BEFORE THE
PUBLIC SERVICE COMMISSION
OF MARYLAND

In the Matter of the	)	
Application of Catoctin Power, LLC	)	
for a Certificate of Public Convenience and	)	Case No. 8997
Necessity To Construct a 600 MW Generating	)	
Facility in Frederick County, Maryland	)	

DIRECT TESTIMONY OF WILLIAM V. PAUL

Q. PLEASE STATE YOUR NAME, OCCUPATION, AND CURRENT POSITION.

A. My name is William V. Paul, and I am the Chief of the Combustion and Metallurgical Division of the Air and Radiation Management Administration (ARMA), Maryland Department of the Environment (MDE). My resume is appended to this testimony as Appendix A.

Q. PLEASE DESCRIBE YOUR SPECIFIC PROFESSIONAL EXPERIENCE WHICH IS RELEVANT TO YOUR RESPONSIBILITIES ON THIS PROJECT.

A. I have more than 25 years of experience in air pollution control, including 19 years with ARMA and 8 years with an air pollution control equipment manufacturing firm. As Chief of the Combustion and Metallurgical Division of ARMA, I have primary responsibility for new source review of major stationary sources subject to Federal Prevention of Significant Deterioration (PSD) and nonattainment New Source Review (NA-NSR) requirements. I have participated in the NA-NSR and/or PSD review of most of the major power plants that have been proposed for construction in Maryland in the last fifteen years. These include Mirant Mid-Atlantic's Chalk Point Expansion and Dickerson Expansion projects, Orion Power Holding's Kelson Ridge Facility in Charles County, Old Dominion Electric

Cooperative/Reliant Energy Power Generation, Inc., (ODEC/Reliant's) Rock Springs power plant, Delmarva Power and Light Company's Dorchester plant, Applied Energy Services' (AES) Warrior Run plant, Panda Energy Corporation's Brandywine plant, Baltimore Gas and Electric Company's Perryman plant, the Potomac Electric Power Company's Station H and Chalk Point plants, the Southern Maryland Electric Cooperative turbine project, and the Montgomery County Resource Recovery Facility.

Q. WHAT WERE YOUR RESPONSIBILITIES WITH RESPECT TO THE STATE'S ENVIRONMENTAL REVIEW OF CATOCTIN POWER'S PROJECT?

A. On behalf of ARMA, I reviewed the PSD application for the Catoctin Power, LLC (Catoctin Power) project with regard to compliance with applicable Federal and State air quality regulations.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY?

A. The purpose of my testimony is to convey the results of my review of the recommended air quality conditions for Catoctin Power and ascertain whether they meet State and Federal requirements. My testimony is based on information contained in the applicant's CPCN application and the document prepared by the Maryland Department of Natural Resources Power Plant Research Program (PPRP) titled *Environmental Review of the Proposed Catoctin Power Project* (DNR Exhibit __(DHB-2A)).

Q. PLEASE SUMMARIZE THE SOURCES OF INFORMATION USED IN YOUR REVIEW.

A. I reviewed Catoctin Power's application for a Certificate of Public Convenience and Necessity (CPCN) dated February 25, 2004, and subsequent Responses to Data Requests prepared by Catoctin Power. In particular, I reviewed the sections of the CPCN application and other documents dealing with emissions control options, net emission

increases, and the determination of Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER).

Operations

Q. WHAT, GENERALLY, ARE THE AIR EMISSIONS SOURCES THAT CATOCTIN POWER IS PROPOSING TO CONSTRUCT AND OPERATE AS A PART OF THE PROPOSED PROJECT?

A. Catoctin Power is proposing to construct and operate two General Electric Frame 7FA combustion turbines (CTs) to be operated in combined cycle mode, burning pipeline quality natural gas as the sole fuel. Each CT will be equipped with a heat recovery steam generator (HRSG) with duct burners. The duct burners will provide additional steam supply, enabling higher power output when needed. Steam produced by the HRSGs will be combined and directed to a steam turbine. The facility will have a nominal electric generating capacity of 600 megawatts (MW). The CTs will be designed with dry low-NO_x combustors. The duct burners will be equipped with low-NO_x burners. Catoctin Power will operate selective catalytic reduction (SCR) systems downstream of the duct burners using 19 percent aqueous ammonia to control nitrogen oxides (NO_x) emissions. The CTs and duct burners will be equipped with catalytic oxidation systems to control carbon monoxide (CO) and volatile organic compounds (VOCs).

In addition to the CTs, the Catoctin Power project will also include the installation and operation of one 1,000-kilowatt (kW) emergency diesel generator (EDG) at the plant, one 350-kW EDG at the offsite pump house, and one 370-horsepower (hp) emergency firewater pump. The facility will be equipped with a multi-cell mechanical draft cooling tower with drift eliminators. Catoctin Power will also install one aqueous ammonia storage tank (approximately 20,000 gallons) associated with the SCR system, and two electric-powered fuel gas heaters.

Q. WILL THERE BE RESTRICTIONS ON THE OPERATION OF ANY OF THE PROPOSED EMISSIONS SOURCES?

A. Yes. Catoctin Power proposes to operate each of the CTs for 24 hours per day, 365 days per year (8,760 hours per year); however, duct burner heat input will be limited to 577 million British thermal units hour per (MMBtu/hr, higher heating value) per unit at 90°F (or 561 MMBtu/hr at 54°F). Catoctin Power proposes to restrict duct firing to a maximum of 4,000 hours per year per unit.

Catoctin Power has indicated that both the plant and pump house EDGs will only be operated in the event of a disruption in power delivery and during testing, and for no more than 200 hours per year each. Similarly, Catoctin Power proposes to limit operation of the firewater pump engine to a maximum of 100 hours per year, which would include operations for monthly testing and maintenance.

Location

Q. WHAT IS THE PROPOSED LOCATION OF THE CATOCTIN POWER PROJECT?

A. The Catoctin Power facility will be located on a 20-acre tract of land in Frederick County, Maryland, within the confines of the 2,200-acre Eastalco Works industrial complex.

PSD and Nonattainment New Source Review Background

Q. WHAT IS A "NATIONAL AMBIENT AIR QUALITY STANDARD?"

A. The U.S. EPA has established allowable ambient concentration levels for six so-called "criteria pollutants", namely, carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM), lead, and ozone. Concentration levels for PM have been established separately for two particle size ranges: less than 10 microns in diameter (PM10), and less than 2.5 microns in diameter (PM2.5). The

concentration levels, called the National Ambient Air Quality Standards (NAAQS), are designed to protect public health and welfare, with an adequate margin of safety. Of the criteria pollutants, ozone is the only one that is not emitted directly by sources of air pollution. Ozone is formed in the atmosphere, primarily on hot summer days, from several precursor pollutants including VOCs and NO_x. VOCs do not have ambient standards *per se*; rather, VOC emissions are regulated as precursors to ozone formation. NO_x emissions are also regulated as ozone precursors, in addition to being regulated as the criteria pollutant NO_2.

Q. PLEASE EXPLAIN THE TERMS "PREVENTION OF SIGNIFICANT DETERIORATION (PSD)" AND "NONATTAINMENT NEW SOURCE REVIEW (NA-NSR)."

A. PSD refers to a set of regulations intended to apply in attainment areas, which are areas of the country that are currently meeting the NAAQS for a given pollutant. The PSD regulations contain requirements for new and modified sources that emit pollutants above a significant emissions threshold. The pollutant-specific thresholds are defined in the regulations and are expressed as tons per year. The PSD regulations contain both control technology and ambient impact requirements. Generally, the control technology requirement for PSD sources is to ensure that emissions are controlled to a level representing the Best Available Control Technology (BACT). The ambient impact requirement is that emissions from the source produce impacts that are less than the PSD increments (allowable incremental increases in ambient pollution levels), and that the source not cause or contribute to nonattainment of the NAAQS. Compliance with the PSD ambient requirements is evaluated through the use of air quality dispersion models, applied in accordance with guidance established by the U.S. EPA modeling guidelines.

NA-NSR is a set of regulations that applies to areas that are not meeting the NAAQS. Sources subject to NA-NSR must apply a level of control technology that represents the Lowest Achievable Emission

Rate (LAER). Sources subject to NA-NSR must also secure "emissions reductions" or "offsets" at a ratio sufficient to demonstrate a positive net air quality benefit from the project. In Maryland, emission offsets must be established as federally enforceable prior to the issuance of a construction permit or approval for a NA-NSR source. Dispersion modeling, particularly for ozone, is not generally required for NA-NSR.

Q. PLEASE DEFINE "BACT" AND "LAER."

A. Best Available Control Technology, or BACT, is defined as an emissions limitation, determined on a case-by-case basis, which provides for the maximum degree of reduction of a pollutant, taking into account energy, environmental, and economic impacts and other costs. The "case-by-case" process of determining BACT is a dynamic one, which encourages tightening of emissions control requirements as the effectiveness of control technologies improve over time. At a minimum, BACT must be at least as stringent as any applicable, established New Source Performance Standards (NSPS), found in 40 CFR Part 60.

Lowest Achievable Emission Rate, or LAER, is defined as the more stringent of either: (1) the most stringent emissions limitation which is contained in the implementation plan of any state for a class or category of stationary sources, unless the owner or operator of the proposed stationary source demonstrates that these limitations are not achievable; or (2) the most stringent emissions limitation which is achieved in practice by a class or category of stationary sources. LAER is always at least as stringent as BACT.

Q. WHAT ARE THE POLLUTANTS OF CONCERN FOR THE STATE'S ANALYSIS OF THE CATOCTIN POWER PROJECT?

A. All pollutants regulated under the Clean Air Act are subject to review. This includes the criteria pollutants (which are those for which

NAAQS have been established), as well as hazardous air pollutants (HAPs).

PSD and NA-NSR Applicability

Q. DID THE STATE EVALUATE THE CPCN APPLICATION AND MAKE A DETERMINATION REGARDING THE APPLICABILITY OF THE PSD AND NONATTAINMENT NSR PERMITTING PROGRAMS?

A. Yes. Regarding PSD, as discussed in Section 4.3 of the *Environmental Review of the Proposed Catoctin Power Project* (DNR Exhibit __(DHB-2A)), potential emissions of NO_2, CO, SO_2, and PM10 from the Catoctin Power project will exceed significance thresholds and are therefore subject to PSD review. Emissions of other regulated pollutants, including lead, total fluorides, total reduced sulfur, reduced sulfur compounds, hydrogen sulfide, mercury, beryllium, arsenic, asbestos, vinyl chloride, chlorofluorocarbons (CFCs), halons, and radionuclides will be zero or negligible.

Regarding NA-NSR, potential emissions of NO_x and VOCs will be above applicable thresholds and so trigger NA-NSR requirements.

Q. WAS THE PROJECT EVALUATED AS A NEW MAJOR SOURCE POTENTIALLY SUBJECT TO PSD AND NA-NSR, OR AS A "MODIFICATION" TO AN EXISTING MAJOR SOURCE?

A. As mentioned above, the proposed Catoctin Power project is a new major source of pollutants under the PSD and NA-NSR programs and so is subject to PSD and NA-NSR review. However, because the proposed facility will be located within the confines of an existing major source (Eastalco), the State investigated whether the Catoctin Power project would be considered part of the Eastalco "source" for PSD purposes, and thus whether the Catoctin Power project would be a "modification to an existing major stationary source."

Q. WHAT IS THE DEFINITION OF "SOURCE" FOR PSD PURPOSES?

A. Under 40 CFR 52.21 and COMAR 26.11.06.14, "stationary source" is defined in the PSD regulations (specifically at 40 CFR 52.21(b)(5)) as "…any building, structure, facility, or installation which emits or may emit a regulated NSR pollutant." The term "building, structure, facility or installation" is defined in 40 CFR 52.21(b)(6) as:

> "…all of the pollutant-emitting activities which belong to the same industrial grouping, are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same "Major Group" (i.e., which have the same first two digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement (U.S. Government Printing Office stock numbers 4101-0066 and 003-005-00176-0, respectively)."

Q. WHAT FACTORS DID YOU CONSIDER IN DETERMINING WHETHER THE PROPOSED CATOCTIN POWER PROJECT IS CONSIDERED PART OF THE EXISTING EASTALCO SOURCE, OR ITS OWN, SEPARATE STATIONARY SOURCE?

A. We reviewed information presented by the Applicant in its CPCN application and in its Response to DNR Data Request #1, and guidance documents available from the U.S. EPA. Guidance from the U.S. EPA on this issue of "source" indicates that the underlying criteria that would cause the power plant to be considered part of the Eastalco aluminum facility would be that the power plant: 1) belongs to the same industrial grouping as Eastalco (or is considered a support facility); 2) is adjacent to Eastalco; and 3) is under "common control."

Q. WHAT WERE THE FINDINGS IN THIS CASE REGARDING THESE THREE CRITERIA ?

A. Regarding the first criterion, the proposed Catoctin Power facility (SIC 4911) is not part of the same industrial grouping as Eastalco (SIC 3334),

nor does either facility serve as a "support" facility to the other. In Response to DNR Data Request #1, Catoctin Power indicated that "the Power Plant has no obligation to sell electricity, heat or steam to the Aluminum Smelter, and the Aluminum Smelter has no obligation to purchase electricity, heat or steam from the Power Plant." Eastalco will not store or convey Catoctin Power's electricity, nor will the power plant obtain its fuel from Eastalco. Catoctin Power does intend to share the existing Eastalco septic system and substation "as a matter of convenience."

Regarding the second criterion, the Catoctin site is clearly "adjacent to" Eastalco, as it lies within the Eastalco property boundary.

The third criterion, related to the issue of "common control" is more complicated in this case. Based on information from the Applicant in response to DNR Data Request #1 of 23 April 2004 (a copy of which is included in *Environmental Review of the Proposed Catoctin Power Project* (DNR Exhibit __(DHB-2A)), Catoctin Power is a wholly-owned subsidiary of Sempra Energy Resources. The "Eastalco" smelter is owned by Eastalco Aluminum Company (which is a wholly-owned subsidiary of Alumax, Inc., which is a wholly-owned subsidiary of Alcoa, Inc., Mitalco, Inc., and Alumerica, Inc.). Catoctin Power intends to lease property from Eastalco to operate the power plant.

At present, Eastalco does not own any portion of Catoctin Power, nor does Catoctin Power own any portion of the aluminum operations. Catoctin Power reports that neither entity has decision-making authority over the other, nor have the parties "entered into any service contracts that make one entity dependent on the other entity" (Attachment 1 to Response to DNR Data Request #1).

However, Eastalco has an option to purchase up to 50 percent of Catoctin Power. In Response to DNR Data Request #1, Catoctin Power indicates that "Eastalco cannot exercise its option until after all permit approvals have been obtained and other contractual obligations are met. At that point, Eastalco will have 90 days to exercise its option."

Q. HAS THIS ISSUE BEEN RESOLVED?

A. Yes, this issue has been resolved to ARMA's satisfaction. PPRP and ARMA have reviewed the information provided by the applicant and EPA and other guidance documents, and have concluded that the two co-located facilities constitute two separate sources for PSD purposes. We addressed this issue with U.S. EPA Region III during the course of the review of the application. EPA indicates that should Eastalco exercise its option to acquire a portion of Catoctin Power before the power plant "commences construction" then the determination of "source" must be revisited (this correspondence from U.S. EPA is also included in PPRP's *Environmental Review of the Proposed Catoctin Power Project* (DNR Exhibit __(DHB-2A)).

PSD Requirements: BACT Determination

Q. WHICH OF CATOCTIN POWER'S EMISSIONS SOURCES ARE SUBJECT TO BACT REVIEW?

A. All emissions units that are part of the project and that have the potential to emit NO_2, CO, SO_2, and/or PM (including PM10) are subject to BACT review. These emissions units include the CTs, the cooling tower, the emergency diesel generators, and the firewater pump engine.

Q. PLEASE SUMMARIZE CATOCTIN POWER'S BACT PROPOSAL FOR THE COMBUSTION TURBINES.

A. For NO_2, Catoctin Power is proposing the exclusive use of pipeline quality natural gas, operation of advanced dry low-NO_x (DLN) combustion design, low-NO_x burners on the duct burners, and implementation within the HRSG of a control technology known as selective catalytic reduction (SCR) to achieve a NO_x emission rate of 2.0 parts per million by volume on a dry weight basis (ppmvd), corrected to 15 percent oxygen, without duct firing and 2.5 ppmvd when duct firing, both on a 1-hour average basis.

For CO, Catoctin Power is proposing to limit CO emissions through use of the dry low-NO_x combustor design, good combustion practices, and application of an oxidation catalyst system to achieve an emission rate of 2.0 ppmvd corrected to 15 percent oxygen over a 3-hour averaging period without duct firing, and 3.0 ppmvd at 15% oxygen on a 3-hour average basis with duct firing.

For SO_2, Catoctin Power is proposing to use pipeline quality natural gas with a maximum sulfur content of 1 grain per 100 standard cubic feet, resulting in a maximum SO_2 emission rate of 6.7 pounds per hour.

For PM, including PM10, BACT will be achieved by the exclusive use of pipeline quality natural gas with typical heat content of approximately 20,500 Btu/lb (lower heating value) and a maximum sulfur content of 1 grain per 100 standard cubic foot. This will result in a maximum PM emission rate from the CTs of 21.1 pound per hour on a 3-hour average basis.

Q. DO YOU CONCUR WITH CATOCTIN POWER'S CONCLUSIONS REGARDING BACT FOR THE COMBUSTION TURBINES?

A. Yes.

Q. PLEASE SUMMARIZE CATOCTIN POWER'S BACT PROPOSAL FOR THE EMERGENCY DIESEL GENERATORS.

A. For both the 1,000-kW plant EDG and the 350-kW pump house EDG, Catoctin Power is proposing that BACT for all pollutants will be achieved by the construction and operation of EPA Tier 1-rated generators burning low sulfur (0.05% sulfur by weight) diesel fuel, operating for no more than 200 hours per year. The specific emission rates are summarized in Table 4-10 of the *Environmental Review of the Proposed Catoctin Power Project* (DNR Exhibit __(DHB-2A)).

Q. DO YOU CONCUR WITH CATOCTIN POWER'S CONCLUSIONS REGARDING BACT FOR THE EMERGENCY DIESEL GENERATORS?

A. Yes.

Q. PLEASE SUMMARIZE CATOCTIN POWER'S BACT PROPOSAL FOR THE FIREWATER PUMP ENGINE.

A. Catoctin Power is proposing that BACT for all pollutants will be achieved by the construction and operation of a 370-hp engine and operating the unit for no more than 100 hours per year. The specific emission rates are summarized in Table 4-10 of the *Environmental Review of the Proposed Catoctin Power Project* (DNR Exhibit __(DHB-2A)).

Q. DO YOU CONCUR WITH CATOCTIN POWER'S CONCLUSIONS REGARDING BACT FOR THE FIREWATER PUMP ENGINE?

A. Yes.

Q. PLEASE SUMMARIZE CATOCTIN POWER'S BACT PROPOSAL FOR THE COOLING TOWER.

A. Catoctin Power is proposing to use high efficiency drift eliminators at the cooling tower to achieve a drift loss rate of 0.0005 percent of recirculating water flow, resulting in maximum PM emissions of 2.81 pounds per hour and maximum PM10 emissions of 0.71 pounds per hour (24-hour average basis).

Q. DO YOU CONCUR WITH CATOCTIN POWER'S CONCLUSIONS REGARDING BACT FOR THE COOLING TOWER?

A. Yes, high efficiency drift eliminators are consistent with BACT for this type of source.

PSD: Ambient Impact Assessment

Q. BESIDES BACT, ARE THERE OTHER REQUIREMENTS FOR SOURCES SUBJECT TO PSD?

A. Yes, in addition to BACT, sources subject to PSD must conduct impact analyses to ensure that emissions from the project do not result in unacceptable impacts to air quality. The impact assessments are typically conducted through the use of air quality dispersion models.

Q. WAS CATOCTIN POWER'S AIR QUALITY MODELING ANALYSIS CONSISTENT WITH EPA GUIDANCE?

A. Yes. Catoctin Power's air quality modeling analysis was consistent with EPA's Guideline on Air Quality Models (GAQM), which is contained in Appendix W to the PSD regulations, 40 CFR Part 51.

Q. PLEASE EXPLAIN THE CONCEPT OF A SIGNIFICANT IMPACT LEVEL (SIL).

A. Significant Impact Levels (SILs) are established for some criteria pollutants by EPA to serve as initial impact thresholds. These thresholds, normally just a few percent of the NAAQS, have an important function, namely, to identify a level of impact that signifies that further air quality analysis is not necessary. Through air quality modeling, a source's maximum ambient impact is identified; if the maximum impact is less than the SIL for all applicable pollutants, the source is considered to meet all requirements relative to PSD increments and NAAQS without conducting any further analysis.

Q. PLEASE SUMMARIZE THE RESULTS OF THE STATE'S AMBIENT AIR QUALITY AND PSD IMPACT ANALYSES.

A. Under State and Federal regulations, ambient impacts of NO_2, SO_2, CO, and PM10 were evaluated against NAAQS and/or PSD SILs through computer air dispersion modeling. As summarized in Table 4-14 of the Catoctin Power ERD (DNR Exhibit __(DHB-2A)), and as described in more detail by Mr. Mark Garrison in testimony in this case, the maximum impacts for all pollutants of concern and for all relevant averaging periods are less than applicable SILs.

Because the maximum impacts are less than the SILs for all pollutants, no additional steps need to be taken to demonstrate compliance with PSD increments and NAAQS for any regulated pollutant.

NA-NSR Requirements: LAER

Q. WHICH OF CATOCTIN POWER'S EMISSIONS SOURCES ARE SUBJECT TO LAER REVIEW AND FOR WHICH POLLUTANTS?

A. All emissions units that are part of the project with the potential to emit NO_x and/or VOCs are subject to LAER review in this case. These emissions units include the CTs, the emergency diesel generators, and the firewater pump engine.

Q. DID YOU REVIEW THE APPLICANT'S LAER ASSESSMENTS FOR NOx FROM AFFECTED SOURCES?

A. Yes. Table 4-22 of the *Environmental Review of the Proposed Catoctin Power Project* (DNR Exhibit __(DHB-2A)) summarizes the applicant's proposed LAER for the project.

Q. PLEASE DESCRIBE THE APPLICANT'S LAER PROPOSAL FOR NO_x FROM THE COMBUSTION TURBINES.

A. As described by Julie B. Ross in testimony in this case, Catoctin Power initially proposed in its CPCN application to use GE combustion turbines that incorporate advanced dry low-NO_x (DLN) combustor technology, dry low-NO_x burners on the duct burners, and operation of a selective catalytic reduction (SCR) system to be located within the heat recovery steam generator (HRSGs) to achieve a NO_x emission rate of 2.5 parts per million by volume on a dry weight basis (ppmvd) corrected to 15% oxygen. ARMA and PPRP reviewed available literature, EPA databases, and information on other recent combustion turbine projects and determined that a rate of 2.0 ppmvd corrected to 15% oxygen, rather than 2.5 ppmvd as proposed by Catoctin Power, would be achievable on these units.

Catoctin Power subsequently agreed with this assessment, and in response to DNR Data Request #4, revised its LAER emissions estimates, and now indicates that the maximum NO_x emission rate will be 2.0 ppmvd corrected to 15% oxygen, based on a 1-hour average when not duct firing, and 2.5 ppmvd when duct firing.

Q. DO YOU CONCUR WITH THE APPLICANT'S LAER PROPOSAL FOR NO_x FROM THE COMBUSTION TURBINES?

A. Yes.

Q. **PLEASE DESCRIBE THE APPLICANT'S LAER PROPOSAL FOR NO_x FROM THE EMERGENCY DIESEL GENERATORS.**

A. Catoctin Power originally proposed certain NO_x emission rates for the plant emergency diesel generator (EDG); however, ARMA and PPRP determined that lower emission rates were achievable from such a unit. Therefore, the applicant revised its LAER proposal at the request of the State and clarified in Response to DNR Data Request #4 of 23 July 2004 that maximum NO_x emissions from the unit would not exceed 20.4 lb/hr (or 6.9 grams per brake-horsepower-hour, g/bhp-hr) on a 3-hour average basis, to be achieved by use of a EPA Tier 1-rated engine, application of good combustion practices, and limiting operations to no more than 200 hr/year. Catoctin Power is proposing use of a Tier 1-rated engine for the 350-kW EDG at the pump house, to achieve a NO_x rate of 6.9 g/bhp-hr, or 7.1 lb/hr (3-hour average basis).

Q. DO YOU CONCUR WITH THE APPLICANT'S LAER PROPOSAL FOR NO_x FROM THE EMERGENCY DIESEL GENERATORS?

A. Yes.

Q. **PLEASE DESCRIBE THE APPLICANT'S LAER PROPOSAL FOR NO_x FROM THE FIREWATER PUMP ENGINE.**

A. Catoctin Power has proposed LAER for the firewater pump engine as a NO_x emission rate not to exceed 11.5 lb/hr on a 3-hour average basis to

be achieved by limiting operations to no more than 100 hr/yr and application of good combustion practices.

Q. DO YOU CONCUR WITH THE APPLICANT'S LAER PROPOSAL FOR NO_x FROM THE FIREWATER PUMP ENGINE?

A. Yes.

Q. DID YOU ALSO REVIEW THE APPLICANT'S LAER ASSESSMENTS FOR VOLATILE ORGANIC COMPOUNDS (VOCs) FROM AFFECTED SOURCES?

A. Yes.

Q. PLEASE DESCRIBE THE APPLICANT'S LAER PROPOSAL FOR VOC FROM THE COMBUSTION TURBINES.

A. Catoctin Power is proposing as LAER for VOCs to use good combustion practices and operation of oxidation catalyst systems to be located within the HRSGs to achieve a maximum VOC emission rate of 0.7 ppmvd, corrected to 15 percent oxygen, on a 3-hr average basis without duct firing, and 1.3 ppmvd, corrected to 15 percent oxygen, on a 3-hr average basis with duct firing.

Q. DO YOU CONCUR WITH THE APPLICANT'S LAER PROPOSAL FOR VOC FROM THE COMBUSTION TURBINES?

A. Yes.

Q. **PLEASE DESCRIBE THE APPLICANT'S LAER PROPOSAL FOR VOCs FROM THE EMERGENCY DIESEL GENERATORS.**

A. Catoctin Power originally proposed certain VOC emission rates from the plant EDG; however, similar to the NO_x issue described previously, ARMA and PPRP determined that lower emission rates were achievable from such a unit. Therefore, the applicant revised its LAER proposal at the request of the State and clarified in Response to DNR Data Request #4 of 23 July 2004 that the emergency diesel

generator will meet Tier 1 emissions standards. Therefore, LAER for VOCs from the plant EDG will be a limit of 1.5 lb/hr on a 3-hr average basis to be achieved by application of good combustion practices and limiting operations to no more than 200 hr/year. A Tier 1-rated engine will also be employed for the pump house EDG, to achieve a maximum VOC rate of 0.5 lb/hr (3-hr average basis).

Q. DO YOU CONCUR WITH THE APPLICANT'S LAER PROPOSAL FOR VOCs FROM THE EMERGENCY DIESEL GENERATORS?

A. Yes. These rates are within the range of known emissions limits for VOCs from similar sources having undergone LAER or BACT review.

Q. **PLEASE DESCRIBE THE APPLICANT'S LAER PROPOSAL FOR VOCs FROM THE FIREWATER PUMP ENGINE.**

A. Catoctin Power proposed that LAER for the firewater pump for VOCs is a limit of 0.91 lb/hr on a 3-hour average basis to be achieved by application of good combustion practices and limiting operations to no more than 100 hr/year.

Q. DO YOU CONCUR WITH THE APPLICANT'S LAER PROPOSAL FOR VOCs FROM THE FIREWATER PUMP ENGINE?

A. Yes. The proposed VOC emission rate for the firewater pump engine is within the range of reported rates for similar units.

NA-NSR Requirements: Other Requirements

Q. BESIDES APPLICATION OF LAER, ARE THERE ANY OTHER REQUIREMENTS FOR SOURCES SUBJECT TO NONATTAINMENT NSR?

A. Yes. Major new sources of NO_x in ozone nonattainment areas must 1) obtain sufficient emissions reductions ("offsets") prior to issuance of a construction permit; 2) certify that all other sources owned by the Applicant in the State are complying with all applicable requirements of the Clean Air Act; and 3) demonstrate that the benefits of the

proposed source outweigh the environmental and social costs imposed as a result of its location, construction, or modification, by conducting an "alternatives analysis."

Q. WILL CATOCTIN POWER BE REQUIRED TO SECURE EMISSIONS OFFSETS FOR THE PROJECT, AND IF SO, HOW MANY OFFSETS WILL BE REQUIRED?

A. Yes. The Applicant must secure NO_x and VOC offsets for each potential ton of these pollutants to be emitted by the entire project at a ratio of 1.3 to 1. Projected potential NO_x emissions from the Catoctin Power project are 191.7 tons per year; therefore, the proposed Catoctin Power facility requires 249 tons of NO_x emissions offsets. Projected potential VOC emissions from the project are 30tons per year, which means that the proposed Catoctin Power facility requires 39 tons of VOC emissions offsets.

Q. MUST THE EMISSIONS OFFSETS ORIGINATE FROM SOURCES WITHIN MARYLAND?

A. No. Under Maryland regulations, offsets may be obtained from sources within the ozone nonattainment area in which the proposed facility will be located, or from another ozone nonattainment area, if the other area has an equal or higher nonattainment classification than the area in which the source is located. The Maryland Department of the Environment (MDE) prefers in-State sources of offsets. However, offsets may come from other emissions sources outside of Maryland that are in the same or higher ozone nonattainment classification area, and that are located in the broad vicinity of the proposed new source.

Q. HAS CATOCTIN POWER SECURED SUFFICIENT NO_x AND VOC OFFSETS AT THIS TIME?

A. No.

Q. BY WHAT TIME IS CATOCTIN POWER REQUIRED TO SECURE THE NO_X OFFSETS?

A. Catoctin Power must demonstrate to ARMA's satisfaction that the appropriate number of offsets from an acceptable source or sources are secured before air quality approvals can be issued.

Q. ARE ALL OTHER SOURCES IN THE STATE OWNED BY CATOCTIN POWER COMPLYING WITH ALL APPLICABLE CLEAN AIR ACT REQUIREMENTS?

A. Catoctin Power and its parent company Sempra Energy Resources do not own or operate any other air emissions sources in the State of Maryland.

Q. IS THE STATE SATISFIED WITH THE APPLICANT'S ALTERNATIVE'S ANALYSIS FOR THIS PROJECT?

A. As a major source of NO_x and VOCs under NA-NSR, Catoctin Power is required to conduct "…an analysis of alternative sites, sizes, production processes, and environmental control techniques for a proposed source [that] demonstrates that benefits of the proposed source significantly outweigh the environmental and social costs imposed as a result of its location, construction, or modification" under COMAR 26.11.17.03B(6).

ARMA believes that the information presented by Catoctin Power in it CPCN application, particularly Section 1-4 ("Siting Considerations") is sufficient for this purpose and that the project is acceptable on these terms.

Federal and State Applicable Requirements (Other than PSD and NA-NSR and Related Requirements)

Q. BESIDES PSD, ARE THERE OTHER FEDERAL AIR REGULATIONS TO WHICH THE PROPOSED PROJECT WILL BE SUBJECT?

A. Yes. The CTs will be subject to New Source Performance Standards (NSPS) Subpart GG " Standards of Performance for Stationary Gas

Turbines" (in 40 CFR 60 Subpart GG). The duct burners will be subject to NSPS Subpart Da "Standards of Performance for Electric Utility Steam Generating Units for which Construction is Commenced after September 18, 1978" (40 CFR 60 Subpart Da). The project is also subject to the Acid Rain provisions of Title IV of the Clean Air Act (40 CFR Parts 72 and 75). Additionally, the facility will be required to obtain a Title V operating permit.

Q. DID CATOCTIN POWER ADDRESS COMPLIANCE WITH THE REQUIREMENTS IN THE PREVIOUS QUESTION TO YOUR SATISFACTION?

A. Yes. The applicant addressed compliance with the requirements in the previous question in its CPCN application and subsequent responses to Data Requests.

Q. ARE THERE OTHER STATE AIR REGULATIONS TO WHICH THE PROPOSED PROJECT WILL BE SUBJECT?

A. Yes. Each of the proposed new sources will be subject to various State emissions requirements, including, but not limited to, restrictions on PM and opacity, and on the sulfur content of the fuel. The facility will be subject to MDE's NO_x Reduction and Trading Program regulations, which prohibit NO_x emissions during the ozone season in excess of the allocated amount of NO_x (COMAR 26.11.29 and 30). The facility will also be subject to various recordkeeping and reporting requirements, and will be required to obtain a State Operating Permit.

Q. HAS CATOCTIN POWER ADDRESSED COMPLIANCE WITH APPLICABLE STATE REGULATIONS TO YOUR SATISFACTION?

A. Yes, except that they have not yet identified the source of NO_x and VOC offsets.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes it does.

Appendix A

Statement of Qualifications

APPENDIX A

STATEMENT OF QUALIFICATIONS FOR

WILLIAM PAUL

Air Quality Permits Manager

EDUCATION:

B.S. Chemical Engineering, 1975, Lehigh University, Bethlehem, Pa.
Masters, Business Administration, 1982, Loyola College, Baltimore, Md.
Masters, Environmental Policy, University of MD College Park, pending.

PROFESSIONAL BACKGROUND:

As Chief of the Combustion and Metallurgical Division, Air Quality Permits Program of the Maryland Department of the Environment, Mr. Paul has acquired more than 25 years of experience in air pollution control and the permitting of major stationary sources. This includes 19 years with MDE and 10 years in the private sector designing and marketing air pollution control equipment. As a Division Chief, he has primary responsibility for overseeing air quality application reviews of major stationary sources subject to Prevention of Significant Deterioration (PSD) and non-attainment New Source Review (NSR). In the past several years, Mr. Paul has been extensively involved in permitting the following electric generating stations and independent power producers in Maryland: Old Dominion Electric Cooperative's Rock Springs, Orion Power's Kelson Ridge, PEPCO Station H, PEPCO Chalk Point, Southern Maryland Electric Cooperative (SMECO), BGE Perryman, AES Warrior Run, Panda Brandywine, Montgomery County Resource Recovery Facility, and the Town of Berlin. These projects have involved a detailed assessment of ambient air quality impacts, the application

of best available air pollution control measures and ensuring the inclusion of all applicable federal and state air quality control requirements.