released to the ground while removing diesel fuel from the 2,000-gallon aboveground diesel fuel tank. The fuel tank was located northeast of the pump house. A Discharge Reporting Form (DRF) was submitted to the FDER on November 19, 1993. In response to the discharge, a Contamination Assessment Report (CAR), dated March 1994, was prepared by TransAmerican Environmental, Inc. (TEI) for the CoVB Power Plant facility.

According to the CAR, the Power Plant originally maintained one 5,000-gallon steel diesel fuel AST and one 2,000-gallon steel diesel fuel AST. The 5,000-gallon AST was removed from the site and a Closure Assessment Report was completed on November 2, 1993. The 2,000-gallon AST was removed from the site on November 4, 1993. The former ASTs were replaced by two 500-gallon steel, double walled ASTs; one contains unleaded gasoline and the other contains diesel fuel.

An initial remedial action (IRA) was performed at the site which involved the excavation and removal of 56.27 tons of contaminated soil on January 11, 1994. Following the IRA, five monitoring wells were installed to define the horizontal and vertical extents of the groundwater contamination. During the installation of the monitoring wells, grab samples of soil from the vadose zone were collected and the results indicated that no excessively contaminated soil was present. Groundwater quality results indicated a naphthalene plume was present in the groundwater beneath the site. Based on the results, a Monitoring Only Plan (MOP) was recommended for the site.

In June 1994, a No Further Action Plan (NFAP), prepared by TEI, was submitted to the FDEP. According to the NFAP, TEI recovered 2,000 gallons of groundwater from monitoring well MW-1 on June 9, 1994. On June 15, 1994, groundwater quality samples were collected from MW-1 and the results indicated that all parameters analyzed were below detection limits. TEI stated that the results indicated that the groundwater beneath the site was within the State guidelines for No Further Action (NFA) for all of the Kerosene Group parameters. On July 6, 1994, the NFA received approval from FDEP.

CDM identified the current and former gasoline and diesel fuel ASTs located east-northeast of the pump house as potential recognized environmental conditions.

Source(s): *TransAmerican Environmental, Inc., Contamination Assessment Report, dated March 1994.*

TransAmerican Environmental, Inc., Alternate Procedure/No Further Action Plan, dated June 1994.

1997 Diesel Spill

On December 17, 1997, approximately 3,000 gallons of diesel fuel was spilled in the ground as a result of a broken underground fuel line. The fuel line was used to transfer diesel fuel from the storage tanks to the power plant. A DRF was submitted to the FDEP on the same day. In addition, the Florida Spill Response Corporation (FSRC) commenced IRA measures to remediate excessively contaminated soil and free product from the spill site.

In response to the discharge a Site Assessment (SA) was completed and a Site Assessment Report (SAR), dated February 1998, was prepared by FSRC. Site Assessment activities included organic vapor analyzer work, soil sampling and analyses, installation of groundwater monitoring wells, and groundwater sampling and analyses. The soil samples revealed minor petroleum impacts for TRPH and lead. The groundwater analyses from MW-4, located in the main excavation area, indicated elevated levels of benzene, toluene, ethylbenzene, m&p-xylenes, o-xylene, 1-methylnapthalene, 2-methylnapthalene, and TRPH. Based on the results of the SA, Remedial Action (RA) was recommended.

On May 25, 2000, the FDEP approved a RAP for the site. The selected RAP included the installation of additional monitoring wells and the use of bioremediation with the periodic introduction of specially designed bacteria (s1 Monera Petroleum Hydrocarbon Bacteria), preceded by an initial spike of nutrients (nitrates). The bioremediation system consisted of five strategically placed shallow trenches over the contamination zone that served as percolation reservoirs for the selected microbes and mineral nutrients. Plumbing was installed in the trenches which were then filled with washed stone. The remedial system was installed during the week of June 19-23, 2000.

Following bioremediation applications conducted from July 2000 to August 2000, quarterly sampling activities were performed from October 2000 through September 2003. A Post Remediation Monitoring Plan (PRMP) was submitted in January 2004 and approved in February 2004. Additional monitoring was conducted from February 2004 through September 2004. Based upon the results of the final two monitoring events (Quarters 11 and 12), which indicated that contaminants of concern were below their respective groundwater cleanup target levels (GCTLs) a Site Rehabilitation Completion Order (SRCO) and NFA were requested.

On December 17, 2004, the Brevard County Natural Resources Management Office (NRMO), which was contracted by the FDEP to oversee cleanup activities as sites within Indian River County, approved the NFA. On January 27, 2005, the Brevard County NRMO approved the SRCO. The monitoring wells were abandoned in February 2005.

CDM identified the former underground pipeline as a recognized environmental condition.

Source(s): *Florida Spill Response Corporation, Site Assessment Report for Vero Beach Power Plant, Vero Beach, Florida. Dated February 9, 1998.*

Law Engineering and Environmental Services, Inc., Remedial Action Plan Vero Beach Municipal Power Plant. Dated January 25, 2000

Law Engineering and Environmental Services, Inc,. Report of Monitoring Well Installation, Background Water and Soil Sampling Analyses, Remediol System Installation and As-Built Design Drawings, Vero Beach Municipol Power Plant. Dated August 17, 2000.

Sarah M. Whitaker, P.G., 12th Quarter Sampling Event and Request for No Further Action, Vero Beach Municipal Power Plant. Dated October 19, 2004.

7.0 Environmental Permits

Consumptive Use Permit

The St. Johns River Water Management District (SJRWMD) Consumptive Use Permit (CUP) (Permit No. 10735) allows the Power Plant to use various sources of water to meet several needs. Primarily, the CUP allows for the withdrawal of 180.82 million gallons per day (mgd) (average) of surface water from the Indian River Lagoon for use in the cooling towers (217 mgd, max day). This water is for use in units 1, 2 and 3. Two Upper Floridan Aquifer (UFA) groundwater wells are constructed on the power plant property. One well was transferred to the neighboring wastewater treatment plant (WWTP) for back-up to the reclaimed water system; the other is no longer in use, but the power plant retains the permitted use as back-up for cooling water and/or for emergency fire protection. Use of the UFA well is permitted for up to 60 days per year; with a daily withdrawal of up to 4.32 mgd (number of days is unrestricted if needed for fire protection).

The power plant also relies on reclaimed water from the adjacent WWTP as the primary source for boiler make-up water and for the control of air emissions (up to 61.0 million gallons per year). An additional 455 million gallons per year of reclaimed water can be used in Cooling Unit 4's cooling towers. Related to the use of reclaimed water, the power plant holds an industrial waste discharge permit with the City's Water and Sewer Department (Permit No. 9403), which allows the power plant to discharge the blowdown from unit 4 back to the WWTP (downstream of the headworks) provided that there are no detectable amounts of 126 priority pollutants and that the discharge meets the permit limits for other metals, pH, oil and grease, etc. Units 4 and 5 are not permitted to discharge to the Indian River Lagoon.

Issuance of the CUP by SJRWMD was contingent upon the prioritized use of reclaimed water over surface water from the Indian River Lagoon. The CUP also includes insignificant provisions for irrigation on site. The CUP is a 20-year permit that is set to expire on May 13, 2013. The Industrial Waste Discharge Permit is a 2-year permit slated to expire on October 31, 2011. The renewal application was submitted to the City prior to the August 1 deadline.

N.B.

Source(s): *St. Johns River Water Management District Consumptive Use Permit Number 10735, City of Vero Beach Municipol Power Plant. Issued May 13, 2008.*

City of Vero Beach Industrial Waste Discharge Permit No. 9403. Issued November 1, 2009.

Florida Fish and Wildlife Conservation Commission (FWC)

The power plant is permitted to withdraw surface water from the Indian River Lagoon (see above) as a back-up source of process water, as well as discharge once-through, non-contact blowdown water back to the Lagoon. Since the facilities for the power plant intake/discharge are located partially or entirely within the Seasonal No Entry Zone designated as such for manatee protection, a FWC permit (Permit No. MPZ-0001-08-IR; Manatee Protection Zone Permit) allows for power plant staff to enter the area during the seasonal restriction (November 15 through March 31) for inspection and maintenance of equipment that is essential to maintaining plant operations. The permit requires the use of approved vessels, operating at idle speed, with a designated manatee spotter on board in addition to the maintenance personnel. This permit is a five-year permit with an expiration date of September 17, 2013. The CoVB also maintains a Manatee Protection Plan which is discussed in Section 8.8.

Source(s): *Manatee Protection Zone Permit No. MPZ-0001-08-IR, Issued on September 17, 2008.*

National Pollutant Discharge Elimination System

The power plant holds a National Pollutant Discharge Elimination System (NPDES) permit (Permit No. FL-0002984) through the Florida Department of Environmental Protection's Industrial Wastewater Section. As

previously noted, Units 1, 2 and 3 rely on surface water withdrawals from the Lagoon for cooling water which can be discharged to the Lagoon after cycling through the units. Units 4 and 5 rely on treated reclaimed water, which cannot be discharged to the Lagoon. Units 1, 2 and 3 discharge through outfalls D-011 (51.8 mgd capacity), D-012 (63.8 mgd capacity) and D-013 (101.4 mgd capacity), respectively. According to the permit, the receiving water is classified as Class III Marine; however according to Total Maximum Daily Load (TMDL) information obtained from the FDEP (See Section 8.5), the Indian River is classified as a Class II waterbody.

In addition to the outfalls for process water, the power plant maintains four outfalls for the discharge of uncontaminated stormwater (D-0S1, D-0S2, D-0S3 and D-0S6). A sixth stormwater discharge, D-00B, allows for discharge of stormwater from the bermed areas around fuel oil tanks 1 and 2. There are five monitoring sites that require monthly sampling for which temperature, dissolved oxygen, flow, toxicity, etc. must be recorded.

The power plant is required to submit written notice to FDEP prior to any operational change that may exceed the 12-month rolling average capacity factor of 0.15. Specific conditions of the permit to note are as follows:

1. Detailed toxicity testing is required, which can result in a periodic exceedance.
2. No chemicals can be added to the intake cooling water during backwash operation of intake bar screens or to the discharge.
3. Discharge of chlorine from chlorination of Units 1, 2 and 3 to waters of the State (i.e. Lagoon) is not permitted.
4. Discharge of wastewater from Units 4 and 5 is not authorized.
5. Special monitoring is required in the event that discharge from outfall D-00B is required (from fuel oil containment area). Such monitoring shall include total recoverable petrol hydrocarbons, turbidity and pH.

The valve for outfall D-00B shall remain closed and only be opened for discharge after samples within the bermed areas are analyzed and in compliance with permit limits. The permit expires on February 14, 2015.

The CoVB Municipal Power Plant maintains a Best Management Practices Pollution Prevention Plan (BMP 3) to comply with the NPDES Permit. By Permit No. FL-0002984, the CoVB is required to update the BMP 3 Plan based on timelines specified in the permit. The BMP 3 provides detailed information regarding the planning, training, operations, and maintenance of the CoVB's Municipal Power Plant facilities. It states the management policy, outlines administrative requirements, identifies potential discharges and resources at risk, and describes procedures for emergency response, plant personnel requirements, and preventive maintenance which will reasonably ensure that the facilities will not allow discharges to the waters of the state under normal operations. It also demonstrates that the CoVB has a program for containment and countermeasure procedures developed with an outlined course of action and response if a catastrophe should occur.

CDM identified the discharge of non-contact cooling water to a canal located on the northwestern corner of the property as a potential recognized environmental condition.

Source(s): *State of Florida Industrial Wastewater Facility Permit No. FL0002894. Issued February 15, 2010.*
City of Vero Beach Power Plant, Best Management Practices 3 Plan, Updated January 28, 2011.

Title V Air Permit

The power plant operates under FDEP Title V Permit No. 0610029. The permit was renewed on January 1, 2008. The permit expires on December 31, 2012, and the renewal application is due by July 5, 2012. Specific details of the air permit are discussed in Section 8.9.

Source(s): *Florida Department of Environmental Protection Title V Air Operation Permit No. 0610029. Renewal issued January 1, 2008.*

Permit Summary

The CUP, City's Industrial Waste Discharge Permit, FWC and NPDES permits held by the CoVB power plant are all conventional permits. There are no excessive restrictions or unrealistic limitations placed on the facility through these regulatory mechanisms. The power plant also operates under a Title V Air Permit which is discussed in Section 8.9. Copies of the above listed permits are provided in Appendix E.

8.0 Additional Site Assessment Activities

At the request of FPL, CDM environmental professionals conducted additional Phase I ESA activities as identified in Section 12 of ASTM Standard E 1527-05.

8.1 Asbestos-containing Materials

The use of asbestos was banned in 1989 by the Environmental Protection Agency (EPA), and a phase-out rule was implemented. CDM contracted Apollo Environmental, Inc. to conduct an asbestos site inspection of the CoVB Municipal Power Plant. On July 19, 2011, Apollo Environmental, Inc. conducted the visual inspection of the power plant. Upon inspection, 142 homogeneous areas were identified as suspect, asbestos-containing materials, including, but not limited to areas in all five power generation units, outdoor above ground piping, indoor and outdoor concrete slabs and other concrete structures, and the outdoor picnic pavilion. Also, during this inspection, plant operators estimated that 10% of the remaining piping still contained asbestos. Most asbestos containing piping is properly labeled and inventoried. For a full list of the suspect, asbestos containing materials identified at the power plant property, see the Asbestos Site Inspection Report included in Appendix E.

Source(s): *Apollo Environmental, Inc., Asbestos Site Inspection, Vero Beach Power Plant, 100 17th Street, Vero Beach, Florida, Dated July 19, 2011.*

8.2 Lead-Based Paint

The use of lead-based paint was banned in the US in 1977 (16 Code of Federal Regulations CFR 1303). Based the age of the power generation facility (built in 1960) it is likely that lead-based paint and lead containing materials are present at the site. CDM contracted American Management Resources Corporation (AMRC) to randomly test building and process components for the presence of lead and lead-based paint at several areas in and around the power plant property, including the power generation building, warehouse, maintenance shops, fuel storage area, switch yard (Substation 01), cooling towers, water inlet area, pump house, and Haz-Mat house.

Testing was performed on July 18, 2011 with a properly calibrated XRF instrument manufactured by RMD, Inc., Model LPA-1, Serial Number 3319 operated by a trained person certified by the United States Environmental Protection Agency (US EPA). The US EPA defines lead-based paint as paint or other surface coatings that contain lead equal to or greater than 1.0 mg/cm^2 or 0.05 percent by weight. Overall, 35 readings exceeded the threshold of 1.0 mg/cm^2 at the following testing areas:

- Generation Building Roof (3 of 13 tests above the criteria);
- Fifth Floor Interior (7 of 21 tests above the criteria);
- Turbine Deck (Floor 2) (9 of 37 tests above criteria);
- Level 1 (10 of 55 tests above criteria);
- Water Intake Area (1 of 6 tests above criteria);
- Manatee Refuge Area (1 of 3 tests above criteria); and
- Switch Yard (4 of 10 tests above criteria);

As might be expected, most exceedences were recorded on metal structures associated with the older power generating units. No exceedences were identified in or around Unit 5 (newest unit). Within Substation 01, exceedences were identified with Units 1, 2, and 3. The results indicate that lead-based paints were likely used by the CoVB until the late 1970s, which is consistent with the US ban on lead-based paints in 1977. For details on the lead-based paint test results, see the Lead Testing Memo provided by AMRC included in Appendix E.

Source(s): *American Management Resources Corporation Lead Testing, Vero Beach Power Plant, 100 17th Street, Vero Beach, Florida, Dated July 18, 2011.*

8.3 PCB-Containing Concrete

No evaluation of PCB-containing concrete was completed during the Phase I ESA; however, it is assumed that PCB-containing concrete may be encountered during demolition.

8.4 Radon

Radon is a naturally occurring radioactive gas and is a health risk when inhaled. In Florida, the Hawthorn Group geologic unit contains uranium incorporated in the mineral carbonate fluorapatite. In Indian River County, the Hawthorn Group is typically greater than 100 feet bls. Radon gas is produced from the radioactive decay of uranium. Radon gas may enter a building through plumbing or cracks in the slab or foundation and may potentially become trapped and concentrated. The US EPA prepared maps on the radon potential in Florida by county. The map was developed based on indoor radon measurements, geology, aerial radioactivity, soil permeability, and foundation type. Indian River County was identified as having a low potential for elevated indoor radon levels [*i.e.*, the predicted average indoor radon screening level is less than 2 picocuries per liter (pCi/L)].

According to area radon information from the Florida Radon Database (see page A-19 of The EDR Radius Map Report with Geocheck) a total of 75 test results were reported, with no sites greater than 4 pCi/L. EDR only reported on the "percent of sites greater than 4pCi/L".

Source(s): *Florida Geological Survey; Hazards: Geochemical (http://www.dep.state.fl.us/geology/geologictopics/hazards/geo_chem.htm)*

Florida Geological Survey, Information Circular No. 18, Interim Report on Geology and Ground-Water Resources of Indian River County, Florida, Dated 1958

United States Environmental Protection Agency (http://www.epa.gov/radon/states/florida.html)

Environmental Data Resources, Inc., The EDR Radius Map Report with Geocheck, Municipal/Customer Service/Substation 01, 100 17th Street, Vero Beach, FL 32960, Dated July 12, 2011.

8.5 Wetlands and Surface Waters

During the site visit on July 18-19, 2011, CDM staff performed wetlands identification at the power plant property. Wetland areas observed included the canals north or the property and the Indian River east of the property.

CDM also performed a desktop review of several sources to identify wetlands areas. CDM reviewed the National Wetland Inventory (NWI) maps provided in The EDR Radius Map Report with Geocheck which indicated the presence of wetland areas along the canals adjacent to the power plant property and along the Indian River east of the property. In addition, CDM obtained the NWI coverage from the US Fish and Wildlife Service (**Figure 6**) which classifies the areas as estuarine and marine deepwater.

CDM reviewed total maximum daily load (TMDL) requirements for nearby receiving waters. TMDLs are a determination of the maximum amount of a given pollutant that a surface water can absorb and still meet the water quality standards. Water bodies that do not meet water quality standards are identified as "impaired" for the particular pollutants of concern and TMDLs must be developed, adopted and implemented to reduce pollutant loads and clean up the water body. For assessment proposes, FDEP divided the Indian River Lagoon Basin into water assessment polygons with a unique water body identification number (WBID) for each watershed or stream reach. The Municipal Power Plant is located within the South Indian River basin WBID

5003B, as shown on **Figure 7**. According to information from the FDEP, WBID 5003B is a Class II water body, with a designated use of shellfish propagation or harvesting. WBID 5003B, is on the Group 5 Indian River Lagoon Verified Impaired List for mercury (in fish tissue) and nutrients (total nitrogen and total phosphorus). A Final Total Maximum Daily Load Report was prepared for the Indian River Lagoon in March 2009. The CoVB Power Plant is not identified in the report.

Source(s): *CDM Site reconnaissance observations from July 18-19, 2011.*

Environmental Data Resources, Inc., The EDR Radius Map Report with Geocheck, Municipal/Customer Service/Substation 01, 100 17th Street, Vero Beach, FL 32960, Dated July 12, 2011.

Source(s):Florida Department of Environmental Protection Total Maximum Daily Loads Program (http://www.dep.state.fl.us/water/tmdl/)

Florida Department of Environmental Protection, TMDL Report Nutrient and Dissolved Oxygen TMDLs for the Indian River Lagoon and Banana River Lagoon, March 2009.

U.S. Fish and Wildlife Service National Wetlands Inventory: Wetlands Mapper (http://www.fws.gov/wetlands/Data/Mapper.html).

St. Johns River Water Management District: Online Tools- GIS Data (http://www.sjrwmd.com/gisdevelopment/docs/themes.html).

8.6 Florida Master Site File Review

On July 21, 2011, CDM contacted the Florida Division of Historical Resources to conduct a review of the Florida Master Site File, Florida's official inventory of historical cultural resources, to determine the likely presence of historical or cultural resources at the ESA site. Categories of resources recorded at the Florida Master Site File include archaeological sites, historical structures, historical cemeteries, historical bridges, and historic districts. The Florida Master Site File was queried based on the Township-Range-Section of the property (33S-40E-06). The Florida Master Site File listed no previously recorded cultural resources for the Township-Range-Section of the property.

Source(s): *Florida Master Site File TRS Search.*

8.7 Water Use

CDM performed a desktop assessment to identify wells and other substantial water features/uses within a one-mile radius of the ESA site. According to information provided by EDR in The EDR Radius Map Report with GeoCheck, there was one reported public water-supply (PWS) well and one United States Geological Survey (USGS) National Water Information System (NWIS) wells located within a one-mile radius of the ESA site. In addition, eight wells were reported under the Florida state database to be located within one-mile of the ESA site. The PWS well was reported as "closed" and did not report the water source. The USGS well was reportedly screened in the Hawthorn Formation with a total depth of 595 feet bls. Two of the state wells were identified as on the power plant property and screened in the Floridan Aquifer. In addition, there are three power plant withdrawals of surface water from the Indian River. Additional information for the PWS, USGS, and state wells can be found in pages A-8 to A-18 of The ERD Radius Map Report with Geocheck. A Consumptive Use Permit (CUP) Map (**Figure 8**) is included in Appendix A. In addition, a discussion of the CUP operated by the facility is provided in Section 7.0.

Source(s): *Environmental Data Resources, Inc., The EDR Radius Map Report with Geocheck, Municipal/Customer Service/Substation 01, 100 17th Street, Vero Beach, FL 32960, Dated July 12, 2011.*

St. Johns River Water Management District: Online Tools- GIS Data (http://www.sjrwmd.com/gisdevelopment/docs/themes.html).

8.8 Listed Species

Available state and federal databases were reviewed for information on state and federal listed species that may occur on or adjacent to the properties. A list of federal species that occur in Indian River County was obtained from the US Fish and Wildlife Service (USFWS) South Florida Ecological Service Office. The Florida Natural Areas Inventory database was reviewed to determine likely and potential listed species from the biodiversity matrix map server. Based on information from these sources and site specific field surveys, listed species that may occur on or near the property include: West Indian manatee (*Trichechus manatus*), wood stork (*Mycteria americana*), and Johnson's seagrass (*Halophila johnsonii*). No listed species were identified during the site visit. **Figure 9** shows the distribution of seagrass in the Indian River east of the property. Several dense and patchy areas are present in the Indian River; however, the canals north of the property have unvegetated bottoms.

Source(s): *Florida Natural Area Inventory, Biodiversity Matrix Query (http://www.fnai.org/biointro.cfm)*

CDM Site reconnaissance observations from July 18-19, 2011.

St. Johns River Water Management District: Online Tools- GIS Data (http://www.sjrwmd.com/gisdevelopment/docs/themes.html).

Manatee Protection Plan

The manatee is a federally listed endangered species and is protected by both state and federal laws. The current Florida Fish and Wildlife Conservation Commission (FWC) Manatee Protection Zone Permit covers power plant activities in the no entry zone adjacent to the Vero Beach Power Plant. This permit will expire September 17, 2013. Continued compliance with the facility's Manatee Protection Plan is required as part of the facility's State Industrial Wastewater Permit. Conditions include notification of in-water work to the FDEP during November 15 through March 31, access to property for downloading temperature data, providing FDEP with daily intake and discharge temperature data, and monitoring of intake and discharge areas. The plan also specifies that if any units are to be retired, notification will be made to FDEP and USFWS as soon as practical after a decision is made, or if possible, five years prior to the date of retirement. State rules regarding manatee protection are reviewed periodically. Currently, recommended changes to the manatee protection rule for Broward County are under review by the public. The Indian River County Manatee Protection Plan was approved in 2000. At this time, no changes to the Indian River County rules are anticipated.

Source(s): *City of Vero Beach Power Plant Manatee Protection Plan, Vero Beach, Florida. Dated January 26, 2011.*

8.9 Review of Air Quality Equipment Infrastructure, Operations, and Regulatory Compliance

On July 18, 2011 CDM reviewed the combustion and electrical generating equipment and operations at the CoVB Power Plant facility located at 100 17th Street, Vero Beach, Indian River County, Florida. The facility consists of four conventional units (Units 1, 2, 3 and 4) that range from 13 to 56 MWs and use a range of fuel oil grades and natural gas. The facility is permitted by the FDEP through its Clean Air Act Title V Operating Permit No. 0610029-007-AV.

Prior to and after the site visit, various compliance documents were obtained and reviewed by CDM, including:

- Fuel oil sulfur analyses
- Relative Accuracy Test Audit (RATA) reports
- Title V Operating Permit No. 0610029-007-AV
- Greenhouse gas mandatory reporting monitoring plan

The Operating Permit has an expiration date of December 31, 2012. Although the permit states that a renewal application must be submitted by July 5, 2012, a recent rule change requires submittal 225 days in advance of expiration, or May 20, 2012.

Only the largest unit (Unit 4) is subject to a New Source Performance Standard at 40 Code of Federal Regulations (CFR), Part 60, Subpart D - Standards of Performance for Fossil Fuel-Fired Steam Generators for Which Construction is Commenced After August 17, 1971. There is also a 38 MW distillate and natural gas-fired combined cycle unit (Unit S) that is subject to 40 CFR 60 Subpart GG - Standards of Performance for New Stationary Combustion Turbines (Subpart GG).

Although the facility is currently classified as a major source of hazardous air pollutants (HAPs), due to its potential-to-emit HAPs during firing of liquid fuel oil, it is not currently subject to any National Emission Standards for Hazardous Air Pollutants (NESHAP) (See Section 8.8.1 Future Regulatory Issues below).

At the time of the site visit none of the combustion equipment was in operation due to the peaking nature of the facility; however, all equipment appeared to be well maintained, functional, and fully capable of being operated in a manner consistent with permitted representations. None of the conventional combustion Units 1 through 4 has any add-on pollution control equipment. Emissions are minimized through inherent design of the equipment and work practices, including firing primarily natural gas. The combustion turbine, Unit 5, uses water injection to control NOx emissions during firing of fuel oil and dry low-NOx combustors while firing natural gas. (Relevant to demonstration of Compliance Assurance Monitoring, water injection is considered an add-on control; however, dry low-NOx burners are not)

In addition to these regulatory requirements the facility is also subject to the Best Available Retrofit Technology (BART) provision of the Clean Air Visibility Rule (CAVR); however, modeling has been submitted to the FDEP that exempts the facility from further requirements. Also, as an electric generating station, the facility is subject to Title IV of the Clean Air Act, the Federal Acid Rain Program, for Units 3, 4, and 5. As such, it maintains appropriate allowances for yearly emissions of sulfur dioxide (SO_2) from these three units.

The facility appears to be in compliance with standards, monitoring, recordkeeping and reporting as required by these various regulatory programs. With regard to the greenhouse gas mandatory reporting rule (40 CFR Part 98), although reporting for calendar year 2010 has been delayed until September 30, 2011, the facility must have registered for an Electronic Greenhouse Gas Reporting Tool (e-GGRT) account by August 1, 2011.

Source(s): *Florida Department of Environmental Protection Title V Air Operation Permit No. 0610029. Renewal issued January 1, 2008.*

Future Regulatory Issues

The U.S. EPA has recently undertaken a major rulemaking effort focused on boilers, combustors, and incinerators that potentially could affect the future operations of the Vero Beach facility. The most prominent rulemaking project, the "Boiler MACT", is focused on reducing emissions of HAPs from major sources of HAPs. Since the Vero Beach facility Units 1 and 2 do not meet the definition of electric utility generating units (by definition, EGUs must have a capacity greater than 25 MW output), they would be subject to the Boiler MACT rule as it was originally proposed. The proposed rule would require compliance demonstration through fuel sampling for fuel oil, and initial compliance testing. However, the rule has been reconsidered by EPA and is expected to be finalized in early 2012.

In addition, on May 3 2011, another proposed rule was published in the Federal Register that targets reductions of HAPs from coal and liquid-oil fired power plants. The Mercury and Air Toxics Standards MACT rule focuses on reductions of mercury, other metals such as arsenic and cadmium, and acid gases such as hydrogen chloride

(HCl) and hydrogen fluoride (HF), from various subcategories of liquid oil-fired combustion equipment. The rule is not applicable to combustion turbines (such as Unit 5), and is only potentially applicable to electric generating units with a capacity greater than 25 MW output (250 mmBtu/hr input). Therefore, only Units 3 and 4 at the Vero Beach facility would be potentially affected by this new rule.

The proposed rule is currently in a public notice and comment period and is scheduled to be finalized by November 16, 2011. Existing sources will have up to four years to become in compliance with the standards specified by the rule (40 CFR Part 63 Subpart UUUUU - National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units).

CDM believes that the implications of this rule to the Vero Beach facility will be minimal and would not require the installation of additional pollution control equipment (e.g., scrubbers or carbon injection) if the facility is continued to be operated to minimize the use of fuel oil in these units. The rule is only triggered if during the previous 3-year period the heat input provided by the firing of fuel oil comprises more than 10% of the total heat input over the 3 calendar years, or over 15% during any one calendar year; therefore, the Vero Beach facility could be operated in such a manner so as to not trigger applicability.

Even in the event that the MACT rule is ever triggered for Units 3 and 4, compliance can be met by analysis of fuel samples to demonstrate that the chloride, fluoride, and metals content would result in emissions compliant with the rule. CDM recommends that the fuel oils be sampled according to procedures specified in the rule to determine whether these fuels would be MACT-compliant when used in Units 3 and 4.

9.0 Interview and Site Reconnaissance Information

CDM environmental professionals conducted interviews with knowledgeable CoVB personnel and performed a site reconnaissance to visually observe the ESA site, including any buildings or structures on the site. The CDM interviews and site reconnaissance were conducted in an attempt to identify recognized environmental conditions in connection with the ESA site.

9.1 Methodology and Limiting Conditions

There were no conditions encountered during the completion of the Phase I ESA which may limit the use of the ASTM Standard Practice except for those noted in Section 1.4. On July 18-19, 2011, a CDM representative walked and observed the ESA site and observed the adjacent properties to visually identify potential environmental concerns.

9.2 Interviews

CDM staff consulted and/or interviewed key individuals in attempt to obtain information regarding current and historical uses of the ESA site and special information regarding possible environmental concerns at the site. The individuals that were interviewed or consulted are listed in **Table 9-1**.

Table 9-1 Resources Interviewed

Resource	Title and Organization
Mr. Jack Keltner	Acting Manager of Support Services, City of Vero Beach
Mr. Jim Stevens	Director of Power Resources, City of Vero Beach
Mr. Thomas Clark	Projects Coordinator, City of Vero Beach
Mr. Tom Allen	Lab Supervisor, City of Vero Beach

On July 18, CDM and FPL staff met with Jack Keltner, Jim Stevens, and Thomas Clark of the CoVB to gather background information on the general current and historical operations of the power generation, transmission/distribution, and ancillary support sites.

On July 18-19, 2011, Tom Allen, Lab Supervisor for the CoVB, accompanied a CDM representative during the site reconnaissance. Mr. Allen was consulted regarding any knowledge of current or historical environmental concerns associated with the site, and about the current practices at the site. The following items were identified based on the interview:

- Mr. Allen identified a concrete pad that formerly held an AST located to the southeast of the lead acid battery room and indicated that it may have been the former location of a sulfuric acid AST. However, clarification of what was located at the pad was requested from the CoVB. The City indicated that the AST was labeled as a Unit 4 Neutralization tank, was used to process water prior to discharge back to the wastewater plant, and that the tank was removed in 1992.
- Mr. Allen indicated that a former chemical storage area was located on the south side of the cooling towers and that there was a concrete bottom and a one-block high concrete block containment wall. Chemicals stored in this area included bromine, antifoam agent, dispersant, tolytriazole, and sulfuric acid.
- Mr. Allen identified an oil-water separator (OWS) in the fuel delivery area which discharges to the #2 fuel oil containment basin.

- Mr. Allen identified an OWS for the #2 fuel oil containment basin located north of the basin which discharges to the canal north of the property.
- Mr. Allen indicated that a former landfill existed on the property. The location of the landfilling activities was identified as generally in the northeastern portion of the property; however, the exact location was not identified. The former landfill may have been related to the 1983-1984 Ash Pit Closure discussed in Section 6.2.

Additional information provided by Mr. Allen is included in the site reconnaissance observations and field notes included in **Appendix F** and discussed in Section 9.3.

CDM identified the following recognized environmental conditions as a result of the interviews:

- Potential former sulfuric acid AST located to the southeast of the lead acid battery room.
- Former chemical storage area for water cooling towers.
- Existing OWSs in the fuel delivery area and #2 fuel oil containment area.
- Former landfilling activities near the northeastern portion of the property.

9.3 Interior and Exterior Site Reconnaissance Observations

The ESA site includes the power generation building (power plant building) located near the center of the property, the fuel oil storage area located east of the building, the switchyard (Substation 01) located west of the building, a machine shop located north of the power plant building, and a storage room located north of the Substation 01. Site reconnaissance photographs are provided in Appendix B and site reconnaissance field notes are provided in Appendix F. The CDM site reconnaissance observations are summarized in **Table 9-2.**

Table 9-2 Site Reconnaissance Observations

Issue	Observed During Site Visit		Observations/Comments
	Yes	No	
Above Ground Storage Tanks	☒	☐	Two large ASTs located east of the power plant building containing #2 and #6 fuel oils. One 500-gallon gasoline AST and one 500-gallon diesel fuel AST used to fuel vehicles located to the east of the pump house. 7,500-gallon sulfuric acid AST located east of Unit 4.
Construction / Demolition Debris	☐	☒	None identified.
Drainage Ditches or Culverts	☒	☐	Drainage outfalls to the canal north of the property were identified.
Drums	☒	☐	35-gallon solvent drum observed inside the power plant building electrical shop. 55-gallon used-oil drum and 1-gallon paint drums observed in HazMat building.
Fill Dirt	☐	☒	None observed; however, from the historical aerials, the northeast corner of the property was filled.

Table 9-2 Continued on Next Page

Issue	Observed During Site Visit		Observations/Comments
	Yes	No	
Floor Drains	☒	☐	Multiple floor drains observed in the power plant building. The floor drains discharge to a 70,000-gallon Neutralization Basin (see Miscellaneous below).
Hazardous Substances / Petroleum Products	☒	☐	Oil stored on site included #2 and #6 fuel oils, solvents one identified.
Gravel Stains	☐	☒	None identified.
Odors, Unusual	☐	☒	None identified.
Transformer Stains	☐	☒	None identified.
Pools of Liquids	☒	☐	Oil drips were identified on the floor of the power plant. Absorbent pads were noted in use.
Septic Systems	☐	☒	None identified.
Solid Waste Disposal (including areas of fill or graded by non-natural causes and/or garbage management)	☐	☒	None identified.
Solvents	☒	☐	Solvent cleaning stations/machine wash stations were identified in the electrical and mechanical shops and in Unit 1.
Spills or Releases, Surface	☐	☒	None observed; however CoVB staff were aware of remediation activities associated with a historic spill (1997 diesel spill previously discussed).
Stained Soil or Pavement	☒	☐	Rust staining was identified concrete on the south side of the cooling tower. This was identified as the former chemical storage area for the water cooling towers.
Stains or Corrosion on Floors, Walls, Ceilings	☒	☐	Staining and scarring were identified on a concrete pad east of the power plant building. Acid scarring on the concrete on the south side of the water cooling towers.
Stormwater Discharges from Property	☐	☒	None identified.
Stressed or Dead Vegetation	☐	☒	None identified.
Subsurface Anomalies	☒	☐	An open manhole was located underneath the aboveground fuel pipelines north of the power plant building. COVB personnel reported that the open manhole was used as a seep pit for Boil #2 blow-down in the 1960's.
Sumps, Floor Vaults or Pits	☐	☒	None identified.

Table 9-2 Continued on Next Page

Issue	Observed During Site Visit Yes	No	Observations/Comments
Transformers	☒	☐	Three active transformers were identified in Substation 01. (These are discussed in the Substation 01 Phase I ESA Report). A Fourth transformer is located north of the switch yard (Substation 01), near the northwest corner of the power plant building.
Lead Paint	☐	☒	None identified; however, see results of subconsultant investigation (Section 8.2)
Asbestos	☐	☒	None identified; however, see results of subconsultant investigation (Section 8.1).
Topography	☒	☐	The ESA site and surrounding area was flat.
Wetlands	☒	☐	The canals north of the power plant property and the Indian River to the east.
Threatened and Endangered Species	☐	☒	None identified; however, there is a manatee observation area near the northwest corner of the property, near the cooling water discharge..
Wells: Abandoned, Monitoring, Irrigation, Injection, Dry Wells	☒	☐	Abandoned monitoring wells were identified west of the pump house.
Municipal Sewer System	☒	☐	The power plant discharges waste water to the CoVB WWTP. Also, the power plant receives reclaimed water for use as non-contact cooling water for Unit 4 and returns the water to the WWTP.
Utilities (heating, electric, telephone)	☒	☐	Overhead electrical utilities were identified at the Substation 01, west of the power plant building.
Water Supply	☒	☐	Potable water is supplied by the CoVB. Non-contact cooling water for Units 1-3 is withdrawn from the Indian River and discharged to the canal near the northwest corner of the property.
Miscellaneous	☒	☐	Aboveground fuel oil pipelines located north and east of the pump house. COVB employees reported that pipelines have a below grade liner. The #2 fuel oil pipeline is single walled. A 70,000-gallon in-ground tank (Neutralization Basin) located east of Unit 5 receives wastewater and discharge from power plant floor drains.
Access Constraints	☐	☒	None identified.

Table 9-2 Continued on Next Page

Issue	Observed During Site Visit		Observations/Comments
	Yes	No	
Adjoining Properties (description, current uses or any indication of past uses, locations)	☒	☐	A canal and residential homes were identified north of the property. The Indian River is east of the property. The CoVB WWTP is south of the property. Indian River Boulevard and a business complex are west of the property.

CDM identified the following recognized environmental conditions as a result of the site reconnaissance:

- Non-contact cooling water is discharged to the canal located on the northwestern corner of the property.
- Parts washers and solvent use in the machine shop, electrical shop, and in the Unit 1 building.
- Scarred concrete pad located east of the power plant building may have been former location of sulfuric acid AST.
- Scarred concrete on the south side of the water cooling tower was former location of chemical storage.
- Existing aboveground fuel oil pipelines with below grade liners.
- A 70,000-gallon in ground tank (Neutralization Basin) receives wastewater and discharge from power plant floor drains. Several oil leaks and stains were noted inside the power plant. The neutralization basin is a potential point of accumulation of contamination.

Source(s): *CDM Site reconnaissance observations from July 18-19, 2011.*

10.0 Findings, Conclusions, and Opinions

CDM has performed a Phase I ESA in conformance with the scope and limitations of ASTM Practice E 1527-05 for the facility identified as CoVB Municipal Power Plant located at 100 17th Street, in Vero Beach, Florida.

This Phase I ESA has revealed the following evidence of recognized environmental conditions attributable ta the CoVB Municipal Power Plant, in accordance with the ASTM Practice E 1527-05 , which may require additional investigation:

- REC-1: Cooling Water Discharge Outfall – Non-contact cooling water from the Indian River is discharged to a canal located on the northwestern corner of the property. This outfall represents a location of potential contamination accumulation in sediment, if contamination has historically entered the cooling water.

- REC-2: Machine Shop/Historic Solvent Use - A parts washer with a 35-gallon drum of solvent is located in the machine shop to the north of Unit 5. Based on information from CoVB employees, solvents are removed off-site and replaced by a contractor. Solvents have been historical used at this location dating back to at least the 1970s. Solvent disposal practices during that period are unknown. Additionally, the machine shop is the primary location for all custom parts manufacturing and repair activities. Stains were observed on the floor of the machine shop.

- REC-3: Electrical Shop/Historic Solvent Use – A parts washer with a 35-gallon drum of solvent is located in the electrical shop next to Unit 1. Based on information from CoVB employees, solvents are removed off-site and replaced by a contractor. The current housekeeping appears to be adequate; however, the use of solvents at this location has been reported back to the early operation of the facility. Historic solvent housekeeping and disposal practices are unknown.

- REC-4: Unit 1 Historic Solvent Use - A parts washer with a 35-gallon drum of solvent is located inside the power plant building that houses Unit 1. Based on information from CoVB employees, solvents are removed off-site and replaced by a contractor. The current housekeeping appears to be adequate; however, the use of solvents at this location has been reported back to the early operation of the facility. Historic solvent housekeeping and disposal practices are unknown.

- REC-5: Existing Fuel Oil Pipeline – Existing aboveground fuel oil pipelines are located north and east of the pump house. It was reported by CoVB employees that these pipelines have a below grade liner; however, based on the lack of berming and location on a side slope, it is unlikely that a properly constructed liner exists. The existing #2 fuel oil lines are single-walled.

- REC-6: Former Chemical AST Location – There is a concrete pad that formerly held an AST located to the southeast of the lead acid battery room. Based on information received from CoVB employees, this AST may have contained sulfuric acid and/or water. During the field visit, acid scaring was observed on the concrete pad, indicating that the tank has leaked in the past.

- REC-7: Neutralization Basin – The neutralization basin is a 70,000-gallon in-ground tank that receives wastewater and discharge from power plant floor drains. This basin is located east of Unit 5. Several oil leaks and stains were identified in the power plant. The neutralization basin is a potential point of accumulation and contamination discharge for spills of chemicals that may have been discharged to the drains inside the facility.

- REC-8: Former Underground Fuel Oil Pipeline – Based on FDEP documentation, former underground fuel oil pipes were located next to the pump house (south and west). These pipes carried fuel from the pump house to Unit 4. The pipes were located underground, and secondary containment was not likely utilized.

- REC-9: Open Manhole/Underground Piping – There is an open manhole located underneath above-ground fuel pipes to the north of the hazmat building. CoVB personnel reported that the open manhole was used as a seep pit for boiler 2 blow-down in the 1960's. A former pipeline was also reported in this location.

- REC-10: Current and Former Vehicle Fueling Facility – There are currently two (one gasoline, one diesel) ASTs located to the east of the pump house. These ASTs are used to fuel CoVB vehicles. Former gasoline and diesel ASTs were also located in this area. Historic leaks or spills associated with fuel dispensing are possible contamination sources.

- REC-11: Fuel Area Oil-Water Separator – There is an OWS for the containment system in the fuel delivery area. This OWS discharges to the #2 fuel oil containment basin. The OWS represents a potential location of contamination accumulation and discharge if not properly monitored and maintained.

- REC-12: Former Fuel Oil AST Locations – Previous fuel oil ASTs were located near the current fuel oil storage areas. There appears to be secondary containment based on historical aerial photography; however, the use and/or competency of lining is unknown.

- REC-13: No 2 Fuel Oil Containment Oil-Water Separator – There is an OWS for the #2 fuel oil containment basin. This OWS is located to the north of the basin and discharges to the northern canal. The OWS represents a potential location of contamination accumulation and discharge if not properly monitored and maintained.

- REC-14: Former Ash Pit – Closure of a former ash pit was coordinated with the Florida Department of Environmental Regulation (now FDEP) in 1983. Based on descriptions of the pit closure and review of historic aerial photographs, this ash pit may have been located in the northeast corner of the property near the current staging area.

- REC-15: Historic Landfilling Activities – Based on information provided by CoVB employees, a former landfill existed on the property. The location of the landfilling activities was identified as generally in the northeastern portion of the property; however, the exact location was not identified. Additional interviews will be conducted prior to Phase II ESA activities to better define the location of the former landfilling activities.

- REC-16: Former Chemical Storage Area for Water Cooling Towers – Formerly, the chemical storage area was located on the south side of the water cooling towers. Based on information received from CoVB employees, this storage area had a concrete bottom and concrete block containment wall that was one-block high. Chemicals stored in this area included bromine, antifoam agent, dispersant, tolytriazole, and sulfuric acid. Acid scarring on the concrete was noted in the area that reportedly held sulfuric acid. The scarring indicates that leaks have occurred in the past. Based on the damage to the concrete pad, it is unlikely that proper containment was maintained.

- REC-17: Former Barge Offloading Area and Transfer Pipeline – Historically fuel oil was delivered to the CoVB Power Plant via barge delivery. The former docking area is reported to be near the end of the intake channel. The exact location of transfer piping has not been identified at this time, but will be located between the dock and former AST locations.

- REC-18: Natural Gas Operation – The current primary source of fuel for the power plant is natural gas. Several potential environmental hazards are possible related to natural gas and natural gas delivery systems. Further information gathering is necessary related to the delivery of natural gas, but the natural gas compound on the north central portion of the site is identified as a REC.

- REC-19: Unreported Historic Spill (1987)/Wastewater Lift Station – A spill of 252 gallons of #6 fuel oil was referenced in the 2011 Spill Prevention Control and Countermeasure (SPCC) Plan. The spill reportedly discharged to the lift station on the southeast corner of the facility. Historical records of this spill or the status of cleanup were not available on the FDEP database or in the provided records.

- REC-20: Unreported Historic Spill (1992)/Wastewater Lift Station – A spill of 1,000 gallons of lubricating oil was referenced in the 2011 SPCC Plan. The spill reportedly discharged to the lift station on the southeast corner of the facility. Historical records of this spill or the status of cleanup were not available on the FDEP database or in the provided records.

- REC-21: Asbestos Containing Materials – During the asbestos inspection, 142 homogeneous areas were identified as suspect, asbestos-containing materials, including, but not limited to areas in all five power generation units, outdoor above ground piping, indoor and outdoor concrete slabs and other concrete structures, and the outdoor picnic pavilion. Also, during this inspection, plant operators estimated that 10% of the remaining piping still contained asbestos.

- REC-22: Lead-Based Paint Containing Materials – Results of lead-based paint testing indicated that lead based paint was detected above 1.0 mg/cm^2 in 35 readings at the several testing areas, including the Generation Building Roof, Fifth Floor Interior, Turbine Deck (Floor 2), Level 1, Water Intake Area, Manatee Refuge Area, and Switch Yard.

A Site Map (**Figure 10**) showing to locations of the recognized environmental conditions on the ESA site is provided in Appendix A.

11.0 Documentation and Data Gaps

EDR was not able to provide CDM with the following historical documentation and/or environmental data for the Property due to the lack of site coverage and/or limited available record sources:

- Sanborn Fire Insurance Maps

ASTM E1527-05 specifies information to be provided to the Environmental Professional by the User either directly or through thirds parties. For this property, the following information was not provided either because it does not exist, or was not required by FPL:

- A title search;
- An environmental lien search; and
- Vapor encroachment conditions at the site were not evaluated.

Please note that the lack of record sources listed above is considered a data gap, but is not considered to be a material limitation for the completion of the Phase I ESA report.