MARYLAND DEPARTMENT OF NATURAL RESOURCES

PPSE-CPC-01
DNR Publication No. 12-332008-281

PPRP

Environmental Review of Proposed Air Pollution Control Project at Charles P. Crane Generating Station

March 2008

MARYLAND POWER PLANT RESEARCH PROGRAM

Martin O'Malley, Governor ♦ Anthony G. Brown, Lt. Governor

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Environmental Review of the Proposed Air Pollution Control Project at Charles P. Crane Generating Station

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March 2008

FOREWORD

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

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ABSTRACT

The Maryland Public Service Commission (PSC) has granted a Certificate of Public Convenience and Necessity (CPCN) to Constellation Power Source Generation, Inc. (CPSG) to add air pollution controls at the C.P. Crane Generating Station in Baltimore County, Maryland. The proposed modification consists of the addition of air pollution control systems for the two-coal fired cyclone units at Crane (Units 1 and 2) designed to reduce emissions in compliance with Maryland's recently enacted Healthy Air Act (HAA) of 2006.

The Department of Natural Resources (DNR) Power Plant Research Program (PPRP), coordinating with other State agencies, performed this environmental review of the C.P. Crane Air Pollution Control (APC) project as part of the PSC licensing process, pursuant to Section 3-304 of the Natural Resources Article of the Annotated Code of Maryland (PSC Case Number 9084). DNR used the analysis of potential impacts as the basis for establishing final licensing conditions for operating the proposed facility, pursuant to Section 3-306 of the Natural Resources Article. DNR's recommendations were made in concert with the Departments of Environment, Agriculture, Transportation, and Business and Employment Development, the Maryland Energy Administration, and the Maryland Office of Planning.

This report describes PPRP's evaluation of the environmental and socioeconomic impacts of the C.P. Crane facility, summarizes the results of the evaluation, and presents the final licensing conditions, which have been incorporated into the CPCN for the facility. The report was provided as an exhibit in Case 9084 and formed the basis for the recommendations made by the State agencies in the case. The document includes the following:

- Description of the proposed facility;
- Discussion of existing environmental and socioeconomic conditions at the site and in the vicinity; and
- Analysis of the potential air quality, surface water, biological, ground water, socioeconomic, cultural, and noise impacts from the proposed facility.

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ACRONYMS

ACI	Activated Carbon Injection
APC	Air Pollution Control
ARMA	Air and Radiation Management Administration
BACT	Best Available Control Technology
BG&E	Baltimore Gas & Electric
BMB	Business Marine Boatyard
BMM	Business Marine Marina
BWI	Baltimore Washington International Airport
CAIR	Clean Air Interstate Rule
CAMR	Clean Air Mercury Rule
CEMS	Continuous Emissions Monitoring Systems
CFR	Code of Federal Regulations
CO	Carbon monoxide
CO_2	Carbon Dioxide
COMAR	Code of Maryland Regulations
CPCN	Certificate of Public Convenience and Necessity
CPSG	Constellation Power Source Generation, Inc.
DNR	Department of Natural Resources
DR-x	Density Conservation
EPA	Environmental Protection Agency
ERD	Environmental Review Document
FAA	Federal Aviation Administration
FSI	Furnace Sorbent Injection

GHG	Greenhouse Gases
HAA	Healthy Air Act
HAP	Hazardous Air Pollutant
Hg	Mercury
ICE	Internal Combustion Engine
IDA	Intensely Developed Area
LAER	Lowest Achievable Emission Rate
LOS	Level-of-Service
MALPF	Maryland Agricultural Land Preservation Foundation
MDE	Maryland Department of the Environment
MDNR	Maryland Department of Natural Resources
Mgd	Million gallon per day
MIHP	Maryland Inventory of Historic Places
MMBtu	Million British thermal units
MW	Megawatt
NAAQS	National Ambient Air Quality Standard
NAMS	National Air Monitoring Stations
NA-NSR	Nonattainment New Source Review
NESHAP	National Emission Standard for Hazardous Air Pollutant
NO_2	Nitrogen Dioxide
NOx	Nitrogen Oxide
NCDC	National Climatic Data Center
NOAA	National Oceanic Atmospheric Administration

NR	National Register
NSPS	New Source Performance Standard
NSR	New Source Review
NWS	National Weather Service
O_3	Ozone
Pb	Lead
PAMS	Photochemical Monitoring Stations
PM	Particulate Matter
PPRP	Power Plant Research Program
PSC	Public Service Commission
PSD	Prevention of Significant Deterioration
PUD	Planned Unit Development
RC-5	Rural Residential
RC-20	Resource Conservation
RICE	Reciprocating Internal Combustion Engines
RGGI	Regional Greenhouse Gas Initiative
RLA	Rural Legacy Area
ROFA	Rotating Opposed Fired Air
RRI	Rich Reagent Injection
SAV	Submerged Aquatic Vegetation
SLAMS	State and Local Air Monitoring Stations
SO_2	Sulfur Dioxide
SPCC	Spill Prevention, Control and Countermeasure Plan
SNCR	Selective Non-Catalytic Reduction

SWPPP	Stormwater Pollution Prevention Plan
TAP	Toxic Air Pollutant
URDL	Urban Rural Demarcation Line
VOC	Volatile Organic Compound

Constellation Power Source Generation, Inc. (CPSG) is proposing to modify the C.P. Crane Generating Station to add air pollution controls to the two-coal fired cyclone units (Units 1 and 2) at C.P. Crane. The proposed modifications are designed to reduce emissions in compliance with Maryland's recently enacted Healthy Air Act (HAA) of 2006.

The Maryland Department of Natural Resources (DNR) Power Plant Research Program (PPRP), coordinating with other State agencies, has prepared this Environmental Review Document (ERD). This report is the product of a consolidated review by Maryland State agencies of Free State's application for a Certificate of Public Convenience and Necessity (CPCN) to the Maryland Public Service Commission (PSC).

PPRP, coordinating with other State agencies, prepared the draft Environmental Review Document (ERD) based on information provided by Free State in its CPCN application, dated 2 November 2006. DNR filed a draft ERD on 9 April 2007 as part of its direct testimony before the PSC.

The majority of construction on the C.P. Crane site will only affect previously disturbed land surrounding the site and no wetlands would be impacted at the C.P. Crane site. Additionally, no State or federal listed (threatened or endangered) plant or animal species are found on site; therefore, no impacts to these species are expected.

1.0 INTRODUCTION

1.1 BACKGROUND

Constellation Power Source Generation, Inc. (CPSG) has submitted an application to the Maryland Public Service Commission (PSC) for a Certificate of Public Convenience and Necessity (CPCN) to add air pollution controls at the C.P. Crane Generating Station (Crane) in Baltimore County, Maryland (see general location in Figure 1-1). The proposed modification consists of the addition of air pollution control systems for the two coal-fired cyclone units at Crane (Units 1 and 2) designed to reduce emissions in compliance with Maryland's recently enacted Healthy Air Act (HAA) of 2006.

The HAA regulates nitrogen oxides (NO_x), sulfur dioxide (SO_2) and mercury (Hg) emissions from all of Maryland's coal-fired generating units. For NO_x and SO_2, the HAA allows limited pollutant "trading" among each of the generating company's units subject to the regulation. For example, CPSG may "over-control" SO_2 at Brandon Shores and use some of the excess reductions at Crane. This system-wide "cap and trade" program provides flexibility for the generating company on how they will comply with the HAA; however, it also creates some level of uncertainty in the scope of the HAA project at Crane. For Hg, rather than caps, the HAA requires percentage reductions from baseline levels. There are more details on the Healthy Air Act in Section 1.2.

The proposed modification at Crane, referred to as the "Air Pollution Control (APC) Project," includes four alternatives for reducing NO_x and Hg from Units 1 and 2. The NO_x alternatives are various forms of selective non-catalytic reduction (SNCR) technologies. The mercury alternatives involve injection of various sorbents at different locations (see Section 2).

Because the HAA is based on a cap-and-trade program and tight schedules under the HAA, CPSG has not yet determined which of the alternatives for NO_x and Hg reductions it will pursue, and so is requesting approval for construction of any of these alternatives (or a combination of alternatives) at Crane to comply with the HAA.

Figure 1-1 C.P. Crane Site Location Map

The Department of Natural Resources (DNR) Power Plant Research Program (PPRP), coordinating with other State agencies, performed this environmental review of the Crane project as part of the PSC licensing process. PPRP's review is being conducted to evaluate the potential impacts to environmental and cultural resources for the proposed modification, pursuant to Section 3-304 of the Natural Resources Article of the Annotated Code of Maryland. Results of these evaluations are summarized in this Environmental Review Document (ERD).

PPRP used the analysis of potential impacts as the basis for establishing final licensing conditions for operating the modified facility, pursuant to Section 3-306 of the Natural Resources Article. PPRP's recommendations are made in concert with other programs within DNR as well as the Departments of Agriculture, Business and Economic Development, Environment, Planning, and Transportation, and the Maryland Energy Administration. The final licensing conditions are included as Appendix A to this report.

1.2 THE HEALTHY AIR ACT (HAA) AND IMPLICATIONS FOR THE OVERALL PROJECT SCHEDULE

1.2.1 Background on HAA and Federal Multi-pollutant Reduction Programs

The Maryland Healthy Air Act (HAA) was signed into law in the Spring of 2006. The HAA is a sweeping "multi-pollutant" air pollution control program requiring substantial reductions in emissions of NO_x, SO_2, and Hg from 15 coal-fired generating units at seven power plants in Maryland, including Crane Units 1 and 2. The HAA also required Maryland to consider participation in a multi-state program known as the Regional Greenhouse Gas Initiative (RGGI) to reduce emissions of pollutants, including carbon dioxide (CO_2), that contribute to climate change. On April 20, 2007, Maryland officially committed to participating in the program.

The HAA regulates NO_x and SO_2 emissions based on a pollutant "cap-and-trade" program in which the State establishes annual, State-wide total tonnage emissions caps separately for NO_x and SO_2 and then allocates a portion of the annual State-wide caps to each of the 15 individual coal-fired power plant generating units subject to the HAA. Power plant owners can comply by reducing emissions at each unit to meet the unit's cap, or can comply with the caps on a "system-wide" basis, by over-controlling emissions at some plants and trading the excess "allowances" to other HAA plants that the company owns and operates in Maryland.

Table 1-1 identifies the HAA caps and reduction requirements in the Maryland Department of the Environment (MDE) Air and Radiation Management Administration (ARMA) regulations implementing the HAA (COMAR 26.11.27).

The U.S. Environmental Protection Agency (EPA) recently passed its own multi-pollutant regulations affecting power plants: the Clean Air Interstate Rule (CAIR), which regulates NO_x and SO_2 emissions, and the

Clean Air Mercury Rule (CAMR), which regulates Hg emissions. Like the HAA, the Federal rules for NO_x and SO_2 are based on a cap-and-trade program, although the caps established for Maryland power plants by CAIR and CAMR are less stringent than those set by the HAA. In fact, the HAA is more stringent than the Federal regulations in several key ways:

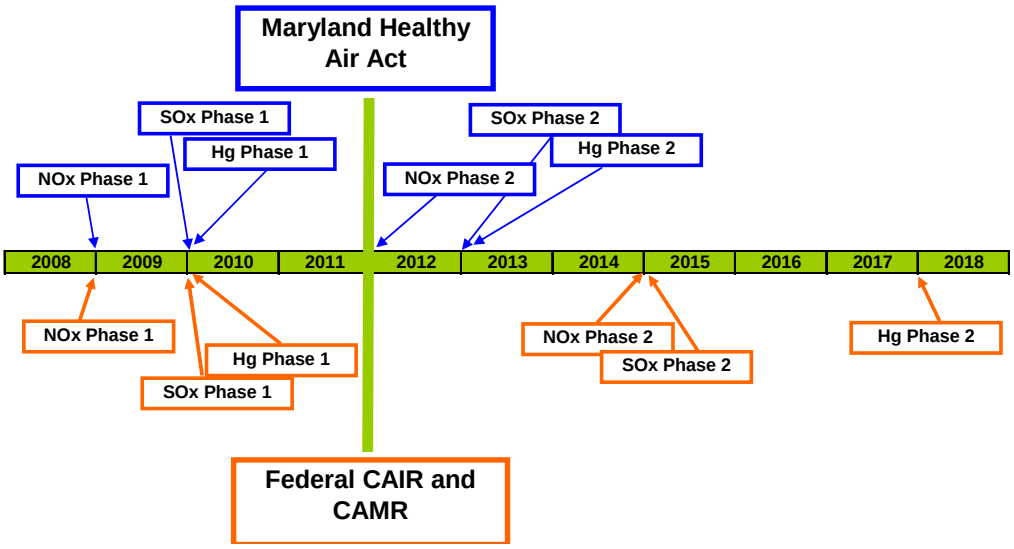
- HAA requires greater pollutant reductions than CAIR;
- HAA reductions schedules are more aggressive than the Federal schedule;
- HAA prohibits the affected power plant from acquiring allowances from outside the State of Maryland; and
- To date, there are no Federal programs regulating greenhouse gas emissions from power plants or other sources, while the HAA requires Maryland to participate in RGGI.

The coal-fired generating units in Maryland are subject to the HAA and the Federal CAIR/CAMR programs. Figure 1-2 illustrates the schedules for the State and Federal pollution control regulations.

Table 1-1 Emissions Caps and Reduction Requirements in MDE's HAA Enabling Regulations (COMAR 26.11.27)

Company	Generating Unit	NO_x (2009) Annual (tpy)	NO_x (2012) Annual (tpy)	NO_x (2009) Ozone Season (t/O_3)	NO_x (2012) Ozone Season (t/O_3)	SO_2 (2010) Annual (tpy)	SO_2 (2012) Annual (tpy)
CPSG	Brandon Shores Unit 1	2,927	2,414	1,363	1,124	7,041	5,392
CPSG	Brandon Shores Unit 2	3,055	2,519	1,449	1,195	7,347	5,627
CPSG	C.P. Crane Unit 1	832	686	345	284	2,000	1,532
CPSG	C.P. Crane Unit 2	894	737	385	317	2,149	1,646
CPSG	Wagner Unit 2	673	555	278	229	1,618	1,239
CPSG	Wagner Unit 3	1,352	1,115	583	481	3,252	2,490
CONSTELLATION TOTAL		**9,733**	**8,026**	**4,403**	**3,630**	**23,407**	**17,926**
MIRANT	Chalk Point Unit 1	1,415	1,166	609	502	3,403	2,606
MIRANT	Chalk Point Unit 2	1,484	1,223	655	540	3,568	2,733
MIRANT	Dickerson Unit 1	672	554	310	256	1,616	1,238
MIRANT	Dickerson Unit 2	736	607	332	274	1,770	1,355
MIRANT	Dickerson Unit 3	698	575	313	258	1,678	1,285
MIRANT	Morgantown Unit 1	2,540	2,094	1,050	865	6,108	4,679
MIRANT	Morgantown Unit 2	2,522	2,079	1,045	861	6,066	4,646
MIRANT TOTAL		**10,067**	**8,298**	**4,314**	**3,556**	**24,209**	**18,542**
ALLEGHENY	R. P. Smith Unit 3	67	55	30	25	161	124
ALLEGHENY	R.P. Smith Unit 4	349	288	166	137	841	644
ALLEGHANY TOTAL		**416**	**343**	**196**	**162**	**1002**	**768**

Figure 1-2 Maryland HAA and Federal CAIR/CAMR Program Deadlines



1.2.2 *Project Schedules*

As previously mentioned, CPSG is proposing four alternatives for Crane in its CPSG application for a CPCN. CPSG has presented these four alternatives because they would like to have the flexibility to be able to choose between them (or install multiple options) to ensure compliance with the HAA. In addition, because the HAA allows for system-wide compliance, CPSG is investigating several means for compliance among the three CPSG facilities (Brandon Shores, H.A. Wagner and C.P. Crane).

Whichever alternative is chosen, CPSG proposes that the equipment fabrication and on-site construction would take approximately 5 months, so that construction would be completed and the new emissions controls would be placed in service by May 1, 2008. However, construction will not commence until an order for this case is issued by the PSC. Therefore, an expedited schedule is necessary to allow CPSG to measure the effectiveness of the new technologies well in advance of the HAA deadlines.

1.3 CONTENTS OF THE ENVIRONMENTAL REVIEW REPORT

This report synthesizes the evaluations that PPRP has conducted related to CPSG's application for a CPCN for the proposed modifications. The information is organized into the following sections:

- Section 2 provides a description of the site, the existing facility and the proposed project;
- Section 3 describes the existing site conditions, including climatology, biological resources, water resources, the regional socioeconomic setting, and noise;
- Section 4 discusses the project's impacts on air quality and associated air quality regulatory requirements;
- Section 5 presents other environmental impacts that the project will have on the surrounding area, in particular to ecological, socioeconomic, and cultural resources;
- Section 6 provides a summary of issues; and
- Section 7 provides a list of references.

Three appendices are also included in the report, as follows:

- Appendix A provides the State's Letter of Recommendation and the final licensing conditions for the proposed APC project at C.P. Crane facility.
- Appendix B contains the State's initial analysis of air emissions data for the four air pollution control projects (APCs) considered for the proposed C.P. Crane facility.
- Appendix C contains the final order issued by the PSC granting the CPCN for this case, PSC No. 9084.

2.0 PROJECT DESCRIPTION

2.1 SITE DESCRIPTION

The site of the proposed modification is the existing Crane Generating Station which occupies approximately 157 acres adjacent to Seneca Creek in the Bowleys Quarters community of Baltimore County. Bowleys Quarters is defined as the Middle River Neck Peninsula extended northwest to Eastern Avenue and north to Carroll Island Road. The peninsula is bound by Frog Mortar Creek, Middle River, Chesapeake Bay, Seneca Creek and Saltpeter Creek.

Crane Units 1 and 2 have a combined nominal generating capacity of 400 megawatts (MW). The site also includes an office, railcar facilities, a coal storage pile, and coal handling equipment. Also, barge unloading facilities are currently being constructed to allow for barge delivery of coal as approved in 2004 PSC Case No. 9048.

2.2 EXISTING FACILITY

Crane is a coal-fired power plant that consists of two solid fossil fuel-fired cyclone boilers is rated at a combined nominal generating capacity of 400 MW or 1,865 MMBtu/hour heat input. Unit 1 began operations in 1961 and Unit 2 went into operation in 1963.

2.3 PROPOSED PROJECT

The air pollution control systems proposed for Crane include four alternatives to reduce NO_x and Hg from Units 1 and 2. Table 2-1 summarizes the alternatives.

2.3.1 Nitrogen Oxide Reduction Alternatives

The first NO_x alternative is the installation of a selective non-catalytic reduction (SNCR) using a sorbent (Rotamix®) to enhance NOx reduction. SNCR employs the use of a nitrogen based reagent (urea) by injection directly into the furnace. NO_x emissions in the flue gas are converted into elemental nitrogen and water.

The second NO_x alternative is the retrofit of the furnace with Rotating Opposed Fired Air (ROFA®) or equivalent, plus SNCR (Rotamix®).

ROFA is a state of the art furnace staging and NO_x reduction system. Asymmetrically placed air generates turbulence via rotational motion and prevents laminated flow within the furnace, therefore utilizing the whole volume of the furnace more effectively in the combustion process. The system consists of a high velocity booster fan, duct, and ROFA boxes placed strategically on the furnace.

Table 2-1 Proposed C.P. Crane NOx and Hg Alternatives

Project Alternative	NOx Control System Description	Mercury Control System Description
1	Selective noncatalytic reduction (SNCR) (Rotamix ® only)	Activated carbon injection (ACI) (all forms, including brominated) and/or noncarbon sorbents
2	Rotating Opposed Fire Air (ROFA®) plus SNCR (Rotamix®)	Furnace Sorbent Injection (FSI) using MinPlus sorbent
3	SNCR	ACI (all forms, including brominated) and/or noncarbon sorbents
4	SNCR plus rich reagent injection (RRI)	ACI (all forms, including brominated) and/or noncarbon sorbents

The third NO_x alternative is the installation of a traditional SNCR system using NOxOUT® as the sorbent instead of Rotamix®. The fourth NO_x alternative is similar to the third, but with the addition of rich reagent injection (RRI). The RRI system is a process of adding urea directly into a staged furnace to reduce the formation of NO_x. The RRI process occurs at significantly higher gas temperatures (2,400 to 3,100 ^oF) as compared to SNCR alone.

2.3.2 Mercury Reduction Alternatives

The first Hg alternative includes the use of an activated carbon injection (ACI) system. Powdered activated carbon is injected into the exhaust gas stream after the air preheater and before the existing baghouse. According to Rotamix[1], the powdered activated carbon absorbs the mercury in the exhaust gas stream and is captured and removed by the existing baghouse. The second alternative includes the use of a furnace sorbent

[1] Mobotec USA© 2004. http://www.mobotecusa.com/technology/rotamix.htm

injection (FSI) system using MinPlus® sorbent, or equivalent. FSI is the injection of non-carbon mineral mixture containing active clay and calcium compounds called MinPlus directly into the furnace. The Hg (all species) forms a permanent bond (chemsorption) with the sorbent, which is subsequently captured in the particulate matter (PM) control device (existing baghouse). ACI is proposed to be used in conjunction with NO_x Alternatives 1, 3, and 4.

In order to meet future NO_x and Hg reduction requirements, there is the possibility that CPSG may elect to install and operate both the furnace sorbent and the activated/non-carbon sorbent systems simultaneously. There are many factors that will be considered in CPSG's evaluation and selection of specific technologies. At this time, CPSG is seeking approval to install any of the technologies discussed and will advise all interested agencies of the selected technologies prior to installation.

3.0 EXISTING CONDITIONS

3.1 CLIMATOLOGY AND AMBIENT AIR QUALITY

3.1.1 Climatology

The discussion of climatology in the vicinity of the Crane facility is based primarily on data from Baltimore Washington International airport (BWI), which is the closest National Weather Service (NWS) station to the Crane site. The climate data cited in this section is from the Maryland State Climatologist Office Website, which is operated by the University of Maryland Department of Atmospheric and Oceanic Science. BWI is located approximately 25 miles south of the Crane facility, and is considered representative of the area. The closest meteorological station to the site with upper air data is the NWS station at Sterling, Virginia. The Sterling Station provided the most representative upper air data for use at the Crane site.

The climate in the vicinity of the Crane site is temperate with four defined seasons. Long-term climate records (NOAA 1996) indicate that average monthly temperatures range from about 77°F in the summer months to the mid-30s°F in the winter months. Average daily maximums in the summer reach the low 80s°F; average daily minimums are in the upper 20s°F to low 30s°F in the winter. July is the month with the highest maximum average temperatures; January experiences the lowest average monthly temperatures.

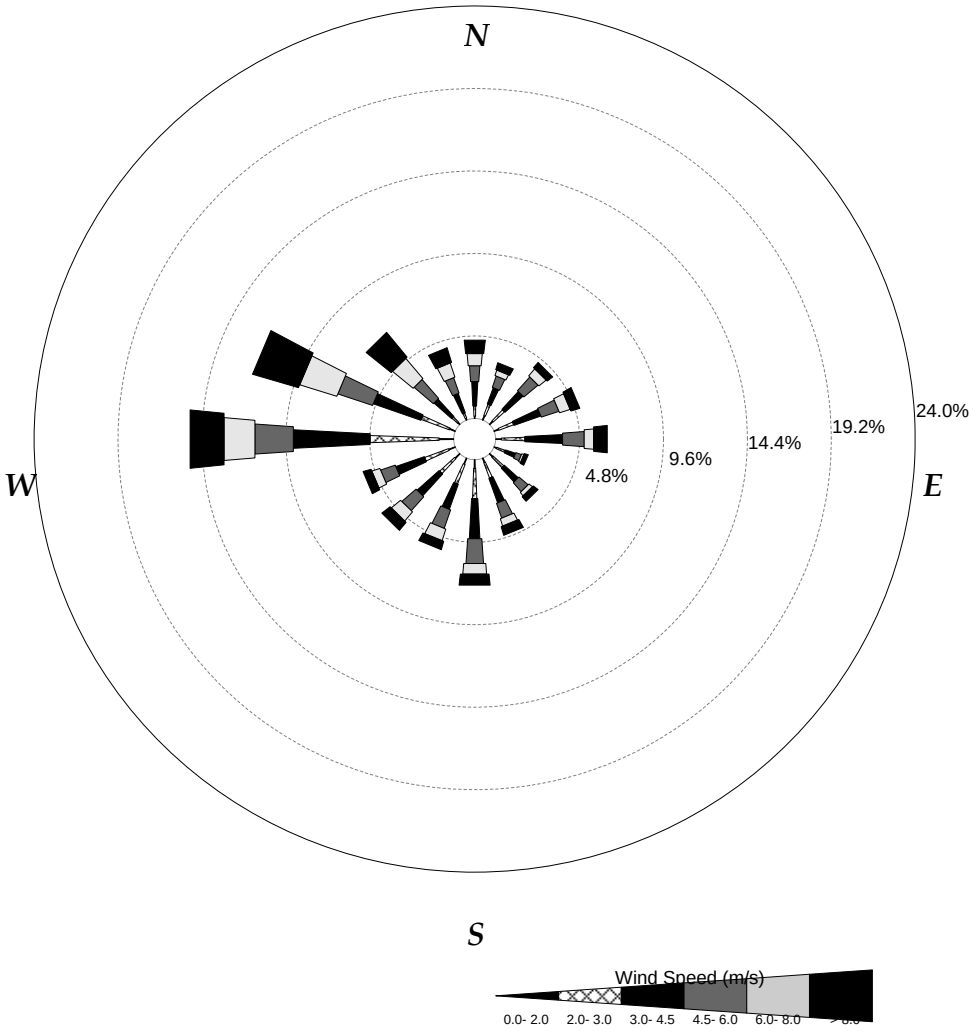
Average annual precipitation in the region is about 38-40 inches per year. Precipitation is generally evenly distributed throughout the year, averaging about 2.6 to 3.7 inches per month.

Thunderstorms are relatively common, occurring about 30 days during an average year. Thunderstorms have occurred throughout the year, but the majority occurs in June. Tornadoes are much rarer. Records kept by the (National Climatic Data Center) NCDC dating to 1818 indicate that Baltimore County has experienced 16 tornadoes, including 13 that occurred between 1990 and 2000.

The average annual wind speed at BWI is 4.0 miles per hour. Based on wind data at BWI from 1991-1995, prevailing winds are from the west. A

wind rose of BWI Airport wind measurements based on data from 1991 through 1995 is presented in Figure 3-1.

Figure 3-1 BWI Wind Rose for 1991-1995



Frequencies indicate direction from which the wind is blowing

3.1.2 Existing Ambient Air Quality Standards and Designations

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

The EPA monitors concentrations of the "criteria" pollutants, NO_x, SO_2, particulate matter (PM), ozone (O_3), carbon monoxide (CO), and lead (Pb) at various locations across the United States near ground level. If monitoring indicates that the concentration of a 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 ambient standard. 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 $PM_{2.5}$, or PM less than 2.5 microns in diameter. $PM_{2.5}$ emissions are of concern because the particles small size allows them to be inhaled deeply into the lungs. In December 2004, EPA published its final designation of $PM_{2.5}$ nonattainment areas.

EPA and the 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 Monitoring Stations (PAMS) (EPA 1998). NAMS are a subset of the SLAMS focused on urban and multi-source areas. PAMS are also a subset of the SLAMS, and focus on areas of the county with ozone nonattainment issues. Appendix D of Part 58 of Title 40 of the Code of Federal Regulations establishes air quality monitoring network design specifications.

EPA's six stated objectives for the monitoring network design for the SLAMS are (EPA 1998; pg 2-1):

(1) to determine highest concentrations expected to occur in the area covered by the network;

(2) to determine representative concentrations in the areas of high population density;

(3) to determine the impact on ambient pollution levels of significant sources or source categories;

(4) to determine general background concentration levels;

(5) to determine the extent of Regional pollutant transport among populated areas, and in support of secondary standards; and

(6) to determine the welfare-related impacts in more rural and remote areas (such as visibility impairment and effects on vegetation).

EPA further explains that SLAMS monitors are intended to be located so that the samples they collect are representative of air quality over the entire area they are intended to cover. The Agency has established "spatial scales of representativeness" to ensure that monitoring of specific pollutants is appropriate and representative. The scales of representativeness include microscale, middle scale, neighborhood scale, urban scale, and regional scale (EPA 1998). The scale takes into consideration such factors as local terrain, pollutant-specific criteria, and population density. EPA reviews the program annually to "…improve the network to ensure that it provides adequate, representative, and useful air quality data" (EPA 1998).

In summary, EPA and state air agencies have established a monitoring network designed to allow collection of monitoring data sufficient for EPA to determine ambient air quality of criteria pollutants. The monitoring data is used to determine background ambient concentrations of criteria pollutants, and to classify all areas of the county as attainment or nonattainment of the NAAQS.

3.1.3. 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 $PM_{2.5}$. Some counties in Maryland are designated ozone attainment areas and some are nonattainment areas; however, because ozone is a regional

issue, EPA treats the Northeastern United States, from northern Virginia to Maine, as an ozone nonattainment area known as the Northeast Ozone Transport Region.

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 nonattainment for $PM_{2.5}$.

Figure 3-2 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 AIRS database and is available from the EPA's website (www.epa.gov/air/data/). Table 3-1 presents the existing ambient air concentrations for ozone and $PM_{2.5}$ in Baltimore County.

Figure 3-2 Location of Pollutant Monitoring Stations around C.P. Crane Facility

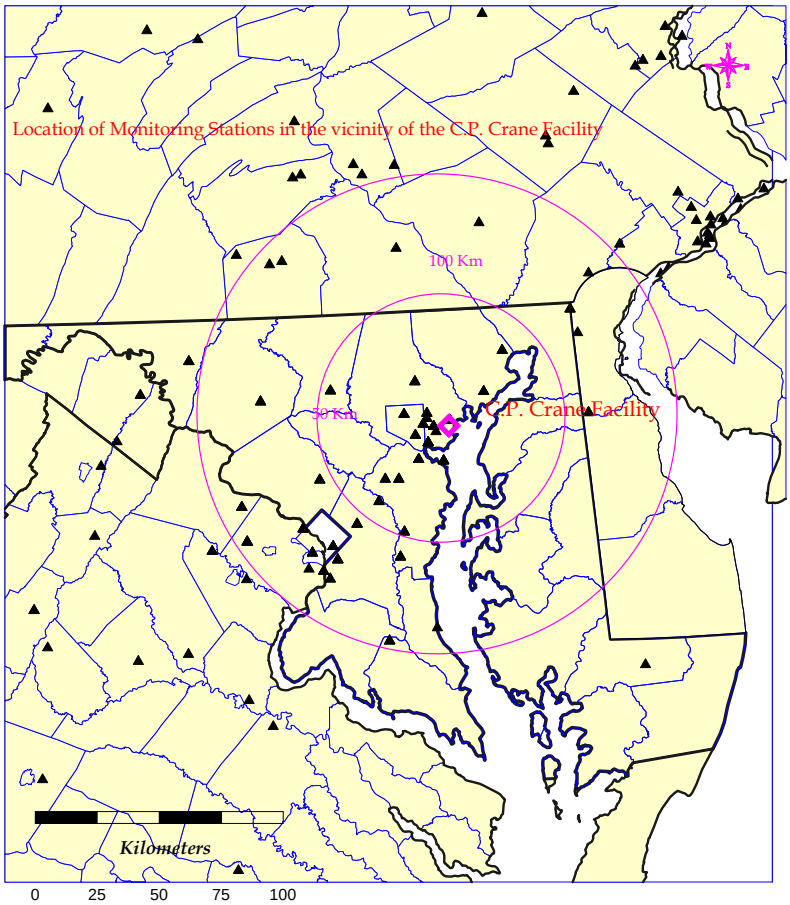


Table 3-1 Summary of Monitoring Data for Ozone and $PM_{2.5}$ in Baltimore County for the Years 2001-2005

Pollutant	Averaging Period	Maximum Concentration ($\mu g/m^3$)
Ozone	1-hour	0.15
	8-hour	0.12
$PM_{2.5}$	24-hour	66.0
	Annual	16.1

3.2. WATER RESOURCES

The C.P. Crane site lies within the Chesapeake Bay critical area and the excess levels of nitrogen and phosphorus are pollution problems facing the Chesapeake Bay in general. It is important to note that reducing these pollutants has been a major focus of the multi-state Chesapeake Bay Program over the past two decades. The 1987 Chesapeake Bay Agreement, as amended in 1992, set a goal to reduce levels of nitrogen and phosphorus by 40 percent by 2000 and to maintain that reduction thereafter. Since the Gunpowder River is a major tributary to the Bay, this program affects the Gunpowder River.

3.3. BIOLOGICAL RESOURCES

As mentioned previously, the site lies within the Chesapeake Bay Critical Area, which is defined as all land within 1,000 feet of Mean High Water or the landward edge of tidal wetlands and all waters of and lands under the Chesapeake Bay and its tributaries. Development within the Critical Area is required to minimize adverse impacts on water quality and conserve fish, wildlife, and plant habitat. The proposed Project will be located within previously disturbed portions of the site immediately adjacent to the existing facility.

Most of the Crane site is already developed. Undeveloped (albeit disturbed) areas comprise roughly 35 percent of the site, including upland, wetland, and open water habitats. Vegetative communities on, and adjacent to, the site include submerged aquatic vegetation (SAV), freshwater tidal marsh, freshwater nontidal marsh, wetland hardwood

forest, upland hardwood forest, and maintained grass. A description of each vegetative community is described below.

3.3.1 Upland Communities

Upland vegetative communities in the vicinity of the Crane site include upland mixed hardwood forest and maintained grass uplands.

3.3.2 Hardwood Forest

Small areas of upland mixed hardwood forest exist in the southern, central, and northwestern parts of the site. The canopy is dominated by red maple (Acer rubrum), sweetgum (Liquidambar styraciflua), and tulip poplar (Liriodendron tulipifera), with a variety of subdominant species including pin oak (Q. palustris), northern red oak (Q. rubra), chestnut oak (Q. prinus), white oak (Q. alba), black gum (Nyssa sylvatica), American holly (Ilex opaca), persimmon (Diospyros virginianus), and black cherry (Prunus serotina). Understory species include highbush blueberry (Vaccinium corymbosum), sassafras (Sassafras albidum), spicebush (Lindera benzoin), and groundsel bush (Baccharis halimifolia), with sparse groundcover composed of cinnamon fern (Osmunda cinnamomea), sensitive fern (Onoclea sensibilis) and sedges (Carex spp.).

3.3.3 Maintained Grass

Mowed and open field areas occur throughout the Crane facility. These areas have been historically cleared, graded, planted with grasses, and regularly maintained. The maintained grass areas include a variety of introduced lawn grasses and weedy broad-leaved vegetation.

3.3.4 Wetland Communities

Wetland vegetative communities include (SAV), freshwater tidal marsh, freshwater marsh, wet meadow, and wetland hardwood forest.

3.3.5 Submerged Aquatic Vegetation

Areas of SAV dominated by wild celery (Vallisneria americana), the exotic species Eurasian water milfoil (Myriophyllum spicatum) and Elodea (Elodea sp.) occur within Seneca and Saltpeter Creeks. Additional occasional species include curly pondweed (Potamogeton crispus), and horned pondweed (Zanichellia palustris).

3.3.6 Freshwater Tidal Marsh

Freshwater tidal marsh habitat, dominated by tall cordgrass (Spartina cynosuroides), occurs in some areas along Seneca and Saltpeter Creeks adjacent to the Crane site. Additional species associated with the freshwater tidal marsh habitat include swamp rose mallow (Hibiscus moscheutos), seashore mallow (Kosteletzkya virginica), saltgrass (Distichlis spicata), saltmeadow cordgrass (Spartina patens), and common reed (Phragmites australis).

3.3.7 Freshwater Marsh

Ditches adjacent to the site possess small areas of freshwater marsh, vegetated with common reed (Phragmites australis), sedges (Cyperus spp.), spike rush (Eleocharis obtusa), Canada rush (Juncus canadensis), soft rush (J. effusus), white cutgrass (Leersia virginica), green bulrush (Scirpus atrovirens), wool-grass (Scirpus cyperinus), and smartweeds (Polygonum spp.).

3.3.8 Wetland Hardwood Forest

Several areas of wetland hardwood forest are located in the southern part of the site. Canopy species include red maple, sweetgum (Liquidambar styraciflua), black willow (Salix nigra), black gum (Nyssa sylvatica), tulip tree (Liriodendron tulipifera), and sycamore (Platanus occidentalis). Understory species include groundsel bush (Baccharis halimifolia), highbush blueberry (Vaccinium coryombosum), cinnamon fern (Onoclea sensibilis), sensitive fern (Onoclea sensibilis), royal fern (Osmunda regalis), marsh fern (Thelypteris thelypteroides), common reed (Phragmites australis), and poison ivy (Toxicodendron radicans).

3.4. WILDLIFE

From field surveys conducted as quoted within the CPCN application (CPSG 2006) in the area of the Crane facility, wildlife species that occur in the vicinity include a variety of species common to deciduous forests of eastern Maryland. The presence of forest adjacent to the Gunpowder River and Seneca and Saltpeter Creeks provide suitable habitat to a variety of mammals and avian species.

3.4.1 Mammals

Mammalian species observed during previous field studies as quoted within the CPCN application (CPSG 2006) include species common to Maryland forests, such as white-tailed deer (*Odocoileus virginianus*), gray

squirrel (*Sciurus carolinensis*), raccoon (*Procyon lotor*), eastern cottontail rabbit (*Sylvilagus floridanus*), opossum (*Didelphis virigniana*), and woodchuck (*Marmota monax*). Additional species expected to occur in the vicinity include muskrat (*Ondatra zibethica*), eastern chipmunk (*Tamias striatus*), white-footed mouse (*Peromyscus leucopus*), and several species of moles and shrews.

3.4.2 Birds

Birds commonly observed near the water in the vicinity of the Crane facility include mallard duck (*Anas platyrynchos*), scaups (*Aythya* sp.), belted kingfisher (*Ceryle alcyon*), turkey vulture (*Cathartes aura*), comorant (*Phalacrocorax auritus*), great blue heron (*Ardea herodias*), red-shouldered hawk (*Buteo lineatus*), and several species of gulls (*Larus* sp.). Land birds commonly observed include American robin (*Turdus migratorius*), house sparrow (*Passer domesticus*), northern mockingbird (*Mimus polyglottis*), mourning dove (*Zenaida macroura*), brown thrasher (*Toxostoma rufum*), American crow (*Corvus brachyrynchos*), red-winged blackbird (*Agelaius phoeniceus*), barred owl (*Strix varia*), red-bellied woodpecker (*Melanerpes carolinus*), downy woodpecker (*Picoides pubescens*), and blue jay (*Cyanocitta cristata*). There is insufficient habitat for Forest Interior Dwelling (FID) birds at the site, owing to the small size of the existing forest parcels.

3.5. THREATENED AND ENDANGERED SPECIES

According to DNR Wildlife and Heritage, an active bald eagle (*Haliaeetus leucocephalus*) nest exists about one mile to the north of the site. Bald eagles are listed as a Federal Threatened species. CPSG indicated in its CPCN application that there are no other threatened, endangered, or other sensitive species currently known to exist at the Crane site.

3.6. REGIONAL SOCIOECONOMIC SETTING

3.6.1 Population and Housing

Baltimore County is Maryland's third most populous county and the second most populous in the Baltimore region after Baltimore City. In 2005 the population of Baltimore County was 784,900, an increase of about four percent over 2000 (MDP 2006a). Population is projected to grow at a rate of less than one-half percent per year through the year 2030, to 848,300.

Population is concentrated in the following regional planning districts: Towson-Loch Raven-Hillendale (61,779 in 1997), Perry Hall-White Marsh (52,618), Liberty-Lochearn-Woodmoor (51,997), Essex (45,794), Dundalk-Turners Station (37,940), Reisterstown-Owings Mills (40,162), and Greenspring-Pikesville (36,363). New population growth has been directed towards Perry Hall – White Marsh in the east, and Owings Mills to the west. Perry Hall – White Marsh is expected to be the county's most populous planning district in 2010 (64,201), while the population of Reisterstown – Owings Mills is project to grow to 46,302 (Baltimore County Council 2000).

Population in the Chase – Bowleys Quarters regional planning district was 17,807 in 1997 and is projected to increase only slightly (17,955) by 2010. A separate estimate for the Bowleys Quarters community projects the population to increase from 7,614 in 2000 to 7,916 in 2010. Both projections may be conservative as they were made before the availability of public sewer in the community.

3.6.2 Employment and Income

The labor force in Baltimore County was 415,940 in 2005 (MDP 2006b). The unemployment rate was 4.0 percent in 2006 (DLLR 2007). Baltimore County has a highly educated labor force, with more than 87 percent of residents age 25 and older holding a high school diploma, and 35.6 percent holding a bachelor's degree or higher. Per capita personal income was $39,633 in 2005 (MDP 2006b); the median household income was $50,254 in 2003 (Census 2007).

Baltimore County ranked second in Maryland in jobs by place of work (490,000), with major employers accounting for more than 59,000 jobs. Major employers include Social Security Administration (9,800 jobs), Baltimore County Government (7,700), University of Maryland at Baltimore County (3,500), Centers for Medicare and Medicaid Services (3,000), Greater Baltimore Medical Center (2,900) and Franklin Square Hospital (2,800) (Baltimore County Office of Planning 2006). Both the civilian and military branches of the federal government have a major presence in the county. Health care, professional and technical services, and finance and insurance industries have shown the largest job growth in Baltimore County, but manufacturing employment has declined, reflecting national trends.

In 2000, slightly less than one-half of the county's working residents (196,917) worked in Baltimore County. Most others worked in Baltimore City (109,265), Anne Arundel County (19,490) and Howard County

(19,350). More than 7,000 commuted to jobs outside Maryland (MDP 2003).

Total employment in the Chase – Bowleys Quarters planning district was 5,356 in 2000 with most jobs in wholesale/retail trade and services (Baltimore Metropolitan Council 2006). Major employers include Pulaski Office (Leased) (356 in 2000), Costco (275), Mercy Family Care Inc. (150) and Home Depot (140). Employment at the Crane Generating Station was 124 in 2000 (Baltimore Metropolitan Council 2006). Other than the Crane Generating Station, most jobs in Bowleys Quarters are associated with commercial enterprises such as restaurants and gas stations, and the Carroll Island Shopping Center, and with marinas located along the region's shoreline (Baltimore County Council 2001).

Seneca Creek is home to three commercial marinas as well as numerous private piers. Commercial and recreational crabbing and fishing take place in the surrounding waters, as does recreational boating and sailing, including occasional sailing regattas. Commercial crabbing is currently prohibited by the DNR shoreward of a line that stretches from the northwest tip of Hart-Miller Island to the southwest tip of Gunpowder Neck. This area encompasses the approach to the Middle River, the mouth of the Gunpowder River and the entire length of the channel to the Crane Generating Station.

3.6.3 Transportation

Road access to the Crane Generating Station is via Carroll Island Road, which intersects Eastern Avenue (MD 150), less than two miles to the northwest. Eastern Avenue connects with US 40, I-695 and other regional highways. The road has three marked lanes at its intersection with Carroll Island Road, with spurs leading to and from the minor road. The "T" intersection is signalized and the posted speed limit is 40 mph. The Bowleys Quarters Community Action Plan 2000 notes that the intersection is potentially dangerous because of traffic entering and leaving two fast food restaurants, a drive-in theatre and service stations, creating hazardous conditions. A traffic study was performed in 1999 and the intersection was found to perform a Level-of-Service (LOS) "A", meaning that the average overall wait time for a vehicle to pass through the intersection if 10 seconds or less. There is additional congestion, particularly at peak hours, at the signalized intersection of Carroll Island Road and Bowleys Quarters Road due to left turns into the Carroll Island Shopping Center (Baltimore County Council 2001).

Currently, coal is delivered to the power plant by rail along a dedicated spur off Amtrak's Northeast Corridor. The spur is approximately 8,300 feet long, running from a mainline switch in the Chase manor section of Middle River to the station boundary at Carroll Island Road. Both Norfolk & Southern Railroad (N&S) and CSX Transportation have agreements with Amtrak to use the Northeast Corridor, but only N&S has the operating rights to provide local service (Ganovski 2005).

3.7. LAND USE

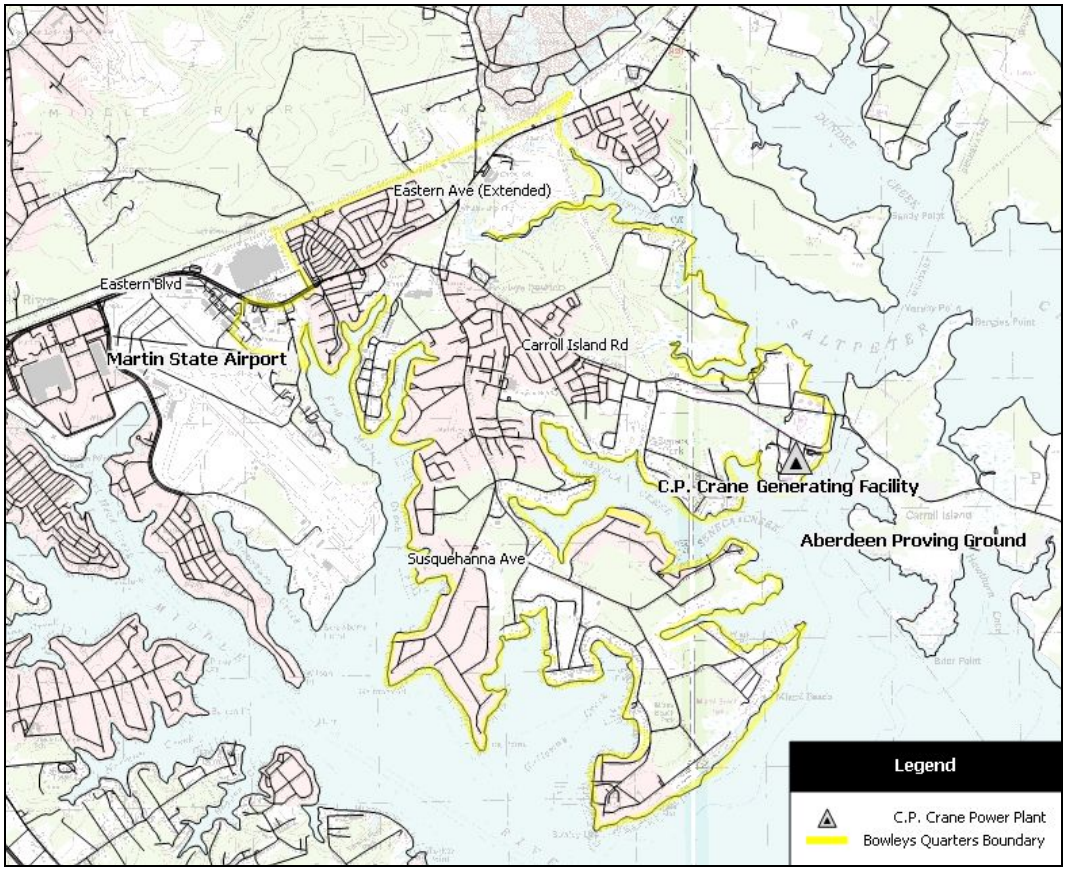
Crane occupies approximately 157 acres adjacent to Seneca Creek in the Bowleys Quarters community of Baltimore County. Bowleys Quarters is defined as the Middle River Neck Peninsula extended northwest to Eastern Avenue and north to Carroll Island Road (Baltimore County Council 2001) as noted in Figure 3-3. The peninsula is bound by Frog Mortar Creek, Middle River, Chesapeake Bay, Seneca Creek and Saltpeter Creek. Bowleys Quarters has approximately 18 miles of shoreline, and approximately 85% of the community lies within the Chesapeake Bay Critical Area. In September 2003, flooding from Hurricane Isabel caused substantial damage to the community, destroying 210 houses and damaging 632 others (Baltimore Sun 2005).

Bowleys Quarters is in the rural section the Urban Rural Demarcation Line (URDL), established by Baltimore County in 1967. This concept was adopted to target public water and sewer infrastructure in the urban area to direct most employment, retail and residential growth from the rural area. Development would be limited in the rural area by reliance on private well and septic systems, allowing the county to protect its natural resources and maintain its agricultural base.

Most of the land in Bowleys Quarters is zoned Rural Residential (RC-5), Resource Conservation (RC-20) or Density Residential (DR-x). Water-based businesses are zoned Business Marine Boatyard (BMB) or Business Marine Marina (BMM). Although in the rural portion of the URDL, Baltimore County's public water and sewer has been extended to Bowleys Quarters to replace failing septic systems that have contributed to water quality problems in Seneca Creek and Frog Mortar Creek. In general, any property in the DR or RC-5 zones must connect to public sewer and water if the system has adequate capacity (Baltimore County Council 2006). Recently, a bill was introduced by the County Council to allow a planned unit development (PUD) in the BMM or BMB zone of the Bowleys Quarters Growth Management Area (Baltimore County Council 2007).

The development pattern of Bowleys Quarters is one of waterfront homes originally constructed many years ago, often as summer residences (Baltimore County Council 2001). Much of the interior of the peninsula is farmland or forested. Newer development is concentrated on the upper peninsula along Eastern Avenue, Carroll Island Road, and the east side of Bowleys Quarters Road at Seneca Garden Road. Residential development in these areas comprises both single-unit and multi-unit dwellings. Commercial development generally consists of restaurants, gas stations, and the Carroll Island Shopping Center, all concentrated on the upper peninsula, and more than a dozen marinas on the rivers and creeks.

Figure 3-3 Bowleys Quarters Location Map



The generating station is the only major industrial facility located in the community. Its 157 acres account for approximately 74% of the community's total industrial land use. Most of the remaining industrial land is at the intersection of Carroll Island Road and Bowleys Quarters Road. Overall, industrial lands comprise approximately eight percent of Bowleys Quarters. Land uses adjacent to the facility are forest along most

of the site's western edge, with an agricultural/open space area at its northwest corner. Seneca Creek borders the station to the south and east, with Saltpeter Creek defining its northern boundary.

The Zoning Commissioner of Baltimore County on July 9, 1957 gave Baltimore Gas & Electric (BG&E) permission to erect the Crane facility by granting BG&E a special exception to the site's then-current zoning of R-6. That decision was contested by a group of local landowners and the matter was brought before the County Board of Appeals of Baltimore County. The Board of Appeals upheld the special exception and at the same time imposed the following:

- This Special Exception shall apply only to the property petitioned for as amended by Petitioner's Exhibit #20;
- No more than four power producing units shall be constructed on the subject property;
- The temperature of the water at the point of expulsion in Salt Peter Creek (sic) shall at no time exceed 95 degrees Fahrenheit;
- The requirements of the Maryland Water Pollution Control Law will at all times be met;
- An adequate sewage disposal plant shall be constructed and maintained;
- Bulkheading will be done where necessary to prevent erosion of neighboring property;
- Coal will be dumped within buildings only, and coal piles will be oiled when necessary to prevent leaching of sulfur, so as not to create acidity in the surrounding water; and
- No more than one shipment of coal per day per unit shall be received.

The land upon which the facility sits is currently zoned RC-5, a resource conservation zoning that provides for rural residential development in suitable areas where public water and sewer are not anticipated. The intent of the zoning is to help eliminate encroachment onto productive agricultural and watershed areas (Baltimore County Office of Planning 2007. Baltimore County Zoning Regulations. 1998 Edition. Updated 02-01-2007, v. 17).

Crane sits on land within the Chesapeake Bay Critical Area. The Crane site is classified by Baltimore County as an Intensely Developed Area (IDA) within the guidelines of the Chesapeake Bay Critical Area Act.

3.8 CULTURAL RESOURCES

Baltimore County retains significant cultural resources. More than 3,000 properties in the county are in the Maryland Inventory of Historic Places (MIHP), including county and National Register historic districts. Several MIHP grids in the Bowleys Quarters peninsula indicating the potential presence of archeological resources are outside the boundaries of the Crane Generating Station.

There are four properties in Bowleys Quarters in the MIHP. The Scott-Andrew House (BA-1846) is unique in Baltimore County as a type of dwelling that characterized 18th century waterside tobacco plantations. The house stands on what was originally a 720-acre tract known as Scott's Improvement, recorded in 1725. The property was later divided and part now sits on the rail spur within the Crane property boundary. As noted in the MIHP inventory form, the historic orientation of the house toward Seneca Creek (and away from the Crane Generating Station) has been compromised by the Seneca Park Beach subdivision on the waterfront. The Mace-Luthardt House (BA-1847) is an undocumented property in the same vicinity of Seneca Park and the Scott-Andrew House. Bengies Community Center (BA-2823), located near the intersection of Eastern Avenue and Bowleys Quarter Road, is a former school dedicated to African-American students and probably erected in the late 19th or early 20th century. The property is not National Register eligible. Bowleys Yacht Basin (BA-513) is a club house built in the early 20th century on land originally occupied by the Bowleys Quarters Ducking Club. The club reportedly entertained Presidents Grover Cleveland and Benjamin Harrison in the 19th century.

Some historic properties significant to Baltimore County are listed in the Baltimore County Landmarks List, which requires the Baltimore County Landmarks Preservation Commission to review and approve any proposal to change the exterior or demolish a structure on the list. As of February 2007, the Baltimore County Council had placed 338 properties on the Landmarks List, including the Scott-Andrew House (Baltimore County Council 2007).

Baltimore County has established nine Baltimore County Historic Districts. Any exterior modification, addition or demolition of a structure

in a local historic district is subject to approval by the Baltimore County Landmarks Preservation Commission. Significantly, and in order to maintain the historical character of the district, the commission's authority within a local historic district extends to sites surrounding or adjoining a structure.

There are nearly 350 National Historic Properties and 20 National Register (NR) Districts in Baltimore County. There are no NR properties in the Bowleys Quarters planning district. The closest NR District to Bowleys Quarters is the Dundalk National Register Historic District in Dundalk.

Although not on the MIHP, the Piney Grove United Methodist Church on Bowleys Quarters Road has been historically documented. Formed in 1874 after the Pennsylvania Railroad donated one acre of land to a congregation, the church was known as the Piney Grove Independent Evangelical Church until 1951. The original structure has since been replaced.

Baltimore County has more than 40 historically African-American communities, most of which are more than 100 years old and many of which were established and named by freed slaves (Baltimore County Council 2000). One of the county's top priorities is to improve basic services and infrastructure in these communities to retain their historical and cultural character. None of the nearby historically African-American communities of Chase, Hopewell Avenue, Back River Neck or Goodwood is in Bowleys Quarters.

Baltimore County's scenic resources are among its many cultural resources. These resources consist of scenic corridors, scenic views and gateways. Designation of scenic corridors or views is designed to inform development guidelines for protecting the county's scenic resources. Bowleys Quarters Road is identified as a County Scenic Route in the county's Master Plan 2010, as are scenic views out on the Chesapeake Bay from the shoreline of the peninsula, along Bay Road and from Miami Beach Park, and over the Middle River from Seneca Pointe. The closest designated Scenic Gateway leads to Rocky Point Park (Baltimore County Council 2000).

The Crane Generating Station is within the Baltimore County Coastal Rural Legacy Area. Running from the Gunpowder River to the North Point State Park, it includes the highest concentration of forest and agricultural lands and fresh and tidal wetlands in Baltimore County.

There are two Maryland Agricultural Land Preservation Foundation (MALPF) agricultural districts that flank the Crane Generating Station to the north and south. An agricultural district is not an easement, but restricts subdivision and prevents commercial, industrial or residential development during the term of the district agreement, which is recorded in the county.

There is one county owned park in the Bowleys Quarters peninsula – Miami Beach Park – off Bowleys Quarters Road and Bay Drive, south of the Crane Generating Station and separated from the facility by Seneca Creek. The waterfront park contains 59 acres of trails, playgrounds and picnic areas, plus restrooms and a pavilion. Just outside of Bowleys Quarters, the Marshy Point Nature Center is just north of the facility across Saltpeter Creek. A 492-acre park, the nature center is one of the newest facilities of the Baltimore County Department of Recreation and Parks, and offers trails and water-based recreation options in addition to an exhibit hall and outdoor decks for picnicking. Gunpowder Falls State Park is adjacent to the Marshy Point Nature Center across Dundee Creek. Near its junction with the Amtrak mainline, the rail spur to the Crane Generating Station traverses the 122-acre Eastern Regional Park at the tidal inlets of Saltpeter Creek in the vicinity of Eastern Avenue. The park has picnic facilities, a playground, sport fields, trails and a 9,000-square foot community center. The Aberdeen Proving Ground, a federal facility on Carroll Island, sits across from the power plant.

3.9 PUBLIC SERVICES AND PUBLIC SAFETY

The Baltimore County water supply system is an extension of Baltimore City's metropolitan system. There are 13 water service zones. Commerce and industry account for about 30 percent of water consumption in the county (Baltimore County Council 2000). The county operates its own sewer system, but most sewage is treated at two Baltimore City waste water treatment plants. A new 120 million gallon per day (mgd) Fullerton wastewater treatment facility near Bowleys Quarters is expected to be online by 2008. Although public water and sewer are generally limited to areas within the URDL, water and sewer services have been extended to Bowleys Quarters to address pollution of Seneca Creek and Frogs Neck Creek from failing septic systems. The Crane Generating Station is not serviced by public water and sewer. For solid waste, Baltimore County operates the Eastern Sanitary Landfill Solid Waste Management Facility, which includes a transfer station, composting operation and recycling center. It also oversees two solid waste facilities operated by the Maryland Environmental Service (Baltimore County Council 2000).

Bowleys Quarters is in the Precinct 11 (Essex) service area of the Baltimore County Police Department. Approximately 180 authorized personnel patrol 42.7 square miles and a population of 85,000. The precinct handles over 70,000 calls per year (Baltimore County Police 2006). Fire and emergency medical services are handled by the Baltimore County Fire Department and Volunteer Firemen's Association. Bowleys Quarters is served by the Bowleys Quarters Volunteer Fire Company, located on Bowleys Quarters Road. The company maintains two engines and has a Marine Emergency Team for open water rescues on the Chesapeake Bay.

Education in Baltimore County is administered by the Baltimore County Board of Education. Bowleys Quarters is in the Southeast administrative area and is served by the Chase Elementary School on Eastern Avenue, the Middle River Middle School on Middle River Road, and Chesapeake High School on Turkey Point Road.

4.0 AIR QUALITY IMPACTS

4.1 AIR QUALITY IMPACT ASSESSMENT BACKGROUND AND METHODOLOGY

4.1.1 Overview

As a part of the CPCN review process, PPRP and the MDE Air and Radiation Management Administration (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 final licensing conditions.

The installation and operation of the proposed APC systems on Crane Units 1 and 2 will result in substantial decreases in NO_x emissions and Hg, but will also result in slight increases of other criteria pollutants, namely PM. As a result, PPRP and MDE-ARMA evaluated the impacts of the emissions increases on air quality. A summary of the review of the project impacts on air quality is presented in this section.

4.1.2 Regulatory Considerations

The EPA has defined concentration-based NAAQS for several pollutants, which are set at levels considered to be protective of the public health and welfare. Specifically, the NAAQS have been defined for six "criteria" pollutants—particulate matter (including PM_{10} and $PM_{2.5}$), SO_2, NO_2, CO, ozone, and lead. Air emissions limitations and pollution control requirements are generally more stringent for sources located in areas of the country that do not currently attain a NAAQS for a particular pollutant (known as "nonattainment" areas).

Crane is located in Baltimore County, Maryland. The air quality in Baltimore, which is designated as Area III (COMAR 26.11.01.03) by MDE-ARMA, is currently in attainment for all criteria pollutants with the exception of ozone and $PM_{2.5}$. Because of the high levels of ozone historically found in Baltimore County during the ozone season (May-October), the County was formerly designated as "severe" for the 1-hour ozone NAAQS and is designated "moderate" for the 8-hour ozone standard. Emissions of the two pollutants that are the primary precursors to ozone—volatile organic compounds (VOCs) and NO_x—are regulated more stringently in ozone nonattainment areas to ensure that air quality is not further degraded (i.e., the ambient air concentrations of ozone do not continue to increase as new sources of emissions are constructed).

$PM_{2.5}$ is a newly regulated pollutant. Baltimore County (and several other counties in Maryland and other states) became a designated $PM_{2.5}$ nonattainment area as of December 2004. Although EPA has promulgated an ambient standard for $PM_{2.5}$ and has designed $PM_{2.5}$ nonattainment areas, there are no Federal or State implementing regulations for $PM_{2.5}$, as there are for ozone. EPA published interim guidance for implementing $PM_{2.5}$ nonattainment programs in a memorandum of September 2005. PPRP and MDE have used the interim guidance on $PM_{2.5}$ for this case.

Potential emissions from new and modified sources in attainment areas are evaluated through the Prevention of Significant Deterioration (PSD) program (COMAR 26.11.06.14). The goal of the PSD program is to ensure that emissions from major sources do not degrade air quality. Triggering PSD requires pollution control measures known as Best Available Control Technology (BACT) and additional impact assessments.

Potential emissions from new and modified sources in nonattainment areas are evaluated through the nonattainment New Source Review (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 limit emissions of affected pollutants through the implementation of the most stringent levels 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.

Because Crane is located in a nonattainment area for ozone and $PM_{2.5}$ and an attainment area for the other pollutants, PPRP and MDE-ARMA

assessed applicability for 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 Sections 4.3 (PSD program) and 4.4 (NA-NSR program).

Other Federal and State air quality regulations may apply to the proposed project. These regulations apply either as a result of the type of emission source that is to be constructed, reconstructed, modified, or as a result of a change of the pollutants to be emitted from the system. These regulations, discussed in Section 4.5, specify limits on pollutant emissions and impose recordkeeping and reporting requirements.

4.2 PROPOSED AIR EMISSIONS

CPSG is proposing to install APC equipment on Unit 1 and Unit 2 at the Crane facility. Currently, there are no boiler upgrades or modifications proposed as a part of this project or other operational changes being proposed as part of the APC Project; therefore, no increases in emissions of any combustion-related pollutants are expected to result from this Project. Further, there are no ancillary equipment, such as emergency generators, or pumps, proposed as part of the APC Project. The following sections describe the emissions changes resulting from the Project.

4.2.1 Criteria Pollutants

CPSG indicates that the APC system, regardless of the alternative selected, will reduce NO_x emissions from Units 1 and 2 by a minimum of 25% (Alternative 3), resulting in a decrease of at least approximately 3,814 tons of NO_x at Unit 1 and 3,715 tons of NO_x at Unit 2 annually from current levels. Emission reductions for all four alternatives are presented in Table 4-1.

Emissions of SO_2, CO, PM, and VOCs from Crane Units 1 and 2 are not expected to change from baseline levels with this APC Project, given that no physical boiler modifications, changes in coal throughput, or changes in the type of coal (i.e., sulfur content, heat content, etc.) are proposed as part of this project. However, there will be a small increase in PM emissions associated with sorbent (both for NO_x and mercury reductions) unloading, handling and injection. Secondary PM emissions (ammonium bisulfate), resulting from ammonia slip, will also result. PPRP and MDE-ARMA independently verified the PM emission estimates presented by CPSG. It was determined that the PM emissions associated with Alternative 2 would be considered the worst-case (result in the highest

emissions); therefore, PM emissions for Alternative 2 are presented in Table 4-2. The detailed emission calculations for PM emissions are presented in Appendix B.

Table 4-1 Crane Units 1 and 2 Predicted NOx Reductions for the Four Proposed Alternatives

Unit 1 Alternatives	Projected Max NOx Emissions (tpy)	Baseline NOx Emissions (2001-2002) (tpy)	Projected Reduction (tpy)	Estimated Calculated Percent Reduction	Reported Percent Reduction from Manufacturer Data
1	2,777	5,897	3,119	52.9	30
2	2,777	5,897	3,119	52.9	50
3	2,083	5,897	3,814	64.7	25-30
4	2,083	5,897	3,814	64.7	40
Unit 2 Alternatives	**Projected Max NOx Emissions (tpy)**	**Baseline NOx Emissions (2001 - 2002) (tpy)**	**Projected Reduction (tpy)**	**Estimated Calculated Percent Reduction**	**Reported Percent Reduction from Manufacturer Data**
1	2,777	5,798	3,021	52	30
2	2,777	5,798	3,021	52	50
3	2,083	5,798	3,715	64	25-30
4	2,083	5,798	3,715	64	40

Table 4-2 Estimated Maximum PM Emissions

Activity	Unit	PM Emissions From Material Handling (tpy)
Sorbent Injection for Hg control	1	2.5
	2	2.5
Unloading of Hg sorbents	1	0.1
	2	0.1
Unloading of urea-based sorbents	1 & 2	0.1
Ammonium Bisulfate from ammonia slip	1 & 2	0.1
TOTAL Estimated PM		**5.4**

Note: Alternative 2 provided worst-case emissions and are included in this table.

4.2.2 Hazardous and Toxic Air Pollutants

One of the main goals of the Crane APC Project is to reduce emissions of mercury, one of EPA's listed Hazardous Air Pollutants (HAPs) from Section 112 of the Clean Air Act (CAA). CPSG indicates that Hg emissions from both Unit 1 and Unit 2 are estimated to be reduced by between 80 and 90 percent (Page 3-13, Section 3.2.4., "Air Emission Changes" from the CPCN application filed by CPSG), depending on baseline levels, with implementation of the APC Project. Once baseline testing is completed and the first Hg reduction option is installed, CPSG will test and evaluate whether or not a second Hg reduction option (additional mercury emissions reduction) is necessary. CPSG will install the appropriate Hg reduction equipment to comply with the HAA reduction requirements (80% in 2010; 90% in 2013).

Section 1.1 of EPA's AP-42 guidance document provides emission factors for organic compounds and metals, some of which are HAPs, resulting from combustion of coal. The factors relate emissions to the total quantity of coal fired in the cyclone boilers. Because the throughput through the boilers is not increased in the APC Project, there will be no increase in HAP emissions from the project.

Maryland has Toxic Air Pollutant (TAP) regulations (COMAR 26.11.15), that cover a wide variety of pollutants. Fuel burning units, which include

Crane Units 1 and 2, are exempt from the TAPs regulations. However, the material handling operations, specifically unloading of urea is subject to the TAP requirements. Total emissions of urea are estimated at 0.09 tons per year, or 180 pounds per year and 0.02 pounds per hour. Urea is a Class II TAP and the projected urea emission rates from material handling are below the Small Quantity emission rates of 0.50 pounds per hour and 350 pounds per year under COMAR 11.15.03B(3)(b).

4.2.3 Greenhouse Gas Emissions

Emissions of greenhouse gases (GHGs) are not yet regulated in Maryland; however, [the HAA does require] Maryland has opted to participate in the Regional Greenhouse Gas Initiative (RGGI), a multi-state GHG cap-and-trade program. GHGs from generating units are directly proportional to the amount of fuel burned in any given generating unit. The proposed Crane APC Project will not result in any increase in the rate of coal combustion from the boilers; therefore, there will be no change in GHG emissions due to this project.

4.2.4 Construction Emissions

Use of construction vehicles and equipment will increase air emissions locally while construction activities are taking place. Emissions of NO_x, CO, and PM will results from the vehicles engines and PM will result from the re-entrainment of particulate matter on the roads and from the project construction itself (grading, concrete placement, and structural installation). However, the construction associated with the APC Project will be short-term (expected to last for only 5 months) and will therefore not have a significant adverse impact on ambient air quality.

4.3 PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

The Crane facility is an existing major source as defined in PSD regulations (40 CFR 52.21). Therefore, any modifications at the facility must be evaluated to determine whether the resulting emissions changes would constitute a "major modification" under PSD (40 CFR 52.21(b)(2)). The PSD applicability analysis is conducted for pollutants for which the air quality in the vicinity of the plant is designated attainment (which in Baltimore County, includes SO_2, NO_x, PM/PM_{10}, and CO) and other PSD pollutants (such and sulfuric acid mist, etc.).

The APC Project was evaluated to determine whether: 1) the project constitutes a modification for any pollutants, and 2) whether any

modifications are "significant" (above PSD applicability thresholds) and thus trigger PSD.

To evaluate whether PSD will be triggered by the proposed project, the baseline emissions and the emissions of applicable PSD pollutants need to be assessed. These pollutant emissions are summarized in Table 4-3. Note that because there are no changes in the emissions from the combustion units at Crane, the only emissions included in Table 4-3 are particulate matter emissions from the sorbent handling and injection, and the reduction in NO_x due to the installation of SNCR. The first row in the table shows the proposed particulate matter and NOx emissions expected from the proposed project. These emissions represent the highest expected emissions for each of these pollutants from the four alternatives proposed by CPSG. The third row of the table provides the PSD baseline emissions for the C.P. Crane facility, which is the average of the emissions from two consecutive years in the past five years of operation. Given that there is no change in the combustion units with the proposed project, the baseline PM emissions are not shown.

For PSD purposes, the emissions increases associated with the proposed project are increases in particulate matter emissions from material handling, which are not above the PSD significance level. A reduction in NOx emissions will result from the proposed project. Given this, PSD is not triggered by the proposed project.

Table 4-3 Summary of Analysis for PSD and NA-NSR Purposes (all emissions in tons per year)

Emissions	PM	Total PM_{10}	Total $PM_{2.5}$	NO_x
Total from C.P. Crane APC Project	5.26	5.26	5.26	5,554.7
Barge Unloading Project Emissions (1)	11.1	4.6	2.8	14.0
PSD Baseline (2)	N/A	N/A	N/A	11,695
PSD Emissions Increase (Decrease)	5.26	5.26	5.26	(6,140.30)
NA-NSR Net Increase (Decrease)	16.36	9.86	8.06	(6,125.30)
PSD/NA-NSR Trigger Level	25	15	15	25

(1) Barge Unloading ERD, Case #9048 dated 4/5/06. Final filing date: 4/7/06.
(2) Baseline period is 2001 and 2002 for both units.

Because there will be no increase in boiler throughput from the project, no increases in emissions of other PSD regulated pollutants, including lead, total fluorides, total reduced sulfur, sulfuric acid mist, reduced sulfur compounds, and hydrogen sulfide, are expected.

4.4 NONATTAINMENT NEW SOURCE REVIEW (NA-NSR)

To determine if the proposed project will trigger NA-NSR, a netting analysis is required. For netting purposes, the difference between the past actual emissions (average of the most representative two years from the past five) and the projected actual emissions, including any creditable increases or decreases in emissions, is calculated. If the resulting net emissions increase exceeds the NA-NSR threshold for that pollutant, then the modification is subject to NA-NSR.

The area that C.P. Crane is located is considered non-attainment for both ozone and $PM_{2.5}$. No changes in the cyclone boilers are anticipated from the APC project, so VOC emissions will not change. The proposed project will result in reductions of NOx emissions as noted in Table 4-3. With no increases in emissions of either VOC or NOx, NA-NSR is not triggered for this project.

For $PM_{2.5}$, there is an increase in emissions from sorbent handling and injection as noted in the first row of Table 4-3. There is also a creditable emissions increase that has been permitted within the contemporaneous period that must be included in the netting analysis: CPCN Case No. 9048 for construction of a barge unloading operation at the C.P. Crane site. This CPCN was issued on April 7, 2006 and includes $PM_{2.5}$ emission increases from both barge unloading and the operation of a diesel generator. Potential $PM_{2.5}$ emissions from these sources are included in the second row of Table 4-3. However, the $PM_{2.5}$ emissions increase for NA-NSR purposes for the proposed APC project total 8.06 tpy, which is below the NA-NSR threshold. As such, the project is not subject to NA-NSR.

4.5 APPLICABLE REQUIREMENTS REVIEW

Based on the source types and projected emissions, this section outlines the Federal, State, and local air quality requirements to which the Crane APC Project will potentially be subject.

4.5.1 Federal Requirements

PPRP and MDE-ARMA reviewed potentially applicable federal regulations for sources being modified in this project, including New Source Performance Standards (NSPS) and National Emission Standards for Hazardous Air Pollutants (NESHAP). NESHAP standards (40 CFR Part 63) will not be triggered by this project, as the project will not result in increases in emissions of HAPs.

Units 1 and 2 are currently exempt from the NSPS for Steam Generating Units (40 CFR Part 60, Subpart Da) because each unit pre-dates the NSPS applicability date of 1971. The APC Project is not considered a modification as defined by the NSPS regulations because there will be no physical change in the NSPS regulated unit (the steam generating unit). There will be small increases in PM emissions from the project, but the emission increases will be associated with the operations upstream and downstream of the generating unit, not from the boilers themselves.

No modifications to the existing coal and material handling systems are proposed as part of this APC Project and therefore the requirements of the NSPS for coal preparation (40 CFR, Part 60, Subpart Y) and the NSPS for non-metallic mineral processing (40 CFR, Part 60, Subpart OOO) will not be triggered by this project. In addition, no new internal combustion engine (ICE) or reciprocating internal combustion engines (RICE) are proposed. Therefore, this project will not trigger any additional NSPS requirements.

Crane Units 1 and 2 are Phase I units under the Clean Air Act Title IV Acid Rain program, and will continue to be subject to the program. Title IV requires CPSG to operate continuous emissions monitoring systems (CEMS) on Units 1 and 2 to measure NO_x and SO_2. To comply with the HAA, CPSG intends to install and operate a mercury CEMs as well. As a result, CPSG will be subject to CEMS regulations (40 CFR 75) for the continuous monitoring of mercury emissions.

4.5.2 State Requirements

In addition to facility-wide requirements to which the facility is already subject (and which are addressed in the facility's Title V Operating Permit) and the project-specific Federal requirements described in Section 4.5.1, the proposed APC Project will be subject to the following State requirements:

- COMAR 26.11.01.10—Requires CPSG to install CEMS system to monitor SO_2, NO_x and Hg from Crane Units 1 and 2. CPSG is also subject to associated CEM installation, certification, operating, monitoring, testing, and malfunction requirements and as applicable, requirements in 40 CFR Part 60, 40 CFR Part 75, and 40 CFR Part 51, Appendix P, §3.3-3.8 or §3.9 as incorporated by reference;

- COMAR 26.11.03.19—Requires CPSG to update the existing Part 70 Operating Permit (No. 24-005-00079) to include applicable APC Project requirements;

- COMAR 26.11.06.02C(2)—Prohibits CPSG from causing or permitting the discharge of emissions from any installation or building except fuel burning equipment, other than water in an uncombined form, which is visible to human observers;

- COMAR 26.11.06.03B(2)(a)—Prohibits CPSG from causing or permitting to be discharged into the outdoor atmosphere from any non-fuel burning confined source (i.e., sorbent injection, sorbent unloading, etc.) particulate matter in excess of 0.03 grains per standard dry cubic foot of dry exhaust gas (gr/dscf) or (68.7 mg/dscm);

- COMAR 26.11.06.03C(1)—Prohibits CPSG from causing or permitting emissions from an unconfined (fugitive) source without taking reasonable precautions to prevent particulate matter from becoming airborne;

- COMAR 26.11.06.03D(1)-(6)—Requires reasonable precautions to prevent particulate matter from becoming airborne from material handling activities;

- 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 26.11.09.05A(2)—Prohibits CPSG from discharging emissions from Crane Units 1 and 2 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 26.11.09.06B(3)—Prohibits CPSG from causing or permitting particulate matter emissions from Crane Units 1 and 2 in excess of 0.03 grains per dry standard cubic feet (gr/dscf) corrected to 50% excess air;

- COMAR 26.11.27—Requires CPSG to comply with the applicable emissions limitations for NO_x, SO_2 and mercury, and the monitoring and recordkeeping requirements contained in COMAR 26.11.27.

4.5.3 Other Air Requirements

County Requirements

Baltimore County does not have any additional air quality regulations that will be applicable to the APC Project at Crane.

FAA Stack Height Requirements (14 CFR 77)

No change in stack height is proposed in this project. As a result, the project will not be subject to FAA's "Permit for Objects That May Affect Navigable Airspace" requirements under 14 CFR 77.

Conformity

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

4.6 AIR IMPACT SUMMARY

The proposed Crane APC Project will result in substantial reductions in NO_x and Hg emissions from Crane Units 1 and 2. At this stage, CPSG is requesting approval to construct and operate one of the four NO_x and corresponding Hg control alternatives. CPSG is not proposing to make up

for the relatively minor parasitic load loses attributable to the NO_x control systems; therefore, there are no projected emissions changes from the generating units. Handling of dry sorbents and reactants for the NO_x and Hg systems will generate small amounts (0.20 tpy) of particulate matter.

If designed and operated under the final licensing conditions (Appendix A), the Crane APC Project will meet all applicable State and Federal air quality requirements.

5.0 OTHER ENVIRONMENTAL IMPACTS

5.1 AQUATIC RESOURCE IMPACTS

There are four potential sources of impacts to nearby surface waters during facility operations at Crane. The first is due to direct disturbance of existing waters. Consistent with facility design and construction, no wetland areas or jurisdictional waters will be disturbed as a result of new facility operations. The second source of potential impacts from facility operations is due to direct discharge of process effluents. However, no wastewater is expected to be generated from this project. The third source of potential impacts from facility operations is due to slight changes in storm water quantities and/or qualities discharged off-site. The facility will include a revised stormwater pollution prevention plan (SWPPP) system designed and implemented to ensure storm water quantities and quality is maintained within approved limits (Appendix A). Operating and maintenance procedures designed to ensure the continued effectiveness of this system will be established and strictly followed. Based on the SWPPP system and proper operations and maintenance of these facilities, no significant impacts to any surrounding surface waters are expected as a result of facility operations. The final source of potential impacts from facility operations is due to accidental spills of on-site chemicals, lubricants, or other potential contaminants. The facility will be designed to include revised spill contaminant and control features as developed under the revised overall Spill Prevention, Control and Countermeasure (SPCC) plan and will be strictly followed. These procedures will be designed to minimize the opportunity for accidental spills, and to identify the appropriate procedures to be followed in case of an accidental spill.

Additional storm water is a potential discharge that may result in impacts to the Gunpowder River during operation of the new facility. No significant impacts to the Gunpowder River are expected to occur as a result of storm water runoff from the facility. There will be no process wastewater discharge from the proposed SNCR and therefore no additional impacts to surface water from wastewater.

5.2 BIOLOGICAL RESOURCE IMPACTS

5.2.1 Impacts to Vegetation and Land Cover

The proposed APC project at C.P. Crane will be installed directly on the existing power facilities. All construction (including parking and equipment laydown areas) will be within existing disturbed areas such as parking lots, buildings, etc. Considering that the entire area proposed for construction of the SNCR has long been previously disturbed or developed construction of the facility will not likely cause significant ecological impacts to any natural communities at the site.

5.2.2 Impacts to Wetlands

Construction for the proposed APC project will be limited to previously developed areas of the site. Therefore, there will be no impacts to tidal or nontidal wetlands from either the construction or operation of the project.

5.2.3 Impacts to Wildlife

The existing developed nature of the site, including the proximity to the existing Crane power facilities and existing roadways, human presence, and general lack of forested habitat, greatly reduce the quality of the area for wildlife. No significant adverse impacts to wildlife resources will likely occur as a result of construction of the proposed SNCR project at C.P. Crane.

5.2.4 Impacts to Threatened and Endangered Species

At this time, the only known threatened or endangered species in close proximity to the proposed construction site is the bald eagle. As previously noted, the bald eagle is currently listed as a threatened species.

5.2.5 Impacts to Wetlands and Aquatic Resources

The proposed project at Crane is within an area that has been disturbed for many years by anthropogenic activities (i.e., clearing, construction, soil disturbance, and mowing, etc.). Significant natural communities are not present at the APC project site. The developed nature of the site has greatly decreased its habitat potential for wildlife. Given these factors, construction and operation of the project will likely not pose any negative impacts to biological resources.

5.3 SOCIOECONOMIC AND CULTURAL IMPACTS

5.3.1 Employment and Income

Modifications to the Crane Generating Station will take place over a five-month period beginning upon approval of the modification. CPSG projects a peak construction workforce of about 50, with most workers expected to commute to the construction site from the Baltimore and Washington metropolitan areas. Given the uncertainties associated with the technology options CPSG is considering, expenditures for project components have not been estimated, but would be distributed both regionally and nationally. This is expected to produce a modest economic and revenue impact to Maryland and local jurisdictions, primarily Baltimore County, Anne Arundel County and Baltimore City.

Although the construction employment and income, plus purchases of goods and services from regional suppliers, will slightly benefit the Greater Baltimore economy, modifications to the Crane Generating Station are not expected to adversely affect employment, population, housing or public services. Any temporary construction effects should be easily accommodated within the existing economic and demographic environment of metropolitan Baltimore economy. Existing roads are capable of handling the modest increment in traffic that will be generated. Both construction workers and goods and services are expected to access the site through the main gate at Carroll Island Road.

5.3.2 Land Use

The land upon which the Crane Generating Station sits is currently zoned RC-5, a classification that provides for rural residential development in suitable areas where public water and sewer are not anticipated. To construct the power plant, Baltimore Gas & Electric was granted a special exception to the site's then-current zoning of R-6, subject to conditions imposed by the Board of Appeals. The facility sits on land within the Chesapeake Bay Critical Area and is classified by Baltimore County as an Intensely Developed Area (IDA) within the guidelines of the Chesapeake Bay Critical Area Act. Article 1, Section 103.5(C) of the county's zoning regulations restricts the "intensification or expansion" of grandfathered land usages on Chesapeake Bay critical areas (Baltimore County Office of Planning 2007). Since CPSG is still evaluating alternative technologies, specific equipment arrangements associated with the proposed pollution control systems have not been revealed. However, structural modifications to the site are expected to be confined to, or adjacent to, existing facilities. The most significant physical additions to the facility

will be storage silos, the largest of which will be approximately 80 feet high and 14 feet in diameter. Therefore the direct land impact from additions to the facility's footprint is expected to be minimal.

Criteria set forth in conjunction with the Critical Area Act require that any development or redevelopment within an IDA be accompanied by practices to reduce water quality impacts associated with storm water runoff. Furthermore, these practices must be capable of reducing storm water pollutant loads from a development site to a level at least 10% below the load generated by the same site prior to development. This requirement is commonly referred to as the "10% Rule." In order to provide a consistent approach to compliance with the 10% Rule, the Critical Area Commission provides guidance that includes a methodology for determining a pollutant removal requirement and for quantifying the pollutants removed by a variety of storm water best management practices. This guidance, entitled "Maryland Chesapeake and Atlantic Coastal Bays Critical Area 10% Rule Guidance," is the result of revisions to prior publications printed in 1987 and in 1993 (CAC 2003). The current guidance was reviewed and officially adopted by the Critical Area Commission on December 3, 2003. Because modifications to the Crane Generating Station will constitute additional development in the IDA, CPSG will have to comply with the 10% rule to reduce storm water pollutant loads.

No significant indirect effect on land use from construction and operation of the APC project is expected since new physical structures will be largely unseen from surrounding properties. Furthermore, additional construction traffic from commuting construction workers and truck traffic carrying sorbents and reagents to the facility when it is operational will represent a marginal increase to current traffic volumes on Carroll Island Road. As noted earlier, much of the land surrounding the Crane Generating Station is in agricultural districts or is protected by environmental easement, local, state or federal ownership or restrictive zoning. Land use change that is incompatible with the county's development guidelines is therefore not anticipated to be associated to modifications to the Crane Generating Station.

5.3.3 Traffic

Modifications to the Crane Generating Station will not increase O&M employment, but will increase truck traffic carrying reagents and sorbents by between seven and 14 round trip truck trips per week. Contract haulers are expected to transport urea and sorbent to the site in 20-ton self-unloading trucks. Urea is a dry material that is used both in fertilizer

and in industrial pollution control applications. Sorbents are insoluble compounds used to recover liquids. Neither product is listed as a hazardous material by the U.S. Department of Transportation.

5.3.4 Visual

Modifications will add additional structural elements to existing structures at Crane, but only minor changes to the site's visible profile are anticipated, primarily from new storage silos. CPSG states that the largest silo under consideration would have a diameter of 14 feet and a height of 80 feet.

From a visual perspective, construction activities could create temporary visual disturbances from wind-blown dust during earth moving activities, but these events would be minimized by good construction practices. As a result, the most visible element during construction other than the site of cranes from the erection of structures is likely to be truck traffic entering or exiting the site. Truck traffic is part of normal plant operations, and only a minor increase in the volume or truck traffic is anticipated.

The Crane Generating Station is located in an area primarily zoned Rural Residential or Resource Conservation. Land surrounding the site is mostly in forest or agriculture, although there are residential concentrations to the south in Seneca Park Beach and across Seneca Creek in Bowleys Quarters. Part of the Aberdeen Proving Ground sits across the water from the power plant on Carroll Island. Current views toward the Crane Generating Station from accessible vantage points are industrial, characterized by boiler buildings and tall stacks. Forested land to the south of the plant shields part of the facility from view, but the industrial nature of the property is unmistakable. At the same time, proposed project elements will be physically integrated with the power plant and will be consistent with the existing view. The aesthetic effect of a slightly modified industrial viewscape cannot be quantified, but to the extent it is mitigated by the existing view, a minimal adverse effect from plant modifications would be expected.

5.3.5 Cultural Resources

As construction will be confined to areas adjacent to existing generation facilities and potential or documented archeological sites are outside the station's property boundaries, no adverse effects on archeological resources are foreseen. Two properties listed in the MIHP – Scott-Andrew House and Mace-Luthardt House – are within one mile of the facility, but are visually buffered by intervening forested lands. Furthermore, the visual content of views from these properties in the direction of the

generating station is expected to be largely unchanged. As noted earlier, the Scott-Andrew House is oriented toward Seneca Creek and the MIHP inventory form notes that views in this direction have been compromised by residential development. That secondary views toward the Crane Generating Station will be largely unchanged and are currently buffered in the foreground suggests that the proposed pollution control modifications would have no adverse effect upon these properties. Other MIHP and National Register listed properties are outside the area of potential effect of the Crane Generating Station.

Project effects on other cultural resources in the area, such as county and state parks, are likely to be minimal since views toward the facility are partly to mostly buffered. Miami Beach Park in Bowleys Quarters is oriented towards the Chesapeake Bay, and foreground views toward the power plant contain residences along Miami Beach Road, Bay Drive and Briar Point Road. The focal point of the Marshy Point Nature Center is oriented toward Dundee Creek. Gunpowder Falls State Park is north of the Marshy Point Peninsula, effectively buffering modifications to the power plant with distance. Adverse effects on views from recreational water craft on the Chesapeake Bay will be mitigated only by the relatively minor changes to the appearance of the facility.

The Crane Generating Station is located in Baltimore County's Coastal Rural Legacy Area (RLA). Maryland's Rural Legacy Program was established in 1997 to protect rural landscapes, including agricultural, natural, cultural and forestry resources from sprawl development. Baltimore County's Coastal Rural Legacy Plan seeks to protect large blocks of forest, wetlands, farms and other open spaces having significant ecological value. As noted earlier, the RLA contains some of the highest natural resource values in the county and presents significant opportunities for increasing public access to the Chesapeake Bay (DNR 2007). While pollution control modifications to the facility will not further these goals, neither will they adversely affect them.

5.3.6. Public Services

Construction and operation of the proposed APC project will not affect Baltimore County public services. Construction workers are expected to be drawn from surrounding communities and will commute to the site on a daily basis. As a result, no migration-related impacts on housing or public services are anticipated. Traffic to the facility will increase slightly, but in no case would traffic control measures be needed. No changes to emergency service requirements are expected during either phase of the project.

5.4 NOISE

There will be no significant sources of noise installed as part of the APC Project. The noise associated with the delivery of materials by truck, the use of small motors, and the use of compressed air will contribute insignificantly to the overall noise of the existing facility. Therefore, noise levels at the plant boundaries are not expected to increase from levels that result from ongoing plant operations.

6.0 SUMMARY AND CONCLUSIONS

PPRP and MDE-ARMA have conducted a review of the potential environmental and socioeconomic effects of the proposed installation and operation of NO_x and Hg control systems at C.P. Crane Units 1 and 2. In consultation with other State agencies, we have developed final licensing conditions that should be imposed upon the facility to minimize the potential for any adverse impacts from the project. The initial recommendations to the PSC are included as Appendix A to this report.

Specifically, it is concluded that there will be no adverse impacts associated with the installation of the APC project to surface water or ground water resources since there are no new surface water withdrawals or discharges associated with the project. No impacts are anticipated to threatened and endangered species, or to socioeconomic, aesthetic, or cultural resources because there will be no changes to the land use characteristics of the local area associated with the proposed project.

The APC Project will result in substantial reductions in NO_x and mercury emissions in compliance with Maryland's Healthy Air Act of 2006. The project will result in small increases in particulate matter emissions from handling of control system reagents and sorbents; however, operating with the restrictions included in the final licensing conditions (Appendix A), the emissions are not predicted to cause any significant adverse impacts to air quality. The projected air emission rates will meet all applicable Federal and State emissions limitations.

As a result of the consolidated review, the final licensing conditions in Appendix A of this Environmental Review report are recommended for consideration by the Maryland PSC as final licensing conditions for the installation of NO_x and mercury control systems proposed by CPSG at Crane.

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Appendix A

Final Licensing Conditions

Initial Recommended Licensing Conditions
PSC Case No. 9084
Constellation, C.P. Crane Air Pollution Control (APC) 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 Group (CPSG) C.P. Crane Facility (Crane) Air Pollution Control (APC) Project. The application consists of the original application received by the Maryland Public Service Commission (PSC) on November 2, 2006, and subsequent amendments provided in testimony filed by CPSG on April 9, 2007. Construction of the facility shall be undertaken in accordance with the CPCN application and subsequent amendments. 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 State or Federal laws being paraphrased, the applicable Federal or State laws shall take precedence.

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

3. Representatives of the Maryland PSC shall be afforded access to the Crane 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 Health Department shall be afforded access to the Crane facility at any reasonable time to conduct inspections and evaluations necessary to assure compliance with the CPCN requirements. CPSG shall provide such assistance as reasonably may be necessary to conduct such inspections and evaluations effectively and safely, which may include but need not be limited to the following:

   a) inspecting 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; and

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

5. CPSG shall design the APC Project in substantial conformity with the Baltimore County Zoning Requirements.

Air Quality

I. General Air Quality Requirements

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

7. For air quality purposes, the Crane APC Project shall include the following new or modified systems:

a) For both Crane Units 1 and 2, installation and operation of any or all of the following NO_x control systems: ROFA® or equivalent, Rotamix® or equivalent, Rich Reagent Injection (RRI) or equivalent, and/or selective non-catalytic reduction (SNCR);

b) For both Crane Units 1 and 2, installation and operation of the following for mercury control: furnace sorbent injection (FSI) using MinPlus sorbent or equivalent, and/or activated carbon injection (ACI) or equivalent reagent/sorbent; and

c) Solid reagent and sorbent material handling equipment.

8. All requirements pertaining to air quality that apply to CPSG shall apply to all subsequent owners and/or operators of the facility. In the event of any change in control or ownership, CPSG shall notify the succeeding owner/operator of the existence of the requirements of this CPCN pertaining

to air quality by letter and shall send a copy of that letter to the PSC and MDE-ARMA.

II. Emissions Limitations

9. The Crane facility is subject to all applicable Federally enforceable State air quality requirements which currently include, but are not limited to, the following regulations:

   a) COMAR 26.11.01.10, which requires CPSG to install a Continuous Emissions Monitoring (CEM) system to monitor SO_2, NO_x, and mercury from Crane Units 1 and 2. CPSG is also subject to associated CEM installation, certification, operating, monitoring, testing, and malfunction requirements and as applicable, requirements in 40 CFR Part 60, 40 CFR Part 75, and 40 CFR Part 51, Appendix P, §3.3-3.8 or §3.9 as incorporated by reference;

   b) COMAR 26.11.03.19, which requires CPSG to update the existing Part 70 Operating Permit (No. 24-005-00079) to include applicable APC Project requirements;

   c) COMAR 26.11.06.02C(2), which prohibits CPSG from causing or permitting the discharge of emissions from any installation or building except fuel burning equipment, other than water in an uncombined form, which is visible to human observers;

   d) COMAR 26.11.06.03B(2)(a), which prohibits CPSG from causing or permitting to be discharged into the outdoor atmosphere from any non-fuel burning confined source (i.e., sorbent injection, sorbent unloading, etc.) particulate matter in excess of 0.03 grains per standard dry cubic foot of dry exhaust gas (gr/dscf) or (68.7 mg/dscm);

   e) COMAR 26.11.06.03C(1), which prohibits CPSG from causing or permitting emissions from an unconfined (fugitive) source without taking reasonable precautions to prevent particulate matter from becoming airborne;

   f) COMAR 26.11.06.03D(1)-(6), which requires reasonable precautions to prevent particulate matter from becoming airborne from material handling activities;

   g) COMAR 26.11.06.08, which prohibits CPSG from operating or maintaining any source in such a manner that a nuisance is created;

h) COMAR 26.11.06.09, which 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;

i) COMAR 26.11.09.05A(2), which prohibits CPSG from discharging emissions from Crane Units 1 and 2 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;

j) COMAR 26.11.09.06B(3), which prohibits CPSG from causing or permitting particulate matter emissions from Crane Units 1 and 2 in excess of 0.03 grains per dry standard cubic feet (gr/dscf) corrected to 50% excess air;

k) COMAR 26.11.27—Requires CPSG to comply with the applicable emissions limitations for NO_x, SO_2 and mercury, and the monitoring and recordkeeping requirements contained in COMAR 26.11.27.

III. Monitoring and Testing Requirements

10. CPSG shall operate Continuous Emissions Monitoring (CEM) systems for NO_x, SO_2, and mercury and either O_2 or CO_2 on Crane Units 1 and 2, as required under 40 CFR Part 75, and Continuous Opacity Monitoring (COM) systems certified in accordance with 40 CFR Part 60, Appendix B and that meets the quality assurance criteria of MDE-ARMA's Air Management Administration Technical Memorandum 90-01, "Continuous Emission Monitoring (CEM) Policies and Procedures" (October 1990).

11. CPSG shall conduct an initial stack emission test to measure NO_x emissions from Units 1 and 2 within 180 days of start-up of the NO_x control system. CPSG shall conduct a stack emission test to measure mercury from Units 1 and 2 within 180 days of the start-up of the combined NO_x and mercury control systems. Start-up does not include any preliminary operational tests, the results of which will be used for design of the Project. Alternatively, CPSG may request permission from MDE-ARMA to utilize a CEM required in Condition 10 as a substitute for the initial emission test to measure NO_x.

12. At least 30 working days before initial stack tests cited in Condition 11 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.

13. Within 60 days of completing the initial stack tests, CPSG shall provide MDE-ARMA copies of the testing results. Analytical data shall be submitted to MDE-ARMA directly from the emission testing company.

14. In accordance with COMAR 26.11.01.04A, CPSG may be required by MDE-ARMA to conduct additional stack tests to determine compliance with applicable air quality requirements.

15. In accordance with 40 CFR 75, CPSG shall provide MDE-ARMA with a CEM plan for mercury for Crane Units 1 and 2.

IV. Recordkeeping and Reporting Requirements

16. The following records, either in electronic or hardcopy form with supporting documentation, shall be maintained separately for Crane Units 1 and 2 and their associated pollution control systems, on site or at an alternate central location for at least 5 years and made available to MDE-ARMA upon request:

    a) Total NO_x, SO_2, and mercury for each calendar month and each rolling 12-month period;

    b) NO_x emission rates, pounds per million Btu of heat input;

    c) SO_2 emission rates, pounds per million Btu of heat input;

    d) Mercury emission rates, pound per million Btu of heat input;

    e) All stack emission test reports;

    f) All CEM data; and

    g) All CEM certification and calibration results.

17. CPSG shall furnish written notification to the PSC and MDE-ARMA of the following events related to the Crane APC Project:

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

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

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

d) The anticipated date of compliance stack testing at least 30 days prior to such date.

e) The final selection of the NO_x control technology 30 days prior to construction; and

f) The final selection of the Mercury control technology 30 days prior to construction.

18. CPSG shall submit a quarterly report to the PSC and MDE-ARMA to be postmarked by the 30th day following the end of each calendar quarter that summarizes the status of the Company's progress in selecting the NO_x and mercury control systems for Crane Units 1 and 2. The report shall include:

a) An update on the status of control equipment and systems selection, including a description of technologies considered or eliminated;

b) Technologies remaining under consideration, vendor information, specifications, and/or emissions or control efficiency guarantees;

c) Detailed equipment selection and construction schedules; and

d) The first status report shall cover the first full calendar quarter after the Final Order of the CPCN becomes effective. Progress reports shall continue to be submitted until such time as the PSC and MDE-ARMA indicates that no further reports are required or CPSG notifies the PSC and MDE-ARMA that the final NO_x and mercury control systems have been selected.

19. Any CPCN in this case shall not be amended to indicate approval of the specific pollution control technology finally selected from the alternatives described in Section 3 of the Applicant's Environmental Analysis submitted as part of its application.

20. All air quality records and logs required by this permit shall be maintained at the facility or alternate central location for at least 5 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.

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

Administrator, Compliance Program
Air and Radiation Management Administration
1800 Washington Boulevard
Baltimore, Maryland 21230

Water Discharge

22. The CPCN is not an authorization to discharge wastewater to waters of the state. Should a source of wastewater be generated as a result of the C.P. Crane APC project and its discharge be designed to discharge to surface water, CPSG shall obtain a revised discharge permit from MDE under the National Pollutant Discharge Elimination System (NPDES), per COMAR 26.08.01, for the C.P. Crane facility.

23. As directed by MDE Water Management Administration, CPSG shall revise its NPDES Stormwater Pollution Prevention Plan for the C.P. Crane facility, per COMAR 26.08.04, 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.

24. CPSG shall comply with the Maryland Chesapeake and Atlantic Coastal Bays Critical Area 10% Rule Guidance, as adopted by the Critical Area Commission on December 3, 2003, to reduce water quality impacts from storm water runoff in the Intensely Developed Area (IDA).

Terrestrial and Aquatic Ecology

25. Construction and operation of the C.P. Crane APC 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) COMAR 26.23.01 which applies to activities conducted in nontidal wetlands;

b) COMAR 26.24.01 which applies to activities conducted in tidal wetlands. Joint Permits for activities in tidal wetlands are made to the U.S. Army Corps of Engineers and the Maryland Department of the Environment;

c) COMAR 26.17.04 which 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) COMAR 26.08.01 through COMAR 26.08.04 which applies to discharges to surface water and maintenance of surface water quality;

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

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

26. All portions of the SNCR 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. In wetlands and wetland buffers, seed application shall consist of the following species: annual ryegrass (*Lolium multiflorum*), millet (*Setaria italica*), barley (*Horedum spp.*), oats (*Uniola spp.*), and/or rye (*Secale cereale*). Other non-persistent vegetation may be acceptable, but must be approved by the MDE Water Management Administration. Kentucky 31 fescue shall not be used in wetlands or buffers.

Noise

27. CPSG shall design, construct, and operate the C.P. Crane APC Project in such a way as to maintain compliance with the State noise limits contained in COMAR 26.02.03.

Miscellaneous

28. This CPCN does not authorize CPSG to begin the use of non-bituminous coal. Since the actual use of non-bituminous coal may result in changes in air emissions, CPSG shall not burn non-bituminous except for testing purposes

without 1) obtaining prior approval under the CPCN statutes or 2) receiving a determination from the PSC that a CPCN is not required.

29. Informational copies of the reports and notifications as described in Conditions 8, 12, 13, 15, 17, and 18 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

Appendix B

Air Emission Calculations for the C.P. Crane APC Project

Table 1

PSD Analysis for C.P. Crane Pollution Control Project (PCP)

	Past Actual Emissions (tpy)			Future Projected Emissions (tpy)						
	Boiler Emissions			Boiler Emissions			Material Handling for both Units	Total	Net Emission Change (tpy)	Significant Emission Rate (tpy)
Pollutant	Unit 1	Unit 2	Combined (Unit 1 and 2)	Unit 1	Unit 2	Combined (Unit 1 and 2)				
SO_2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	40
NOx[1]	5,896.6	5,797.9	11,694.5	2,777.4	2,777.4	5,554.7	-	5,554.7	-6,139.7	40
PM				0.0	0.0	0.000	0.202	0.2		25
PM10				0.0	0.0	0.000	0.202	0.2		15
PM2.5				0.0	0.0	0.000	0.202	0.2		15
CO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100
VOC	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	50
SAM							-	0.0	0.0	7
Mercury							-	0.0	0.0	-

Notes:

1. Future Proj. Nox Emissions for boiler units 1 & 2 represents the worst case emission rate from all NOx control alternatives. Emissions are derived from EPA Clean Air Markets Website which is presented within the GDMReport. **(http://cfpub.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard)**

Material handling emissions totals are from activities 2&3 from Alt.2

Table 2

Baseline Emission Calculations

Pollutant/ Parameter	2001	2002	2003	2004	2005	**Past Actual Baseline Emissions[1,2]**
Unit 1						
NOx (tons per year)	5,373.90	6,419.30	5,252.50	3,974.20	3,982.60	5,896.60
Actual Heat Input (MMBtu/yr)[3]	9,992,375	13,098,633	12,088,151	10,914,261	10,947,287	11,545,504
Actual Capacity Factor[4]	0.61	0.80	0.74	0.67	0.67	0.707

Pollutant/ Parameter	2001	2002	2003	2004	2005	**Past Actual Baseline Emissions[1,2]**
Unit 2						
NOx (tons per year)	7,272.90	4,322.80	5,596.80	3,729.30	4,222.80	5,797.85
Actual Heat Input (MMBtu/yr)[3]	14,644,149	10,616,740	13,264,962	10,498,570	12,304,877	13,954,556
Actual Capacity Factor[4]	0.90	0.65	0.81	0.64	0.75	0.854

Notes:

[1] Past Actual Baseline Emissions are based on years 2001 & 2002 for Unit 1 and Unit 2. The years with highest NOx emissions within the past 5 years.

[2] Actual Heat Input calculations are based on years of highest NOx emissions. (Unit 1and Unit 2: 2001 & 2002)

[3] Actual Heat Input factors derived from EPA Clean Air Markets website:http://cfpub.epa.gov/gdm/index.cfm

[4] Calculation for Actual Capacity Factor: (yearly actual heat input in MMBTU/yr)/((1,865 MMBtu/hr (Crane's heat input rate in MMBTU/hr) x (8760 (hours/yr))

Table 3

Baseline Emission Calculations

Unit 1												
STATE	FACILITY_NAME	ORISPL_CODE	QUARTER	UNIT	OP_YEAR	PRG_CODE	SUM_OP_TIME	#_MONTHS_REPORTED	SO2_MASS	NOX_RATE	NOX_MASS (TONS)	HEAT_INPUT
MD	C.P. Crane	1552	1	1	2001	ARP	5911	12	13184	1.08	5373.9	9992375
MD	C.P. Crane	1552	1	1	2002	ARP	8105	12	17971.2	0.96	6419.3	13098633
MD	C.P. Crane	1552	1	1	2003	ARP	7288	12	15420.2	0.84	5252.5	12088151
MD	C.P. Crane	1552	1	1	2004	ARP	6956	12	14860.2	0.71	3974.2	10914261
MD	C.P. Crane	1552	1	1	2005	ARP	6801	12	15445.1	0.72	3982.6	10947287
Unit 2												
MD	C.P. Crane	1552	1	2	2001	ARP	8407	12	18866.9	0.99	7272.9	14644149
MD	C.P. Crane	1552	1	2	2002	ARP	6578	12	14415.1	0.8	4322.8	10616740
MD	C.P. Crane	1552	1	2	2003	ARP	8144	12	16840.6	0.83	5596.8	13264962
MD	C.P. Crane	1552	1	2	2004	ARP	6886	12	14182	0.7	3729.3	10498570
MD	C.P. Crane	1552	1	2	2005	ARP	7953	12	17585.9	0.69	4222.8	12304877

* All data derived from the US EPA Clean Air Markets Website (**http://cfpub.epa.gov/gdm/index.cfm?fuseaction=emissions.wizard**)

Table 4
NO_X Emission Rate (UNIT 1)

Alternative 1 - SNCR (Rotamix only)

Emission Factor Range	Emission Factor[a] (lb/MMBtu)	Boiler Heat Input Rate [b] (btu/hr)	Emission Rate (lb/hr)	Emission Rate[c] (ton/yr)
Minimum removal efficiency	0.4	1,865	746	2777.4
Maximum	0.28	1,865	522.2	1944.2
Crane Assumptions and Calculated Rate[d]	0.297	1,865	553.905	2062.2

Alternative 2 - ROFA plus SNCR (Rotamix) control system

Emission Factor Range	Emission Factor (lb/MMBtu)	Boiler Heat Input Rate [b] (btu/hr)	Emission Rate (lb/hr)	Emission Rate[c] (ton/yr)
Minimum	0.4	1,865	746	2777.4
Maximum	0.2	1,865	373	1388.7
Crane Assumptions and Calculated Rate[d]	0.202	1,865	376.7	1402.5

Alternative 3 - NOx OUT SNCR control system

Emission Factor Range	Emission Factor (lb/MMBtu)	Boiler Heat Input Rate [b] (btu/hr)	Emission Rate (lb/hr)	Emission Rate[c] (ton/yr)
Minimum	0.3	1,865	559.5	2083.0
Maximum	0.24	1,865	447.6	1666.4
Crane Assumptions and Calculated Rate (w/10 ppm ammonia slip)[d]	0.3	1,865	559.5	2083.0

Alternative 4 - NOx OUT SNCR plus rich reagent injection (RRI)

Emission Factor Range	Emission Factor (lb/MMBtu)	Boiler Heat Input Rate[b] (btu/hr)	Emission Rate (lb/hr)	Emission Rate[c] (ton/yr)
Minimum	0.3	1,865	559.5	2083.0
Maximum	0.24	1,865	447.6	1666.4
Crane assumptions and Calculated Rate[d]	0.24	1,865	447.6	1666.4

a	The emission factor range is based on the NOx removal range provided in the Crane CPCN application
b	Boiler Characteristics were based on permit limits in Crane CPCN application
c	Emission rate was calculated based on 85% capacity factor, per Table B-3a-d of the Crane CPCN application
d	All calculations were provided within the Crane CPCN application

Table 5

NO_X Emission Rate (UNIT 2)

Alternative 1 - SNCR (Rotamix only)

Emission Factor Range	Emission Factor[a] (lb/MMBtu)	Boiler Heat Input Rate [b] (Mmbtu/hr)	Emission Rate (lb/hr)	Emission Rate[c] (ton/yr)
Minimum	0.4	1,865	746	2777.4
Maximum	0.28	1,865	522.2	1944.2
Crane Assumptions and Calculated Rate[d]	0.297	1,865	553.9	2062.2

Alternative 2 - ROFA plus SNCR (Rotamix) control system

Emission Factor Range	Emission Factor (lb/MMBtu)	Boiler Heat Input Rate [b] (Mmbtu/hr)	Emission Rate (lb/hr)	Emission Rate[c] (ton/yr)
Minimum	0.4	1,865	746	2777.4
Maximum	0.2	1,865	373	1388.7
Crane Assumptions and Calculated Rate[d]	0.202	1,865	376.7	1402.6

Alternative 3 - NOxOUT SNCR control system

Emission Factor Range	Emission Factor (lb/MMBtu)	Boiler Heat Input Rate [b] (Mmbtu/hr)	Emission Rate (lb/hr)	Emission Rate[c] (ton/yr)
Minimum	0.3	1,865	559.5	2083.0
Maximum	0.24	1,865	447.6	1666.4
Crane Assumptions and Calculated Rate (w/10 ppm ammonia slip)[d]	0.28	1,865	522.2	1944.15

Alternative 4 - SNCR plus rich reagent injection (RRI)

Emission Factor Range	Emission Factor (lb/MMBtu)	Boiler Heat Input Rate [b] (Mmbtu/hr)	Emission Rate (lb/hr)	Emission Rate[c] (ton/yr)
Minimum	0.3	1,865	559.5	2083.0
Maximum	0.24	1,865	447.6	1666.4
Crane Assumptions and Calculated Rate[d]	0.24	1,865	447.6	1666.41

a The emission factor range is based on the NOx removal range provided in the Crane CPCN application

b Boiler Characteristics were based on permit limits in Crane CPCN application

c Emission rate was calculated based on 85% capacity factor, per Table B-3a-d of the Crane CPCN application

d All calculations were provided within the Crane CPCN application

Table 6

PM_{10} Emission Rate

ALTERNATIVE 1 CONTROL SYSTEM : ROFA (Rotamix ®) plus ACI for Mercury Control

Potential activity leading to PM/PM_{10} emission under Alternative 1

Activity 1 - Furnace Sorbent Injection for mercury control (Activated Carbon Injection)
Activity 2 - Unloading of Mercury Sorbents
Activity 3 - Unloading of Rotamix ® (Urea)
Activity 4 - Ammonium Bisulfate,$(NH_4)HSO_4$, emission from Ammonia slip

PM/PM10 emission from Activity 1 - Activated Carbon Injection

Unit	Sorbent Usage Rate[a]	Control Efficiency	PM/PM_{10} Emission			PM_{10} Emission Rate from Crane Permit Application[d]
	lb/hr	%	lbs/hr[g]	lbs/yr[h]	tons/yr[i]	tons/yr
Unit 1	150	99.90	0.15	1314	0.66	1.3
Unit 2	150	99.90	0.15	1314	0.66	
Total	300		**0.3**	**2628.0**	**1.31**	

PM/PM10 emission from Activity 2 - Sorbent (ACI) Unloading.

Unit	Trucks/year	Total Unloading time	PM/PM_{10} Emission		PM_{10} Emission Rate from Crane Permit Application[d]
		hr/yr[j]	lb/yr[h]	tons/yr[j]	tons/yr
Units 1 & 2	66	132	56.6	0.03	0.03
Total	**66.0**	**132.0**	**56.6**	**0.03**	

PM/PM10 emission from Activity 3 - Rotamix Unloading.

Unit	Trucks/yr	Total Unloading time	PM/PM_{10} Emission Rate		PM_{10} Emission Rate from Crane Permit Application[d]
		hr/yr[j]	lb/yr[h]	tons/yr[i]	tons/yr
Units 1 & 2	224	448.00	192.0	0.10	0.10

PM/PM10 emission from Activity 4 - Ammonium Bisulfate emission from Ammonia Slip

Unit	Fuel Flow	Sulfur Flow Rate (1%)	SO_3 Flow Rate (0.7% Sulfur Content)[e]	$(NH_4)HSO_4$ Flow Rate (stoichiometric equation)[e]	Control Efficiency	PM/PM_{10} Emission			PM_{10} Emission Rate from Crane Permit Application[d]
	lb/hr	lb/hr	lb/hr	lb/hr	%	lbs/hr[g]	lbs/yr[h]	tons/yr[i]	tons/yr
Unit 1	142366	1423.7	9.97	14.326	99.90	0.014	125.49207	0.06	0.13
Unit 2	142366	1423.7	9.97	14.326	99.90	0.014	125.49207	0.06	
Total	**284732.0**	**2847.3**	**19.9**	**28.7**	**199.8**	**0.029**	**250.98**	**0.13**	

Density of urea[f]	1.110	g/cm^3
	9.26	lb/gal
	40.57	tons - hr/yr
Truck capacity[b]	40000	lbs
	20	tons
Baghouse Flowrate[c]	2500	cfm
	150000	cfhr
Controlled Emissions[d]	0.02	gr/cf
	0.00000286	lb/cf
Assumed Unloading time	2	hours/truck

Total PM/PM_{10} Emission for Alternative 1 control system	**1.564**	**tons/year**
Total PM/PM_{10} Emission for Alternative 1 control system from Crane Permit Application[d]	**1.564**	**tons/year**

a	The sorbent usage rate, fuel flow rate, Rotamix flow rate, stoichiometric equation,urea content and sulfur flow rate are based on the numbers provided in the crane permit application
b	Truck capacity are based on the assumption in permit application
c	baghouse flowrate and CE are based on the numbers provided in the crane permit application
d	Emission data was based on calculation from the crane permit application.
e	0.7% Sulfur conversion to SO_3. Factors are based from EPA AP-42 Table Section 1.1 External Combustion Sources, Section 1.1.5 Emission Factors, Table 1.1.3 Footnote B (**http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s01.pdf**)
f	Urea density cited from Handbook of Chemistry and Physics, 64th Edition (1983-1984), Source: CRC Press
g	Equation for lb/hr for Activity 1 PM_{10} Emission Rate: (Sorbent Usage Rate (563 lb/hr)) x (1- (Removal Efficiency (99.9))/100))
h	Equation for lbs/yr for PM_{10} Emission Rate: (Sorbent Usage in lb/hr) x (8760) ((24 (hours in a day) x 365 (days in a year))
i	Equation for tons/yr for PM_{10} Emission Rate: (Sorbent Usage in lbs/yr) x ((1 ton/ 2000))
j	Equation for hr/yr for PM_{10} Emission Rate: ((Trucks/yr) x (Assumed Unloading Time (hrs/truck))
k	Equation for gal/hr for Urea (40%) Flow Rate: ((Sorbent Flow Rate) x (Percentage of Urea in solution))

lb/hr	pounds per hour
lb/yr	pounds per year
tpy	tons per year
cfm	cubic feet per minute
gr/cf	grains per cubic foot
PM/PM10	particulate matter/partiulate matter less than or equal to 10 microns diameter

Table 7

PM_{10} Emission Rate

ALTERNATIVE 2 CONTROL SYSTEM : ROFA (Rotamix ®) plus MinPlus for Mercury Control

Potential activity leading to PM/PM_{10} emission under Alternative 2

Activity 1 - Furnace Sorbent Injection for mercury control (MinPlus)

Activity 2 - Unloading of Mercury Sorbents (MinPlus)

Activity 3 - Unloading of Urea (Rotamix ® with ROFA for additional NOx Control ®)

Activity 4 - Ammonium Bisulfate,$(NH_4)HSO_4$, emission from Ammonia slip

PM/PM10 emission from Activity 1 - MinPlus Sorbent Injection.

Unit	Sorbent Usage Rate[a]	Control Efficiency	PM/PM_{10} Emission			PM_{10} Emission Rate from Crane CPCN Application[d]
	lb/hr	%	lbs/hr[g]	lbs/yr[h]	tons/yr[i]	tons/yr
Unit 1	563	99.90	0.563	4931.88	2.47	4.93
Unit 2	563	99.90	0.563	4931.88	2.47	
Total	1126	**199.8**	**1.1**		**4.93**	

PM/PM10 emission from Activity 2 - Sorbent (MinPlus) Unloading.

Unit	Trucks/year	Total Unloading time	PM/PM_{10} Emission		PM_{10} Emission Rate from Crane CPCN Application[d]
		hr/yr[j]	lb/yr[h]	tons/yr[i]	tons/yr
Units 1 & 2	247	494	211.7	0.106	0.11
Total	**247.0**	**494.0**	**211.7**	**0.11**	

Unit 1	0.05292857
Unit 2	0.05292857

PM/PM10 emission from Activity 3 - Urea (Rotamix) Unloading.

Unit	Trucks/yr	Total Unloading time	PM/PM_{10} Emission Rate		PM_{10} Emission Rate from Crane CPCN Application[d]
		hr/yr[j]	lb/yr[h]	tons/yr[i]	tons/yr
Units 1 & 2	224	448.00	192.0	0.096	0.10

Unit 1	0.048
Unit 2	0.048

PM/PM10 emission from Activity 4 - Ammonium Bisulfate emission from Ammonia Slip

Unit	Fuel Flow	Sulfur Flow Rate (1%)	SO_3 Flow Rate (0.7% Sulfur Content)[e]	$(NH_4)HSO_4$ Flow Rate (stoichiometric equation)[e]	Control Efficiency	PM/PM_{10} Emission			PM_{10} Emission Rate from Crane CPCN Application[d]
	lb/hr	lb/hr	lb/hr	lb/hr	%	lbs/hr[g]	lbs/yr[h]	tons/yr[i]	tons/yr
Unit 1	142366	1423.7	9.97	14.326	99.90	0.014	125.4920698	0.06	0.13
Unit 2	142366	1423.7	9.97	14.326	99.90	0.014	125.4920698	0.06	
Total	**284732.0**	**2847.3**	**19.9**	**28.7**	**199.8**	**0.0**		**0.13**	

Density of urea[f]	1.110	g/cm[3]
	9.26	lb/gal
	40.57	tons - hr/yr
Truck capacity[b]	40000	lbs
	20	tons
Baghouse Flowrate[c]	2500	cfm
	150000	cfhr
Controlled Emissions[d]	0.02	gr/cf
	0.00000286	lb/cf
Assumed Unloading time	2	hours/truck

Total PM/PM_{10} Emission for Alternative 2 control system	**5.259**	**tons/year**
Total PM/PM_{10} Emission for Alternative 2 control system from Crane Permit Application[d]	**5.259**	**tons/year**

a	The sorbent usage rate, fuel flow rate, Rotamix flow rate, stoichiometric equation,urea content and sulfur flow rate are based on the numbers provided in the crane permit application
b	Truck capacity are based on the assumption in permit application
c	baghouse flowrate and CE are based on the numbers provided in the crane permit application
d	Emission data was based on calculation from the crane permit application.
e	0.7% Sulfur conversion to SO_3. Factors are based from EPA AP-42 Table Section 1.1 External Combustion Sources, Section 1.1.5 Emission Factors, Table 1.1.3 Footnote B (**http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s01.pdf**)
f	Urea density cited from Handbook of Chemistry and Physics, 64th Edition (1983-1984), Source: CRC Press
g	Equation for lb/hr for Activity 1 PM_{10} Emission Rate: (Sorbent Usage Rate (563 lb/hr)) x (1- (Control Efficiency (99.9))/100))
h	Equation for lbs/yr for PM_{10} Emission Rate: (Sorbent Usage in lb/hr) x (8760) ((24 (hours in a day) x 365 (days in a year))
i	Equation for tons/yr for PM_{10} Emission Rate: (Sorbent Usage in lbs/yr) x ((1 ton/2000))
j	Equation for hr/yr for PM_{10} Emission Rate: ((Trucks/yr) x (Assumed Unloading Time (hrs/truck))
k	Equation for gal/hr for Urea (40%) Flow Rate: ((Sorbent Flow Rate) x (Percentage of Urea in solution))

lb/hr	pounds per hour
lbs/yr	pounds per year
tpy	tons per year
cfm	cubic feet per minute
gr/cf	grains per cubic foot
PM/PM10	particulate matter/partiulate matter less than or equal to 10 microns diameter

Table 8

PM_{10} Emission Rate

ALTERNATIVE 3 CONTROL SYSTEM : NOxOUT (SNCR) plus ACI for Mercury Control

Potential activity leading to PM/PM_{10} emission under Alternative 3

Activity 1 - Furnace Sorbent Injection for mercury control (ACI)
Activity 2 - Unloading of Mercury Sorbents (ACI)
Activity 3 - Unloading of Urea (NOxOUT ®)
Activity 4 - Ammonium Bisulfate,$(NH_4)HSO_4$, emission from Ammonia slip

PM/PM10 emission from Activity 1 - ACI Mercury Injection.

Unit	Sorbent Usage Rate[a]	Control Efficiency	PM/PM_{10} Emission			PM_{10} Emission Rate from Crane Permit Application[d]
	lb/hr	%	lbs/hr[g]	lbs/yr[h]	tons/yr[i]	tons/yr
Unit 1	150	99.90	0.15	1314	0.66	1.31
Unit 2	150	99.90	0.15	1314	0.66	
Total	300		**0.3**	**2628.0**	**1.31**	

PM/PM10 emission from Activity 2 - Sorbent Unloading.

Unit	Trucks/year	Total Unloading time	PM/PM_{10} Emission		PM_{10} Emission Rate from Crane Permit Application[d]
		hr/yr[j]	lb/yr[h]	tons/yr[i]	tons/yr
Units 1 & 2	66	132	56.6	0.028	0.03
Total	**66.0**	**132.0**	**56.6**	**0.03**	

PM/PM10 emission from Activity 3 - NOxOUT Unloading.

Unit	Trucks/yr	Total Unloading time	PM/PM_{10} Emission Rate		PM_{10} Emission Rate from Crane Permit Application[d]
		hr/yr[j]	lb/yr[h]	tons/yr[i]	tons/yr
Units 1 & 2	439	878.00	376.3	**0.188**	0.19

PM/PM10 emission from Activity 4 - Ammonium Bisulfate emission from Ammonia Slip

Unit	Fuel Flow	Sulfur Flow Rate (1%)	SO_3 Flow Rate (0.7% Sulfur Content)[e]	$(NH_4)HSO_4$ Flow Rate (stoichiometric equation)[a]	Control Efficiency	PM/PM_{10} Emission			PM_{10} Emission Rate from Crane Permit Application[d]
	lb/hr	lb/hr	lb/hr	lb/hr	%	lbs/hr[g]	lbs/yr[h]	tons/yr[i]	tons/yr
Unit 1	142366	1423.7	9.97	14.326	99.90	0.014	125.49207	0.06	0.13
Unit 2	142366	1423.7	9.97	14.326	99.90	0.014	125.49207	0.06	
Total	**284732.0**	**2847.3**	**19.9**	**28.7**	**199.8**	**0.029**	**250.984**	**0.13**	

Density of urea[f]	1.110	g/cm^3
	9.26	lb/gal
	40.57	tons - hr/yr
Truck capacity[b]	40000	lbs
	20	tons
Baghouse Flowrate[c]	2500	cfm
	150000	cfhr
Controlled Emissions[d]	0.02	gr/cf
	0.00000286	lb/cf
Assumed Unloading time	2	hours/truck

Total PM/PM_{10} Emission for Alternative 3 control system	**1.656**	**tons/year**
Total PM/PM_{10} Emission for Alternative 3 control system from Crane Permit Application[d]	**1.656**	**tons/year**

a	The sorbent usage rate, fuel flow rate, Rotamix flow rate, stoichiometric equation,urea content and sulfur flow rate are based on the numbers provided in the crane permit application
b	Truck capacity are based on the assumption in permit application
c	baghouse flowrate and CE are based on the numbers provided in the crane permit application
d	Emission data was based on calculation from the crane permit application.
e	0.7% Sulfur conversion to SO_3. Factors are based from EPA AP-42 Table Section 1.1 External Combustion Sources, Section 1.1.5 Emission Factors, Table 1.1.3 Footnote B (**http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s01.pdf**)
f	Urea density cited from Handbook of Chemistry and Physics, 64th Edition (1983-1984), Source: CRC Press
g	Equation for lb/hr for Activity 1 PM_{10} Emission Rate: (Sorbent Usage Rate (563 lb/hr)) x (1- (Control Efficiency (99.9))/100))
h	Equation for lbs/yr for PM_{10} Emission Rate: (Sorbent Usage in lb/hr) x (8760) ((24 (hours in a day) x 365 (days in a year))
i	Equation for tons/yr for PM_{10} Emission Rate: (Sorbent Usage in lbs/yr) x ((1 ton/2000))
j	Equation for hr/yr for PM_{10} Emission Rate: ((Trucks/yr) x (Assumed Unloading Time (hrs/truck))
k	Equation for gal/hr for Urea (40%) Flow Rate: ((Sorbent Flow Rate) x (Percentage of Urea in solution))

lb/hr	pounds per hour
lb/yr	pounds per year
tpy	tons per year
cfm	cubic feet per minute
gr/cf	grains per cubic foot
PM/PM10	particulate matter/partiulate matter less than or equal to 10 microns diameter

Appendix C

PSC Final Order Granting the CPCN

ORDER NO. 81536

IN THE MATTER OF THE APPLICATION OF CONSTELLATION POWER SOURCE GENERATION, INC. FOR A CERTIFICATE OF PUBLIC PUBLIC CONVENIENCE AND NECESSITY AUTHORIZING THE MODIFICATION OF THE CHARLES P. CRANE GENERATING STATION IN BALTIMORE COUNTY, MARYLAND.	* * * *	BEFORE THE PUBLIC SERVICE COMMISSION OF MARYLAND CASE NO. 9084

PROPOSED ORDER OF HEARING EXAMINER

Appearances:

Deborah E. Jennings, for Constellation Power Source Generation, Inc.

Todd Givens, Esq. for the Staff of the Public Service Commission of Maryland.

Michael C. Flannery, Esq. for the Office of People's Counsel.

M. Brent Hare and Brent M. Bolea, for Maryland Energy Administration and Maryland Department of Natural Resources, Power Plant Research Program.

INTRODUCTION

This matter comes before the Commission as a result of a filing by Constellation Power Source Generation, Inc. (CPSG" or the "Applicant") of an Application for a Certificate of Public Convenience and Necessity ("Application") authorizing certain modifications to its Charles P. Crane Generating Station ("Crane"

or “C.P. Crane Power Plant”) located at 1001 Carroll Island Road in Baltimore County, Maryland.

The application was filed to authorize modifications to Crane to reduce emissions of oxides of nitrogen (“NOx”) and of mercury. The request was made to ensure that CPSG can comply with Maryland’s Healthy Air Act (“HAA”, Chapter 23, 2006 MD. Laws-Senate Bill 154/House Bill 189). Compliance is required by 2009 for NOx and by 2010 for mercury.

On June 15, 2007, CPSC filed a motion for authorization to conduct test burns of sub-bituminous coal at Crane, in order to allow it to evaluate and characterize actual emissions and electric production derating of its units at Crane. Said motion was unopposed by any party and was granted by this Hearing Examiner on June 19, 2007 at the evidentiary hearing.

PROCEDURAL HISTORY

On November 2, 2006, CPSC filed this matter with the Commission. By letter dated November 8, 2006 this matter was delegated to the Hearing Examiner Division for hearing. A pre-hearing conference was held on November 21, 2006 at which a procedural schedule was set.

Evidentiary and public comment hearings were held in Baltimore County on June 19, 2007.

CPSC filed the testimony of Edwin Much and Jeffery Meling. Staff filed the testimony of S. Craig Taborsky, and the

Maryland Department of Natural Resources PPRP filed the testimony of John Sherwell and also filed its proposed conditions for the CPCN, if one is granted.

DISCUSSION AND FINDINGS

Section 7-207(e) of the PUC Article specifies certain factors that must be considered before final action may be taken on an application to construct a generating station. Relevant portions of §7-207 are set out below:

> (e) Final action by Commission- The Commission shall take final action on an application for a certificate of public convenience and necessity only after due consideration of:
>
> (1) the recommendation of the governing body of each county or municipal corporation in which any portion of the construction of the generating station or overheard transmission line is proposed to be located; and
>
> (2) the effect of the generating station or overhead transmission line on:
>
> (i) the stability and reliability of the electric system;
>
> (ii) economics;
>
> (iii) esthetics
>
> (iv) historic sites;
>
> (v) aviation safety as determined by the Maryland Aviation Administration and the administrator of the Federal Aviation Administration;
>
> (vi)when applicable, air and water pollution; and
>
> (vii) the availability of means for the required timely disposal of wastes produced by any generating station.

These factors will now be examined.

The Baltimore County Government chose to participate in the hearing held only in an interested person status. No objection from it was expressed as to this project.

The stability and reliability of the grid are unaffected by this project, other than its being off line during the construction period.

As to economic issues, the deregulated aspect of generation makes the economic consideration of a CPCN request less significant than during prior conditions. I find no evidence in the record to reflect any economic consideration which would prevent the granting of a CPCN. As to esthetics, historic sites and aviation issues, I find that this project presents no issues under these areas of consideration which would prevent the issuance of the CPCN.

The air, water, and waste product issues as well as all other considerations have had a long and vigorous negotiation process among the parties. In that regard, an Agreement and Stipulation ("Agreement") agreed to by all the parties, was filed on July 13, 2007. That Agreement, which consists of six pages, by its terms, incorporates twenty-eight conditions requested by the PPRP, and agreed to by the parties to the Agreement. These extensive and comprehensive conditions more than satisfy all of the environmental considerations under review in a CPCN request process.

The terms of the Agreement require that all the conditions in it be incorporated in their entirety or be rejected

in their entirety. I find that the Agreement and Stipulation is in the public interest, and it will be accepted in its entirety, without modification, as a condition to the CPCN.

The parties have also advised this Hearing Examiner that they desire that this matter become final as soon as possible, and in that regard the Stipulation terms agree to set the time for the filing of an appeal from the Proposed Order to be issued at seven days, as opposed to the 30-day period outlined in PUC § 3-113 (d)(2)(ii).

After consideration of the views of all parties, the need to meet present and future demands for service, system stability and reliability, economics, esthetics, historic sites, aviation safety, and the potential for pollution of the air and water, I find that the Agreement of Stipulation and Settlement is in the public interest and is accepted as such. I further find that, subject to said Agreement, a Certificate of Public Convenience and Necessity shall be granted as it is in the public interest.

IT IS, THEREFORE, this 23rd day of July, the year Two Thousand Seven,

ORDERED: (1) That a Certificate of Public Convenience and Necessity is granted to Constellation Power Source Generation, Inc. to modify its existing generating station in Baltimore County, Maryland, subject to the Agreement and Stipulation attached hereto and incorporated herein.

(2) That by agreement of the parities, the period for filing an appeal of this Proposed Order is set at seven days.

(3) That the motion to conduct a test burn is granted.

(4) That this Proposed Order will become a final Order of the Commission on July 31, 2007 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.

Dennis H. Sober
Hearing Examiner
Public Service Commission of Maryland

106888

9084

(24)

STATE OF MARYLAND

STATE OF MARYLAND
PUBLIC SERVICE COMMISSION

PUBLIC SERVICE COMMISSION

July 23, 2007

In the matter of the application of Constellation Power Source Generation, Inc. for a Certificate of Public Convenience and Necessity for authority to modify the Charles P. Crane Generating Station in Baltimore County, Maryland. * * * * *

Case No. 9084

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 July 31, 2007, 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, O. Ray Bourland, 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

Kathleen Berends
Management Associate

lw
enclosure

cc: Interested Person