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Environmental Review of Constellation Power Source Generation, Inc. Riverside Reactivation Project

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MARYLAND POWER PLANT RESEARCH PROGRAM

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Environmental Review of Constellation Power Source Generation, Inc. Riverside Reactivation Project Baltimore County, Maryland

January 2009

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ABSTRACT

On December 21, 2007, Constellation Power Source Generation, Inc. (CPSG) applied to the Maryland Public Service Commission (PSC) for a Certificate of Public Convenience and Necessity (CPCN) to reactivate Unit 5 at the Riverside Plant Generating Station in Baltimore County, Maryland.

The Maryland Department of Natural Resources (DNR) Power Plant Research Program (PPRP), coordinating with other state agencies, has conducted a review of the potential environmental and socioeconomic effects of the Reactivation Project as part of the PSC licensing process. DNR used the analysis of potential impacts as the basis for establishing recommended licensing conditions for approval of the Riverside Plant Unit 5 Reactivation Project.

In evaluating the project, the State concluded that there will be no adverse impacts associated with the reactivation of Unit 5 to surface water resources since existing water appropriations and discharge permits will be reactivated. No impacts to threatened and endangered species, or to socioeconomic, aesthetic, or cultural resources are anticipated because there will be no changes to the land use characteristics of the local area. The Riverside project will be a minor modification under air quality permitting regulations and the project, if operated as licensed, will meet all applicable Federal and State air regulatory requirements.

The Maryland PSC granted a CPCN to CPSG for the Riverside Reactivation project under PSC Case No. 9132 in a Final Order dated May 10, 2008.

FOREWORD

This report was prepared under the direction of Shawn Seaman at the Maryland Department of Natural Resources, Power Plant Research Program (PPRP). Under contract to PPRP, the following individuals were responsible for conducting the work associated with this environmental review:

- Robert Sawyer, Julie Ross, and Mark Garrison, Environmental Resources Management, Inc., Exton, PA, under Contract #K00B520075;
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- Steve Schreiner and Ginny Rogers, Versar, Inc., Columbia, MD, under Contract #K00B5200176; and
- Peter Hall, Metametrics, Inc., Sperryville, VA under Contract #PR97-056-001.

On December 21, 2007, Constellation Power Source Generation, Inc. (CPSG) applied to the Maryland Public Service Commission (PSC) for a Certificate of Public Convenience and Necessity (CPCN) to reactivate Unit 5 at the Riverside Plant Generating Station in Baltimore County, Maryland. This project is identified as PSC Case No. 9132.

The reactivated Unit 5 will be refurbished to its original nominal design capacity of 85 megawatts (MW) and will burn natural gas only as the fuel; the unit originally burned residual fuel oil. As a part of the Reactivation Project, CPSG will restart the existing boiler, modify the steam turbine-electric generator, install a new data control system, and install a new stack and associated flue gas ductwork. The reactivated Unit 5 will be used as a peaking unit and its total hours of operation in a year will be restricted in order to limit its nitrogen oxides (NO_x) emissions to levels below those that would trigger "major" new source permitting thresholds. CPSG has indicated that, although not required by any regulation, they may also install a flue gas recirculation (FGR) system for reducing NO_x emissions. Because the use of FGR reduces NO_x emissions, and thus increases the allowable hours per year of operation (i.e., impacting the emissions of other pollutants), this analysis has accounted for both the use of this control device and the option of not using it.

The Maryland Department of Natural Resources (DNR) Power Plant Research Program (PPRP) has conducted a review of the potential environmental and socioeconomic effects of the Reactivation Project at the Riverside Plant, and has summarized the findings in this Environmental Review Document. The report is the product of a consolidated review by Maryland State agencies of CPSG's application to the Maryland PSC and serves as technical support of the State's recommended licensing conditions for approval of the Riverside Plant Unit 5 Reactivation Project.

The State concludes that there will be no adverse impacts associated with the reactivation of Unit 5 to surface water resources since there are no new surface water withdrawals or discharges associated with the project (i.e., existing water appropriations and discharge permits will be reactivated). No impacts to threatened and endangered species, or to socioeconomic, aesthetic, or cultural resources are anticipated because there will be no changes to the land use characteristics of the local area associated with the proposed project.

The Riverside project will be a minor modification under air quality permitting regulations, as the potential emissions of NO_x from the modification will be limited to less than 25 tons per year (tpy). This has the effect of limiting the emissions of all other pollutants to levels below their significance thresholds as well. It has been determined that the projected air emission rates will meet all applicable federal and State emissions limitations. In addition, the emissions of regulated pollutants will not trigger Prevention of Significant Deterioration (PSD) or Nonattainment New Source Review (NA-NSR) major source permitting requirements. The Reactivation Project will be subject to federal New Source Performance Standard (NSPS) Subpart Da, which will subject Unit 5 to NO_x, SO_2, PM and opacity limits.

As a result of the consolidated review, the State recommended a set of licensing conditions for consideration by the Maryland PSC as conditions for the approval of the Unit 5 Reactivation Project. At the conclusion of the case, the PSC approved the reactivation project under PSC Final Order No. 82006, effective May 10, 2008 with the conditions recommended by the State. Copies of the Proposed and Final Orders and the Conditions for the case are found in Appendix A.

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1.0 INTRODUCTION

On December 21, 2007, Constellation Power Source Generation, Inc. (CPSG) submitted an application to the Maryland Public Service Commission (PSC) for a Certificate of Public Convenience and Necessity (CPCN) to reactivate Unit 5 of CPSG's existing Riverside Generating Station (herein referred to as "Riverside" or "the Riverside Plant"). This project is identified as PSC Case No. 9132.

The proposed Reactivation Project at Riverside will involve modifications to Unit 5, an 85-megawatt (MW) boiler that was shut down in 1993. Additional aspects of the project are described below in Section 1.2.

1.1 DESCRIPTION OF EXISTING SITE

The Riverside Plant is located in Baltimore County, Maryland (see Figure 1-1). The site is located between the Dundalk Marine Terminal and the Francis Scott Key Memorial Bridge (Key Bridge), and is bounded by the Patapsco River and Broening Highway. The existing facility consists of one 78-MW stream-electric generating unit (Unit 4), one natural gas/distillate oil-fired gas turbine, and two distillate oil-fired gas turbines, with a total plant generating capacity of approximately 261 MW.

The plant went into commercial operation in 1951, and originally had five steam-electric generating units. Units 1, 2, and 3 were shut down in 1993, along with Unit 5; only Unit 4 continues to operate at Riverside.

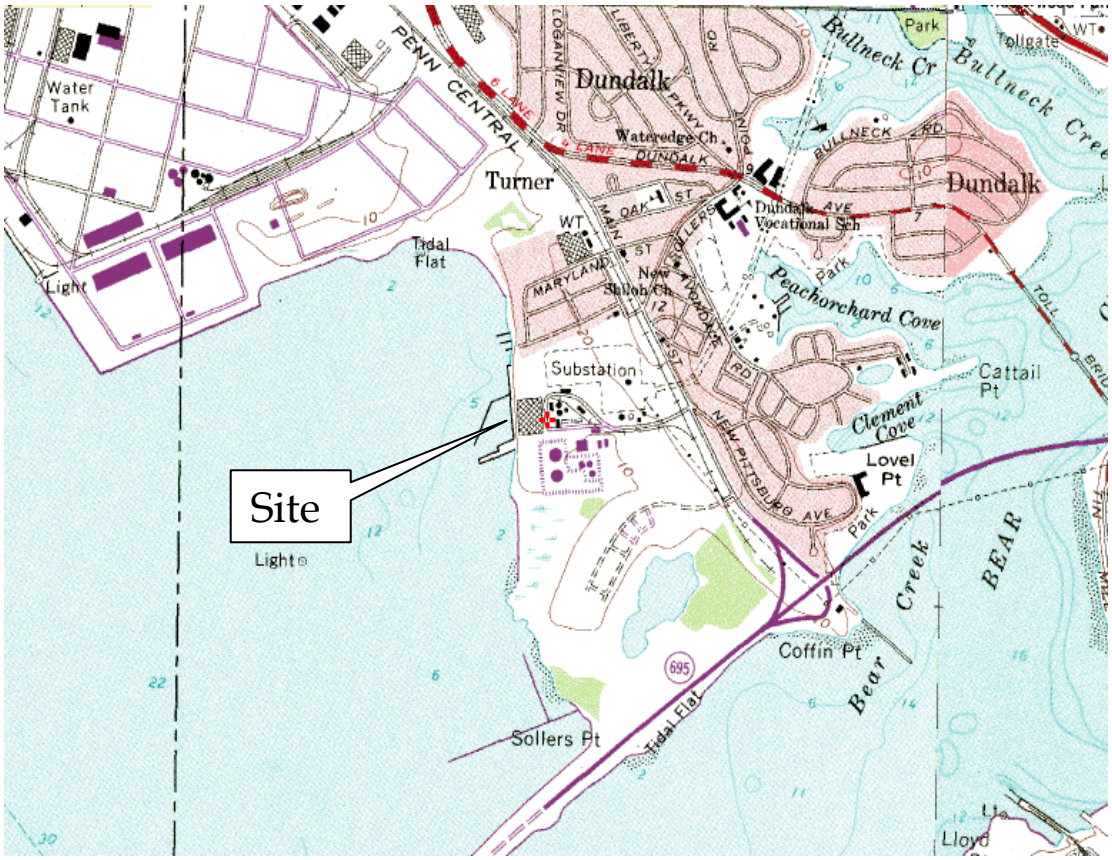
1.2 DESCRIPTION OF PROPOSED PROJECT

The proposed Reactivation Project will involve modifications to the existing equipment associated with Unit 5. The reactivated unit will be restored to its original nominal design capacity of 85 MW and will use natural gas only as the fuel. The unit is expected to be operated primarily during periods of peak demand and its annual hours of operation will be limited by the amount of nitrogen oxides (NO_x) it will be allowed to emit without triggering major permitting program requirements (see Section 3). The key activities proposed to be undertaken during the Reactivation Project include:

- Modification of the steam-electric generator and boiler;

- Optional installation of a flue gas recirculation (FGR) system on the boiler to reduce NO_x emissions;
- Installation of a new stack and associated flue gas ductwork;
- Replacement of control systems; and
- Repairs to the water intake structures.

Figure 1-1 Location of the Riverside Generating Facility



1.3 NEED FOR A CPCN FOR THE REACTIVATION PROJECT

The requirements for obtaining a Certificate of Public Convenience and Necessity (CPCN) for construction or modification of a generating station are listed in the Public Utility Companies Article (PUCA) Title 7, Subtitle 2 (§7-205 through §7-208), and Title 2, Subtitle 1 (§2-113 through §2-121). Under §7-207(b)(1)(i),

> Unless a certificate of public convenience and necessity for construction is first obtained from the Commission, a person may not begin "construction" in the State of a generating station.

Since the Riverside Plant is an existing facility, the Reactivation Project will not be considered construction of a new generating station. Note that the definition of "construction" in the PUCA regulations does not include reference to "modification" of an existing unit; therefore, the applicability of the requirements for a "modification" to an existing unit, such as the Riverside Plant, is evaluated separately. Modification is defined in §7-205(a)(1) as:

> a physical alteration of, replacement of, or other change to the facilities at a power plant, or a change in the fuel used by the plant, that could result in a change of the air emissions from the plant or from a generating unit of the plant.

According to Section §7-205(a)(2), a modification does not include: (i) routine maintenance or repairs of the facilities of a power plant; or (ii) a change that the Commission determines will not result in an increase in air emissions from the plant or from a generating unit of the plant.

Because the Riverside Plant is an existing plant under the PUCA, the reactivated Unit 5 will be considered a "modification" for air quality purposes as described in detail in Section 3.3.

The term "routine maintenance and repair" is not defined in the PUCA regulation; however, in a prior CPCN case for the installation of a Selective Catalytic Reduction (SCR) system at Mirant's Chalk Point Generating Facility (Case No. 9079), the PSC referred to the definition of modification in the Clean Air Act Prevention of Significant Deterioration (PSD) regulations. In this case, the PSD definition of modification and routine maintenance has been used as well.

The provisions of PSD regulations addressing routine maintenance, repair and replacement (RMRR) are often considered controversial and, in many instances, foundational to EPA's New Source Review (NSR) enforcement initiative. This is because the NSR rules exempt RMRR activities from NSR program requirements without fully defining the term RMRR. EPA's current policy is reflected in two guidance documents (1988, 2000)[1,2] and states that a determination on routine maintenance should be made on a case-by-case basis after considering the following five factors: purpose, nature, extent, cost, and frequency of a project. The Maryland Department of Environment (MDE) Air and Radiation Management Administration (ARMA) has adopted the EPA policy for the purpose of evaluating NSR applicability.

Riverside Unit 5 was taken out of service in 1993. The purpose of the modification to Unit 5 is to bring the unit back into operation. Due to the length of time the unit was offline, this change will not be considered a standard change to maintain the present operation condition of the unit or routine maintenance. The purpose of the modification is to provide additional generation capacity to CPSG from a retired, non-operational unit.

The extent of proposed repairs associated with Unit 5 is described in CPSG's CPCN application. The cost for the Reactivation Project is expected to be approximately $25 millions dollars. Based on the information available, CPSG has not conducted a repair of this scale on Unit 5 in the past. In particular, reactivation of the unit after an extensive period of continuous shutdown has not occurred. For the utility industry as a whole, reactivation of a unit that has been shutdown for more than two years does not occur on a regular basis. Therefore, the modifications at the Riverside Plant are considered an infrequent event. Based on a review of the five factors presented above, MDE ARMA has determined the reactivation of Unit 5 at the Riverside Plant to be non-routine and would consider the project to be a modification as defined in the PSD and PSC regulations.

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[1] Don R. Clay, 1988. "Applicability of Prevention of Significant Deterioration (PSD) and New Source Performance Standards (NSPS) Requirements to the Wisconsin Electric Power Company (WEPCO) Port Washington Life Extension Project."

[2] Francis X. Lyons, 2000. "Letter from EPA to Henry Nickels, Counsel for Detroit Edison Company", May 23, 2000.

Therefore, it was determined that a CPCN is required for the unit before the project is to commence construction.

1.4 CONTENT OF ENVIRONMENTAL REVIEW DOCUMENT

The purpose of the consolidated agency review of CPSG's application for a CPCN for reactivating the Riverside Plant Unit 5 was to:

- Identify potential air quality impacts of the project,
- Ensure compliance with State and federal air quality regulations,
- Ensure compliance with State noise limitations,
- Identify and evaluate any potential surface or ground water issues,
- Evaluate effects on land use in the vicinity of the Riverside Plant, and
- Evaluate potential impacts to socioeconomic, aesthetic, and cultural resources.

This Environmental Review Document (ERD) presents the results of the State's assessment, including proposed conditions for consideration by the PSC.

The ERD is divided into six sections. Section 2 discusses the existing site conditions. Air quality issues related to the reactivated unit are summarized in Section 3. Terrestrial, ecological, surface water, water supply resources and associated impacts, and construction impacts are summarized in Section 4 of the report. Section 5 provides a description of potential socioeconomic, aesthetic, cultural resource and noise impacts, and Section 6 presents the summary and conclusions. The conditions for the Reactivation Project are included in Appendix A.

2.0 EXISTING SITE CONDITIONS

2.1 SURFACE WATER RESOURCES

The Riverside Plant is located on the northeast shore of the lower Patapsco River (Baltimore Harbor) between the Maryland Port Administration (MPA) Dundalk Marine Terminal and Sollers Point. This portion of the river is tidal, with a mean tidal range of about 1.1 feet (ft). The Riverside Plant is within the Patapsco/Back River Basin, which is one of the ten subwatersheds of the Chesapeake Bay.

The Patapsco/Back River basin drains 630 square miles of land within Maryland's Western Shore[3]. This includes all of Baltimore City and portions of Anne Arundel, Baltimore, Carroll, and Howard Counties. Baltimore Harbor itself is a tidal embayment located at the confluence of the Patapsco River and the Jones and Gwynns Falls.

The predominant land use in this basin is classified as urban (55%). Forested and wetland areas comprise the second largest land use at 24%. The remaining 21% of the basin is devoted to agricultural use.

Point sources are a major contributor of nutrient loadings to the Patapsco/Back River basin. There are six municipal sewage plants in the basin. As of 2002, the Chesapeake Bay Program Phase 4.3 Model indicated that the most significant sources of nitrogen in this basin are point sources (75%). Other nitrogen sources were urban runoff (19%) and agriculture (4%). Point sources were also the largest contributor of phosphorus (51%), followed by urban runoff (41%). Urban runoff sources were the dominant source of sediments (53%).

Patapsco River tidal water quality is presently poor with respect to total nitrogen, total phosphorus, algal abundance, water clarity, and dissolved oxygen. For the mesohaline Patapsco River, only very small amounts of submerged aquatic vegetation (SAV) have been recorded by the Virginia

[3] DNR, 2005. Maryland Department of Natural Resources. "Maryland Tributary Strategy, Patapsco/Back Basin Summary Report for 1985-2003 Data", January 2005.

Institute of Marine Science with the highest coverage in 1998 (14.5 acres)[4]. These beds are exclusively identified in Shallow Creek, near the northern mouth of the Patapsco River. Water quality data from a monitoring station located near the Key Bridge and Fort Carroll Island indicate light attenuation fails and all other habitat requirements are borderline for SAV habitat requirements.

2.2 CLIMATE AND AIR QUALITY

2.2.1 Climate

The discussion of climatology in the vicinity of the Riverside Plant is based primarily on data from the Baltimore/Washington International Thurgood Marshall Airport (BWI Marshall), which is the closest National Weather Service (NWS) station to the plant. The climate data cited in this section is reported from the Maryland State Climatologist Office Website, which is operated by the University of Maryland Department of Atmospheric and Oceanic Science[5]. BWI Marshall is located approximately 16.4 kilometers (km) west-southwest of the Riverside Plant, and is considered representative of the area.

The climate in the vicinity of the Riverside Plant is temperate with four defined seasons. The annual mean temperature is approximately 55°F. The record minimum and maximum extreme temperatures range from a low of -7°F to a high of 105°F. Normal minimum and maximum temperatures are 24°F and 87°F, respectively. Lowest yearly temperatures tend to occur in January, while highest temperatures occur in July.

Precipitation is evenly distributed throughout the year. The mean annual precipitation is approximately 42 inches. This total has varied from as little as 28 inches to over 63 inches during the past 30 years.

Thunderstorms are relatively common, occurring about 30 days during an average year, with approximately 75% to 80% occurring from May through August. Tornadoes are much rarer. Of the tornadoes that do occur, most are small and result in nominal losses. About 20% of the tornadoes experienced in Maryland occur on the eastern shore.

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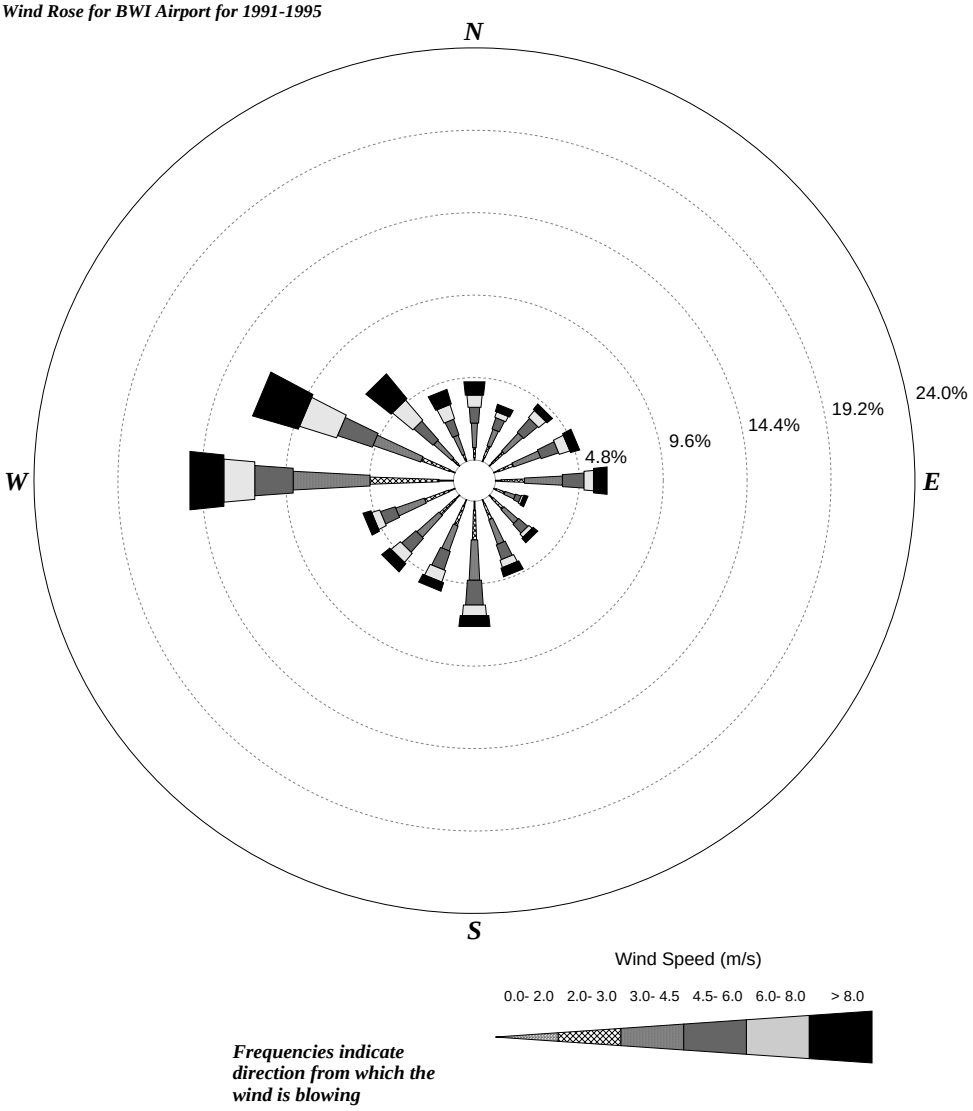
[4] VIMS, 2008. Virginia Institute of Marine Science. http://www.vims.edu/bio/sav/.

[5] University of Maryland, 2008. http://www.atmos.umd.edu/~climate/

The average annual wind speed at BWI Marshall is 4.0 miles per hour. Based on wind data at BWI Marshall from 1991-1995, prevailing winds are from the west. A wind rose of BWI Marshall wind measurements based on data from 1991 through 1995 is presented in Figure 2-1.

Figure 2-1 BWI Marshall Wind Rose for 1991-1995



2.2.2 *Ambient Air Quality*

2.2.2.1 *Air Quality: Monitoring and Determining Attainment of Ambient Air Quality Standards*

EPA monitors concentrations of the "criteria" pollutants, nitrogen oxides (NO_x), sulfur dioxide (SO_2), particulate matter (PM), ozone, carbon monoxide (CO), and lead at various locations across the United States near ground level. If monitoring indicates that the concentration of a criteria pollutant exceeds the National Ambient Air Quality Standard (NAAQS) in any area of the country, that area is labeled a "nonattainment area" for that pollutant, meaning that the area is not meeting the NAAQS. Conversely, any area in which the concentration of a criteria pollutant is below the NAAQS is labeled an "attainment area," indicating that the NAAQS is being met.

The attainment/nonattainment designation is made by states and EPA on a pollutant-by-pollutant basis. Therefore, the air quality in an area may be designated attainment for some pollutants and nonattainment for other pollutants at the same time. For example, many cities are designated nonattainment for ozone, but are in attainment for the other criteria pollutants.

Since the late 1980s, the NAAQS for PM covered "PM_{10}," which represents PM less than 10 microns in diameter. In 1997, EPA revised the NAAQS for PM and added a standard for a new form of PM known as $PM_{2.5}$, which represents PM less than 2.5 microns in diameter. $PM_{2.5}$, or "fine particulates," are of concern because the particles' small size allows them to be inhaled deeply into the lungs and the particles contribute to haze and other air quality issues. In December 2004, EPA published its final designation of $PM_{2.5}$ nonattainment areas.

EPA and states make attainment designations based on air quality surveillance programs that measure pollutants in a network of nationwide monitoring stations known as the State and Local Air Monitoring Stations (SLAMS), National Air Monitoring Stations (NAMS), and Photochemical Air Monitoring Stations (PAMS)[6]. NAMS are a subset of the SLAMS focused on urban and multi-source areas. PAMS are also a subset of the SLAMS, and are focused on areas of the country with ozone

[6] USEPA, 1998. SLAMS/NAMS/PAMS Network Review Guidance. USEPA, Office of Air Quality Planning and Standards, Research Triangle Park, EPA-454/R-98-003, March 1998.

nonattainment issues. Appendix D of Part 58 of the Code of Federal Regulations establishes air quality monitoring network design specifications.

2.2.2.2 Local Air Quality

All of the State of Maryland, including Baltimore County, is in attainment of the NAAQS for all criteria pollutants with the exception of ozone and $PM_{2.5}$. Baltimore County is a designated "moderate" ozone nonattainment area (on a scale that ranges from worst to best air quality of extreme – severe – serious – moderate – marginal), and a nonattainment area for $PM_{2.5}$.

Figure 2-2 illustrates ambient air quality monitoring stations in and around Baltimore County operated under the SLAMS network. The monitoring data are collected and maintained by EPA's Air Quality System (AQS) database and are available from the EPA's website (www.epa.gov/air/data/). Table 2-1 presents the existing ambient air concentrations for ozone and $PM_{2.5}$ in Baltimore County.

Figure 2-2 Location of Pollutant Monitoring Stations in the Vicinity of the Riverside Plant

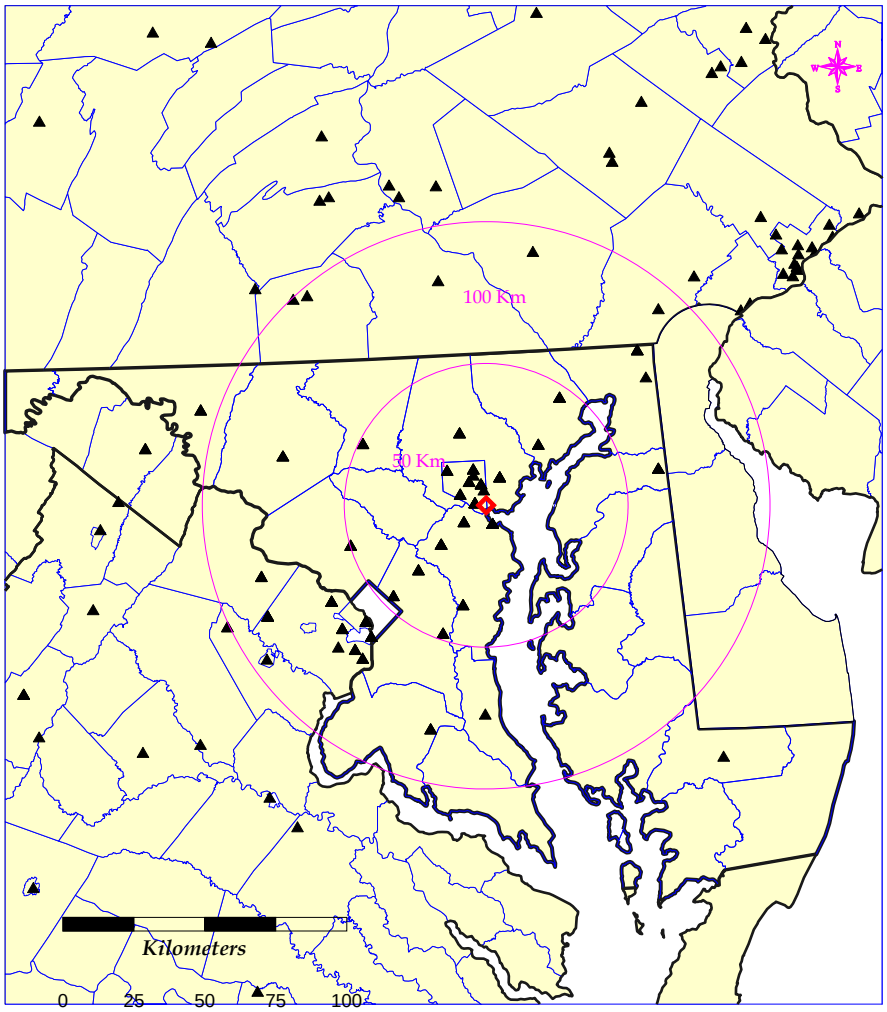


Table 2-1 Summary of Monitoring Data for Ozone and $PM_{2.5}$ in Baltimore County

Pollutant	Averaging Period	Maximum Concentration[1]	NAAQS[1]
Ozone	1-hour	0.14	0.12
	8-hour	0.11	0.08
$PM_{2.5}$	24-hour	50.0	35.0
	Annual	17.2	15.0

Notes:
1. Ozone concentration is in ppm; $PM_{2.5}$ concentration is in $\mu g/m^3$.

2.3 BIOLOGICAL RESOURCES

2.3.1 Wildlife

The pre-existing site stresses, including proximity to the existing Riverside Plant and adjacent roadways, and the lack of forested habitat, greatly reduce the wildlife potential of the site. Only common species accustomed to anthropogenic disturbance are likely to occur at the Riverside Plant. Such species may include Canada goose (*Branta canadensis*), European starling (*Sturmus vulgaris*), American crow (*Corvus brachyrhynchos*), rock dove (*Columba livia*), killdeer (*Charadrius vociferus*), herring gull (*Larus argentatus*), mockingbird (*Mimus polyglottis*), house sparrow (*Passer domesticus*), and American robin (*Turdus migratorius*).

2.3.2 Aquatic Ecology

Due to the urban and industrial nature of the area, significant levels of pollution have been discharged into Baltimore Harbor, which results in very poor water quality, including in the vicinity of the Riverside Plant. Contaminants discharged into the Harbor or its tributaries display high retention rates resulting from the unique local hydrography. The State of Maryland has listed Baltimore Harbor as an "impaired" water body due to excessive contaminant loads. High levels of heavy metals (arsenic, lead, mercury, and zinc, among others), polychlorinated biphenyls (PCBs), and polycyclic aromatic hydrocarbons (PAHs) have been observed in the Baltimore Harbor.

Several commercially and/or recreationally important species are present in the vicinity of the Riverside Plant. Recreational fishing should be kept to a minimum, as health advisories, primarily driven by PCBs, have been issued by MDE and, recommend limits on consumption[7]. Commercially and/or recreationally important species in the vicinity of the Riverside Plant with consumption advisories include American eel (*Anguilla rostrata*), white perch (*Morone americana*), striped bass (*Morone saxatilis*), brown bullhead (*Ameiurus nebulosus*), channel catfish, (*Ictalurus punctatus*), and blue crab (*Callinectes sapidus*).

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[7] MDE, 2007. Recommended Maximum Meals Each Year For Maryland Waters. http://www.mde.state.md.us/assets/document/Fish_Advisory_Table_2007(2).pdf#Recommended_Meals_Per_Year.

Benthic community condition in the Patapsco River estuary for the period 1999-2003 was mostly degraded. The probability of observing degraded benthos was 62% with 90% confidence[8]. Severely degraded conditions occurred in the upper portion of the estuary, above the Key Bridge and at sites in Curtis Creek, Stony Creek, and along the deep channel south of Sparrows Point. These areas are affected by very low dissolved oxygen concentrations and/or toxic contamination.

The Chesapeake Bay phytoplankton monitoring program samples 13 stations in the Maryland portion of the Bay, including one station in the Patapsco River. The phytoplankton index of biotic integrity showed that station to have a poor phytoplankton community in spring and summer 2003. In addition, a harmful mahogany tide (*Prorocentrum minimum* dinoflagellate bloom) occurred in the Patapsco River in December 2004 and again in May 2007. The event in 2007 led to a fish kill in which approximately 7,000 fish were killed, consisting primarily of adult menhaden but also including croakers, white perch, and pumpkinseed sunfish. Dissolved oxygen was measured at 3 mg/L from the surface to a depth of 12 ft in the Inner Harbor with readings as low as 0.3 mg/L in the Canton area (5 mg/L is considered the minimum needed for most aquatic life to flourish).

SAV is nearly absent from Baltimore Harbor and the area surrounding the Riverside Plant. Maritime activity, dredging, pollution, high nutrient loads, deep waters, and high natural sediment loads all contribute to insufficient levels of light reaching the bottom, precluding the establishment of major SAV beds. Most of the natural shorelines throughout the Baltimore Harbor have been replaced by seawalls and bulkheads, eliminating the shallow water habitat suitable for SAV growth.

2.3.3 Threatened and Endangered Species

Threatened and endangered species of Maryland are protected by the US Fish and Wildlife Service (USFWS) under the Endangered Species Act of 1973 and by the Maryland DNR under the Maryland Nongame and Endangered Species Conservation Act of 1974. A jurisdiction-specific list

[8] Versar, 2007. Chesapeake Bay Benthic Monitoring Program. http://www.esm.versar.com /Vcb/Benthos/ referenc.htm.

of threatened and endangered federal and State protected species known to occur in Baltimore County was obtained from Maryland (Table 2-2)[9].

Listed floral species include those plant species classified as endangered, threatened, or in need of conservation by the USFWS or Maryland DNR. There are 132 important plant species reported to occur in Baltimore County. The current cleared, mowed, and maintained condition of the Riverside Plant and the surrounding area does not provide suitable habitat for any listed species of plant.

Listed faunal species are those animal species classified as endangered, threatened, or in need of conservation by the USFWS or Maryland DNR. There are 27 listed animal species reported to occur in Baltimore County. Due to the current cleared, mowed, and maintained condition of the project site and the surrounding area, no listed species of animals are known to occur at the Riverside Plant.

The shortnose sturgeon (*Acipenser brevirostrum*) was originally listed as an endangered species by the USFWS in 1967. Although historically present, shortnose sturgeon are currently encountered on an infrequent basis in the upper Chesapeake Bay. The National Marine Fisheries Service (NMFS) currently recognizes the Potomac River as supporting the only distinct population segment of the shortnose sturgeon species in the Chesapeake Bay. The Patapsco River is not considered to have suitable spawning habitat for the shortnose sturgeon.

[9] DNR, 1994. Maryland Department of Natural Resources. Maryland Wildlife and Heritage Division. "Rare, Threatened, and Endangered Plants of Maryland," 1994.

Table 2-2 Current and Historical Rare, Threatened, and Endangered Species of Baltimore County, Maryland (May 10, 2004)*

Scientific Name	Common Name	Global Rank	State Rank	State Status	Federal Status
Animals					
Alasmidonta undulate	Triangle floater	G4	S1	E	
Alasmidonta varicose	Brook floater	G3	S1	E	
Bartramia longicauda	Upland sandpiper	G5	S1B	E	
Botaurus lentiginosus	American bittern	G4	S1S2B	I	
Cicindela patruela	Green-patterned tiger beetle	G3	S1	E	
Circus cyaneus	Northern harrier	G5	S2B		
Clemmys muhlenbergii	Bog turtle	G3	S2	T	LT
Cyclophora nanaria	A geometrid moth	G5	S1?		
Empidonax alnorum	Alder flycatcher	G5	S2B	I	
Erynnis martialis	Mottled duskywing	G3G4	S1	E	
Fixsenia Ontario	Northern hairstreak	G4T4	S1S2	E	
Graptemys geographica	Map turtle	G5	S1	E*	
Haliaeetus leucocephalus	Bald eagle	G4	S2S3B	T	LT
Ixobrychus exilis	Least bittern	G5	S2S3B	I	
Lampsilis radiate	Eastern lampmussel	G5	SU		
Lanius ludovicianus	Loggerhead shrike	G4	S1B	E	
Laterallus jamaicensis	Black rail	G4	S2S3B	I	
Limotettix minuendus	Eastern sedge barrens planthopper	G1	S1		
Lophodytes cucullatus	Hooded merganser	G5	S1B		
Podilymbus podiceps	Pied-billed grebe	G5	S2B		
Satyrium edwardsii	Edwards' hairstreak	G4	S1	E	
Sortex fumeus	Smoky shrew	G5	S2S3	I	
Sorex hoyi winnemana	Southern pygmy shrew	G5T4	S2		
Sperchopsis tessellates	A hydrophilid beetle	G?	S2		
Speyeria idalia	Regal fritillary	G3	SH	X	
Sterna antillarum	Least tern	G4	S2B	T	
Stygobromus tenuis tenuia	Tenuis amphipod	G4G5T2T3Q	SU		
Plants					
Adlumia fungosa	Clibming fumitory	G4	S2	T	
Agalinis acuta	Sandplain gerardia	G1	S1	E	LE
Agalinis fasciculata	Fascicled gerardia	G5	S1	E	
Agalinis obtusifolia	Blunt-leaved gerardia	G4G5Q	S1	E	
Agalinis setacea	Thread-leaved gerardia	G5?	S1	E	
Agastache scrophulariifolia	Purple giant hyssop	G4	S1S2	T	

Scientific Name	Common Name	Global Rank	State Rank	State Status	Federal Status
Ammannia latifolia	Koehne's ammannia	G5	S2		
Arabis missouriensis	Kissouri rockcress	G4G5Q	S1	E	
Arnica acaulis	Leopard's-bane	G4	S1	E	
Arundinaria gigantean	Giant cane	G5	S2		
Asclepias rurbra	Red milkweed	G4G5	S1	E	
Asplenium bradleyi	Bradley's speenwort	G4	SH	X	
Asplenium pinnatifidum	Lobed spleenwort	G4	S1	E	
Aster concolor	Silvery aster	G4?	S1	E	
Aster depauperatus	Serpentine aster	G2	S1	E	
Berberis Canadensis	American barberry	G3	SH	X	
Betula populifolia	Gary birch	G5	SU		
Bidens coronata	Tickseed sunflower	G5	S2S3		
Bouteloua curtipendula	Side-oats grama	G5	S2		
Bromus latiglumis	Broad-glumed brome	G5	S1	E	
Bromus nottowayanus	Nottoway's brome	G3G4	SH	X	
Cacalia muehlenbergii	Great Indian-plantain	G4	SH	X	
Calystegia spithamaea	Low bindweed	G4G5	S2		
Carex brevior	Fescue sedge	G5?	S2?		
Carex hystericina	Porcupine sedge	G5	S1	E	
Carex interior	Inland sedge	G5	S1		
Carex lucorum	A sedge	G4	SH		
Carex pellita	Woolly sedge	G5	S2?		
Carex planispicata	A sedge	G4Q	S1S2		
Carex richardsonii	Richardson's sede	G4	S1	E	
Carex tenera	Slender sedge	G5	SH	X	
Carex trichocarpa	Hairy-fruited sedge	G4	S2		
Carex vestita	Vevety sedge	G5	S2	T	
Castanea dentata	American chestnut	G4	S2S3		
Chenopodium standleyanum	Standley's goosefoot	G5	S1	E	
Ceologlossum viride	Long-bracted orchis	G5	S1	E	
Corallorhiza wisteriana	Wister's coralroot	G5	S1	E	
Deschampsia cespitosa	Tufted hairgrass	G5	S1	E	
Desmodium lineatum	Linear-leaved tick-trefoil	G5	S1	E	
Desmodium rididum	Rigid tick-trefoil	G?Q	S1	E	
Desmodium sessilifolium	Sessile-leaved tick-trefoil	G5	SH	X	
Desmodium strictum	Stiff tick-trefoil	G4	S1	E	
Diplazium pycnocarpon	Glad fern	G5	S2	T	
Dirca palustris	Leatherwood	G4	S2	T	
Dryopteris celsa	Log fern	G4	S3.1	T	

Scientific Name	Common Name	Global Rank	State Rank	State Status	Federal Status
Eleocharis intermedia	Matted spikerush	G5	S1	E	
Epilobium ciliatum	Northern willowherb	G5	S1	E	
Equisetum sylvaticum	Wood horsetail	G5	S1	E	
Eriocaulon parkeri	Parker's pipewort	G3	S2	T	
Eupatorium leucolepis	White-bracted boneset	G5	S2S3	T	
Eupatorium maculatum	Spotted Joe-pye-weed	G5	SU	X	
Festuca paradoxa	Cluster fescue	G5	SH	X	
Filipendula rubra	Queen-of-the-prairie	G4G5	S1	E	
Gentiana andrewsii	Fringe-tip closed gentian	G5?	S2	T	
Gentiana villosa	Striped gentian	G4	S1	E	
Gentianaposis crtinita	Fringed gentian	G5	S1	E	
Geranium robertianum	Herb-robert	G5	S1		
Gymnocladus dioicus	Kentucky coffe-tree	G5	S1		
Helianthemum bicknellii	Hoary frostweed	G5	S1	E	
Hierochloe odorata	Holy grass	G4G5	S1	E	
Hydrastis canadensis	Goldenseal	G4	S2	T	
Hypericum denticulatum	Coppery St. John's-wort	G5	S2	T	
Iris prismatica	Slender blue flag	G4G5	S1	E	
Juncus brevicaudatus	Narrow-panicled rush	G5	S2		
Juncus torreyi	Torrey's rush	G5	S1	E	
Juniperus communis	Juniper	G5	SH	X	
Lactuca hirsute	Hairy lettuce	G5?	SH	X	
Liatris spicata	Spiked blazing-star	G5	S1		
Limosella australis	Mudwort	G4G5	S2	E	
Linum intercursum	Sandplain flax	G4	S2	T	
Linum sulcatum	Grooved flax	G5	S1	E	
Ludwigia brevipes	Creeping ludwigia	G4G5	SU		
Lupinus perennis	Wild lupine	G5	S2	T	
Lycopodiella inundata	Bog clubmoss	G5	S2		
Lygodium palmatum	Climbing fern	G4	S2	T	
Matelea oblique	Climbing milkweed	G4?	S1	E	
Matteuccia struthiopteris	Ostrich fern	G5	S2		
Melanthium latifolium	Broad-leaved bunchflower	G5	S1	E	
Monotropsis odorata	Sweet pinesap	G3	S1	E	
Myosotis macrosperma	Large-seeded forget-me-not	G5	S2S3		
Najas gracillima	Thread-like naiad	G5?	SU	X	
Panicum flexile	Wiry witch-grass	G5	S1	E	
Panicum oligosanthes	Few-flowered panicgrass	G5	S2S3		
Pedicularis lanceolata	Swamp lousewort	G5	S1	E	

Scientific Name	Common Name	Global Rank	State Rank	State Status	Federal Status
Phalaris caroliniana	May grass	G5?	SH	X	
Phlox pilosa	Downy phlox	G5	S1	E	
Platanthera blephariglottis	White fringed orchid	G4G5	S2	T	
Platanthera ciliaris	Yellow fringed orchid	G5	S2	T	
Platanthera flava	Pale green orchid	G4	S2		
Platanthera grandiflora	Large purple fringed orchid	G5	S2	T	
Platanthera peramoena	Purple fringeless orchid	G5	S1	T	
Platanthera psycodes	Small purple fringed orchid	G5	SU	X	
Poa languida	Weak speargrass	G3G4Q	SU		
Poa palustris	Fowl bluegrass	G5	SH		
Planisia dodecandra	Clammyweed	G5	S1	E	
Polemonium vanbruntiae	Jacob's-ladder	G3	S2	T	
Polygala senega	Seneca snakeroot	G4G5	S2	T	
Potamogeton perfoliatus	Clasping-leaved pondweek	G5	S2		
Potamogeton spirillus	Spiral pondweed	G5	S1		
Potentilla arguta	Tall cinquefoil	G5	SU		
Prunus pumila	Eastern dwarf cherry	G5	SU		
Pycnanthemum pycnanthemoides	Southern mountain-mint	G5	SH	X	
Pycnanthemum torrei	Torrey's mountain-mint	G2	S1	E	
Pycnanthemum verticillatum	Whorled mountain-mint	G5	S1	E	
Pycnanthemum virginianum	Virginia mountain-mint	G5	S2		
Quercus macrocarpa	Mossy-cup oak	G5	S1		
Ranunculus hispidus var nitidus	Hispid buttercup	G5T5	S1?	X	
Rhynchospora cephalantha	Capitate beakrush	G5	S1	E	
Salix bebbiana	Bebb's willow	G5	Sh	X	
Salix tristis	Dwarf prairie willow	G4G5	S1	T	
Sanguisorba Canadensis	Canada burnet	G5	S2		
Scirpus cylindricus	Salt-marsh bulrush	G5	S2	X	
Scirpus smithii	Smith's clubrush	G5?	SU		
Scirpus verecundus	Bashful bulrush	G4G5	S2S3		
Scleria reticularis	Reticulated nutrush	G4	S2		
Scleria triglomerata	Tall nutrush	G5	S1S2		
Scutellaria leonardii	Loeanard's skullcap	G4T4	S2	T	
Silene nivea	Snowy campion	G4?	S1	E	
Solidago hispida	Hairy goldenrod	G5	SH	X	
Sphenopholis pensylvanica	Swamp-oats	G4	S1S2	T	
Spiranthes lucida	Wide-leaved ladys' tresses	G5	S1	E	

Scientific Name	Common Name	Global Rank	State Rank	State Status	Federal Status
Spiranthes ochroleuca	Yellow nodding ladys' tresses	G4	S1	E	
Sporobolus asper	Long-leaved rushgrass	G5	S1		
Sporobolus neglectus	Small rushgrass	G5	S1?	X	
Stachys hyssopifolia	Hyssop-leaved hudge-nettle	G5	SU		
Stachys latidens	Broad-toothed hudge-nettle	G4G5	S1		
Talinum teretifolium	Fameflower	G4	S1	T	
Thaspium trifoliatum	Purple meadow-parsnip	G5	S1	E	
Tofieldia racemosa	Coastal false asphodel	G5	SX	X	
Triosteum angustifolium	Narrow-leaved horse-gentian	G5	S1	E	
Viburnum lentago	Nannyberry	G5	S1		
Vitis rupestris	Sand grape	G3	S1		

* Represents a compilation of information in the Wildlife and Heritage Service's Biological and Conservation Data System as of the date on the report. It does not include species considered to be "watchlist" or more common species. Rankings with "?" indicate species has not yet been ranked. Rank and status codes are listed at http://www.dnr.state.md.us/wildlife/rte/rank_status.pdf.

2.4 REGIONAL SOCIOECONOMIC SETTING

The Riverside Plant is in the Sollers Point area of Baltimore County south of the Dundalk Marine Terminal. The Riverside Plant is bounded to the south by commercial property, to the east by Broening Highway and to the west by the Patapsco River. A Maryland Transportation Authority (MDTA) toll facility at the Key Bridge is located south of the site at the intersection of Interstate 695 (I-695) and Broening Highway. Maritime manufacturing activities consume most land northwest of the site along the Patapsco River. The property is in an Industrial District (IM) with base zoning of MH, Heavy Manufacturing. MH zoning is the most permissive industrial zoning classification. CPSG has operated electric generation facilities onsite since 1951. Although the site originally hosted five generating units with five associated stacks, only the stack for Unit 4 remains in place. The reactivation of Unit 5 will require a stack similar to the existing Unit 4 stack. The new Unit 5 stack will be built in its original location (prior to the shutdown of Unit 5).

3.0 AIR QUALITY IMPACTS

3.1 IMPACT ASSESSMENT BACKGROUND AND METHODOLOGY

3.1.1 Overview

As a part of the CPCN review process, PPRP and MDE ARMA evaluate potential impacts to air quality resulting from emissions of electric generation projects or modifications to electric generating units resulting in increases in emissions. This evaluation includes emissions investigations and other studies to ensure that impacts to air quality from proposed projects are acceptable. PPRP and MDE ARMA also conduct a complete air quality regulatory review of these projects for two purposes: 1) to assist in the impact assessment, because air quality regulatory standards and emissions limitations define levels to minimize adverse health, welfare, and environmental effects; and 2) to ensure that the proposed project will meet all applicable regulatory requirements. The consolidated review by PPRP, MDE ARMA, and other State agencies results in recommendations on air quality issues for consideration by the PSC for incorporation as conditions.

The reactivation and operation of Unit 5 will result in an increase in emissions of NO_x as well as other common combustion pollutants including: particulate matter ($PM/PM_{10}/PM_{2.5}$), sulfur dioxide (SO_2), carbon monoxide (CO), volatile organic compounds (VOCs) and hazardous air pollutants (HAPs). PPRP and MDE ARMA evaluated the applicability of federal and State air regulations to the proposed project. A summary of the review of the project impacts on air quality is presented in this section.

3.1.2 Other Considerations

EPA has defined concentration-based NAAQS for criteria pollutants set at levels that are considered to be protective of the public health and welfare. The NAAQS have been defined for several pollutants, including PM, SO_2, CO, NO_2, ozone, and lead. Air emissions limitations and pollution control requirements are generally more stringent for sources located in areas that do not currently comply with the NAAQS for any criteria pollutant (defined as "nonattainment" areas).

As outlined in Section 2.2.2, the air quality in Baltimore County is in attainment of the NAAQS for all pollutants with the exception of $PM_{2.5}$ and ozone. Baltimore County is designated as a "moderate" ozone nonattainment area. Emissions of the two pollutants that are the primary precursors to ozone—VOCs and NO_x—are restricted from new sources and from modifications to existing sources in ozone nonattainment areas such as Baltimore County to ensure that air quality is not further degraded. Although EPA has promulgated an ambient standard for $PM_{2.5}$ and has designed $PM_{2.5}$ nonattainment areas, there were no federal or State implementing regulations for $PM_{2.5}$ at the time of this case. EPA published interim guidance for implementing $PM_{2.5}$ nonattainment programs in a September 2005 memorandum. MDE ARMA has used the interim guidance on $PM_{2.5}$ for this case.

Potential emissions from new and modified sources in nonattainment areas are evaluated through the NA-NSR regulatory program (COMAR 26.11.17). The goal of the NA-NSR program is to allow construction of new emission sources and modifications to existing sources, while ensuring that progress is made towards attainment of the NAAQS. Triggering NA-NSR indicates that a project could adversely impact air quality, which means that impacts must be managed. NA-NSR requires that major sources of VOC or NO_x limit emissions of pollutants through the implementation of the most stringent level of pollution control, known as Lowest Achievable Emission Rate (LAER). In addition, NA-NSR requires pollutant "offsets" to be obtained for every ton of regulated pollutant emitted.

The PSD program applies to those areas of the country that are in attainment of the NAAQS for a particular pollutant. The goal of the PSD program is to ensure that emissions from major sources do not degrade air quality. Triggering PSD requires the installation of pollution controls that meet Best Available Control Technology (BACT) as well as the consideration of additional impact assessments.

Since the Riverside Plant is located in a nonattainment area for $PM_{2.5}$ and ozone and an attainment area for the other pollutants, PPRP and MDE ARMA assessed applicability with both NA-NSR and PSD to ensure that no adverse impacts would be caused by the proposed project. The results of these evaluations for the proposed project are discussed in Section 3.3.

Other federal and State air quality regulations may apply to the Unit 5 Reactivation Project at the Riverside Plant. These regulations may apply either as a result of the type of emission source that is to be constructed or as a result of the pollutants to be emitted from the system. These

regulations, as discussed in Section 3.4, specify limits on pollutant emissions and establish monitoring, recordkeeping, and reporting requirements, and are incorporated as licensing conditions (Appendix A).

PPRP and MDE ARMA conducted air dispersion modeling of the air emissions from the Riverside Plant Reactivation Project to evaluate impacts on ambient air quality for NO_2, SO_2, CO, PM_{10} and $PM_{2.5}$. PPRP and MDE ARMA did not determine the impacts of ozone precursor (NO_x and VOC) emissions from the Riverside Plant on ozone concentrations as this is a regional pollutant involving complex chemical reactions. Results from the modeling are discussed in Section 3.5.

3.2 PROPOSED PROJECT AIR EMISSIONS

CPSG is proposing to reactivate the Riverside Plant Unit 5, which was shut down in 1993. The construction activities associated with this project will include modifications to the steam-electric generator and boiler, installation of a new stack and flue gas ductwork, replacement of control systems, and repairs to the water intake structures. CPSG has indicated that, although not required by any regulation, it may also install a flue gas recirculation (FGR) system for reducing NO_x emissions. The unit is expected to be operated primarily during periods of peak demand and its annual hours of operation will be limited by the amount of NO_x it will be allowed to emit (i.e., if an FGR system is installed, lowering hourly NO_x emissions, Unit 5 could operate more hours per year).

The reactivated Unit 5 will be restored to its original nameplate design capacity of 85 MW and natural gas will be the only fuel fired in Unit 5. Emission estimates are based on the boiler having a maximum heat input of 820 MMBtu/hr.

3.2.1 Criteria Pollutants

The only source of air emissions from the Reactivation Project is the Unit 5 boiler. The combustion of natural gas will result in the emission of criteria pollutants as described here as well as other pollutants, such as toxic air pollutants (TAPs) and HAPs described in Section 3.2.2, and greenhouse gases such as CO_2 described in Section 3.2.3.

As part of the project, CPSG intends to limit emissions of NO_x from Unit 5 to less than the "major modification" threshold of 25 tpy. As a result, the reactivated unit will not be subject to NA-NSR requirements (see Section 3.3 for NA-NSR applicability).

Before Unit 5 was taken out of service in 1993, it was equipped with low NO_x burners (LNB) and over-fire air (OFA) for reducing NO_x emissions. Those NO_x controls will be restored as part of the Reactivation Project. CPSG indicated that it may install additional NO_x controls such as an FGR system to have the flexibility to operate Unit 5 for a longer duration without exceeding the 25 tpy major modification threshold. Based on the information provided in the CPCN application submitted by CPSG on 21 December 2007, the existing LNB and OFA systems and exclusive use of natural gas will result in a NO_x emission rate of less than 0.14 pounds per million British thermal units (lb/MMBtu) from the reactivated boiler. With the inclusion of an FGR system, the maximum NO_x emissions from Unit 5 are projected to be in the range of 0.05 - 0.1 lb/MMBtu.

PPRP estimated the maximum hours Unit 5 could operate annually while ensuring that NO_x emissions will be less than 25 tpy using the projected emission rates (a minimum of 0.05 lb/MMBtu and a maximum of 0.14 lb/MMBtu). This results in a range of hours of operation between 445 and 1,219 hours/year. The maximum value of 1,219 hours/year was then used to estimate the annual emissions of other criteria pollutants using AP-42 emission factors for natural gas-fired external combustion sources (AP-42 Tables 1.4-1 and 1.4-2)[10]. The emissions of all criteria pollutants with and without FGR are summarized in Table 3-1.

The emissions during startup and shutdown of Unit 5 are expected to be higher (on a lb/MMBtu basis) than those during normal operations. No estimates of startup and shutdown emissions were presented in the CPCN application. Regardless, Unit 5 will be restricted to a NO_x emission limit of 25 tpy on a 12-month rolling summation basis, including the emissions during startup and shutdown of Unit 5.

[10] USEPA, 1996. AP-42, Fifth Edition, Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, Fifth Edition."

Table 3-1 Summary of Air Pollutant Emissions from Riverside Unit 5

Pollutant	Emission Factor			Emissions			
	(lb/10^6 scf)	(lb/MMBtu)		(lb/hr)[4]		(tpy)	
		With FGR	Without FGR	With FGR	Without FGR	With FGR	Without FGR
(a) Criteria Pollutants							
Nitrogen Oxide (NO_X)[1]	-	0.050	0.137	41.0	112	<25.0	<25.0
Sulfur dioxide (SO_2)	0.6	-	-	0.482	0.482	0.294	0.107
Carbon monoxide (CO)	84	-	-	67.5	67.5	41.2	15.0
Total Particulate matter (PM)[3]	7.6	-	-	6.11	6.11	3.72	1.36
PM (Condensable)[2]	5.7	-	-	4.58	4.58	2.79	1.02
PM (Filterable)[2]	1.9	-	-	1.53	1.53	0.931	0.340
Volatile Organic Compounds (VOCs)	5.5	-	-	4.42	4.42	2.70	0.984
(b) Greenhouse Gases							
Carbon dioxide (CO_2)	120,000	-		96,471	96,471	58,800	21,460

Notes:
1. Emission rate for NO_x without FGR is based on AP-42 emission factors for natural gas-fired external combustion sources with low-NOx burners, Table 1.4-1.
2. Condensable PM is particulate matter collected using EPA Method 202. Filterable PM is particulate matter collected, on or prior to, the filter of an EPA Method 5 sampling train.
3. According to AP-42, Section 1.4, "Particulate Matter from natural gas combustion has been estimated to be less than 1 micrometer in size and has filterable and condensable fractions." Because PM emissions are typically low in natural gas, it can be assumed that Unit 5 emissions from $PM_{2.5}$ and PM_{10} are equal to the emissions of Total PM.
4. Short-term lb/hr emissions are based on 820 MMBtu/hr heat input, which is equivalent to 803,922 scf NG/hr, using a heating value of 1,020 Btu/scf.

3.2.2 Other Pollutants – HAPs and TAPs

HAPs are a list of toxic pollutants included in Section 112 of the Clean Air Act (CAA). Section 1.4 of EPA's AP-42 guidance document provides emission factors for organic compounds resulting from natural gas combustion, some of which are HAPs. Since the emissions of VOCs (which would encompass all of the organic HAPs) as presented in Table 3-1 are low, the emissions of HAPs from natural gas combustion are expected to be insignificant. As an example, the worst-case HAP emission factor from AP-42 Table 1.4-3 is hexane, with an emission factor of 1.8 lb/10^6 scf. The total emissions from hexane are less than one-third of the emissions of VOCs or, 0.884 tpy. Therefore, emissions of HAPs from the

Reactivation Project were not estimated in detail and are considered to be insignificant.

Maryland has Toxic Air Pollutants (TAPs) regulations that are applicable to all pollutants listed in COMAR 26.11.16.06 and 26.11.16.07. Fuel burning equipment, which includes the boiler at Unit 5, is exempt from the TAPs regulations. Therefore, TAP emissions were not estimated from this project.

3.2.3 Greenhouse Gases – Carbon Dioxide

The Healthy Air Act (HAA), which was signed into law in spring of 2006, requires Maryland to participate in the Regional Greenhouse Gas Initiative (RGGI), a multi-state GHG cap-and-trade program. Maryland has drafted regulations to implement a RGGI cap-and-trade program in COMAR 26.09 and proposed it for rulemaking on 1 February 2008. It was finalized in the spring of 2008 to be in effect for the first RGGI carbon dioxide (CO_2) auction in September 2008.

The proposed RGGI rule would apply to Riverside as it has a generating capacity above the applicability threshold of 25 MW. When the rule is implemented, CPSG will be required to purchase CO_2 credits that equal or exceed the annual emissions from the plant, including Unit 5, for each three-year reporting period. The emissions of CO_2 for which CPSG may have to purchase credits were estimated using AP-42 emission factors and are summarized in Table 3-1.

3.2.4 Construction Emissions

CPSG did not present the emissions associated with construction activities in the CPCN application. Since the Riverside Plant is an existing facility, construction activities related to the Reactivation Project are expected to result in insignificant emissions (i.e., most of the work will be performed inside the boiler building or outside on paved surfaces). Therefore, emissions associated with construction related to the Reactivation Project were not estimated.

3.3 PSD/NA-NSR APPLICABILITY

As a part of the review process, CPSG evaluated the applicability of PSD and NA-NSR requirements for the Reactivation Project. The first step in the PSD applicability review in this case was to determine if the reactivated source will be considered an existing or new source.

In several guidance memos issued by EPA (1978, 1982, 1987)[11,12,13], the criteria adopted by EPA regarding reactivation of a source (utility and non-utility sources) following a shutdown have been discussed. EPA indicates in guidance memos that a shutdown that lasts for two years or more should generally be assumed to be permanent. If the source has been shut down "permanently," then the source is considered to be a new source upon re-opening. The determination on whether the shutdown was permanent or not depends in part on the intent of the owner or operator of the source during shutdown, which can be evaluated based on the cause of the shutdown and handling of the shutdown by the regulatory agency. Due to the length of time that Unit 5 has been out of service, PPRP interprets the shutdown of the unit as being permanent. Therefore, the reactivated Unit 5 at the Riverside Plant is considered a new source for PSD/NSR applicability purposes.

Because Riverside is an existing major stationary source (facility), the PSD and NA-NSR applicability are based on whether there is a significant net emissions increase of a regulated pollutant (which would result in the project being considered a major modification to an existing major source). Based on the CPCN application, CPSG intends to limit the emissions from the project to ensure that the reactivation of Unit 5 qualifies as a "minor modification" for NA-NSR (and PSD) purposes. The applicability of NA-NSR depends on the total potential emissions of NO_x, VOC, and $PM_{2.5}$ from the source (Unit 5) upon re-start.

The Riverside Plant is located in Baltimore County, which is designated as moderate nonattainment area for ozone and nonattainment for $PM_{2.5}$. If emissions of NO_x or VOCs from the project are greater than 25 tpy or emissions of $PM_{2.5}$ are greater than 15 tpy (based on the interim EPA guidance on applying PM_{10} regulations to $PM_{2.5}$), the project will trigger the requirements of NA-NSR. If the emissions of the other criteria pollutants (CO, PM_{10}, and SO_2) from the reactivation project are above their applicable significant increase thresholds (100 tpy CO, 15 tpy PM_{10}, and 40 tpy SO_2), then PSD would apply. As indicated in Table 3-1, the

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[11] Stephen A. Dvorkin, 1978. "PSD Requirements", United Stated Environment Protection Agency, 6 September 1978.

[12] Conrad Simon, 1982. "Reactivation of Amerada Hess Corporation's Port Reading Facility and PSD Review", United States Environment Protection Agency, 9 July 1982.

[13] David P. Howekamp, 1987. "Reactivation of Noranda Lakeshore Mines' RLA Plant and PSD Review", United States Environment Protection Agency, 27 May 1987.

NO_x emissions from the project will be limited by the CPCN to less than 25 tpy, in order to be below the major modification threshold for both NA-NSR and PSD.

NO_x emissions are the limiting factor in this case. Maximum emissions of all other pollutants under this limited scenario are subsequently determined by the NO_x-limited operating hours, and these emissions are also below significant increase/major modification applicability thresholds. Therefore, neither NA-NSR nor PSD are triggered for Unit 5 at the Riverside Plant. Table 3-2 summarizes the air emissions and NA-NSR/PSD applicability.

Table 3-2 NA-NSR and PSD Applicability of Criteria Pollutants

Pollutant	Worst-Case Emission Estimates (tpy)	NA-NSR Applicability Threshold (tpy)	PSD Applicability Threshold (tpy)
Nitrogen oxide (NO_X)	<25	25	40
Sulfur dioxide (SO_2)	0.29	NA	100
Carbon monoxide (CO)	41.2	NA	100
Particulate matter - 10 microns (PM_{10})	3.72	NA	15
Particulate matter - 2.5 microns ($PM_{2.5}$)	3.72	15	15
Volatile Organic Compounds (VOCs)	2.70	25	40

3.4 APPLICABLE REQUIREMENTS REVIEW

Based on source types and projected emissions, this section outlines the federal, State, and local air quality requirements that are applicable to the Riverside Plant Reactivation Project. A summary of key regulatory programs that were considered follows.

3.4.1 Federal Regulations

NSPS for Electrical Utility Steam Generating Units (40 CFR Part 60 Subpart Da)

A "steam generating unit" is defined in 40 CFR Part 60.41Da as

> … any furnace, boiler, or other device used for combusting fuel for the purpose of producing steam (including fossil-fuel-fired steam generators associated with combined cycle gas turbines; nuclear steam generators are not included).

Unit 5 will use natural gas as the fuel to generate steam, which will be used to generate electricity for distribution. Therefore, Unit 5 is a steam generating unit for NSPS applicability purposes. NSPS Subpart Da applies to electrical utility steam generating units that are capable of combusting more than 73 MW (250 MMBtu/hr of heat input of fossil fuels). Subpart Da originally covered such units for which construction, modification, or reconstruction was commenced after September 18, 1978; EPA subsequently updated Subpart Da, lowering the emission limits, and affecting generating units constructed, modified, or reconstructed after February 28, 2005. Unit 5 was originally installed in 1951 which pre-dates the original NSPS applicability date; therefore prior to its shutdown in 1993, Unit 5 was not subject to NSPS requirements.

The first question in evaluating the applicability of an NSPS standard to the reactivated Unit 5 is whether it would be considered a "new" source, as it had been retired in 1993. PPRP and MDE ARMA reviewed EPA guidance memos to determine if the unit would be considered a new source upon reactivation. As stated in an EPA memo relating to reactivation of a NSPS source at a cement kiln (1980)[14], a "reactivated" source would be considered an existing source and would not be subject to NSPS unless the source is "modified" or "reconstructed." Therefore, the requirements of NSPS would be applicable to Unit 5 only if the refurbishment of Unit 5 is determined to be either a reconstruction or modification.

Reconstruction is defined as the replacement of any components of an affected facility such that (i) the fixed capital cost of the components exceed 50 percent of the fixed capital cost that would be required to construct a comparable, entirely new facility, and (ii) it is technologically and economically feasible to meet the applicable standard set forth. In the CPCN application, CPSG provided the cost for the Reactivation Project as approximately 25 million dollars and the cost for a comparable new "facility" was stated as 100 million dollars. It should be noted that the costs in a reconstruction evaluation should include only those associated with the "affected facility," which in this case will be the steam generating unit only[15]. The cost estimates provided by CPSG were derived from

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[14] USEPA, 1980. "PSD and NSPS Applicability to a Reactivated Source." United States Environmental Protection Agency, Division of Stationary Source Enforcement, October 3, 1980.

[15] Rasnic, John B., 1986. "Interpretation of Reconstruction", Stationary Source Compliance Division, Office of Air Quality Permitting and Standards, November 25, 1986.

tabulated capital cost data for various technologies from the Department of Energy (DOE)[16]. After review of the costs associated with the "affected facility" the cost estimates provided by CPSG for both the reactivated source and the comparable new facility are above what should be included as part of the steam generating unit and, therefore, should be considered conservative estimates. Therefore, based on the costs provided, it is believed that the reactivation costs of the steam generating unit components will be less than 50% of an entirely new steam generating unit and the Reactivation Project is thus not considered a reconstruction for NSPS applicability purposes.

The definition of modification for NSPS purposes is different than for PSD/NA-NSR. An emission source is considered to be modified for NSPS purposes if there is a physical change or change in the method of operation for an existing source and the emissions of any air pollutant regulated by the NSPS increases on a short-term basis (i.e., lb/hr). Based on the definition of modification in 40 CFR Part 60.14 and EPA guidance (1992)[17], the increase in the hourly emissions from a source should be determined by comparing the pre-change baseline emissions to potential emissions from the source after the change. The pre-change baseline emissions are defined as the highest hourly emission rate achieved at any time during the five years prior to the commencement of construction or the change. The commencement of construction for this project, according to 40 CFR Part 60.2, is when,

> ...the owner or operator has undertaken a continuous program of construction or modification or owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

The five-year baseline period for this application would be between January 2002 and December 2007; however, because the unit was shutdown in 1993, Unit 5 was not operating during that period. As a result, the short-term emissions during the baseline period are considered to be zero.

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[16] DOE, 2003. Energy Information Administration. The National Energy Modeling System: An Overview 2003. http://www.eia.doe.gov/oiaf/aeo/overview/capcost_tbl.html.

[17] USEPA, 1992. "Requirements for Preparation, adoption, and submittal of State Implementation Plans; Approval and Promulgation of Implementation Plans, Standard for performance of new stationary sources." July 21, 1992.

CPSG has proposed to only burn natural gas in Unit 5 in the future and make no change to the rated heat input of the boiler and as a result, the future emissions of SO_2 , NO_x, and PM, the NSPS-regulated pollutants, will be less than the emissions when the unit was burning residual oil prior to shutdown. Although emissions will decrease from when Unit 5 was previously operational, because the period of shutdown was prior to the five-year baseline period, the reactivation is considered a modification for NSPS purposes. Although PPRP did identify one case[18] where NSPS was not triggered for the restart of a unit idled for more than five years, the circumstances in that case are different. In that case, the equipment was maintained under "extended reserve shutdown," the permits for the emission units were maintained, and the annual emission fees were paid during the idled period; thus the emission units were maintained in the State Implementation Plan (SIP). In the case of Riverside, none of these factors appears to be true. Therefore, CPSG is required to meet the requirements of Subpart Da for the Riverside Reactivation Project.

Triggering NSPS Subpart Da subjects Unit 5 to limits outlined in Table 3-3. CPSG will also have an option of meeting equivalent emission limits that are based on gross energy output (i.e., lbs/MWh of electricity), which are not shown in the table. Unit 5 will also be subject to a 20% opacity limit (40 CFR Part 60.42Da(b)) on a 6-minute average, with the exception of one 6-minute period per hour of not more than 27% opacity.

Table 3-3 NSPS Limits

Pollutant	Estimated Short-term Emission Rate (lb/MMBtu)	NSPS Limit (lb/MMBtu)
Nitrogen oxide (NO_X)	0.14	0.15
Sulfur dioxide (SO_2)	5.88×10^{-4}	0.15
Particulate matter	0.007	0.015

Notes:
1. Emission rate for NO_x is worst-case example (without FGR) and is based on AP-42 emission factors for natural gas-fired external combustion sources with low-NOx burners, Table 1.4-1.
2. Estimated short-term emission rates for SO_2 and PM are based on AP-42 emission factors for criteria pollutants, Table 1.4-2. To convert from lb/10^6 scf to lb/MMBtu, values were divided by 1,020 Btu/scf.

[18] USEPA, 1999, Administrative Order - Petition No. 6-99-2: Entergy v. Louisiana Department of Environmental Quality

CPSG will need to meet specific Subpart Da compliance demonstration, monitoring, reporting, and recordkeeping requirements in 40 CFR Parts 60.48 through 60.52. In addition, CPSG will also need to comply with the general NSPS, Subpart A notification, testing, and compliance provisions in 40 CFR Parts 60.7, 60.8, and 60.11, respectively.

Acid Rain Permit (40 CFR Parts 72-76)

The Riverside Plant Unit 5 meets the definition of an "affected unit" as defined in 40 CFR Part 72.6 and will be subject to the requirements of the Acid Rain regulations. In particular, the standard requirements (40 CFR Part 72.9) and monitoring requirements (40 CFR Part 75) are applicable to the unit. These requirements have been included in the recommended licensing conditions.

Clean Air Interstate Rule (40 CFR Part 97 and COMAR 26.11.28 and 26.11.29)

The Clean Air Interstate Rule (CAIR) is a federal rule promulgated in March 2005 that implements a cap and trade program on power plant NO_x and SO_2 emissions in the eastern half of the United States. This rule is promulgated for implementation under 40 CFR Part 97. Maryland has promulgated implementing regulations under COMAR 26.11.28; however, they are not approved by EPA under Maryland's State Implementation Plant (SIP) yet. Therefore, until the SIP for these regulations is approved, CPSG would be subject to the federal rule.

According to 40 CFR Part 97.4, CAIR applies to any emission unit that, at any time after 1 January 1995, has a nameplate generating capacity of greater than 25 MW and sells any amount of electricity or has a maximum design heat input of greater than 250 MMBtu/hr. Under 40 CFR Part 97.4(b), a unit that burns natural gas only and for which the emissions of NO_x are limited to 25 tpy will be exempt from the requirements of CAIR, if a limit on the hours of operation is included in the licensing conditions. The CAIR regulations (40 CFR Part 97.6) state that the restriction on the hours of operation be calculated based on a relatively high hourly emission rate, (in lb/MMBtu), provided in the regulations, which would limit the hours of operation to a very low level. Since this low limit on the hours of operation will not be specified in the licensing conditions, CPSG will be subject to the requirements of the CAIR regulations. CPSG will be required to comply with the requirements of 40 CFR Part 97.6 relating to permit restrictions, monitoring, recordkeeping, and reporting, along with any other applicable regulation under 40 CFR Part 97. The initial recommended licensing conditions (Appendix A) specify that CPSG comply with all the applicable requirements for CAIR.

National Emissions Standard for Hazardous Air Pollutants (NESHAPs)

Emissions of HAPs from the project will be minor as described in Section 3.2.2. Currently, there are no NESHAP standards that would apply to the reactivation of Unit 5.

NESHAP for Asbestos (40 CFR Part 61, Subpart M)

NESHAP 40 CFR Part 61, Subpart M applies to the demolition and renovation at facilities having asbestos-containing materials. It is anticipated that the Riverside Reactivation Project may involve demolition of asbestos-containing structures. If so, CPSG is required to address the management, recordkeeping, and reporting provisions of Subpart M and COMAR 26.11.21.

3.4.2 State Regulations

The project will be subject to several State air quality regulations, including, but not limited to the following:

- COMAR 26.11.02.13A(2) – CPSG shall not operate or cause to operate Unit 5 without first obtaining, and having in current effect, a State Permit to Operate. A complete application for an initial State permit to operate shall be submitted to MDE ARMA not later than 60 days before the source is to commence operation;

- COMAR 26.11.03.17— Requires CPSG to submit to MDE ARMA a complete application for a significant modification to the Riverside Part 70 Operating Permit (No. 24-005-00078) prior to commencing operation of Riverside Unit 5;

- COMAR 26.11.06.03D—Prohibits CPSG from causing or permitting any material to be handled, transported, or stored, or a building, its appurtenances, or a road to be used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne;

- COMAR 26.11.06.08—Prohibits CPSG from operating or maintaining any source in such a manner that a nuisance is created;

- COMAR 26.11.06.09—Prohibits CPSG from causing or permitting the discharge into the atmosphere of gases, vapors, or odors beyond the property line in such a manner that a nuisance or air pollution is created;

- COMAR 26.11.06.12—Prohibits CPSG from constructing, modifying, or operating, or causing to be constructed, modified, or operated, a New Source Performance Standard source as defined in COMAR 26.11.01.01C, which results or will result in violation of the provisions of 40 CFR Part 60;

- COMAR 26.11.09.05A(2) and A(3) — Prohibits CPSG from discharging emissions from Unit 5 other than water in an uncombined form, which is visible to human observers. This limitation does not apply to emissions during load changing, soot blowing, startup, or adjustments or occasional cleaning of control equipment if: (i) the visible emissions are not greater than 40 percent opacity; and (ii) the visible emissions do not occur for more than 6 consecutive minutes in any 60-minute period;

- COMAR 26.11.09.08 – Unit 5 shall meet all applicable provisions of the Reasonably Available Control Technology (RACT) regulations;

- COMAR 26.11.28 – CPSG shall comply with all applicable requirements, including monitoring, recordkeeping, reporting, and compliance certification requirements of the Clean Air Interstate Rule (CAIR); and

- COMAR 26.11.29 and 30 – CPSG shall comply with all applicable requirements, including monitoring, recordkeeping, reporting, and compliance certification requirements of the NO_x Reduction and Trading Program.

3.4.3 Other Air Requirements

Local Requirements

Baltimore County does not have any additional air quality regulations that will be applicable to the Reactivation Project at the Riverside Plant.

FAA Stack Height Requirements (14 CFR Part 77)

The reactivation of Unit 5 includes the construction of a new stack that will be 216.5 ft tall. Because the stack will be greater than the applicability level of 200 ft, the project will be subject to FAA's "Permit for Objects That May Affect Navigable Airspace" requirements under 14 CFR Part 77. The regulations require CPSG to make certain notifications to the FAA prior to start of construction.

Conformity

The Riverside Plant Reactivation Project does not trigger any specific requirements under MDE's Conformity regulations (COMAR 26.11.26); however, MDE, the Maryland Department of Transportation (MDOT) and other entities may review large new projects such as power plants in developing "conformity-related" transportation plans.

3.5 REFINED AIR QUALITY MODELING ANALYSIS

The proposed project does not trigger PSD permitting and subsequent air quality modeling requirements. However, PPRP and MDE ARMA did assess the project's air quality impacts with respect to the PSD Significant Impact Levels (SILs) for SO_2, NO_x, $PM_{10}/PM_{2.5}$, and CO. Emissions from Unit 5 were modeled using the American Meteorological Society (AMS)/EPA Regulatory Model (AERMOD), version 07026. The modeling methodology and assumptions used, as well as the results of the air quality modeling analysis, are presented in this section of the ERD.

3.5.1 Meteorological Data

AERMOD requires the use of representative meteorological data. BWI Marshall is located approximately 16.4 km west-southwest of the Riverside facility, and can be considered representative of the meteorological conditions at the facility. Meteorological data from BWI Marshall have been previously used in modeling analyses conducted by PPRP and MDE ARMA in the Baltimore area. As such, PPRP and MDE ARMA have determined that the use of BWI Marshall surface meteorological data is appropriate for this air quality modeling analysis. A wind rose showing wind direction and speed patterns based on the BWI Marshall meteorological data is shown in Figure 2-1.

3.5.2 Meteorological Data Processing

The surface and upper air data collected at BWI Marshall were processed with the AERMOD meteorological preprocessor AERMET (version 06341). AERMET is the processor recommended by EPA for developing the necessary meteorological data files for AERMOD. AERMET requires, at a minimum, hourly National Weather Service (NWS) data and once-daily upper air sounding profiles. PPRP and MDE ARMA used upper air soundings collected from Sterling, VA in this analysis. The Sterling, VA soundings are the closest available sounding data for Maryland, and have been used in all previous eastern Maryland dispersion modeling

applications conducted by PPRP and MDE ARMA. AERMET produces two files for input to AERMOD: a surface file containing calculated micrometeorological variables (heat flux, stability, and turbulence parameters) that represent the dispersive potential of the atmosphere, and a profile file that provides vertical profiles of wind speed, wind direction, and temperature.

In addition to the surface meteorological data and upper air soundings, AERMET requires input data that quantify the surface characteristics of the meteorological data collection site. Specifically, values of surface roughness, albedo, and Bowen ratio must be determined. The EPA surface characteristic processing tool, AERSURFACE (version 08009), was used to determine the values of each surface characteristic for input into AERMET. The use of AERSURFACE follows the recommendations provided by EPA in the latest AERMOD implementation guidance published in January 2008.

3.5.3 Downwash

Aerodynamic downwash caused by buildings and structures in the vicinity of exhaust stacks can lead to an increase in ground level concentrations. Downwash effects are modeled within AERMOD by using algorithms derived from the ISCPRIME model, which was developed by the Electric Power Research Institute (EPRI) in response to a need to improve existing downwash models.

AERMOD requires information about buildings and structures to be input in a prescribed format. The EPA Building Profile Input Program (BPIP) was used for this purpose. The BPIP program generates information on the location and size of buildings and structures relative to each stack, and AERMOD uses this information to calculate downwash effects.

BPIP also calculates the good engineering practice (GEP) stack height (i.e., the GEP formula stack height) for a given stack location. GEP is the height at which downwash effects are considered to be insignificant. The GEP height as determined by BPIP for the Unit 5 stack is 262.5 ft or 80.02 meters (m). The proposed new stack height will be 216.5 ft (66.0 m).

3.5.4 Source Characterization

The impacts of the new stack configuration on modeled SO_2, NO_x, $PM_{10}/PM_{2.5}$, and CO concentrations were evaluated. Annual emissions were calculated based on expected future utilization, and short-term emission rates were based on the maximum hourly load of the Unit 5. The

emission rates and stack parameters used in the analysis are shown in Table 3-4 and Table 3-5, respectively.

Table 3-4 Modeled Emission Rates

Averaging Period	Unit	CO	NO_x	SO_2	$PM_{10}/PM_{2.5}$
Annual	tpy	41.2	25	0.294	3.72
Short-term	lb/hr	67.5	112	0.482	6.11

NA = Not applicable; no short-term standard is available.

Table 3-5 Stack Parameters Used in Modeling Analysis

English Units

Stack Height (ft)	Diameter (ft)	Exit Velocity (ft/sec)	Temperature (deg F)	Flow (acfm)
216.5	10	219.6	290	1,034,800

Metric Units (Used for Modeling)

Stack Height (m)	Diameter (m)	Exit Velocity (m/s)	Temperature (K)
66.0	3.05	66.9	416.3

3.5.5 Receptor Grid Development

PPRP and MDE ARMA developed a receptor grid extending outwards in each direction from the Riverside facility up to a distance of 5 km. Receptor spacing was set at 50 m spacing from the site boundary to 0.5 km; 100 m from 0.5 to 2.5 km; and 200 m from 2.5 to 5 km. Receptors were paced at 20 m intervals along the facility fence line.

A total of 3,703 receptors were analyzed in the model. Terrain elevations were assigned to each receptor, and a hill scale was calculated with the

use of the program AERMAP. AERMAP is a companion program to AERMOD that utilizes digitized USGS digital elevation model (DEM) data files to assign elevations and hill scales to receptors. The hill scale assigned to each receptor is used by AERMOD to determine the appropriate terrain algorithm to use for the receptor. AERMOD calculates a critical dividing streamline height, based on the hill scale that divides the approach flow towards the hill into two parts: one that rises over the terrain obstacle, and one that passes around the side of the obstacle. Based on the plume height relative to the terrain and relative to the receptor, AERMOD calculates concentration contributions from different parts of the plume following the different flow regimes.

3.5.6 Air Quality Modeling Results

PPRP and MDE ARMA conducted the air quality modeling analysis of the proposed Unit 5 using the methodology described in the above sections. Table 3-6 presents a summary of the modeling analysis. The impacts of SO_2, NO_2, PM_{10}, $PM_{2.5}$, and CO are less than the Significant Impact Levels (SILs) for each pollutant. A SIL does not exist for NO_2 for the 1-hr averaging period; however, the maximum modeled 1-hr concentration of NO_2 is substantially less than the screening threshold level of 94 $\mu g/m^3$, a threshold used in Maryland for evaluating short term NO_2 effects.

Table 3-6 Summary of Modeling Results Using AERMOD (version 07026)

Pollutant	Averaging Time	Maximum Modeled Concentration	SIL	PSD Increment	NAAQS
	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)	($\mu g/m^3$)
NO_2	1-hr	22.33	--	--	--
	Annual	0.01	1	25	100
SO_2	3-hr	0.06	25	512	1300
	24-hr	0.03	5	91	260
	Annual	1.64E-04	1	20	60
PM_{10}	24-hr	0.34	5	30	150
	Annual	2.20E-03	1	17	--
$PM_{2.5}$	24-hr	0.34	2[a]	--	35
	Annual	2.20E-03	0.3[a]	--	15
CO	1-hr	13.38	2000	--	40000
	8-hr	5.94	500	--	10000

a - EPA proposed $PM_{2.5}$ SIL

3.6 AIR IMPACT SUMMARY

The Riverside Reactivation Project will result in minor increases in NO_x, SO_2, particulate matter (PM, PM_{10}, $PM_{2.5}$), CO, VOC and HAP emissions. Emission increases of all regulated pollutants are projected to be below major source (PSD, NA-NSR, HAP, and Title V) thresholds, primarily because CPSG is accepting a limit on NO_x emissions of < 25 tpy. Unit 5 is considered a "new source" under NA-NSR/PSD and, subject to its NO_x emission limit, it will not be considered a major modification. Although the reactivated Unit 5 (burning natural gas) will have lower emissions than it previously did (pre-1993) when it burned residual oil, due to the length of time it has been shut down and the fact that Unit 5's emissions have not been maintained in the SIP, NSPS Subpart Da will apply to Unit 5.

An air quality modeling analysis was conducted and results indicate that the maximum modeled 1-hr concentration of NO_2 (NO_x) is substantially less than the screening threshold level. Based on the information provided in the CPCN application, PPRP and MDE ARMA conclude that the Reactivation Project will not have a significant impact on the ambient air quality surrounding the Riverside Plant, if it is constructed and operated in accordance with the initial recommended licensing conditions included in Appendix A.

4.0 WATER SUPPLY, SURFACE WATER, DRAINAGE, TERRESTRIAL, AND ECOLOGICAL IMPACTS

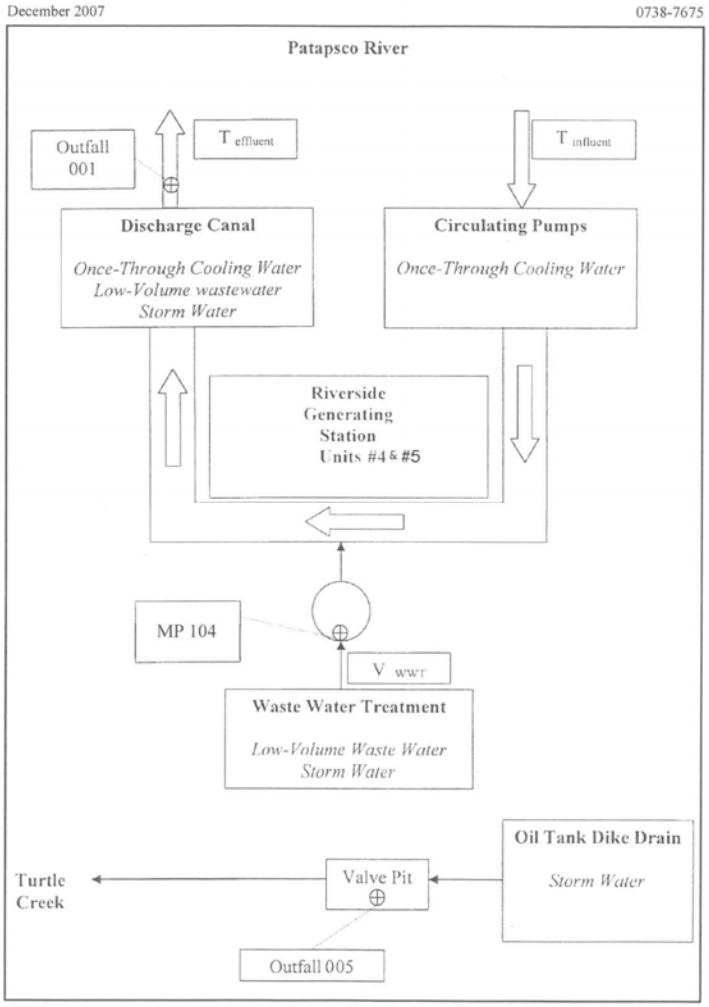
4.1 WATER SUPPLY

The proposed project will reactivate the need for cooling water withdrawals associated with Unit 5, using water from the Patapsco River. Units 4 and 5 each have two circulating water pumps, rated at 29,000 gallons per minute (gpm) or 41.75 million gallons per day (MGD). The pumps will withdraw water from a surface intake located in a sheet pile intake bay on the shoreline of the cove between Sollers Point and Dundalk Marine Terminal. The intake opening has a skimmer wall extending 5 ft below mean low water (MLW) and extends to a depth of about 16 ft below MLW. The water is drawn through 3/8-inch mesh traveling water screens before entering the pumps, which pass it on to the condenser. After passage through the condenser, the water is returned to the Patapsco River. Two smaller pumps, each rated at 100 gpm, also withdraw harbor water via the same wet well after the traveling screens.

The primary water use for the Riverside Plant is for once-through cooling. While the design capacity of the Unit 4 and 5 pumps is a maximum of 167 MGD, CPSG has stated that the water pumps are intended to cycle on and off with plant generation and dispatch, and that operation of both Units 4 and 5 will require the withdrawal of a maximum of 110 MGD for condenser cooling for both units. A small amount of this water – approximately 0.5 MGD – will go toward auxiliary plant purposes. Figure 4-1 illustrates the water flows during operation.

Water withdrawals at the Riverside Plant are currently authorized by the MDE Water Appropriation Administration in a Water Appropriation and Use Permit that is valid through 2019 (Permit Number BA1966S001 (06)). This permit authorizes a maximum daily withdrawal of 110 million gallons and an average daily withdrawal of 40 million gallons. The proposed restart of Unit 5 will not require any modification to this existing appropriation.

Figure 4-1 Schematic of Water Supply for the Riverside Plant Facility



Source: CPSG Riverside Plant CPCN application, 2007.

4.2 SURFACE WATER IMPACTS

4.2.1 Construction Impacts

There is a natural surface water body bordering the Riverside Plant. There will be no direct discharge of new or additional pollutants in storm water or wastewater from the facility to any surface waters during refurbishment. Existing storm water systems are already in place at the Riverside Plant and will not need to be altered during refurbishment. Therefore, construction impacts to surface water bodies will be minimal.

4.2.2 Operational Impacts

Detailed studies of impingement, entrainment, and thermal impacts of Units 1 through 5 all operating concurrently together were performed and documented in a report entitled, "Riverside Power Plant: Impingement, Entrainment, and Hydrothermal Studies," January 1980. The report states that Units 1 through 5 were conventional steam-electric units installed between 1942 and 1955. The report further states that the original unit ratings were 60 MW each for Units 1 through 3, 87 MW for Unit 4, and 81 MW for Unit 5; but that Unit 5 was later derated to 74 MW due to an engineering limitation on the Unit 5 turbine. The report also describes Units 6, 7, and 8 as simple-cycle gas turbine units that operated independently of Units 1 through 5, and were not included in the study because they were air-cooled. The conclusions presented within that report include the following:

- The estimated annual impingement of 85,600 (±32,200) fish and shellfish during the study year is not likely to represent an adverse impact; this number is likely a conservative overestimate of impingement because of a significant number of dead Atlantic menhaden included in the calculation;

- The biological impact of the Riverside Power Plant entrainment is thought minimal because this area of the Patapsco River appears to be of minor importance as a spawning and nursing ground; and

- The thermal discharge met two of the four applicable thermal and mixing zone criteria; the other two criteria were based on the tidal excursion zone which is difficult to calculate due to the three-layer tidal flow in Baltimore Harbor.

The project will reactivate cooling water flows associated with Unit 5. The impact of Units 4 and 5 of the Riverside Plant will be significantly less than the impacts determined from the earlier study. Power generated from the five units during the study period ranged from about 20% to about 85% of potential maximum power, relative to the maximum MW potential available from Units 4 and 5, if operated continuously. Units 4 and 5 of the Riverside Plant are not expected to operate more than 10% of the time after the reactivation of Unit 5; thus they will not produce more than 10% of the potential full power. Because the heat discharged from the station is proportional to the power generated, after the reactivation of Unit 5, the Riverside Plant is expected to produce less than 12% to 50% of the heat that was produced during the 1980 study. Because the thermal impacts associated with the 1980 study conditions were deemed

acceptable, the reduced impacts from the Plant with the reactivated Unit 5 should also be acceptable.

Similarly, the cooling water intake flow rate during the study ranged between approximately 40% and 160% of the maximum potential cooling water flow of Units 4 and 5. The maximum potential flow assumes the pumps would be running continuously. Since the power plant with the reactivated Unit 5 will operate the cooling water pumps only approximately 10% of the time, impingement and entrainment impacts are expected to be much less (6% to 24%) than what was estimated during the 1980 study. Since those study impacts of impingement and entrainment were deemed minimal, the impacts of impingement and entrainment from the reactivated unit are expected also to be minimal.

The existing storm water management system is permitted under the facility's National Pollution Discharge and Elimination System (NPDES) permit during plant operation. Because the project will not be reactivated for the use of fuel oil, the power generating equipment is enclosed within an existing building, and because outdoor equipment containing oil (such as transformers) will reside within secondary containment as required under federal law, no change in the quantity or quality of the storm water from the Riverside Plant is expected to result. The facility anticipates continued coverage under its NPDES permit after reactivation of Unit 5. CPSG will be applying for revision of its NPDES permit for cooling water intake and discharge, and will address any Clean Water Act Section 316(a) and 316(b) issues (thermal discharge and entrainment/impingement of biota) as part of that permit process. Specific compliance studies anticipated to be included in the revised permit include: biomonitoring, pump calibration, cooling water intake structures, and a revised storm water pollution prevention plan.

4.3 TERRESTRIAL IMPACTS

4.3.1 Construction Impacts

Since the Riverside Plant has been previously developed, construction activities will not cause significant adverse ecological impacts. No significant impacts to known wildlife resources or to federal- or State-listed terrestrial plants and animals are expected to occur.

4.3.2 Operational Impacts

Due to the previously developed nature of the site, operation of the facility is not expected to impact the terrestrial environment in the vicinity of the plant. No significant impacts to federal- or State-listed terrestrial plants or animals are expected to occur.

4.4 AQUATIC IMPACTS

4.4.1 Construction Impacts

Impacts to wetlands, water bodies, and other aquatic systems from the refurbishment of the Riverside Plant are not anticipated. Existing erosion, sedimentation, and runoff control measures will mitigate the potential for water quality degradation; therefore impacts to the associated water bodies are not expected to be significant.

4.4.2 Operational Impacts

No significant adverse effects on aquatic life are anticipated during operation of the Riverside Plant. The facility's intake structure will use existing screening technologies to minimize impacts to aquatic organisms within the Patapsco River. Non-contact cooling water will be returned to the Patapsco River.

Biological resources are limited in the vicinity of the Plant due to water quality issues related to urban and agricultural land uses in the Patapsco/Back River basin. The negligible impacts associated with the operation of the facility are supported by detailed studies of impingement, entrainment, and thermal impacts in 1980[19]. The lower frequency of operation of the facility would reduce impingement/entrainment, and thermal impacts relative to those studies and the conclusions from the 1980 study are likely still appropriate. A review of these studies by PPRP at the time confirmed that entrainment rates at the Riverside Plant were low, and that power plants in the Baltimore Harbor area were not located

[19] Ecological Analyst, Inc., 1979. "The Riverside Plant Power Plant: Impingement, Entrainment, and Hydrothermal Studies," January 1980.

in spawning areas of important exploited fish species[20]. This report also indicated that the species comprising most of the impingement losses in the mesohaline zone of the Chesapeake Bay were ubiquitous and abundant, and that the losses appeared to be too small to affect Chesapeake Bay populations of the affected species. No protected species of fish are likely to be found in Baltimore Harbor. Also, the Baltimore Harbor is not considered an important breeding or nursery habitat. Therefore, the Riverside Plant should not have a significant impact on important species or the food web within the Baltimore Harbor.

According to a review of Maryland power plant cooling water intake regulations and their application in evaluation of adverse environmental impact for small facilities located on estuarine waters that seldom run at full capacity, the existing plant cooling water intake structure was determined to be the best technology available and no modifications or other 316(b) actions by the facility owner were required by the previous NPDES permits. Nevertheless, updated studies are likely to be required by CPSG's revised NPDES permit for the facility to address Clean Water Act section 316(b) issues.

[20] PPRP, 1982. "Power Plant Cumulative Environmental Impact Report", PPSP-CEIR-3, January 1982, http://esm.versar.com/pprp/ bibliography/ sec13.htm.

5.0 SOCIOECONOMIC, AESTHETIC, CULTURAL RESOURCE, AND NOISE IMPACTS

5.1 SOCIOECONOMIC, AESTHETIC, AND CULTURAL RESOURCES

The Riverside Plant is in the Sollers Point area of Baltimore County south of the Dundalk Marine Terminal. The facility is bounded to the south by commercial property, to the east by Broening Highway, and west by the Patapsco River. The MDTA toll facility at the Key Bridge is located south of the site at the intersection of I-695 and Broening Highway. Maritime manufacturing activities consume most land northwest of the site along the Patapsco River. The property is in an Industrial District (IM) with base zoning of MH, Heavy Manufacturing. MH zoning is the most permissive industrial zoning classification. The site has hosted electric generation facilities since 1951.

Two residential enclaves are to the east and north of the site. To the east is the Turner Station community, commonly identified as an African American settlement within Dundalk. Carnegie Platt, usually associated with Turner Station, lies to the north, separated from Turner Station by Broening Highway. The population of the two communities was 3,300 in 2000[21].

The Riverside Plant is accessed from Broening Highway (MD 695A), a two-lane, undivided urban arterial with 12 foot lanes. In 2006, the average annual daily traffic (AADT) on Broening Highway in the vicinity of the facility was 8,320[22]. Broening Highway intersects with I-695 at Exit 44, less than one-half mile from the facility entrance.

There are no known historical or archaeological resources within the project area, which has been extensively disturbed by prior site development. Within one mile of the site, there are several buildings

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[21] BCC, 2003. Turner Station Community Conservation Plan. Adopted by the Baltimore County Council. Baltimore County Office of Planning. Towson, Maryland. December 15, 2003.

[22] SHA, 2006. 2006 Calendar Year Highway Location Reference, All Intersections, Data as of December 31, 2006. Baltimore County. SHA District #4. State Highway Administration, Maryland Department of Transportation.

associated with the former Baltimore Municipal Airport (BA-2094), listed in the Maryland Inventory of Historic Places (MIHP). Now part of the Dundalk Marine Terminal, the airport was Baltimore's major commercial airport in the 1940s until it was replaced by Friendship Airport (now BWI Marshall). The airport is significant for its association with local transportation history, and several buildings are significant for their architectural and engineering innovations. Turner Station, including Carnegie Platt, is designated an African American Survey District (BA-3056). Originally known as Steelton, Turner Station developed due to its proximity to industry along the Patapsco River, in particular Bethlehem Steel, which provided thousands of jobs to African American workers. During the Second World War, Turner Station was the largest African American enclave in Baltimore County[23]. The district has been recommended for nomination in the National Register of Historic Places[24]. The Turner Station community is currently developing a Heritage Preservation Plan to identify and preserve cultural resources in the neighborhood.

The proposed project would involve inspection and repair of the boiler and steam-electric generator, installation of natural gas burners, stack, fan motor, transformer and flue gas ductwork, and the installation of combustion controls for emissions control. Except for construction of the stack and ductwork, the majority of construction would take place inside the Riverside Plant steam generating building. The stack would be 216.5 ft high and 10 ft in diameter, similar to Unit 4's stack. No excavation is required for the refurbishment. Construction employment is expected to average about 25 workers over a 12-month period, peaking at about 50. Given the small size of the construction workforce and the large labor market in the Baltimore metropolitan area, all jobs are expected to be filled by local hires. As a result, no population, housing or public service impacts are anticipated from refurbishment activities at the Riverside Plant.

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[23] MHT, 2002. Maryland Historical Trust. Maryland Inventory of Historic Properties Form. Turner's Station African American Survey District. Inventory No. BA-3056. Prepared by E.H.T. Traceries. Washington, DC. November 2002.

[24] E.H.T., Traceries 2003. Baltimore County Architectural Survey. African American Thematic Study. Final Report. Prepared for The Baltimore County Office of Planning and The Landmarks Preservation Commission. Submitted by E.H.T. Traceries. August 4, 2003.

Baltimore is a major traffic-generating hub, with the AADT on nearby I-695 approaching 33,000 vehicles in 2006 and more than 8,000 on Broening Highway (SHA 2006). Refurbishment of Unit 5, however, would add no more than 50 vehicles to local streets during the peak construction period. In addition, materials and equipment are expected to be delivered to the facility via truck. In neither case is the additional vehicle and truck traffic expected to affect levels of service on local road segments or intersections.

The Maryland State Highway Administration has included a project to improve access from I-695 to the port terminals on Broening Highway in Maryland's 2008 – 2013 Consolidated Transportation Program. This project would involve reconstruction of Broening Highway in the vicinity of the Riverside Plant. Planning for the project by MDTA, MPA, and Baltimore County is expected to begin in Fiscal Year (FY) 2008, with construction scheduled for FY 2009. This project is not expected to influence the refurbishment or operation of Unit 5 at the Riverside Plant.

Because the Riverside Plant has been extensively disturbed for construction of other generating facilities on-site, the potential for archaeological artifacts within the property is minimal. As no structures on the property are listed in the Maryland Inventory of Historic Places (MIHP) and refurbishment of Unit 5 requires no excavation, no impacts on historical or archaeological resources from construction are anticipated.

Refurbishment of Unit 5 would generate tax revenues for the State, Baltimore County and surrounding jurisdictions, primarily from taxes on incomes of construction workers and sales tax on goods and services purchases. However, revenues would be insignificant in the context of the state and local economies. No state or local public outlays are anticipated to be needed to support the project.

Most refurbishment activities would be confined within the Riverside Plant steam generating building. However, construction of exterior ductwork and a new 216.5 foot stack would create an adverse visual effect, particularly when cranes are present. Views of construction activities from the Carnegie Platt community to the north of the site would be mostly unobstructed, while those from the western part of Turner Station would be partially obstructed by Broening Highway and a Baltimore Gas and Electric (BG&E) substation that lies east of the Riverside Plant. Construction activities would be visible from the Key Bridge, the Dundalk Marine Terminal, and from the Patapsco River. Visual impacts from construction elements would be temporary in nature, however, and generally consistent with the existing landscape along the waterfront.

Once operational, no significant socioeconomic impacts are expected. With few additional operational and maintenance (O&M) employees on site and fuel delivered by gas pipeline, traffic generated by the Riverside Plant would be insignificant. All jobs are expected to be filled from the local labor force, so no population or housing impacts are foreseen. Although the revenue increase was not calculated, Baltimore County is expected to benefit from tax revenues on new business personal property associated with the reactivation of Unit 5.

After refurbishment, the visual setting of the Riverside Plant would be consistent with its pre-construction state, although views would contain an additional stack and ductwork on the exterior of the steam generating building. Views toward Sollars Point from residential areas, highways, and the Patapsco River are predominantly of a maritime industrial landscape, and have been of this nature for more than half a century. As such, visual intrusion from new exterior project elements is likely to be mitigated by their consistency with existing structures on site. Under normal operating conditions there would be no visible plume from Unit 5's stack. Because no visible plume is expected, there are no anticipated visibility or icing impacts to motorists traveling on the Key Bridge.

Because no significant visual impacts are expected, project operations are not expected to adversely affect nearby historical and cultural assets. Although set adjacent to the Turner Station African American Survey District and within one mile of the former Baltimore Municipal Airport site, both of which are inventoried on the MIHP, views toward the Riverside Plant would by only marginally altered by the refurbishment of Unit 5 and would not appreciably change the setting or character of these nearby cultural landmarks.

5.2 NOISE

The Riverside Plant is located in an industrialized harbor area between Dundalk Marine Terminal and the Key Bridge. Ambient noise monitoring was performed on 5 October 2007 to assess the existing ambient noise levels near the Riverside Plant. To provide information about the potential noise that may be emitted from the refurbished Unit 5, monitoring was conducted while operating Unit 4, a steam-generating unit similar to Unit 5.

The nearest residential area to the proposed Unit 5 is located about 450 ft from the main power block building on the northern boundary (see Figure 5-1). The existing noise environment is dominated by shipping activities

and waves in the harbor. Daytime average noise levels at this residential area ranged from 48.6 to 56.8 dBA, and the contribution of existing Unit 4 to the ambient noise at the fenceline was not significant. Noise at the nearest residential receptor location was dominated by waves breaking, shipping noise, and crickets.

Unit 5 would generate additional noise; however, it is located further from the residential areas than Unit 4, so its noise impact will be even less than that of Unit 4. Operation of the proposed generating unit is expected to create no discernible increase in ambient noise levels at the nearest residences. The facility will be required to operate in accordance with Maryland noise regulations, which specify a limit of 55 dBA for residentially zoned areas at night and 65 dBA during the daytime.

Figure 5-1 Location of Nearest Residential Area to the Riverside Plant

6.0 SUMMARY AND RECOMMENDATIONS

6.1 AIR QUALITY

The Reactivation Project will involve modifications to the Riverside Plant Unit 5, which was originally shutdown in 1993. The reactivated unit would be considered a new source (being added to an existing major source) for PSD/NSR permitting purposes; however, potential emissions from the reactivation of Unit 5 will be limited to a level that is less than major modification thresholds for PSD and NA-NSR. The Reactivation Project will, however, trigger NSPS Subpart Da because the reactivation is considered a modification to an existing source. This will subject Unit 5 to NO_x, SO_2, PM and opacity standards.

Based on the information provided in the CPCN application and an independent review by PPRP and MDE ARMA, it is concluded that the project will not have a significant impact on air quality in the vicinity of the Riverside Plant, if it is constructed and operated in accordance with the initial recommended licensing conditions included in Appendix A.

6.2 TERRESTRIAL, ECOLOGICAL, GROUND WATER, SURFACE WATER, AND DRAINAGE IMPACTS

6.2.1 Terrestrial and Ecological

Due to the previously disturbed condition of the facility and its surrounding area, no significant impacts are expected to terrestrial flora or fauna in the vicinity of the project site. No federal- or State-listed species are expected to be impacted by either the construction or operation of the Riverside Plant.

No significant impacts to aquatic life are expected during either the construction or operation of the Riverside Plant. No federal- or State-listed species are likely to be found in Baltimore Harbor or the Patapsco River in the vicinity of the Riverside Plant, and the facility has existing screening structures in place which are adequate to reduce impingement and entrainment of other aquatic species in conformance with current State and federal requirements. Thermal impacts are expected to be minimal and not impact aquatic species. Nevertheless, CPSG's will apply

for a revised NPDES permit for the facility, which will address entrainment, impingement and thermal issues.

6.2.2 Water Supply, Surface Water, and Drainage Impacts

Due to the previously impacted nature of the site, no construction or operational impacts are expected to the surface waters in the vicinity of the Riverside Plant.

The proposed project will require withdrawals from the Patapsco River to supply once-through cooling systems. Water withdrawals at Riverside are currently authorized by the MDE Water Appropriation Administration in a Water Appropriation and Use Permit that is valid through 2019. As the project is designed, the reactivation of Unit 5 will not require any modification to the existing appropriation.

6.3 SOCIOECONOMIC, AESTHETIC, CULTURAL RESOURCE, AND NOISE IMPACTS

The Riverside Plant Reactivation Project will not have any additional impact on the cultural and historic resources surrounding the facility. The impact on population, housing, and public services due to the project will be minimal. Although the Unit 5 reactivation will require a new stack, because an adjacent stack for Unit 4 already exists, views toward the Riverside Plant would by only marginally altered by the refurbishment of Unit 5 and will not have an adverse impact on visual settings in the surrounding area. Overall, the project will have insignificant impacts on socioeconomic resources in the vicinity of the facility. Because of the presence of existing Unit 4 and other industrial noise sources in the area, the Reactivation Project is not expected to create adverse noise impacts.

6.4 RECOMMENDATIONS

PPRP, in coordination with State agencies, have conducted a review of the potential environmental and socioeconomic effects of the Reactivation Project at the Riverside Plant. As a result of the consolidated review, the conditions in Appendix A of this ERD are recommended for consideration by the Maryland PSC as conditions for the Unit 5 Reactivation Project by CPSG.

7.0 REFERENCES

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24. E.H.T., Traceries 2003. Baltimore County Architectural Survey. African American Thematic Study. Final Report. Prepared for The Baltimore County Office of Planning and The Landmarks Preservation Commission. Submitted by E.H.T. Traceries. August 4, 2003.

Appendix A
Proposed and Final Orders and Licensing Conditions for Case 9132

DLA PIPER

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April 28, 2008

Ms. Terry J. Romine
Executive Secretary
Public Service Commission
William Donald Schaefer Tower
6 St. Paul Street, 16th Floor
Baltimore, MD 21202

Re: Application of Constellation Power Source Generation, Inc. for a Certificate of Public Convenience and Necessity Authorizing the Modification of the Riverside Generating Station in Baltimore County, Maryland, PSC Case No. 9132

Dear Ms. Romine:

Enclosed for filing in the above-referenced case is an original and sixteen copies of the parties' Agreement of Stipulation and Settlement. Also enclosed is an additional copy that we ask be date-stamped and returned to the awaiting messenger.

Please do not hesitate to contact me if you have any questions.

Very truly yours,

DLA Piper US LLP

William DuBois

Enclosures

cc: Service List

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this 28th day of April, 2008, copies of the foregoing were mailed via electronic mail and first-class mail, postage prepaid to the following:

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F. William DuBois

BEFORE THE
PUBLIC SERVICE COMMISSION
OF MARYLAND

IN THE MATTER OF THE APPLICATION OF	)	
CONSTELLATION POWER SOURCE	)	
GENERATION, INC. FOR A CERTIFICATE	)	
OF PUBLIC CONVENIENCE AND NECESSITY	)	**CASE NO. 9132**
AUTHORIZING THE MODIFICATION OF THE	)	
RIVERSIDE GENERATING STATION IN	)	
BALTIMORE COUNTY, MARYLAND	)	

AGREEMENT OF STIPULATION AND SETTLEMENT

Constellation Power Source Generation, Inc. ("CPSG"), the Power Plant Research Program ("PPRP") of the Department of Natural Resources ("DNR") acting on behalf of a number of interested State agencies, the Staff of the Public Service Commission of Maryland ("Staff"), and the Office of the People's Counsel ("OPC") (collectively, the "Settling Parties"), by their undersigned counsel, agree as follows:

BACKGROUND

On December 21, 2007, CPSG filed with the Public Service Commission of Maryland (the "Commission"), pursuant to Section 7-205 of the Public Utility Companies Article, an Application for a Certificate of Public Convenience and Necessity ("CPCN") Authorizing the Modification of the Riverside Generating Station ("Riverside" or the "Facility") in Baltimore County, Maryland (the "Application"). CPSG proposed to modify Riverside by performing the refurbishment necessary to reactivate Riverside Unit 5 to generate electricity, fired exclusively on natural gas (the "Project"). The Project is described in the Application, which includes an environmental analysis of the Project. The matter was docketed as Case No. 9132, delegated to the Hearing Examiner Division, and

assigned to Hearing Examiner David L. Moore. On February 26, 2008, CPSG filed the direct testimony of Dori J. Costa and Kennard F. Kosky in support of the Application.

PPRP, acting in concert with the Maryland Department of the Environment ("MDE") and other interested State agencies, conducted an environmental review of the impacts of the proposed Project and developed a set of conditions recommended to ensure the construction and operation of the proposed modification will meet or exceed the requirements of applicable environmental statutes and regulations and pose no undue detrimental impacts on the surrounding community. On April 21, 2008, PPRP, acting on behalf of the State agencies, filed with the Commission an Environmental Review of the Project, its supporting testimony, and Initial Recommended Licensing Conditions. A letter was also submitted containing the preliminary recommendation of the Departments of Natural Resources, Environment, Agriculture, Transportation, Business and Economic Development, and Planning, and the Maryland Energy Administration that "the site is suitable and that the plant can be modified and operated in accordance with all applicable environmental regulations provided the Certificate incorporates the attached recommendations as conditions to the CPCN." Staff filed testimony on April 21, 2008, recommending two additional conditions, and OPC recommended one additional condition after the evidentiary hearing in this case. A hearing for public comment was held on April 24, 2008. No members of the public attended the hearing for public comment.

The Settling Parties have engaged in settlement negotiations to determine the final recommended licensing conditions. As a result of these settlement negotiations, the Settling Parties agreed to enter into this "Agreement of Stipulation and Settlement" ("Agreement") and to incorporate the Final Recommended Licensing Conditions ("Final Recommended Conditions," attached hereto as "Exhibit A") into the CPCN. The Final Recommended Conditions include the final recommendations of PPRP, Staff, and the OPC. CPSG agrees to accept the Final

Recommended Conditions if adopted in the form attached and the Settling Parties agree not to seek further Commission review of those Final Recommended Conditions in these proceedings. All of the Settling Parties are in agreement that the issuance of a CPCN for the Project, subject to the Final Recommended Conditions, will be in the public interest. The Settling Parties are also in agreement that the period for appealing from a proposed order approving this Agreement and recommending a CPCN incorporating the Final Recommended Conditions should be shortened to 7 days.

AGREEMENT

NOW, THEREFORE, the Settling Parties do hereby stipulate and agree as follows:

1. The Settling Parties recommend that the Commission issue a CPCN for the Project, subject to the Final Recommended Conditions set forth in Appendix A. The Settling Parties stipulate and agree that the issuance of a CPCN that incorporates the Final Recommended Conditions will be in the public interest and will serve the public convenience and necessity. In making this recommendation, the Settling Parties have taken into account each and all of the factors and considerations listed in Section 7-207(e) of the Public Utility Companies Article of the Maryland Code and the information contained in PPRP's Environmental Review and supporting testimony.

2. The Settling Parties stipulate and agree that the construction and operation of the Project in accordance with the Final Recommended Conditions would meet or exceed the requirements of all currently applicable environmental laws and regulations, including those relating to noise abatement; the control of air pollution, including New Source Performance Standards 40 CFR Part 60, Subpart Da; and water pollution.

3. The Settling Parties agree not to seek further review by the Commission if the Final Recommended Conditions are adopted as the conditions to the CPCN and waive any otherwise applicable appeal rights.

4. This Agreement represents a compromise for the purposes of settlement and shall not be regarded as a precedent with respect to any future case. No Settling Party necessarily agrees or disagrees with the treatment of any particular item, any procedure followed, or the resolution of any particular issue in agreeing to this Agreement other than as specified herein, except that the Settling Parties agree that the resolution of the issues herein, taken as a whole, is in the public interest.

5. The Settling Parties recognize and agree that the provisions of the Final Recommended Conditions are interrelated and that those provisions, taken as a whole, constitute a comprehensive scheme for the mitigation of any adverse environmental effects and other adverse impacts that might otherwise result from the construction or operation of the Project. The provisions of the Final Recommended Conditions are interdependent, in that a change or addition made to address a concern in one aspect (*e.g.*, air pollution) could well have an unanticipated adverse effect or other unintended consequence with respect to another aspect (*e.g.*, water usage or pollution). The Settling Parties accordingly agree, and enter into this Agreement with the understanding that the Final Recommended Conditions should be accepted by the Commission without further change, addition, or other alteration of any kind.

6. The Settling Parties view the Final Recommended Conditions and this Agreement as a package, with all of the parts interrelating to each other. If the Final Recommended Conditions are changed, supplemented, or rejected by the Commission, this Agreement shall be deemed withdrawn and shall not constitute any part of the record in this proceeding or be used for any other purpose whatsoever. In the event the Commission determines not to accept and approve the Final Recommended Conditions and this Agreement in their entirety, the Settling Parties respectfully request that the Commission provide the Settling Parties an opportunity (i) to negotiate a modified Agreement to address the Commission's concerns or a contested settlement agreement representing

the terms of settlement that remain acceptable to some of the Parties, or (ii) to withdraw their support for this Agreement, to prepare and file briefs, and to proceed with further litigation of these issues.

7. No Settling Party shall be deemed to have approved, accepted, agreed, or consented to any principle underlying or supposed to underlie any of the matters provided for in this Agreement, nor shall approval of this Settlement constitute in any respect a determination by the Commission as to the merits of any of the contentions or allegations which might be made by any of the Settling Parties in the absence of settlement.

8. The discussions that produced this Agreement have been conducted on the understanding that all offers of settlement and discussions relating thereto are and shall be privileged and confidential, shall be without prejudice to the position of any party or participant presenting any such offer or participating in any such discussions, and are not to be used in any manner in connection with this proceeding or otherwise.

9. This Agreement may be executed in any number of identical counterparts, each of which when executed and delivered shall be an original, but all such counterparts shall constitute but one and the same instrument. Delivery by any party or its respective representatives of telecopied (counterpart) signature pages shall be as binding an execution and delivery of this Agreement by such party as if the other parties had received the actual physical copy of the entire Agreement with an ink signature from such party.

10. The Settling Parties agree that the period for appealing from a proposed order approving this Agreement and recommending a CPCN incorporating the Final Recommended Conditions should be shortened to 7 days pursuant to Section 3-113(d)(2) of the Public Utility Companies Article of the Maryland Code.

WHEREFORE, the Settling Parties have caused their signatures to be affixed to this Agreement of Stipulation and Settlement through and by their respective counsel.

Respectfully submitted,

STAFF OF THE MARYLAND PUBLIC SERVICE COMMISSION

By: _____
Michael A. Dean
Assistant Staff Counsel

CONSTELLATION POWER SOURCE GENERATION, INC.

By: _____
F. William DuBois
DLA Piper US LLP

MARYLAND DEPARTMENT OF NATURAL RESOURCES
POWER PLANT RESEARCH PROGRAM

By: _____
Brent A. Bolea
Assistant Attorney General

OFFICE OF PEOPLE'S COUNSEL

By: _____
Ronald Herzfeld
Assistant People's Counsel

WHEREFORE, the Settling Parties have caused their signatures to be affixed to this Agreement of Stipulation and Settlement through and by their respective counsel.

Respectfully submitted,

STAFF OF THE MARYLAND PUBLIC SERVICE COMMISSION

By: Michael A Dean
Michael A. Dean
Assistant Staff Counsel

CONSTELLATION POWER SOURCE GENERATION, INC.

By: _____
F. William DuBois
DLA Piper US LLP

MARYLAND DEPARTMENT OF NATURAL RESOURCES
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Brent A. Bolea
Assistant Attorney General

OFFICE OF PEOPLE'S COUNSEL

By: _____
Ronald Herzfeld
Assistant People's Counsel

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By: _____
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CONSTELLATION POWER SOURCE GENERATION, INC.

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POWER PLANT RESEARCH PROGRAM

By: _____
Brent A. Bolca
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OFFICE OF PEOPLE'S COUNSEL

By: _____
Ronald Herzfeld
Assistant People's Counsel

APPENDIX A

STAFF FINAL RECOMMENDED LICENSING CONDITIONS

1) Prior to putting any portion of the project in service, the applicant shall file with the Commission a listing of the transmission system improvements required by PJM prior to putting that portion of the project in service and certification that the improvements have been completed.

2) Prior to putting any portion of the project in service, the applicant shall file with the Commission a listing of the interconnection requirements of the interconnecting transmission line owner prior to putting that portion of the project in service and certification that the interconnection requirements have been met.

OFFICE OF PEOPLE'S COUNSEL FINAL RECOMMENDED LICENSING CONDITION

1) Adequate onsite space and parking will be provided for all construction vehicles, delivery vehicles and construction worker parking during refurbishment.

APPENDIX A

PPRP Final Recommended Licensing Conditions
PSC Case No. 9132
Constellation Power Source Generation, Inc.
Riverside Unit 5 Reactivation Project

General

1. Except as otherwise provided for in the following provisions, the application for the Certificate of Public Convenience and Necessity (CPCN) is considered to be part of this CPCN for the Constellation Power Source Generation, Inc. (CPSG) Riverside Generating Station Unit 5 Reactivation Project ("Reactivation Project"). The application consists of the original application received by the Maryland Public Service Commission (PSC) on 21 December 2007. Construction related to the Reactivation Project shall be undertaken in accordance with the CPCN application. If there are any inconsistencies between the conditions specified below and the application, the conditions in this CPCN shall take precedence; if CPCN conditions incorporate Federal or State laws through paraphrased language, where there is any inconsistency between the paraphrased language and the actual Federal or State laws being paraphrased, the applicable Federal or State laws shall take precedence.

2. If any provision of this CPCN shall be held invalid for any reason, the remaining provisions shall remain in full force and effect and such invalid provision shall be considered severed and deleted from this CPCN.

3. Representatives of the PSC shall be afforded access to the Riverside facility at any reasonable time to conduct inspections and evaluations necessary to assure compliance with the CPCN. CPSG shall provide such assistance as may be necessary to conduct such inspections and evaluations by representatives of the PSC effectively and safely.

4. Representatives of the Maryland Department of the Environment (MDE) and the Baltimore County Department of Health shall be afforded access to the Riverside facility at any reasonable time, without delay and without prior notification, to conduct inspections and evaluations necessary to assure compliance with the conditions. CPSG shall provide such assistance as reasonably may be necessary to conduct such inspections and evaluations by such representatives effectively and safely, which may include but need not be limited to the following with relation to the Reactivation Project:

   a) Inspecting the construction authorized under this CPCN;

   b) Sampling any materials stored or processed on site, or any waste, or discharge into the environment;

c) Inspecting any monitoring or recording equipment required by this CPCN or applicable regulations;

d) Having access to or copying any records required to be kept by CPSG pursuant to this CPCN or applicable regulations;

e) Obtaining any photographic documentation and evidence necessary to determine compliance with the requirements of this CPCN; and

f) Determining compliance with the conditions and regulations specified in the CPCN.

Air Quality

I. General Air Quality Requirements

5. MDE Air and Radiation Management Administration (ARMA) shall have concurrent jurisdiction with the PSC to enforce the air quality conditions of this CPCN.

6. For air quality purposes, the Reactivation Project shall include:

   a) Reactivation of the existing 820 MMBtu/hr boiler (Unit 5) firing only natural gas;

   b) Modification/refurbishments to the steam turbine-electric generator, boiler, controls, electric system, cooling system, and miscellaneous testing, cleaning, and maintenance associated with Unit 5; and

   c) Optional installation of flue gas recirculation (FGR) unit for reducing nitrogen oxide (NO_x) emissions from Unit 5 which, if selected by CPSG, shall commence construction within 18 months of initial startup date.

7. In accordance with COMAR 26.11.02.04B, the air quality provisions expire if, as determined by MDE ARMA:

   a) Construction is not commenced within 18 months after the date of issuance of a final CPCN;

   b) Construction is substantially discontinued for a period of 18 months or more after it has commenced; or

   c) Construction is not completed within a reasonable period of time after the issuance of a final CPCN.

8. All requirements pertaining to air quality that apply to the Reactivation Project shall apply to all subsequent owners and/or operators of the Riverside facility. In the event of any transfer in control or ownership to an entity which is not affiliated with CPSG, CPSG shall notify the succeeding owner/operator of the existence of the requirements of this permit pertaining to air quality by letter and shall send a copy of that letter to the PSC and MDE ARMA.

II. Applicable Federal Air Quality Regulations

9. Riverside Unit 5 is subject to all applicable provisions of the New Source Performance Standard (NSPS) 40 CFR Part 60, Subpart Da - *Standards of Performance for Electric Utility Steam Generating Units for Which Construction is Commenced After September 18, 1978* (40 CFR Part 60.40Da *et seq.*) and the associated standard, compliance, monitoring, testing, reporting, and recordkeeping requirements.

10. Riverside Unit 5 is subject to all applicable provisions of the Acid Rain program under 40 CFR Part 72, including, but not limited to:

    a) Subpart A 72.9(b)(1) requires CPSG, to the extent applicable, to comply with monitoring requirements in 40 CFR Part 75;

    b) Subpart A 72.9(c) requires CPSG to hold allowances in the Unit's compliance sub-account not less than the total annual emissions of SO_2 for the previous year and comply with applicable Acid Rain limits for SO_2;

    c) Subpart A 72.9(e) requires CPSG to submit a proposed offset plan if emission limitations are exceeded; and

    d) Subpart A 72.9(f) requires CPSG, unless otherwise provided, to retain required documents for a period of 5 years from the date that the document was created. Documents may include, but are not limited to, certificates of representation, emissions monitoring information, copies of reports, compliance certifications, and other documentation pertaining to the Acid Rain program.

11. Riverside Unit 5 is subject to all applicable monitoring provisions of the Acid Rain program under 40 CFR Part 75, including, but not limited to:

    a) Subpart A 75.4(b) which generally requires CPSG, in accordance with 40 CFR Part 75.20 or an alternative, United States Environmental Protection Agency (EPA) approved method, to ensure that all applicable monitoring systems for NO_x and volumetric flow required under 40 CFR Part 75 are installed and all certification tests completed not later than 90 days after the date the unit commences commercial operation;

b) Subpart B 75.10 which generally requires CPSG to measure, as applicable, NO_x emissions; and to ensure that continuous emissions monitoring systems (CEMS) required by 40 CFR Part 75 meet the equipment, installation, and performance specifications in 40 CFR Part 75 and are maintained according to the quality assurance and quality control procedures in this part;

c) Subpart F 75.53(a) which generally requires CPSG to prepare a monitoring plan with sufficient information on applicable CEMS to demonstrate that all NO_x, emissions, as required, are monitored and reported;

d) Subpart F 75.57(a) which requires CPSG to keep a file for each affected unit of all measurements, data, reports, and other information required by 40 CFR Part 75 in a form suitable for inspection for at least 3 years from the date of each record;

e) Subpart F 75.57(b)-(f) which require CPSG to record various operations, emissions, and other information, as specified; and

f) Subpart G 75.60(a) and (b) which generally require CPSG to comply with all reporting requirements, with all signatory requirements of 40 CFR Part 72.21 of this chapter for all submissions, and with all required certifications and reports.

12. Riverside Unit 5 is subject to the requirements of Clean Air Interstate Rule (CAIR) under 40 CFR Part 97 and the associated permit restrictions, monitoring, reporting, and recordkeeping requirements (40 CFR Part 97.6 *et seq.*). Upon EPA approval of Maryland's State Implementation Plan (SIP) for the implementation of CAIR under 40 CFR Part 96, as promulgated in COMAR 26.11.28, the requirements of this condition will be superseded by Condition 13f.

III. Applicable State Air Quality Regulations

13. Riverside Unit 5 is subject to all applicable, federally enforceable State air quality requirements including, but not limited to, the following regulations:

a) COMAR 26.11.03.17 – Requires CPSG to submit to MDE ARMA a complete application for a significant modification to the Riverside Part 70 Operating Permit (No. 24-005-00078) prior to commencing operation of Riverside Unit 5;

b) COMAR 26.11.06.03D – Prohibits CPSG from causing or permitting any material to be handled, transported, or stored, or a building, its appurtenances, or a road to be used, constructed, altered, repaired, or demolished without taking reasonable precautions to prevent particulate matter from becoming airborne;

c) COMAR 26.11.06.12 – Prohibits CPSG from constructing, modifying, or operating, or causing to be constructed, modified, or operated, a New Source Performance

Standard source as defined in COMAR 26.11.01.01C, which results or will result in violation of the provisions of 40 CFR Part 60;

d) COMAR 26.11.09.05A(2) and A(3) — Prohibits CPSG from discharging emissions from Unit 5 other than water in an uncombined form, which is visible to human observers. This limitation does not apply to emissions during load changing, soot blowing, startup, or adjustments or occasional cleaning of control equipment if:

   i. the visible emissions are not greater than 40% opacity; and

   ii. the visible emissions do not occur for more than 6 consecutive minutes in any 60-minute period;

e) COMAR 26.11.09.08G(1) - CPSG shall meet all applicable requirements of the Reasonably Available Control Technology (RACT) regulations associated with fuel burning equipment with a capacity factor of 15% or less:

   i. CPSG shall provide certification of the capacity factor of the equipment to MDE ARMA in writing;

   ii. If Unit 5 operates for more than 500 hours in any calendar year, CPSG shall perform a combustion analysis and optimize combustion at least once annually, results of which shall be maintained on site for at least 2 years and shall be made available to MDE ARMA or EPA upon request; and

   iii. CPSG shall require each operator of Unit 5 to attend operator training programs on combustion optimization that are sponsored by MDE ARMA, EPA, or equipment vendors at least once every 3 years; maintain a record of the training program; and make these records available to MDE ARMA upon request;

f) COMAR 26.11.28 - CPSG shall comply with all applicable requirements, including monitoring, recordkeeping, reporting, and compliance certification requirements of CAIR;

g) COMAR 26.11.29 and 30 - CPSG shall comply with all applicable requirements, including monitoring, recordkeeping, reporting, and compliance certification requirements of the NO_x Reduction and Trading Program.

14. Riverside Unit 5 is subject to all applicable State-only enforceable air quality requirements including, but not limited to, the following regulations:

a) COMAR 26.11.02.13A(2) - CPSG shall not operate or cause to operate Unit 5 without first obtaining, and having in current effect, a State Permit to Operate. A complete application for an initial State permit to operate shall be submitted

to MDE ARMA not later than 60 days before the source is to commence operation;

b) COMAR 26.11.06.08 – Prohibits CPSG from operating or maintaining any source in such a manner that a nuisance is created; and

c) COMAR 26.11.06.09 – Prohibits CPSG from causing or permitting the discharge into the atmosphere of gases, vapors, or odors beyond the property line in such a manner that a nuisance or air pollution is created.

IV. Operational Restrictions and Limitations

15. The emissions of NO_x from Riverside Unit 5 shall be less than 25 tons per year, on a 12-month rolling summation basis.

16. Riverside Unit 5 shall be subject to all applicable standards of 40 CFR Parts 60.42Da, 60.43Da, and 60.44Da, including, but not limited to the following:

    a) CPSG shall not cause to be discharged into the atmosphere any gases from Riverside Unit 5 which exhibit greater than 20% opacity on a 6-minute average, with the exception of one 6-minute period per hour of not more than 27% opacity.

    b) CPSG shall not cause to be discharged into the atmosphere any gases that contain the following pollutants in excess of the limits below:

        i. PM – 0.015 lb/MMBtu (heat input basis) or 0.14 lb/MWh (gross energy output basis) on a 3-hour average basis;

        ii. SO_2 – 0.15 lb/MMBtu (heat input basis) or 1.4 lb/MWh (gross energy output basis) on a 30-day rolling average basis; and

        iii. NO_x – 0.15 lb/MMBtu (heat input basis) or 1.4 lb/MWh (gross energy output basis) on a 30-day rolling average basis;

    c) The PM and NO_x emission standards shall apply at all times except during periods of startup, shutdown, or malfunction as defined in 40 CFR Part 60.48Da; and

    d) Compliance with the limitations of these standards shall be determined in accordance with the requirements of 40 CFR Parts 60.48Da and 60.50Da.

17. Riverside Unit 5 shall burn natural gas only at all times when the unit is operating.

APPENDIX A

V. Monitoring and Testing Requirements

18. Riverside Unit 5 shall be equipped with CEMS for NO_x and either O_2 or CO_2 as the diluents monitor. The NO_x monitor shall be certified, operated, and maintained in accordance with 40 CFR Part 75 and 40 CFR Part 60.49Da. Recordkeeping and reporting requirements shall be conducted pursuant to Subparts F and G in 40 CFR Part 75. The Relative Accuracy Test Audit (RATA) tests required for the NO_x monitor shall be performed using EPA Method 20 or 7E in Appendix A of 40 CFR Part 60.

19. CPSG shall conduct an initial performance test to measure NO_x, SO_2, PM, and opacity emissions from Unit 5 within 180 days of start-up of the unit, in accordance with 40 CFR Part 60.8, Part 60.11, and Part 60 Subpart Da.

20. At least 30 business days before initial performance tests for NO_x, SO_2, PM and opacity are conducted, CPSG shall submit to MDE ARMA a test protocol for review and approval. For any subsequent stack tests, CPSG shall either notify MDE ARMA that the earlier approved protocol is to be used or shall submit a revised protocol for review and approval.

VI. Recordkeeping and Reporting Requirements

21. The following records related to Riverside Unit 5 operations, with supporting documentation, shall be maintained on site or at a location readily accessible to CPSG for at least five years and made available to MDE ARMA upon request:

    a) Total NO_x emissions (tons) for each calendar month and each rolling 12-month period;

    b) Monthly average NO_x emission rates (lb/MMBtu);

    c) All stack emission test reports;

    d) Annual fuel use records;

    e) All CEMS emission monitoring data;

    f) All CEMS certification and calibration results; and

    g) Records of any repairs and maintenance made to the CEMS.

22. CPSG shall furnish to MDE ARMA and EPA written notifications, as required by 40 CFR Part 60.7, of events related to the Reactivation Project including, but not limited to:

a) The date construction commenced within 30 days after such date;

b) The actual startup date within 15 days after such date; and

c) The anticipated dates of initial performance tests at least 30 days prior to such dates.

23. CPSG shall furnish to MDE ARMA written notifications of the following events related to the Reactivation Project:

a) The anticipated startup date, not more than 60 days or less than 30 days prior to such date; and

b) The anticipated date construction will commence for a flue gas recirculation system on Unit 5 (if selected by CPSG) at least 60 days prior to such date.

24. CPSG shall comply with all applicable reporting and recordkeeping requirements under 40 CFR Parts 60.51Da and 60.52Da for Riverside Unit 5.

25. All air quality records and logs required by this permit shall be maintained at the facility or a location readily accessible to CPSG for at least five years after the completion of the calendar year in which they were collected. These data shall be readily available for inspection by representatives of MDE ARMA.

26. Final results of the initial performance tests required by this CPCN must be submitted to MDE ARMA within 60 days after completion of the tests. Analytical data shall be submitted to MDE ARMA directly from the emission testing company.

27. All air quality notifications and reports to MDE ARMA required by this CPCN shall be submitted to:

Administrator, Compliance Program
Maryland Department of the Environment
Air and Radiation Management Administration
1800 Washington Boulevard
Baltimore, Maryland 21230

28. All notifications and reports required by 40 CFR Part 60, Subpart Da, unless specified otherwise, shall be submitted to:

Regional Administrator
U.S. Environmental Protection Agency
Region III
1650 Arch Street
Philadelphia, Pennsylvania 19103-2029

APPENDIX A

Water Discharge

29. The CPCN is not an authorization to discharge wastewater to waters of the State. CPSG shall obtain a revised discharge permit from MDE under the National Pollutant Discharge Elimination System (NPDES) for the Riverside facility, if required, to permit any change in wastewater quality or quantity associated with the Reactivation Project.

30. CPSG shall revise its Stormwater Pollution Prevention Plan, for approval by MDE Water Management Administration, incorporating best management practices to prevent runoff of contaminated stormwater from the proposed facility whenever there is a change in design, construction operation, material inventory or handling, or maintenance that may have a significant effect on pollution discharge potential or when the plan proves to be ineffective. CPSG shall obtain authorization under MDE's Storm Water Permit for construction activity, if the construction phase will disturb one or more acres.

Terrestrial and Aquatic Ecology

31. Construction and operation of the Reactivation Project shall be undertaken in accordance with this CPCN and shall comply with all applicable local, State, and Federal regulations, including but not limited to the following:

    a) Nontidal Wetlands — COMAR 26.23.01 applies to activities conducted in nontidal wetlands;

    b) Tidal Wetlands — COMAR 26.24.01 applies to activities conducted in tidal wetlands;

    c) Waterway Construction — COMAR 26.17.04 applies to construction, reconstruction, repair, or alteration of a dam, reservoir, or waterway obstruction or any change of the course, current, or cross section of a stream or body of water within the State including any changes to the 100-year frequency floodplain of free-flowing waters. Free-flowing waters do not include State or private wetlands or areas subject to tidal flooding. For purposes of these regulations, the landward boundaries of any tidal waters shall be deemed coterminous with the wetlands boundary maps adopted pursuant to Environment Article, § 16-301, Annotated Code of Maryland;

    d) Water Quality and Water Pollution Control — COMAR 26.08.01 through COMAR 26.08.04 applies to discharges to surface water and maintenance of surface water quality;

e) Erosion and Sediment Control — COMAR 26.17.01 applies to the preparation, submittal, review, approval, and enforcement of erosion and sediment control plans; and

f) Forest Conservation — Maryland's Forest Conservation regulations, COMAR 08.19.01 through COMAR 08.19.06, applies to the development of local forest conservation programs, and the preparation of forest conservation plans.

32. All portions of the Reactivation Project and appurtenant facilities' footprints disturbed during construction shall be stabilized immediately after the cessation of construction activities, followed by seed application, in accordance with the best management practices presented in the MDE document 1994 Maryland Standards and Specifications for Soil Erosion and Sediment Control, and as approved by Baltimore County.

Miscellaneous

33. CPSG shall comply with all applicable noise standards and regulations.

34. Informational copies of the reports required regarding change of ownership, operations and maintenance planning, emissions monitoring, and major milestones, as described in Conditions 8, 20, 22, 23, and 26 shall be sent to the Power Plant Research Program at:

Power Plant Assessment Division
Department of Natural Resources
Tawes State Office Building, B-3
580 Taylor Avenue
Annapolis, Maryland 21401

IN THE MATTER OF THE APPLICATION OF CONSTELLATION POWER SOURCE GENERATION, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AUTHORIZING THE MODIFICATION OF THE RIVERSIDE GENERATING STATION IN BALTIMORE COUNTY, MARYLAND.	*	BEFORE THE PUBLIC SERVICE COMMISSION OF MARYLAND CASE NO. 9132

PROPOSED ORDER OF HEARING EXAMINER

On December 21, 2007, Constellation Power Source Generation, Inc. ("Applicant" or "Constellation") filed an application with the Public Service Commission for a Certificate of Public Convenience and Necessity ("CPCN") to authorize the modification of the Riverside Generating Station in Baltimore County, Maryland. The application describes the Riverside Generating station as consisting of five steam-electric generating units that have been in commercial operation since 1951. One of the five units, specifically, Riverside Unit 5, has been out of service since 1993, and the Applicant is requesting authority to refurbish the unit so it can be reactivated to generate electricity, fired by natural gas, exclusively.

On April 24, 2008 an evidentiary hearing was held as well as an evening hearing held in the Turner's Station Community Center (in Baltimore County) to receive public comment on the application. Appropriate notification of the hearings was provided by publication in The Baltimore Sun, a newspaper of general circulation in Baltimore County. No members of the public from the affected community appeared for comment at the public hearing.

During the evidentiary hearing, Constellation submitted in evidence the pre-filed testimony of Dori J. Costa, Director of Licensing; and Kenard F. Kosky, licensed Processional Engineer. Pre-filed direct testimony was also received from Shawn Seaman, Project Manager; and Julia B. Ross, Power Plant Research Project ("PPRP")-Department of Natural Resources ("DNR"); and Craig Taborsky, Electric Generation/Transmission Engineer, Staff of the Commission. The testimony of Dori Costa provided a description of the overall proposed project. Viewed in totality, the generating station consisting of five steam-electric generating units, in commercial operation since 1951, has a current generating capacity of about 261MW. Unit 5, which has been out of service since 1993, will be refurbished and reactivated to provide a potential generating capacity of 85MW of electricity to transmit into the PJM System. Since the proposed project is being performed on an existing generation facility any adverse environmental impacts are expected to be minimal. The testimony of Mr. Kosky provided support for the environmental analysis of the impact of the project. The overall conclusion to be drawn from his testimony is that "the proposed project meets all of the applicable requirements under federal, state and local law and the CPCN should be granted authorizing the modification of Riverside." Exhibit CPSG5, pg. 14.

Mr. Seaman of PPRP provides testimony regarding the government agencies' review process and the action taken on the application. The review of the application was coordinated with various agencies of State government as required by statute. As a result of the review, Mr. Seaman testified that the determination was

made that the proposed project could be concluded without causing any adverse environmental or socioeconomic impacts. Consequently, it was the recommendation of DNR that the CPCN be granted based upon the inclusion of a number of recommended conditions to be incorporated into the Certificate.

DISCUSSION AND CONCLUSION

Constellation Power Source Generation is required to obtain authorization from the Commission before any physical change to a generating station, *see,* PUC §7-207; and the Commission decision granting a CPCN must give appropriate consideration to the stability and reliability of the system, economics, aesthetic, historical sites, impact on the environment, and the need to meet existing and future demand for electric service. The record evidence in this proceeding is substantial and sufficient to support the Constellation application. Moreover, the evidence has received a coordinated review from a number of governmental agencies. The evidence supporting this application makes clear that the proposed project will have no adverse environmental impact or other detrimental socio-economic consequences.

Importantly, Constellation, as well as the Power Plant Research Program of the Department of Natural Resources, the Office of People's Counsel and the Staff of the Commission has entered into an Agreement of Stipulation and Settlement in which the parties have reached agreement as to the issuance of the Certificate. The

Agreement incorporates recommended conditions that should attach to the CPCN. *See*, Appendix I.

The Agreement states that it is expressly conditioned upon the Commission's acceptance of all terms without change or condition and that it constitutes a full settlement and compromise of Constellation's application in Case No. 9132. The parties also expressly waive their rights to appeal as provided in the Public Utilities Companies Article, Sections 3-104(d) and 3-113(d); and request that this Proposed Order become final on an expedited basis pursuant to the agreement of the parties and Section 3-113(d)(2)(ii) of the Public Utilities Companies Article.

Accordingly, based on the record in this case, I find and conclude that it is in the public interest that the CPCN should be granted. Moreover, I find the conditions recommended by DNR, as set forth in Appendix I attached hereto, should be hereby incorporated into and made a part of the Certificate of Public Convenience and Necessity.

IT IS, THEREFORE, this 2nd day of May, in the year Two Thousand Eight,

ORDERED: (1) That the application of Constellation Power Source Generation, Inc. for a Certificate of Public Convenience and Necessity authorizing the modification of the Riverside Generating Station in Baltimore County, Maryland is hereby granted subject to the conditions listed in Appendix I.

(2) That the period of appeal for this Proposed Order should be shortened to seven days pursuant to the Agreement of

Stipulation and Settlement and Section 3-113(d)(2)(ii) of the Public Utilities Company Article.

(3) That this Proposed Order will become a final order of the Commission on May 10, 2008, unless before that date an appeal is noted with the Commission by any party to this proceeding as provided in Section 3-113(d)(2) of the Public Utility Companies Article, or the Commission modifies or reverses the Proposed Order or initiates further proceedings in this matter as provided in Section 3-114(c)(2) of the Public Utility Companies Article.

David L. Moore
Hearing Examiner

May 1, 2008

In the matter of the application of Constellation Power Source Generation, Inc. for a Certificate of Public Convenience and Necessity authorizing the modification of the Riverside Generating Station in Baltimore County, Maryland.	* * * * *	Case No. 9132

To All Parties of Record:

Enclosed please find a copy of the Proposed Order of Hearing Examiner filed today in the above-entitled matter.

This Proposed Order will become a final order of the Commission on May 10, 2008, unless before that date an appeal is noted with the Commission by any party to this proceeding, or the Commission modifies or reverses the Proposed Order or initiates further proceedings into this matter. Any appeals noted must be filed with the Commission's Executive Secretary, Terry J. Romine, at 6 St. Paul Street, Baltimore, Maryland 21202-6806. No appeal received via the Commission's facsimile machine will be considered.

Very truly yours,

Kathleen Berends
Management Associate

lw
Enclosures

cc: Interested Persons

SERVICE LIST - CASE NO. 9132

May 5, 2008

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Dirk Kempthorn
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1849 C Street, N.W.
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(202) 208-3100

Superintendent
Shenandoah National Park
3655 U.S. Highway 211 East
Luray, VA 22835

May 7, 2008

Terry J. Romine, Executive Secretary
Public Service Commission
Of Maryland
6 St. Paul Street, 16th Floor
Baltimore, Maryland 21202

Re: Case No. 9132

Dear Ms. Romine:

Enclosed for filing are an original and sixteen (16) copies of the Joint Request for Clarification and Revision of the Proposed Order Issued on May 2, 2008 in the above-referenced proceeding. A copy has been provided to all parties of record.

Please contact me if you have any questions or concerns.

Very truly yours,

Ron Herzfeld
Assistant People's Counsel

RH/bl
cc: All Parties of Record

BEFORE THE
PUBLIC SERVICE COMMISSION
OF MARYLAND

IN THE MATTER OF THE APPLICATION OF	**)**	
CONSTELLATION POWER SOURCE	**)**	
GENERATION, INC. FOR A CERTIFICATE	**)**	
OF PUBLIC CONVENIENCE AND NECESSITY	**)**	**CASE NO. 9132**
AUTHORIZING THE MODIFICATION OF THE	**)**	
RIVERSIDE GENERATING STATION IN	**)**	
BALTIMORE COUNTY, MARYLAND	**)**	

JOINT REQUEST FOR CLARIFICATION AND REVISION OF THE PROPOSED ORDER ISSUED ON MAY 2, 2008

By the undersigned counsel, Staff of the Public Service Commission, the Maryland Office of People's Counsel, Intervenor, Maryland Department Of Natural Resources Power Plant Research Program, and the Applicant, Constellation Power Source Generation, Inc. (collectively, the "Parties") hereby request clarification of the Proposed Order issued in this matter by the Honorable David L. Moore, Hearing Examiner, and, in furtherance thereof, state:

1. On May 2, 2008, the Hearing Examiner issued a Proposed Order granting a Certificate of Public Convenience and Necessity ("**CPCN**") in this proceeding consistent with conditions agreed to by the Parties and attached to the Parties' Settlement Agreement. The Settlement Agreement is attached to the Proposed Order as Exhibit I and includes an Appendix A containing proposed conditions recommended by the Power Plant Research Program of the Department of Natural Resources ("**PPRP**"), the Office of People's Counsel ("**OPC**") and the Staff of the Public Service Commission ("**Staff**").[1]

[1] Appendix A includes 34 conditions described as recommended by PPRP, two conditions described as recommended by Staff, and one condition described as recommended by OPC.

2. The Hearing Examiner recognized that the Settlement Agreement is "expressly conditioned upon the Commission's acceptance of all terms without change or condition." Proposed Order at p. 4.

3. The Proposed Order concludes that the CPCN should be granted "subject to the conditions listed in Appendix I . . ." The conditions there listed include the above-referenced conditions recommended by PPRP, OPC and Staff. *Id.*

4. Lines 14-17 of page 4 of the Proposed Order, however, state that the Hearing Examiner finds that:

> the conditions *recommended by DNR*, as set forth in Appendix I attached hereto, should be hereby incorporated into and made a part of the Certificate of Public Convenience and Necessity.

(Emphasis added).

5. The Parties are concerned that the statement quoted immediately above could permit an unintended construction that only the conditions recommended by PPRP, and not the conditions recommended by OPC and Staff, are incorporated in the CPCN, which would be inconsistent with the parties' Settlement Agreement.

6. The Parties do not believe that the Hearing Examiner intended any such result.

7. To clarify the Proposed Order, the Parties request that lines 14-17 of page 4 of the Proposed Order be revised to read as follows:

> the conditions *recommended by DNR, OPC and Staff,* as set forth in Appendix I attached hereto, should be hereby incorporated into and made a part of the Certificate of Public Convenience and Necessity.

(Emphasis added).

8. The Parties do not believe this revision constitutes any change to the effect of the Proposed Order and, therefore, request that there be no alteration of the appeal period described in the Proposed Order.

WHEREFORE, for the reasons stated above, the Applicant, Staff, PPRP and OPC, by their respective undersigned counsel, hereby respectfully request that the Hearing Examiner clarify and revise the Proposed Order in the manner stated herein.

Respectfully submitted,

STAFF OF THE MARYLAND PUBLIC SERVICE COMMISSION

By: _____
Michael A. Dean
Assistant Staff Counsel

CONSTELLATION POWER SOURCE GENERATION, INC.

By: _____
F. William DuBois, Esquire
DLA Piper US LLP

MARYLAND DEPARTMENT OF NATURAL RESOURCES POWER PLANT RESEARCH PROGRAM

By: _____
Brent A. Bolea
Assistant Attorney General

MARYLAND OFFICE OF PEOPLE'S COUNSEL

By: _____
Ronald Herzfeld
Assistant People's Counsel

ORDER NO. 82006

IN THE MATTER OF THE APPLICATION OF CONSTELLATION POWER SOURCE GENERATION, INC. FOR A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY AUTHORIZING THE MODIFICATION OF THE RIVERSIDE GENERATING STATION IN BALTIMORE COUNTY, MARYLAND.	*	BEFORE THE PUBLIC SERVICE COMMISSION OF MARYLAND CASE NO. 9132

REVISED PROPOSED ORDER OF HEARING EXAMINER

On December 21, 2007, Constellation Power Source Generation, Inc. ("Applicant" or "Constellation") filed an application with the Public Service Commission for a Certificate of Public Convenience and Necessity ("CPCN") to authorize the modification of the Riverside Generating Station in Baltimore County, Maryland. The application describes the Riverside Generating station as consisting of five steam-electric generating units that have been in commercial operation since 1951. One of the five units, specifically, Riverside Unit 5, has been out of service since 1993, and the Applicant is requesting authority to refurbish the unit so it can be reactivated to generate electricity, fired by natural gas, exclusively.

On April 24, 2008 an evidentiary hearing was held as well as an evening hearing held in the Turner's Station Community Center (in Baltimore County) to receive public comment on the application. Appropriate notification of the hearings was provided by publication in The Baltimore Sun, a newspaper of general circulation in Baltimore County. No members of the public from the affected community appeared for comment at the public hearing.

During the evidentiary hearing, Constellation submitted in evidence the pre-filed testimony of Dori J. Costa, Director of Licensing; and Kenard F. Kosky, licensed Processional Engineer. Pre-filed direct testimony was also received from Shawn Seaman, Project Manager; and Julia B. Ross, Power Plant Research Project ("PPRP")-Department of Natural Resources ("DNR"); and Craig Taborsky, Electric Generation/Transmission Engineer, Staff of the Commission. The testimony of Dori Costa provided a description of the overall proposed project. Viewed in totality, the generating station consisting of five steam-electric generating units, in commercial operation since 1951, has a current generating capacity of about 261MW. Unit 5, which has been out of service since 1993, will be refurbished and reactivated to provide a potential generating capacity of 85MW of electricity to transmit into the PJM System. Since the proposed project is being performed on an existing generation facility any adverse environmental impacts are expected to be minimal. The testimony of Mr. Kosky provided support for the environmental analysis of the impact of the project. The overall conclusion to be drawn from his testimony is that "the proposed project meets all of the applicable requirements under federal, state and local law and the CPCN should be granted authorizing the modification of Riverside." Exhibit CPSG5, pg. 14.

Mr. Seaman of PPRP provides testimony regarding the government agencies' review process and the action taken on the application. The review of the application was coordinated with various agencies of State government as required by statute. As a result of the review, Mr. Seaman testified that the determination

was made that the proposed project could be concluded without causing any adverse environmental or socioeconomic impacts. Consequently, it was the recommendation of DNR that the CPCN be granted based upon the inclusion of a number of recommended conditions to be incorporated into the Certificate.

DISCUSSION AND CONCLUSION

Constellation Power Source Generation is required to obtain authorization from the Commission before any physical change to a generating station, *see,* PUC §7-207; and the Commission decision granting a CPCN must give appropriate consideration to the stability and reliability of the system, economics, aesthetic, historical sites, impact on the environment, and the need to meet existing and future demand for electric service. The record evidence in this proceeding is substantial and sufficient to support the Constellation application. Moreover, the evidence has received a coordinated review from a number of governmental agencies. The evidence supporting this application makes clear that the proposed project will have no adverse environmental impact or other detrimental socio-economic consequences.

Importantly, Constellation, as well as the Power Plant Research Program of the Department of Natural Resources, the Office of People's Counsel and the Staff of the Commission has entered into an Agreement of Stipulation and Settlement in which the parties have reached agreement as to the issuance of the

Certificate. The Agreement incorporates recommended conditions that should attach to the CPCN. *See*, Appendix I.

The Agreement states that it is expressly conditioned upon the Commission's acceptance of all terms without change or condition and that it constitutes a full settlement and compromise of Constellation's application in Case No. 9132. The parties also expressly waive their rights to appeal as provided in the Public Utilities Companies Article, Sections 3-104(d) and 3-113(d); and request that this Proposed Order become final on an expedited basis pursuant to the agreement of the parties and Section 3-113(d)(2)(ii) of the Public Utilities Companies Article.

Accordingly, based on the record in this case, I find and conclude that it is in the public interest that the CPCN should be granted. Moreover, I find the conditions recommended by DNR, OPC, and Staff, as set forth in Appendix I attached hereto, should be hereby incorporated into and made a part of the Certificate of Public Convenience and Necessity.

IT IS, THEREFORE, this 2nd day of May, in the year Two Thousand Eight,

ORDERED: (1) That the application of Constellation Power Source Generation, Inc. for a Certificate of Public Convenience and Necessity authorizing the modification of the Riverside Generating Station in Baltimore County, Maryland is hereby granted subject to the conditions listed in Appendix I.

(2) That the period of appeal for this Proposed Order should be shortened to seven days pursuant to the

Agreement of Stipulation and Settlement and Section 3-113(d)(2)(ii) of the Public Utilities Company Article.

(3) That this Proposed Order will become a final order of the Commission on May 10, 2008, unless before that date an appeal is noted with the Commission by any party to this proceeding as provided in Section 3-113(d)(2) of the Public Utility Companies Article, or the Commission modifies or reverses the Proposed Order or initiates further proceedings in this matter as provided in Section 3-114(c)(2) of the Public Utility Companies Article.

David L. Moore
Hearing Examiner
Public Service Commission of Maryland

May 8, 2008

In the matter of the application of Constellation Power Source Generation, Inc. for a Certificate of Public Convenience and Necessity authorizing the modification of the Riverside Generating Station in Baltimore County, Maryland.	*	Case No. 9132

To All Parties of Record:

Enclosed please find a copy of the Revised Proposed Order of Hearing Examiner filed in the above-entitled matter.

This Proposed Order will become a final order of the Commission on May 10, 2008, unless before that date an appeal is noted with the Commission by any party to this proceeding, or the Commission modifies or reverses the Proposed Order or initiates further proceedings into this matter. Any appeals noted must be filed with the Commission's Executive Secretary, Terry J. Romine, at 6 St. Paul Street, Baltimore, Maryland 21202-6806. No appeal received via the Commission's facsimile machine will be considered.

Very truly yours,

Kathleen Berends
Management Associate

kab
Enclosure

May 8, 2008

In the matter of the application of Constellation Power Source Generation, Inc. for a Certificate of Public Convenience and Necessity authorizing the modification of the Riverside Generating Station in Baltimore County, Maryland.	* * * * *	Case No. 9132

To All Persons Interested in Case No. 9132:

For your informatino, enclosed is a copy of the Revised Proposed Order of Hearing Examiner filed in the above-entitled matter.

This Proposed Order will become a final order of the Commission on May 10, 2008, unless before that date an appeal is noted with the Commission by any party to this proceeding, or the Commission modifies or reverses the Proposed Order or initiates further proceedings into this matter.

Very truly yours,

Kathleen Berends
Management Associate

kab
Enclosure

PUBLIC SERVICE COMMISSION

May 12, 2008

In the Matter of the Application of Constellation Power Source Generation, Inc. For Certificate of Public Convenience and Necessity Authorizing the Modification of the Riverside Generating Station in Baltimore County, Maryland	* * * *	Case No. 9132

To All Parties of Record:

The Proposed Order of Hearing Examiner filed in the above-entitled matter on May 2, 2008 was not appealed by any party, nor has the Commission modified or reversed the Proposed Order or initiated further proceedings into this matter. Accordingly, as of May 10, 2008 the Proposed Order became a final order of the Commission, and it was entered on the docket of the Commission as Order No. 82006.

Very truly yours,

/s/ *Loretta Scofield*

Loretta Scofield
Management Associate

ls

May 21, 2008

Terry L. Romine, Executive Secretary
Public Service Commission
Of Maryland
6 St. Paul Street, 16th Floor
Baltimore, Maryland 21202

Re: Case No. 9132

Dear Ms. Romine:

Please accept this letter for filing in the docket of the above-referenced case for the purpose of clarifying the issuance of the Proposed Order and Revised Proposed Order in this case, and the Final Order of the Commission which was entered on the docket of the Commission as Order No. 82006.

On May 2, 2008, the Hearing Examiner issued a Proposed Order which, if not appealed, modified, reversed, or made the subject of further proceedings, was scheduled to become a final order of the Commission on May 10, 2008.

On May 7, 2008, all parties of record jointly filed a request that the Hearing Examiner revise the Proposed Order to make one clarification consistent with the parties' settlement, approved by the Hearing Examiner, to wit, changing Lines 14-17 of page 4 of the Proposed Order to read "the conditions recommended by DNR, OPC and Staff, as set forth in Appendix I hereto, should be hereby incorporated into and made a part of the Certificate of Public Necessity."

On May 8, 2008, the Hearing Examiner issued a Revised Proposed Order which included the revision requested by the parties, and which, if not appealed , modified, reversed, or made the subject of further proceedings, was also scheduled to become a final order of the Commission on May 10, 2008.

The May 8th Revised Proposed Order, however, did not make any changes to the three specific "ORDERED" clauses included in the Proposed Order.

On May 12, 2008, the Hearing Examiner Division issued a letter stating that, since the May 2 Proposed Order was neither appealed by any party, nor was modified or reversed by the Commission, as of May 10, 2008, the Proposed Order became a final order of the Commission, and was entered on the docket of the Commission as order No. 82006.

OPC understands that the Commission believes that, since the May 2nd Proposed Order and the May 8th Revised Proposed Order include identical "ORDERED" clauses, and share the same effective date of May 10th, the two proposed Orders are effectively merged, and that the Commission's Final Order in this case does therefore constitute the finalization of the May 8th Revised Proposed Order as well as the May 2nd Proposed Order.

Simply to mitigate the potential for confusion should there be future proceedings concerning the effect of the May 8th clarification, however, OPC respectively requests that this letter be added to this case docket.

I thank you in advance for your and the Commission's kind cooperation with this request and for your professional courtesy.

Very truly yours,

Ronald Herzfeld
Assistant People's Counsel

RH/mcm
cc: All Parties of Record