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Mid-Atlantic Express

July 2, 2007

Ms. Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 1st Street N.E.
Washington, D.C. 20426

Dear Ms. Bose:

This letter responds to the issues and/or questions raised by FERC and AMEC during the June 5, 2007 meeting regarding the resolution of Air Quality issues between the FERC and Maryland Department of Natural Resources (MDNR). The issues /questions recorded in the FERC minutes and AES comments on those issues/questions are listed below.

1. **Cumulative Impacts** – *Maggie [Manco] clarified that FERC has consulted with MDNR. Assuming that the terminal will be constructed without the power plant, a configuration that is not subject to PSD permitting requirements, then AES is to include the ECRON ethanol plant in dispersion modeling to address cumulative impacts. No other facility will need to be included in the interactive modeling. Should the power plant be constructed along with the terminal, then PSD permitting requirements would apply, and AES would be required to perform interactive modeling in accordance with MDE's PSD modeling requirements. The MDNR letter to FERC dated April 6, 2007 was referenced for guidance.*

   Should a decision be made to construct the power plant between issuance of the DEIS and the FEIS, the FEIS will need to include the results of the PSD cumulative impact analysis.

   AES Response - In the June 5, 2007 teleconference between representatives of FERC, AMEC, AES, H&A and DLA Piper, and as summarized in meeting minutes dated June 12, 2007, the FERC requested, based on consultation with MDNR, that the proposed ECRON SP ethanol plant emission sources be included in the cumulative air quality impact analysis for the Sparrows Point LNG Terminal. Accordingly, the multiple-source refined dispersion modeling analysis completed in December 2006, and included in Resource Report 9 in AES's FERC application, has been updated. AES understands that should the power plant be constructed along with the terminal, then PSD permitting requirements would apply, and AES would be required to perform interactive modeling in accordance with MDE's PSD modeling requirements, and that the modeling results would need to be included in the FEIS. A decision regarding construction of the power plant has not yet been made. Nevertheless, in order to ensure that a full record is timely developed, the discussion below includes as one assumed scenario that the power plant is constructed and documents the process, assumptions, and results of the updated modeling

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analysis of PM10 emissions.1 Updated Table 9B-2 from Resource Report 9 summarizes both the LNG Terminal and ECRON facility source input parameters used in the updated modeling. The revised tables from Resource Report 9 are included as Attachment B to this letter.

D. Downwash Analysis – Dimensional data for ECRON buildings and other structures were obtained directly from the BPIP output files provided by MDE so that downwash and cavity effects could be modeled in the cumulative analysis. All building and other dimensional data used in the December 2006 LNG Terminal modeling analysis to model downwash effects at the LNG Terminal were unchanged for the current analysis.

E. Meteorological Data and Site Characteristics – The same meteorological data set used in the original modeling analysis documented in Resource Report 9 was used in the current analysis, except that the most recent version of AERMET (version 06341) was used to generate the surface and profile meteorological data files for the AERMOD analysis. Due to the proximity of the LNG Terminal to the ECRON site, and the proximity of both sites to the meteorological monitoring station for the surface data (Baltimore Washington International Airport), the airport site characteristics are considered representative for the AERMOD analysis.

F. Receptors and Terrain Data – Due to the proximity of the ECRON site to the LNG Terminal (the ECRON site is located less than 1,000 meters to the north of the LNG Terminal), the same receptor network used in the original modeling analysis documented in Resource Report 9 was used. 100-meter receptor spacing was used in the vicinity of the ECRON site. Figures 9.3-6 and 9.3-7, included as Attachment C, depict the model setup and near field receptors in the vicinity of the ECRON site.

G. Background Air Quality – Background ambient air quality concentrations used in the updated impact analysis were based on the updated calculations of representative background concentrations presented in AES's response to the FERC Staff's Air Quality Data Request 2, as filed April 5, 2007.

H. Updated Model Results – The results of updated cumulative modeling analysis are included in the revised tables presented in Attachment B, (see revised Resource Report 9 Table 9.3-9 and Appendix 9B Table 9B-7). Other Resource Report 9 and Appendix 9B tables updated by the inclusion of ECRON sources in the modeling analysis are also attached (Tables 9.3-7, 9.3-8 and 9.3-9; Appendix 9B Tables 9B-2, 9B-3, 9B-6, 9B-7 and 9B-8). As shown in Table 9.3-9, compliance with all applicable NAAQS is demonstrated for all pollutants currently included in the Maryland SIP. The

[1] Note: with the exception of the lb/hr emission rates, the English units summarized in Tables 2 and 3 (e.g., feet, degrees F, fps) should have been listed in metric units (meters, degrees K, m/sec). It is believed that the correct values and units were entered into the ISC3P model runs.

analysis that demonstrates compliance for all criteria pollutants with the applicable AAQS included in Maryland's SIP:

A. Scope of Modeling Analysis - The following nine scenarios were modeled to estimate ambient impacts for the cases of the LNG Terminal with and without the power plant (scenarios 8 and "All" were the additional scenarios to address FERC's request) *for the cumulative analysis:*

Source Group / Scenario	Description
1	Terminal sources
2	Terminal + LNG offloading
3	Emergency fire pumps and engine
4	All: Terminal+Offloading+Marine (vessels within security zone)
5	Terminal + Power Plant
6	Terminal + Power Plant + Offloading
7	All: Terminal+Power Plant+Offloading+Marine vessels
8	All ECRON SP sources
All	All AES Sparrows Point + ECRON SP (scenarios 7 + 8)

All other assumptions regarding the modeling scenarios for the LNG Terminal sources are unchanged and as documented in Section 9.3.5.1.A of Resource Report 9.

B. Model Selection - Initial dispersion modeling documented in Resource Report 9 was conducted using AERMOD version 04300. Updated versions of AERMOD (version 07026) and AERMET (version 06341) were released by EPA subsequent to the initial modeling, and have been used for this updated analysis. Default AERMOD control options, as used in the initial analysis, were also used for this updated analysis.

C. Emissions and Source Parameters – There are no changes in the sources, emissions, and other stack parameters used in the updated modeling analysis for LNG Terminal sources. The emissions and source parameters for the ECRON SP sources were obtained directly from the air permit application, and modeling input and output files for the ECRON facility were provided by MDE. The modeling analysis for the ECRON facility was only performed for PM10 emissions sources and the ISC3P model was used. However, emissions of other criteria pollutants were included in the air permit application, and the other source input parameters (e.g., stack locations, elevations, flow rates, temperatures, etc.) were obtained from the ISC3P modeling files. Attachment A to this document is a summary report of the ECRON modeling analysis. Tables 2, 3 and 4 of the ECRON report summarize the model input parameters for the point, area and volume sources included in the ECRON input and output files from the revised modeling are included as Attachment D to this response (provided as a CD).

2. **General Conformity** - *Maggie [Manco] explained that the Statement of General Conformity needs to be written by FERC and will be included in the DEIS. The DEIS will need to address how AES will conform. Subsequent discussion focused on offsets and real mitigation.*

Discussion of emission offsets focused on the availability of offsets in the various nonattainment areas (NAAs) impacted by the project. While MDE has indicated that sufficient offsets are available for the Baltimore NAA, additional information is required regarding the availability of offsets in the Washington, Philadelphia, and Hampton Roads NAAs. FERC requested that AES identify the offsets required in each NAA (and in each state for multi-state NAAs) and that AES identify offset caps that the various permitting authorities may have imposed. If AES needs to obtain offsets across NAAs, AES may need to demonstrate with modeling that such an approach is acceptable (see Cove Point LNG for guidance). AES is to show both scenarios (i.e., terminal with and without power plant).

Discussion of real mitigation included discussions of potentially retrofitting tugs (both those under AES control and not under AES control), including language in bid documents specifying that contractors use construction equipment that meets specific EPA emission standards, and possible projects at other AES locations. In some cases, real mitigation may be more cost effective than acquiring offsets.

FERC requested that AES provide updates and new information to the draft General Conformity analysis previously prepared by AES. FERC will use this additional information as well as the AES draft to prepare the Statement of General Conformity. Given the schedule for filing the DEIS and FEIS, and MDE SIP submittals, the DEIS will comply with 1-hour ozone requirements while the FEIS will comply with 8-hour ozone requirements.

AES Response - In the June 5, 2007 teleconference between representatives of FERC, AMEC, AES, H&A and DLA Piper, and as summarized in meeting minutes dated June 12, 2007, the FERC requested that AES identify the offsets required in each NAA (and in each state for multi-state NAAs), and that AES identify offset caps that the various permitting authorities may have imposed. Although the information was provided in other areas within the draft General Conformity Determination or appendices submitted with the AES FERC application in January 2007 and updated in April 2007, the following tables summarize the requested breakdown of offsets requirements for the proposed terminal, both with the Power Plant (Table 9) and without the Power Plant (Table 10) taken into consideration as requested by FERC Staff and MDNR:

Table 9: LNG Terminal and Pipeline Construction and Operating Phases Offsets Required (TPY) within Nonattainment Areas (With Power Plant)

Year	Baltimore, Harford and Anne Arundel Counties, MD (Metro. Baltimore Intrastate AQCR 115)	Cecil Co., MD + Chester Co., PA (Phila.-Wilmington-Atlantic City, PA-NJ-MD-DE Interstate AQCR)			Chester Co., PA (Phila-Wilmington, PA-NJ-DE Interstate AQCR)	Lancaster Co., PA (AQCR 196)	Calvert Co., MD (Washington, DC-MD-VA AQCR)	Norfolk-Virginia Beach-Newport News (Hampton Roads) VA (AQCR 223)
	O_3 + PM2.5 NA	O_3 NA			PM2.5 NA	O_3 + PM2.5 NA	O_3 NA	O_3 NA
		Cecil Co., MD	Chester Co., PA	Total NA area				
NOx Emissions								
2008	390.6							
2009	776.4	65.5	237.6	303.1	237.2			
2010	196.6							
2011[a]	203.1							112.7
2012 + later	304.7						121.0	169.0
VOC Emissions								
2008								
2009	95.6							
2010								
2011[a]								
2012 + later								
PM2.5 Emissions								
2008								
2009								
2010								
2011[a]							b	B
2012 + later							b	B
SOx Emissions								
2008								
2009								
2010								
2011[a]							b	B
2012 + later	124.4						b	B
NH3 Emissions								
2008								
2009								
2010								
2011[a]							b	B
2012 + later							b	B

a. AES anticipates commercial operation to begin 1/1/2011 at partial (1/3) capacity. Full capacity operation is anticipated to begin 6/1/011.

b. Area in attainment with respective AAQS.

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Table 10: LNG Terminal and Pipeline Construction and Operating Phases Offsets Required (TPY) within Nonattainment Areas (Without Power Plant)

Year	Balt., Harford and Anne Arundel Cos., MD (Metro. Balt. Intrastate AQCR 115)	Cecil Co., MD + Chester Co., PA (Phila.-Wilmington-Atlantic City, PA-NJ-MD-DE Interstate AQCR)			Chester Co., PA (Phila-Wilmington, PA-NJ-DE Interstate AQCR)	Lancaster Co., PA (AQCR 196)	Calvert Co., MD (Washington, DC-MD-VA AQCR)	Norfolk-VA Beach-Newport News (Hampton Roads) VA (AQCR 223)
	O_3 + PM2.5 NA	*O_3 NA*			*PM2.5 NA*	*O_3 + PM2.5 NA*	*O_3 NA*	*O_3 NA*
		Cecil Co., MD	Chester Co., PA	Total NA area				
NOx Emissions								
2008	341.9							
2009	692.7	65.5	237.6	303.1	237.2			
2010	168.8							
2011[a]	203.1							112.7
2012 + later	304.7						121.0	169.0
VOC Emissions								
2008								
2009	81.7							
2010								
2011[a]								
2012 + later								
PM2.5 Emissions								
2008								
2009								
2010								
2011[a]							B	B
2012 + later							B	B
Sox Emissions								
2008								
2009								
2010								
2011[a]							B	B
2012 + later	124.4						B	B
NH3 Emissions								
2008								
2009								
2010								
2011[a]							B	B
2012 + later							B	B

a. AES anticipates commercial operation to begin 1/1/2011 at partial (1/3) capacity. Full capacity operation is anticipated to begin 6/1/011.

b. *Area in attainment with respective AAQS.*

In addition to the summary of offsets needed, summarized by NAA above, FERC Staff also requested that AES identify offset caps that the various permitting authorities may have imposed.

As noted above, MDE has indicated that sufficient offsets are available for the Baltimore NAA. For the Washington NAA, AES has learned from MDE that it could either seek authorization from EPA to use Baltimore area NOx credits, or rely on 51 available certified NOx credits in the Washington NAA and seek certification of the remaining credits needed, from the 169 Washington NAA area NOx credits that are available for certification and sale. AES has verified with MDE that EPA authorized the Cove Point project in the Washington NAA to utilize NOx credits from the Baltimore NAA, after verifying through modeling that the NAAs were interconnected. As to the not-yet-certified offsets available from the Washington NAA area, certification could be sought from either EPA or, once MDE promulgates its proposed New Source Review regulation later this year, from MDE.

For the Philadelphia NAA, AES has consulted Pennsylvania's Emission Reduction Credits (ERC) Registry, last updated June 2007, and found that the registry indicates a sufficient inventory of certified ERCs to satisfy the need indicated in the above Tables. Pennsylvania and Maryland have in place a Reciprocity Agreement for the trading of ERCs between the two. MDE has indicated that offsets needed for the Cecil County component could come either from out-of-state parts of the Philadelphia NAA or from the Baltimore NAA.

Offsets will not be required for the Hampton Roads, Virginia NAA because this NAA has been redesignated as in attainment for ozone. 72 Fed. Reg. 18602, April 13, 2007. The Virginia regulations have not yet been revised to account for the redesignation. The regional office of the Virginia Department of Environment Quality (VDEQ) is, on instructions from the VDEQ central office, telling applicants for NSR permits to submit their applications assuming that they will be handled as applications for an attainment area. The regional office expects the regulations to be revised in the fall.

AES did not identify any offset caps for the NAA's of concern.

FERC Staff and MDNR also requested that AES evaluate direct mitigation options for project impacts as well as the aforementioned offsets. The FERC Minutes of Meeting dated June 12, 2007 identify three direct mitigation options: (1) retrofitting tugboats, (2) requiring that contractors use construction equipment that meets specific EPA emission standards, and (3) possible direct mitigation projects at other AES locations. Each of these options is addressed as follows:

<u>Tugboat Retrofit</u>. There are a variety of options for reducing the emissions from tugboats and support vessels, including both those under AES control and those not under AES control. The use of add-on control equipment, such as diesel oxidation catalysts, diesel

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particulate filters, selective catalytic reduction, and lean-NOx catalysts can provide substantial emissions benefits; however, because the feasibility of adopting controls is generally vessel specific, emission benefits may vary. A potentially better option that could result in significant emission benefits is the re-powering of existing vessels with cleaner new engines. AES is willing to further explore both of these direct mitigation strategies.

Construction Controls. AES is willing to include language in bid documents to its contractors that specifies that contractors use construction equipment that meets specific regional EPA emission standards.

Mitigation at Other AES Projects. AES will also consider direct compensatory mitigation projects at other AES locations. In particular, AES will review its Warrior Run facility in Cumberland, Maryland as a potential candidate site for such mitigation. Quantification of the amount of emission reductions at such facilities could be easily documented.

As stated in its April 5, 2007 response to FERC Staff request No. 15 dated March 7, 2007, AES analyzed the potential for cold-ironing LNG ships while at berth at the Terminal Site, and determined that this option cannot be used. AES does not own the ships that will be delivering LNG to the LNG Terminal; thus, AES is dependent on the contracted ships having this capability. A review of the available ships to deliver LNG to the Terminal Site shows that there are neither current LNG vessels operating, nor ones that have been ordered, that offer this option. The lack of available operating vessels, or ones on order that offer this option, eliminates any potential for cold-ironing. As further detailed in the response, the increased safety risk, the lack of expected net benefit in emissions, and the significant negative economic impact on the Project, support the conclusion that this option is not viable. When the evaluation of potential mitigation options is complete, for both direct mitigation and offsets, AES will provide a summary of its preferred mitigation options to the FERC, and will ensure that a combination of both means are used to offset project emissions.

AES acknowledges that these issues have taken time to resolve between the FERC Staff and the State of Maryland's agencies providing input to the air quality characterization (MDNR and Maryland Department of the Environment – MDE). AES also apppreciates the efforts that have been undertaken by these agencies in this regard, and trusts that the responses contained herein adequately address the questions and concerns raised by the agencies and their representatives.

Respectfully submitted,

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Attachments

Attachment A – Summary Report of ECRON Modeling Analysis
Attachment B – Revised Tables from Resource Report and Appendix B of Resource Report 9
Attachment C – Figures 9.3-6 and 9.3-7
Attachment D – CD Containing Input and Out Files from Revised Modeling Scenarios

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Attachment A

Summary Report of ECRON Modeling Analysis

Ecron, SP has submitted an application to obtain an air quality construction permit to construct and install a 110 MM gallon ethanol production facility in Sparrows Point, Maryland. Ecron is proposing several emissions controls to decrease potential emissions. This air dispersion modeling analysis and summary are being submitted to Maryland DEQ as requested to provide additional analysis related to PM-10 emissions from the site. This analysis demonstrates that PM-10 impacts will not contribute to or exceed any National Ambient Air Quality Standard (NAAQS).

The following information documents the process that was taken and the results of the refined modeling analysis:

- A refined dispersion modeling analysis has been completed to determine concentrations for the following pollutant:
  - PM-10, 24-Hour Averaging Period
- The terrain in the immediate vicinity of the area is relatively flat. However, digital terrain has been used to determine elevations for onsite buildings, sources, and receptors. Modeling incorporates terrain to determine effects of both simple and complex elevations. All modeling is based on Universal Transverse Mercator (UTM) grid coordinates. This facility will be modeled as URBAN due to the location of the site in relation to the surrounding industrial area and proximity to Baltimore.
  - Terrain data used in the model to determine local elevations. Electronic DEM files have been imported into the model to determine terrain elevations for buildings, sources and receptors. The elevated terrain data has been interpolated from US Geological Survey (USGS) terrain elevations for the area being modeled. The following 7.5 quadrangles have been used:
    - Sparrows Point Quadrangle
    - Curtis Bay Quadrangle
    - Middle River Quadrangle
    - Baltimore East Quadrangle
- The dispersion modeling has incorporated the use of 5 years of NWS meteorological data assumed to be representative of the site. The model uses surface meteorological data from Baltimore/Washington International Airport coupled with mixing height data from Sterling, Virginia for the years 1986, 1987, 1988, 1990, and 1991. This data has been obtained from the Support Center for Regulatory Air Models (SCRAM) section on EPA's Office of Air Quality

Planning and Standards (OAQPS) Technology Transfer Network (TTN) website and mixed with the appropriate preprocessors, also available from the SCRAM section.

- A background concentration has been incorporated to determine impacts. Background is documented in the results table below. Other nearby sources have not been included or determined as part of this modeling analysis.

- Sources at the facility have been modeled as area, point or volume sources. Details on how groups of sources have been modeled are found below:

  - The cooling tower has been modeled as four point sources based on the size and location of each cell of the cooling tower. The cooling tower point has been placed at the point of each cooling tower cell. Parameters include the height to the top of the cell, diameter of each cell, temperature of the exhaust, and air flow of the fan. The total emissions determined in the potential to emit have been divided evenly between the number of cells.

  - Other sources modeled as point sources include all baghouses, RTO stacks, and/or boiler stacks. For all Point Sources, each point has been modeled with the specific height, diameter, temperature and flow for that emission point.

  - Fugitive emissions generated from grain receiving/DDGS loading have been modeled as volume sources, located at the point of entrance/egress of the grain receiving building. Emissions from these sources have been split evenly among the building doors. Volume dimensions have been based on the parameters of the building. Typically volume sources can be modeled using the parameters of the building in which the source occurs. For extra conservatism, the fugitives have been modeled as volume sources based on the parameters of the building doors. This cushion has been incorporated to allow for any contingencies in the model. The vertical dimension is based on the height of the building door divided by 2.15 (14'/2.15=6.496 feet). The horizontal dimension is based on the width of the building door, divided by 4.3 (12'/4.3=2.7887 feet). The release height is based on half the height of the door (14'/2 =7 feet).

  - Roads have been modeled as area sources using a 2 meter release height. The vertical dimension is based on the height of an average truck (12 feet) divided by 2.15 (5.574 feet). Only internal haul roads that receive bulk deliveries and the majority of the traffic have been considered in the modeling analysis. Emissions have been applied to each road segment based on unit of length.

  - Flares and emergency generators have not been included in this modeling analysis. All process equipment has been modeled as if operating a full year (8,760 hours per year). The emissions from the process equipment are worse than the flares or emergency generators. For example, the emergency generator only operates the fire water pump, which will only operate in cases of emergency. Therefore, it can be assumed that if the generator is operating, the rest of the plant would not be operating. This procedure is consistent among other state's modeling protocols.

- Model receptors have been arranged in rectangular grids surrounding the proposed facility. Receptors have been placed at 50-meter intervals along the property line. Additional receptors have been placed at 50-meter intervals out to approximately 250 meters from the approximate center of the facility. Additional receptors have then been placed at 100 meter intervals from the 250 meter boundary out to 2,500 meters and 250 meter intervals from the 2,500 meter boundary out to approximately 5,000 meters. Receptors have not been included within the property boundary.
- The air dispersion modeling software used has been provided by Bee-Line Software. The modeling was performed using the most updated version. This incorporates the use of Building Downwash.
- Dispersion modeling was conducted using the Environmental Protection Agency (EPA) Industrial Source Complex-Prime Dispersion Model (ISC3P). The use of Prime incorporates the effects of building downwash and determines potential cavity areas.
- All regulatory default options have been selected.
- For emissions information, please see the detailed emission calculations.
- It should be noted that the plant layout is still in the process of being finalized, and therefore, it is unknown the exact number of stacks and sources as well as the stack parameters for each source. Good engineering practices are used in determining stack parameters. This modeling analysis has been performed utilizing the most current and accurate data to date. If any information contained within this analysis is modified, the MDEQ will be notified, and the modeling analysis will be re-run with any updated information.
- Appendix W to 40 CFR Part 5 and the User's Guide for Industrial Source Complex Dispersion Models, Volume II (EPA-454/B-95-003b) have been used for reference and guidance as necessary.

TABLE 1
SUMMARY OF MODELING RESULTS
ECRON, SP
Baltimore, Maryland

Averaging Time	Pollutant	Model Prediction (µg/m³)	Background (µg/m³)	Total Impact (µg/m³)	Primary NAAQS (µg/m³)	Receptor UTM (meters) E-W	Receptor UTM (meters) N-S	Worst-Case Date
24-Hour Average (1st Highest High of 5 years)	PM-10	45.47	64	109.47	150	371,126.6	4,342,693	11/03/1990

entered as metric units in ISC input files - correct

TABLE 2
SUMMARY OF POINT SOURCE PARAMETERS
ECRON, SP
Baltimore, Maryland

Source ID	Source Description	Easting (m)	Northing (m)	Elevation (m)	Stack Height (feet)	Temp. (F)	Exit Velocity (fps)	Stack Diameter (feet)	PM-10 (lbs/hr)
CTC1	Cooling tower cell 1	370,898	4,342,668	2.6	13.7	302.6	7.9	7.7	0.78
CTC2	Cooling tower cell 2	370,911	4,342,669	2.5	13.7	302.6	7.9	7.7	0.78
CTC3	Cooling tower cell 3	370,924	4,342,670	2.5	13.7	302.6	7.9	7.7	0.78
CTC4	Cooling tower cell 4	370,937	4,342,672	2.5	13.7	302.6	7.9	7.7	0.78
BOILER1	Boiler	371,050	4,342,609	3.4	15.2	449.8	13.7	1.5	0.38
BOILER2	Boiler	371,051	4,342,598	3.4	15.2	449.8	13.7	1.5	0.38
S34	Barge Loadout, RTO 4	370,913	4,342,542	3.2	22.9	466.5	8.6	1.7	0.0007
S10	RTO 123 and dryers	370,903	4,342,621	3.2	22.9	466.5	15.2	2.4	4.29
S20	Unloading Baghouse	371,009	4,342,715	2.3	12.2	292.6	19.4	1.2	2.06
S30	Hammermill Baghouse	371,009	4,342,708	2.8	12.2	292.6	16.3	1.0	1.20
S90	DDG Loading Baghouse	371,049	4,342,695	3	12.2	292.6	12.5	0.7	0.39

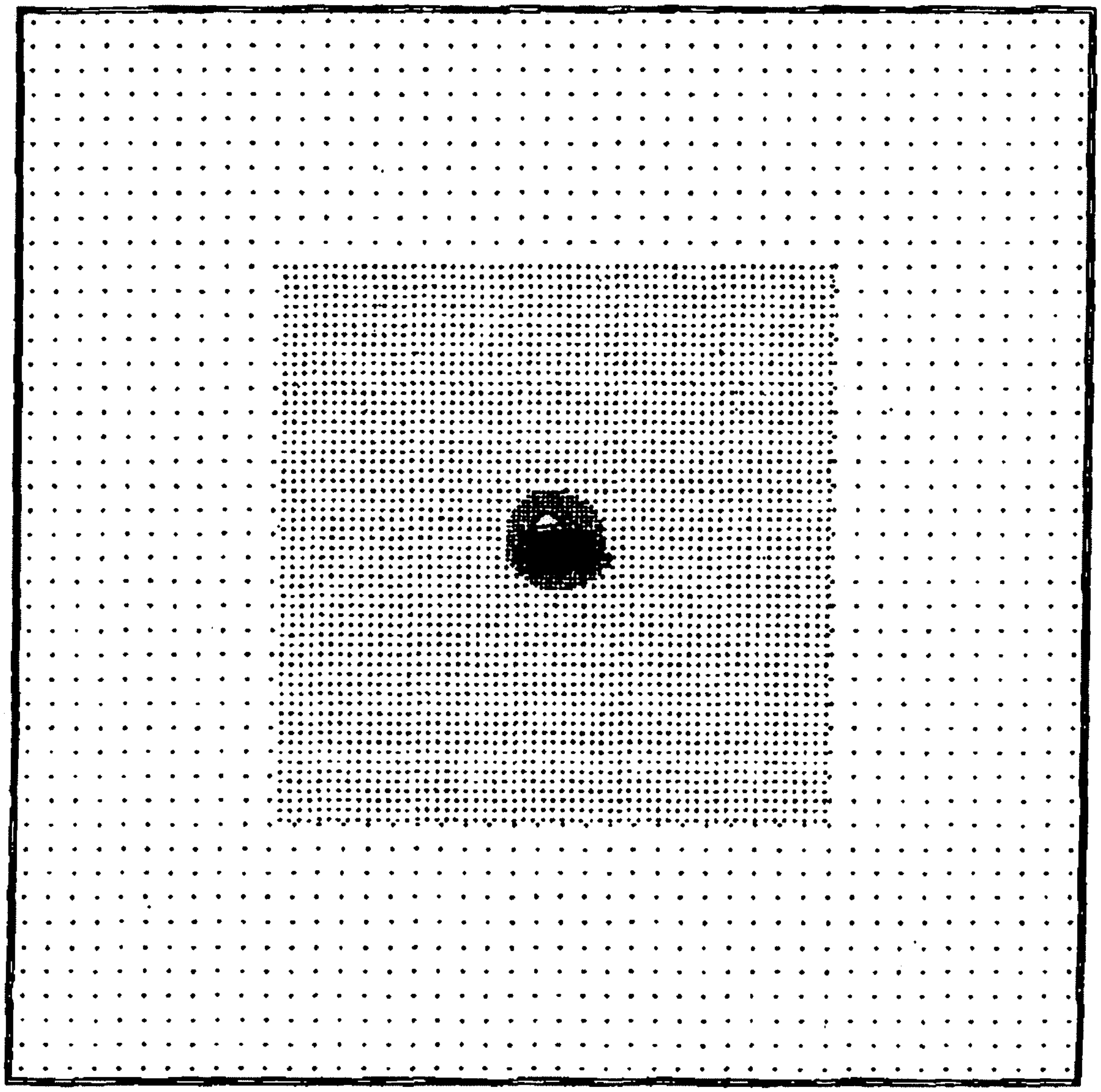
TABLE 3
SUMMARY OF AREA SOURCE PARAMETERS
ECRON, SP
Baltimore, Maryland

Source ID	Easting (m)	Northing (m)	Elevation (m)	Release Height (m)	Easterly Length (m)	Northerly Length (m)	Angle	Vertical Dimension (m)	PM-10 (lbs/hr)
RD1	371,034	4,342,860	0.3	2	10.67	42.67	59	5.58	0.03
RD2	371,031	4,342,851	0.3	2	9.14	91.44	-98	5.58	0.05
RD3	370,940	4,342,838	0.3	2	9.14	91.44	-97	5.58	0.05
RD4	370,848	4,342,828	0.3	2	9.14	91.44	-97	5.58	0.05
RD5	370,757	4,342,818	0.3	2	9.14	45.72	-97	5.58	0.03
RD6	370,714	4,342,812	0.3	2	9.14	22.86	250	5.58	0.01
RD7	370,694	4,342,807	0.3	2	9.14	22.86	200	5.58	0.01
RD8	370,687	4,342,787	0.3	2	9.14	60.96	185	5.58	0.04
RD9	370,680	4,342,726	0.3	2	9.14	53.34	180	5.58	0.03
RD10	370,679	4,342,674	0.7	2	9.14	24.38	168	5.58	0.01
RD11	370,685	4,342,653	0.9	2	9.14	24.38	144	5.58	0.01
RD12	370,696	4,342,637	1.2	2	9.14	24.38	113	5.58	0.01
RD13	370,721	4,342,628	1.5	2	9.14	24.38	135	5.58	0.01
RD14	370,736	4,342,609	1.9	2	9.14	83.82	173	5.58	0.05
RD15	370,745	4,342,530	2.8	2	9.14	32	135	5.58	0.02
RD16	370,764	4,342,508	3	2	9.14	91.44	84	5.58	0.05
RD17	370,856	4,342,516	3.5	2	9.14	91.44	83	5.58	0.05
RD18	370,947	4,342,528	3	2	9.14	91.44	83	5.58	0.05
RD19	371,036	4,342,537	3.4	2	9.14	36.58	45	5.58	0.02
RD20	371,059	4,342,562	3.4	2	9.14	35.05	17	5.58	0.02
RD21	371,068	4,342,594	3.4	2	9.14	65.53	-7	5.58	0.04
RD22	370,724	4,342,627	1.6	2	9.14	91.44	83	5.58	0.05
RD23	370,815	4,342,638	2.7	2	9.14	91.44	83	5.58	0.05
RD24	370,906	4,342,649	3.1	2	9.14	91.44	83	5.58	0.05
RD25	370,997	4,342,660	3	2	9.14	71.63	83	5.58	0.04
RD26	371,059	4,342,668	3	2	9.14	21.34	-7	5.58	0.01
RD27	371,048	4,342,751	1.1	2	9.14	60.96	-7	5.58	0.04
RD28	371,041	4,342,811	0.3	2	9.14	36.58	-7	5.58	0.02
RD29	371,037	4,342,844	0.3	2	9.14	14.63	-45	5.58	0.01

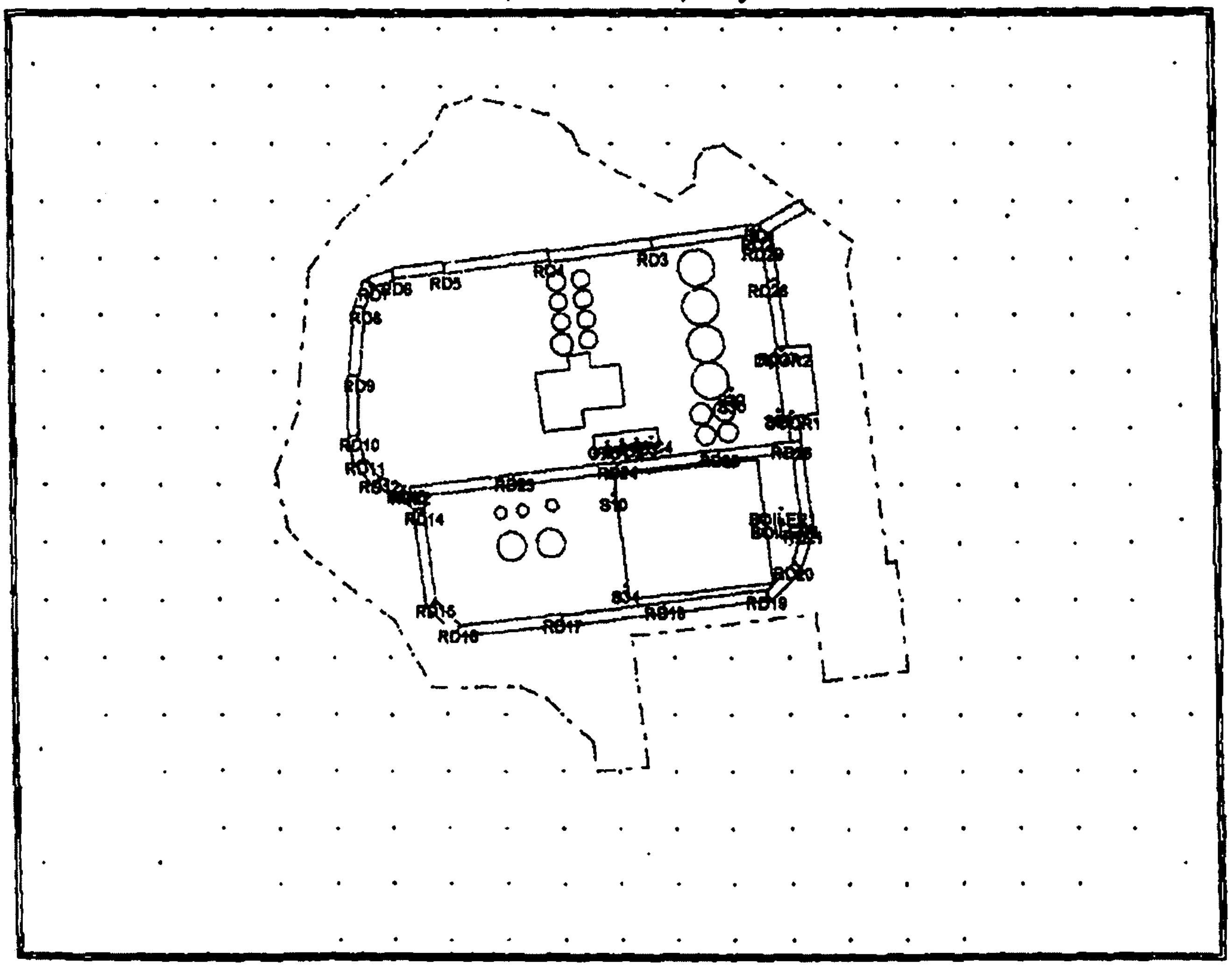
TABLE 4
SUMMARY OF VOLUME SOURCE PARAMETERS
ECRON, SP
Baltimore, Maryland

Source ID	Easting (m)	Northing (m)	Elevation (m)	Release Height (m)	Horizontal Dimension (m)	Vertical Dimension (m)	PM-10 (lbs/hr)
DOOR1	371,060	4,342,694	1.4	2.13	0.85	1.98	0.191
DOOR2	371,052	4,342,750	1.4	2.13	0.85	1.98	0.191

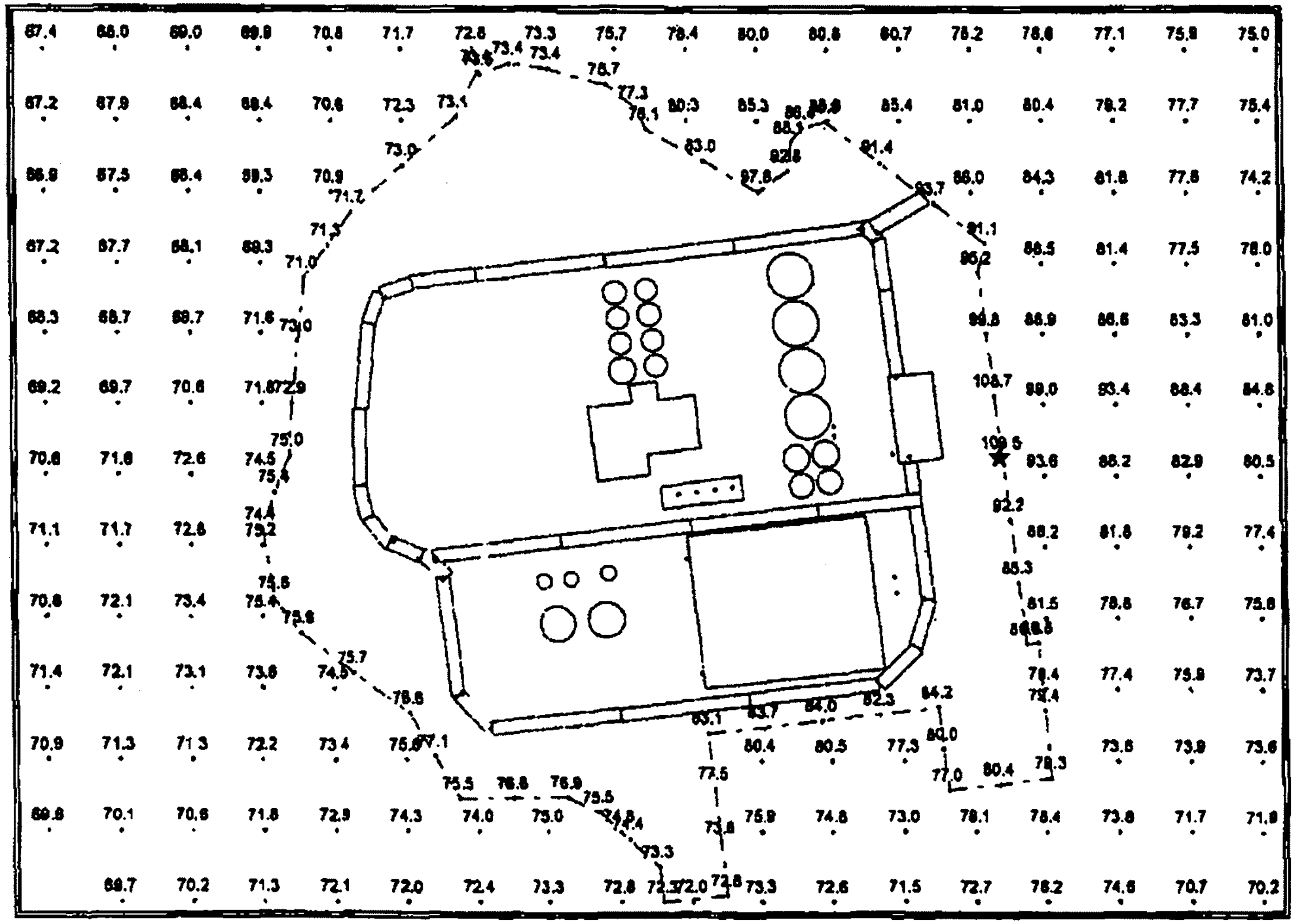
PICTURE 1
RECEPTOR GRID
ECRON, SP – Baltimore, Maryland



PICTURE 2
RECEPTOR GRID – FACILITY LAYOUT
ECRON, SP – Baltimore, Maryland



PICTURE 3
HIGH RECEPTOR AND CONCENTRAION (1990)
ECRON, SP – Baltimore, Maryland



SUMMARY OF CRITERIA POLLUTANT EMISSIONS

		EMISSION RATE			EMISSION RATE		
		VOC			PM		
MDE REG.#	DESCRIPTION	(lbs/hr)	(lbs/day)	(tons/year)	(lbs/hr)	(lbs/day)	(tons/year)
005-2602-5-2084	Package Boiler #1 Stack	0.28	6.60	1.21	0.38	9.12	1.67
005-2602-5-2085	Package Boiler #2 Stack	0.28	6.60	1.21	0.38	9.12	1.67
005-2602-9-1306	Firewater Pump Stack	0.09	0.01	0.002	0.06	0.01	0.002
005-2602-8-0336	Grain Processing	N/A	N/A		4.47	107.38	19.60
005-2602-8-0337	Ethanol Plant	3.86	92.60	16.90	10.66	255.88	46.70
005-2602-9-1307	Storage Tanks	0.66	15.95	2.91			
005-2602-9-1308	Loading Operations	0.57	13.57	2.48			
005-2602-9-1309	Cooling Tower	N/A	N/A		3.13	75.07	13.70
	TOTAL	5.73	135.34	24.70	19.08	456.60	83.33

Note: If PM-10 emission factors were available, PM-10 emissions were calculated separately from PM emissions. If PM-10 emission factors were not available, it was assumed that all PM emitted was also PM-10.

SUMMARY OF CRITERIA POLLUTANT EMISSIONS

		EMISSION RATE PM-10			EMISSION RATE TOTAL		
MDE REG.#	DESCRIPTION	(lbs/hr)	(lbs/day)	(tons/year)	(lbs/hr)	(lbs/day)	(tons/year)
005-2602-5-2064	Package Boiler #1 Stack	0.38	9.12	1.67	3.82	91.66	16.71
005-2602-5-2065	Package Boiler #2 Stack	0.38	9.12	1.67	3.82	91.66	16.71
005-2602-9-1306	Firewater Pump Stack	0.08	0.01	0.00	4.23	0.58	0.11
005-2602-8-0336	Grain Processing	3.64	87.33	15.94	8.11	194.71	35.53
005-2602-8-0337	Ethanol Plant	5.68	136.24	24.86	53.59	1286.20	234.73
005-2602-9-1307	Storage Tanks	N/A	N/A	[illegible]	0.66	15.95	2.91
005-2602-9-1308	Loading Operations	0.00	0.02	[illegible]	1.52	36.51	6.66
005-2602-9-1309	Cooling Tower	3.13	75.07	13.70	6.26	150.14	27.40
	TOTAL	13.26	316.91	57.84	82.01	1867.21	340.77

Note: If PM-10 emission factors were available, PM-10 emissions were calculated separately from PM emissions. If PM-10 emission factors were not available, it was assumed that all PM emitted was also PM-10.

OPERATION SUMMARY

SUMMARY OF CRITERIA POLLUTANT EMISSIONS

MOE REG. NUMBER	STACK ID	DESCRIPTION	EMISSION RATE NOx (lbs/hr)	(lbs/day)	(tons/year)	EMISSION RATE SOx (lbs/hr)	(lbs/day)	(tons/year)
005-2602-5-2064	S11	Package Boiler #1 Stack	1.000	24.000	4.380	0.030	0.712	0.130
005-2602-5-2065	S11	Package Boiler #2 Stack	1.000	24.000	4.380	0.030	0.712	0.130
005-2602-0-1306	S100	Firewater Pump Stack	3.450	0.473	0.086	0.360	0.063	0.010
	S20	Unloading Baghouses Stack	[redacted]					
	S30	Hammermill Baghouse Stack	[redacted]					
	N/A	Grain Receiving Fugitives	[redacted]					
	N/A	Grain Handling Fugitives	[redacted]					
	N/A	Storage Bin Fugitives	[redacted]					
005-2602-8-0338	N/A	Grain Scalping Fugitives	[redacted]					
	S33	RTO #1 Stack	0.479	11.507	2.100	0.007	0.164	0.030
	S10	RTO#2 and RTO #3	1.060	24.000	4.380	0.007	0.164	0.030
	S10	DDGS Steam Tube Dryers	[redacted]			18.333	440.000	80.300
	S60	Biomethanator Flare	0.060	1.425	0.260	[redacted]		
	S33	Cooling Drum	[redacted]					
	S33	Fermenters/CO2 Scrubber	[redacted]					
	N/A	Equipment Leaks	[redacted]					
	N/A	Insignificant Sources	[redacted]					
	S90	DDGS Handling Baghouse	[redacted]					
	N/A	DDGS Handling and Storage	[redacted]					
005-2602-8-0337	N/A	Paved Roads-In plant	[redacted]					
	TS1	1,500,000 gallon denatured ethanol storage tanks	[redacted]					
	TS2	1,500,000 gallon denatured ethanol storage tanks	[redacted]					
	TS3	200,000 gallon 200 proof (100%) ethanol storage tank	[redacted]					
	TS4	200,000 gallon denaturant (natural gasoline) storage tank	[redacted]					
	TS5	200,000 gallon 190 proof (95%) ethanol storage tank	[redacted]					
005-2602-9-1307	Corrosion Inhibitor	3,000 gallon low vapor pressure corrosion inhibitor storage tank.	[redacted]					
	S50	Truck/Rail Loadout	0.105	2.521	0.460	[redacted]		
	S35	Barge Loadout TO	0.114	2.740	0.500	0.000	0.002	0.000
	S50	Rail Product Loading	[redacted]					
	S50	Truck Product Loading	[redacted]					
005-2602-9-1308	S35	Barge Product Loading	[redacted]					
005-2602-9-1309	F80	Cooling Tower	[redacted]					

OPERATION SUMMARY

SUMMARY OF CRITERIA POLLUTANT EMISSIONS

MDE REG. NUMBER	STACK ID	DESCRIPTION	EMISSION RATE CO (lbs/hr)	EMISSION RATE CO (lbs/day)	EMISSION RATE CO (tons/year)	EMISSION RATE VOC (lbs/hr)	EMISSION RATE VOC (lbs/day)	EMISSION RATE VOC (tons/year)
005-2602-5-2064	S11	Package Boiler #1 Stack	1.750	42.000	7.665	0.275	6.603	1.205
005-2602-5-2065	S11	Package Boiler #2 Stack	1.750	42.000	7.665	0.275	6.603	1.205
005-2602-9-1305	S100	Firewater Pump Stack	0.180	0.025	0.005	0.090	0.012	0.002
	S20	Unloading Baghouses Stack	N/A	N/A	N/A	N/A	N/A	N/A
	S30	Hammermill Baghouse Stack	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	Grain Receiving Fugitives	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	Grain Handling Fugitives	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	Storage Bin Fugitives	N/A	N/A	N/A	N/A	N/A	N/A
005-2602-8-0336	N/A	Grain Scalping Fugitives	N/A	N/A	N/A	N/A	N/A	N/A
	S33	RTO #1 Stack	1.009	24.219	4.420	N/A	N/A	N/A
	S10	RTO#2 and RTO #3	12.221	293.315	53.530	1.710	41.041	7.490
	S10	DDGS Steam Tube Dryers	N/A	N/A	N/A	N/A	N/A	N/A
	S60	Biomethanator Flare	0.279	6.666	1.220	0.039	0.932	0.170
	S33	Cooling Drum	N/A	N/A	N/A	0.030	0.712	0.130
	S33	Fermenters/CO2 Scrubber	N/A	N/A	N/A	0.201	4.822	0.880
	N/A	Equipment Leaks	N/A	N/A	N/A	1.731	41.534	7.580
	N/A	Insignificant Sources	N/A	N/A	N/A	0.148	3.562	0.650
	S60	DDGS Handling Baghouse	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	DDGS Handling and Storage	N/A	N/A	N/A	N/A	N/A	N/A
005-2602-8-0337	N/A	Paved Roads-in plant	N/A	N/A	N/A	N/A	N/A	N/A
	T61	1,500,000 gallon denatured ethanol storage tanks	N/A			0.073	1.746	0.319
	T62	1,500,000 gallon denatured ethanol storage tanks	N/A			0.073	1.746	0.319
	T63	200,000 gallon 200 proof (100%) ethanol storage tank	N/A			0.108	2.602	0.475
	T64	200,000 gallon denaturant (natural gasoline) storage tank	N/A			0.301	7.218	1.317
	T65	200,000 gallon 190 proof (95%) ethanol storage tank	N/A			0.108	2.602	0.475
005-2602-9-1307	Corrosion Inhibitor	3,000 gallon low vapor pressure corrosion inhibitor storage tank.	N/A			0.002	0.037	0.007
	S50	Truck/Rail Loadout	0.532	12.767	2.330	0.074	1.778	0.324
	S35	Barge Loadout TO	0.203	4.877	0.890	0.028	0.668	0.122
	S50	Rail Product Loading	N/A			0.010	0.242	0.044
	S50	Truck Product Loading	N/A			0.342	8.212	1.499
005-2602-9-1308	S35	Barge Product Loading	N/A			0.111	2.670	0.487
005-2602-9-1309	F80	Cooling Tower	N/A			N/A	N/A	N/A

OPERATION SUMMARY

SUMMARY OF CRITERIA POLLUTANT EMISSIONS

MDE REG. NUMBER	STACK ID	DESCRIPTION	EMISSION RATE PM (lbs/hr)	EMISSION RATE PM (lbs/day)	EMISSION RATE PM (tons/year)	EMISSION RATE PM-10 (lbs/hr)	EMISSION RATE PM-10 (lbs/day)	EMISSION RATE PM-10 (tons/year)
005-2602-6-2064	S11	Package Boiler #1 Stack	0.380	9.123	1.665	0.380	9.123	1.665
005-2602-5-2065	S11	Package Boiler #2 Stack	0.380	9.123	1.665	0.380	9.123	1.665
005-2602-9-1306	S100	Firewater Pump Stack	0.060	0.008	0.002	0.060	0.008	0.002
	S20	Unloading Baghouses Stack	2.060	49.440	9.023	2.060	49.440	9.023
	S30	Hammermill Baghouse Stack	1.200	28.800	5.256	1.200	28.800	5.256
	N/A	Grain Receiving Fugitives	0.269	6.455	1.178	0.049	1.178	0.216
	N/A	Grain Handling Fugitives	0.597	14.318	2.613	0.213	5.123	0.935
	N/A	Storage Bin Fugitives	0.236	5.656	1.032	0.079	1.886	0.344
005-2602-6-0336	N/A	Grain Scalping Fugitives	0.113	2.712	0.495	0.036	0.904	0.165
	S33	RTO #1 Stack	N/A	N/A	[illegible]	[illegible]	[illegible]	[illegible]
	S10	RTO#2 and RTO #3	4.073	97.753	17.840	4.073	97.753	17.840
	S10	DDGS Steam Tube Dryers	N/A	N/A	[illegible]	[illegible]	[illegible]	[illegible]
	S60	Biomethanator Flare	N/A	N/A	[illegible]	[illegible]	N/A	[illegible]
	S33	Cooling Drum	0.240	5.753	1.050	0.240	5.753	1.050
	S33	Fermenters/CO2 Scrubber	0.003	0.066	0.012	0.001	0.033	0.006
	N/A	Equipment Leaks	N/A	N/A	N/A	N/A	N/A	N/A
	N/A	Insignificant Sources	N/A	N/A	[illegible]	[illegible]	N/A	[illegible]
	S90	DDGS Handling Baghouse	0.390	9.370	1.710	0.390	9.370	1.710
	N/A	DDGS Handling and Storage	0.008	0.197	0.036	0.002	0.036	0.007
005-2602-6-0337	N/A	Paved Roads-in plant	5.947	142.740	26.060	0.970	23.288	4.250
	T61	1,500,000 gallon denatured ethanol storage tanks	N/A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	T62	1,500,000 gallon denatured ethanol storage tanks	N/A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	T63	200,000 gallon 200 proof (100%) ethanol storage tank	N/A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	T64	200,000 gallon denaturant (natural gasoline) storage tank	N/A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	T65	200,000 gallon 190 proof (95%) ethanol storage tank	N/A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
005-2602-9-1307	Corrosion Inhibitor	3,000 gallon low vapor pressure corrosion inhibitor storage tank.	N/A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	S60	Truck/Rail Loadout	N/A	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	S35	Barge Loadout TO	0.001	0.016	0.003	0.001	0.016	0.003
	S50	Rail Product Loading	N/A	N/A	N/A	[illegible]	[illegible]	[illegible]
	S60	Truck Product Loading	N/A	N/A	[illegible]	[illegible]	[illegible]	N/A
005-2602-9-1308	S35	Barge Product Loading	N/A	N/A	[illegible]	[illegible]	[illegible]	N/A
005-2602-9-1309	F60	Cooling Tower	3.128	75.068	13.700	3.128	75.068	13.700

SUMMARY OF CRITERIA POLLUTANT EMISSIONS

MDE REG. NUMBER	STACK ID	DESCRIPTION	EMISSION RATE TOTAL (lbs/hr)	EMISSION RATE TOTAL (lbs/day)	EMISSION RATE TOTAL (tons/year)
005-2602-5-2064	S11	Package Boiler #1 Stack	3.435		15.045
005-2602-5-2065	S11	Package Boiler #2 Stack	3.435	82.438	15.045
005-2602-9-1306	S100	Firewater Pump Stack	4.170	0.571	0.104
	S20	Unloading Baghouses Stack	2.060	49.440	9.023
	S30	Hammermill Baghouse Stack	1.200	28.800	5.256
	N/A	Grain Receiving Fugitives	0.269	6.455	1.178
	N/A	Grain Handling Fugitives	0.597	14.318	2.613
	N/A	Storage Bin Fugitives	0.236	5.655	1.032
005-2602-6-0336	N/A	Grain Scalping Fugitives	0.113	2.712	0.495
	S33	RTO #1 Stack	1.495	35.880	6.550
	S10	RTO#2 and RTO #3	19.011	456.274	83.270
	S10	DDGS Steam Tube Dryers	18.333	440.000	80.300
	S60	Biomethanator Flare	0.377	9.041	1.650
	S33	Cooling Drum	0.269	6.466	1.180
	S33	Fermenters/CO2 Scrubber	0.204	4.888	0.892
	N/A	Equipment Leaks	1.731	41.534	7.580
	N/A	Insignificant Sources	0.148	3.562	0.650
	S90	DDGS Handling Baghouse	0.390	9.370	1.710
	N/A	DDGS Handling and Storage	0.008	0.197	0.036
005-2602-6-0337	N/A	Paved Roads-in plant	5.947	142.740	26.050
	T61	1,500,000 gallon denatured ethanol storage tanks	0.073	1.746	0.319
	T62	1,500,000 gallon denatured ethanol storage tanks	0.073	1.746	0.319
	T63	200,000 gallon 200 proof (100%) ethanol storage tank	0.108	2.602	0.475
	T64	200,000 gallon denaturant (natural gasoline) storage tank	0.301	7.218	1.317
	T65	200,000 gallon 190 proof (95%) ethanol storage tank	0.108	2.602	0.475
005-2602-9-1307	Corrosion Inhibitor	3,000 gallon low vapor pressure corrosion inhibitor storage tank.	0.002	0.037	0.007
	S50	Truck/Rail Loadout	0.711	17.066	3.114
	S35	Barge Loadout TO	0.346	8.303	1.515
	S50	Rail Product Loading	0.010	0.242	0.044
	S50	Truck Product Loading	0.342	8.212	1.499
005-2602-9-1308	S35	Barge Product Loading	0.111	2.670	0.487
005-2602-9-1309	F50	Cooling Tower	3.128	75.066	13.700

Attachment B

Resource Report 9

Revised Tables

Resource Report 9- Air and Noise Quality
Table 9.3-7 (Revised 6-25-07)
Air Quality Impact Analysis Emission Sources and Stack Parameters Summary
AES Sparrows Point Project

	Stack #1	Stack #2	Stack #3	Stack #4	Stack #5	Stack #6	Stack #7	Stack #8	Stack #9	Stack #10
Parameter	HW Heater #1	HW Heater #2	HW Heater Malfunction Condition	HW Heater @ 25% Load (Power Plant Scenario)	Fresh Water Fire Pump	Salt Water Fire Pump #1	Salt Water Fire Pump #2	Salt Water Fire Pump #3	Salt Water Fire Pump #4	Salt Water Fire Pump #5
UTM X coord. (NAD27, Zone 18), m	371,009.7	371,009.7	371,005.6	371,005.6	370,911.4	370,814.7	370,810.8	370,806.9	370,802.9	370,799.0
UTM Y coord. (NAD27, Zone 18), m	4,341,708.3	4,341,708.3	4,341,745.1	4,341,745.1	4,341,850.2	4,341,804.3	4,341,804.0	4,341,803.6	4,341,803.2	4,341,802.8
Stack Height, m.	30.48	30.48	30.48	30.48	7.62	7.62	7.62	7.62	7.62	7.62
Stack Temp., deg. K	408.0	408.0	408.0	408.00	699.7	699.7	699.7	699.7	699.7	699.7
Stack diameter, m.	1.37	1.37	1.37	1.37	0.18	0.20	0.20	0.20	0.20	0.20
Stack exit velocity, m/s	30.82	30.82	30.82	7.71	37.42	53.48	53.48	53.48	53.48	53.48
Exhaust rate, m3/sec	45.55	45.55	45.55	11.39	0.93	1.73	1.73	1.73	1.73	1.73
PM10/PM2.5 (24-hr), g/sec	0.3276	0.3276	0.3276	0.082	0.0083	0.0064	0.0064	0.0064	0.0064	0.0064
PM10/PM2.5 (annual), g/sec	0.3276	0.3276	0.3276	0.082	5.71E-05	4.39E-05	4.39E-05	4.39E-05	4.39E-05	4.39E-05
SO2 (3-hr), g/sec	0.0048	0.0048	0.0048	0.0012	0.0005	0.0011	0.0011	0.0011	0.0011	0.0011
SO2 (24-hr), g/sec	0.0048	0.0048	0.0048	0.0012	0.0005	0.0011	0.0011	0.0011	0.0011	0.0011
SO2 (annual), g/sec	0.0048	0.0048	0.0048	0.0012	3.32E-06	7.33E-06	7.33E-06	7.33E-06	7.33E-06	7.33E-06
NO2 (annual), g/sec	0.1735	0.1735	0.1735	0.043	0.0036	0.0077	0.0077	0.0077	0.0077	0.0077
CO (1-hr), g/sec	0.3175	0.3175	1.5876	0.079	0.0375	0.0758	0.0758	0.0758	0.0758	0.0758
CO (8-hr), g/sec	0.3175	0.3175	0.3969	0.079	0.0375	0.0758	0.0758	0.0758	0.0758	0.0758
Pb (3-month), g/sec	2.17E-05	2.17E-05	2.17E-05	5.43E-06	3.57E-06	6.67E-06	6.67E-06	6.67E-06	6.67E-06	6.67E-06

	Stack #11	Stack #12	Stack #13	Stack #14	Stack #15	Stack #16	Stack #17	Stack #18	Stack #19
Parameter	Salt Water Fire Pump #6	Standby Diesel Generator	Vent Stack	LNG Ship Offloading	LNG Ship hoteling	Tug Boats in Security & Safety Zone	USCG Boats in Security & Safety Zone	Power Plant (CTG/HRSG)	Cooling Tower
UTM X coord. (NAD27, Zone 18), m	370,795.1	370,959.8	370,777.4	370,753.2	370,771.6	370,257.4	370,201.9	371,003.7	370,924.9
UTM Y coord. (NAD27, Zone 18), m	4,341,802.4	4,341,861.8	4,341,599.6	4,341,887.2	4,341,955.5	4,341,921.5	4,341,871.1	4,341,886.1	4,341,790.4
Stack Height, m.	7.62	7.62	54.71	40.00	40.00	10.67		30.48	14.94
Stack Temp., deg. K	699.7	678.6	199.7	755.2	755.2	755.22	755.22	321.89	298.00
Stack diameter, m.	0.20	0.20	0.61	0.61	0.61	0.46	0.08	8.53	10.06
Stack exit velocity, m/s	53.48	220.28	47.16	27.48	17.47	15.04	102.97	8.30	7.43
Exhaust rate, m3/sec	1.73	7.14	13.77	8.02	5.10	2.47	0.47	474.84	590.04
PM10/PM2.5 (24-hr), g/sec	0.0064	0.0290	0.0069	0.17	0.10	0.137	0.0022	2.04	0.071
PM10/PM2.5 (annual), g/sec	4.39E-05	1.98E-04	3.96E-05	0.057	0.033	0.068	0.0007	2.05	0.071
SO2 (3-hr), g/sec	0.0011	0.0045	0.0049	1.96	3.42	0.122	0.0012	0.04	
SO2 (24-hr), g/sec	0.0011	0.0045	0.0049	1.47	0.86	0.040	0.0008	0.04	
SO2 (annual), g/sec	7.33E-06	3.08E-05	2.77E-05	0.50	0.29	0.020	0.0003	0.04	
NO2 (annual), g/sec	0.0077	0.0361	0.00002	1.12	0.65	1.240	0.069	3.04	
CO (1-hr), g/sec	0.0758	0.4322	0.0173	0.35	0.61	0.89	11.96	4.14	
CO (8-hr), g/sec	0.0758	0.4322	0.0173	0.35	0.61	0.33	4.98	4.14	
Pb (3-month), g/sec	6.67E-06	2.80E-05	3.47E-07	8.50E-06	4.94E-06	1.13E-05			

ECRON SP Point Sources:

Note: All ECRON modeling input parameters for point and fugitive PM10 emissions sources were obtained from ECRON SP, Baltimore, Maryland Refined Air Dispersion Modeling Analysis, January 15, 2006, Tables 2, 3 and 4 and ISC3P input files provided by MDE. Emission rates for other criteria pollutants from ECRON point sources that emit other than PM10 were obtained from ECRON's air permit application emissions documentation (revised 1/3/07), as summarized below:

Source Description	Source ID	NO2 (lb/hr)	NO2 (TPY)	SO2 (lb/hr)	SO2 (TPY)	CO (lb/hr)	CO (TPY)
Cooling tower cell 1	CTC1						
Cooling tower cell 2	CTC2						
Cooling tower cell 3	CTC3						
Cooling tower cell 4	CTC4						
Boiler	BOILER1	1.00	4.38	0.03	0.13	1.75	7.665
Boiler	BOILER2	1.00	4.38	0.03	0.13	1.75	7.665
Barge Loadout, RTO 4	S34	1.21	2.60	0.007	0.003	2.23	5.31
RTO 123 and dryers	S10	1.00	4.38	18.340	80.33	12.22	53.53
Unloading Baghouse	S20						
Hammermill Baghouse	S30						
DDG Loading Baghouse	S90						

		NO2 (g/sec)		SO2 (g/sec)		CO (g/sec)	
		1-24 hr avg.	Annual avg.	1-24 hr avg.	Annual avg.	1-24 hr avg.	Annual avg.
Boiler	BOILER1	0.126	0.126	0.004	0.004	0.221	0.221
Boiler	BOILER2	0.126	0.126	0.004	0.004	0.221	0.221
Barge Loadout, RTO 4	S34	0.152	0.075	0.0009	0.0001	0.281	0.153
RTO 123 and dryers	S10	0.126	0.126	2.311	2.311	1.540	1.540

Resource Report 9- Air and Noise Quality
Table 9.3-8 (Revised 6-25-07)
Source Groups Used in Modeling Analysis
AES Sparrows Point Project

Source Group	Description	Source IDs
1	LNG Terminal stationary sources (without Power Plant), including HW Heaters, emergency fire pumps and generator, and vent stack	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13
2	LNG Terminal stationary sources (Source Group 1) + LNG Ship Offloading	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14
3	Emergency Fire Pumps and Standby Generator	5, 6, 7, 8, 9, 10, 11, 12
4	All LNG Terminal stationary sources + LNG ship offloading + hoteling + tugs and USCG security boats in moored safety zone	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17
5	LNG Terminal stationary sources (with Power Plant), including CTG/HRSG, HW Heaters (1 @ 25% load), emergency fire pumps and generator, vent stack, and cooling tower	4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 18, 19
6	LNG Terminal with Power Plant stationary sources (Source Group 5) + LNG Ship Offloading	4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 18, 19
7	All LNG Terminal with Power Plant stationary sources + LNG ship offloading + hoteling + tugs and USCG security boats in moored safety zone	4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19
8	All Ecron SP ethanol plant emission sources	CTC1 - CTC4, Boiler1, Boiler2, S34, S10, S20, S30, S90, RD1 - RD29, Door1, Door2

Notes:
1. For LNG Terminal without Power Plant scenarios, 3 Hot Water Heaters were modeled. For conservativness, Hot Water Heater Stack #3 was modeled with control system malfunction conditions, which result in worst-case emissions of CO.
2. For LNG Terminal with Power Plant scenarios, Hot Water Heater (stack #4) was modeled at 25% load. No other Hot Water Heaters are operated with this scenario.
3. For Power Plant Scenarios, CTG/HRSG (Stack #18) was modeled assuming worst-case emissions from Seimens SGT6-5000F Gas Turbine with fired HRSG and 1 Hot Water Heater @ 25% load (Stack #4).
4. To provide worst-case impacts due to LNG ship and other marine vessel operations within USCG Safety & Security Zone, sources assumed to be operating simultaneously include 1 LNG Ship offloading, 1 LNG Ship hoteling, 3 tug boats and 2 USCG security boats. LNG ship transit emissions within the Safety & Security Zone were not modeled to avoid double-counting of emissions (e.g., LNG ship transit emissions within the Safety & Security Zone are equivalent to hoteling emissions and the modeling conservatively assumes 1 ship offloading and 1 ship hoteling at the same time).

Resource Report 9- Air and Noise Quality
Table 9.3-9 (Revised 6-25-07)
Summary of Maximum Air Quality Impacts By Model Scenario
AES Sparrows Point Project

Modeling Results - Source Group 1 - LNG Terminal Stationary Sources (Without Power Plant)

Pollutant	Averaging Period	Max. Impact (ug/m3)1	Significant Impact Level (ug/m3)	Background Conc. (ug/m3)3	Total Conc. (ug/m3)	AAQS (ug/m3)	Receptor Location of Maximum Impact: UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N	Year
PM10	24-hour average	11.6	5	58	69.6	150	370,788	4,341,417	394	214	1992
	Annual average	3.2	1	21	24.5	50	371,113	4,341,703	115	111	1994
NO2	Annual average	2.1	1	33.9	36.0	100	371,113	4,341,703	115	111	1994
SO2	3-hour average	0.6	25	220.0	220.5	1300	371,092	4,341,869	131	33	1991
	24-hour average	0.3	5	49.8	50.1	365	371,116	4,341,725	112	100	1994
	Annual average	0.1	1	13.1	13.1	80	371,113	4,341,703	115	111	1994
CO	1-hour average	118.4	2,000	4,465	4,584	40,000	371,113	4,341,703	115	111	1994
	8-hour average	82.4	500	2,977	3,059	10,000	371,116	4,341,725	112	100	1994
Pb	3-Month average2	0.002	0.3	ND	0.002	1.5	371,102	4,341,786	105	67	1994

Modeling Results - Source Group 2 - LNG Terminal Stationary Sources + LNG Ship Offloading (Without Power Plant)

Pollutant	Averaging Period	Max. Impact (ug/m3)1	Significant Impact Level (ug/m3)	Background Conc. (ug/m3)3	Total Conc. (ug/m3)	AAQS (ug/m3)	Receptor Location of Maximum Impact: UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N	Year
PM10	24-hour average	12.8	5	58	70.8	150	371,113	4,341,703	115	111	1992
	Annual average	3.3	1	21	24.6	50	371,113	4,341,703	115	111	1994
NO2	Annual average	3.7	1	33.9	37.6	100	371,113	4,341,703	115	111	1994
SO2	3-hour average	44.7	25	220.0	264.7	1300	370,893	4,341,975	256	334	1993
	24-hour average	15.6	5	49.8	65.4	365	370,893	4,341,975	256	334	1993
	Annual average	0.9	1	13.1	14.0	80	371,102	4,341,786	105	67	1994
CO	1-hour average	121.7	2,000	4,465	4,587	40,000	371,113	4,341,703	115	111	1994
	8-hour average	83.4	500	2,977	3,060	10,000	371,116	4,341,723	112	100	1994
Pb	3-Month average2	0.002	0.3	ND	0.002	1.5	371,102	4,341,786	105	67	1994

Modeling Results - Source Group 4 - LNG Terminal Stationary Sources + LNG Ship Offloading + Marine Vessels (Without Power Plant)

Pollutant	Averaging Period	Max. Impact (ug/m3)1	Significant Impact Level (ug/m3)	Background Conc. (ug/m3)3	Total Conc. (ug/m3)	AAQS (ug/m3)	Receptor Location of Maximum Impact: UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N	Year
PM10	24-hour average	13.5	5	58	71.5	150	371,113	4,341,703	115	111	1992
	Annual average	3.4	1	21	24.7	50	371,113	4,341,703	115	111	1994
NO2	Annual average	6.2	1	33.9	40.1	100	370,960	4,341,930	190	346	1990
SO2	3-hour average	82.4	25	220.0	302.4	1300	371,359	4,341,878	269	60	1990
	24-hour average	17.1	5	49.8	66.8	365	370,909	4,342,022	293	341	1993
	Annual average	1.5	1	13.1	14.6	80	371,102	4,341,786	105	67	1994
CO	1-hour average	12066.1	2,000	4,465	16,531	40,000	369,830	4,341,647	1,180	265	1992
	8-hour average	840.8	500	2,977	3,818	10,000	369,686	4,341,862	1,325	275	1992
Pb	3-Month average2	0.002	0.3	ND	0.002	1.5	371,102	4,341,786	105	67	1994

Modeling Results - Source Group 5 - LNG Terminal + Power Plant Stationary Sources

Pollutant	Averaging Period	Max. Impact (ug/m3)1	Significant Impact Level (ug/m3)	Background Conc. (ug/m3)3	Total Conc. (ug/m3)	AAQS (ug/m3)	Receptor Location of Maximum Impact: UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N	Year
PM10	24-hour average	31.7	5	58	89.7	150	371,143	4,341,825	159	60	1990
	Annual average	7.4	1	21	28.7	50	371,143	4,341,825	159	60	1994
NO2	Annual average	11.6	1	33.9	45.5	100	371,143	4,341,825	159	60	1994
SO2	3-hour average	1.3	25	220.0	221.3	1300	371,143	4,341,825	159	60	1992
	24-hour average	0.8	5	49.8	50.6	365	371,143	4,341,825	159	60	1990
	Annual average	0.1	1	13.1	13.2	80	371,143	4,341,825	159	60	1993
CO	1-hour average	151.3	2,000	4,465	4,616	40,000	371,143	4,341,825	159	60	1993
	8-hour average	107.8	500	2,977	3,085	10,000	371,143	4,341,825	159	60	1994
Pb	3-Month average2	0.002	0.3	ND	0.002	1.5	371,102	4,341,786	105	67	1994

Modeling Results - Source Group 6 - LNG Terminal + Power Plant Stationary Sources + LNG Ship Offloading

							Receptor Location of Maximum Impact				
Pollutant	Averaging Period	Max. Impact (ug/m3)1	Significant Impact Level (ug/m3)	Background Conc. (ug/m3)3	Total Conc. (ug/m3)	AAQS (ug/m3)	UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N	Year
PM10	24-hour average	32.2	5	58	90.2	150	371,143	4,341,825	159	60	1990
	Annual average	7.5	1	21	28.5	50	371,143	4,341,825	159	60	1994
NO2	Annual average	13.4	1	33.9	47.3	100	371,143	4,341,825	159	60	1994
SO2	3-hour average	44.7	25	220.0	264.7	1300	370,893	4,341,975	256	334	1993
	24-hour average	15.6	5	49.8	65.4	365	370,893	4,341,975	256	334	1993
	Annual average	1.1	1	13.1	14.2	80	371,102	4,341,786	105	67	1994
CO	1-hour average	155.6	2,000	4,465	4,621	40,000	371,143	4,341,825	159	60	1993
	8-hour average	112.1	500	2,977	3,089	10,000	371,143	4,341,825	159	60	1994
Pb	3-Month average2	0.002	0.3	ND	0.002	1.5	371,102	4,341,786	105	67	1994

Modeling Results - Source Group 7 - LNG Terminal + Power Plant Stationary Sources + LNG Ship Offloading + Marine Vessels

							Receptor Location of Maximum Impact				
Pollutant	Averaging Period	Max. Impact (ug/m3)1	Significant Impact Level (ug/m3)	Background Conc. (ug/m3)3	Total Conc. (ug/m3)	AAQS (ug/m3)	UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N	Year
PM10	24-hour average	32.8	5	58	90.8	150	371,143	4,341,825	159	60	1990
	Annual average	7.7	1	21	29.0	50	371,143	4,341,825	159	60	1994
NO2	Annual average	16.1	1	33.9	50.0	100	371,143	4,341,825	159	60	1994
SO2	3-hour average	82.5	25	220.0	302.4	1300	371,239	4,341,878	269	60	1990
	24-hour average	17.1	5	49.8	66.8	365	370,909	4,342,022	293	341	1993
	Annual average	1.6	1	13.1	14.7	80	371,102	4,341,786	105	67	1994
CO	1-hour average	12066.5	2,000	4,465	16,532	40,000	369,686	4,341,862	1,325	275	1992
	8-hour average	842.9	500	2,977	3,820	10,000	369,686	4,341,862	1,325	275	1992
Pb	3-Month average2	0.002	0.3	ND	0.001	1.5	371,102	4,341,786	105	67	1994

Modeling Results - Source Group 8 - All ECRON SP Sources

							Receptor Location of Maximum Impact				
Pollutant	Averaging Period	Max. Impact (ug/m3)1	Significant Impact Level (ug/m3)	Background Conc. (ug/m3)3	Total Conc. (ug/m3)	AAQS (ug/m3)	UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N	Year
PM10	24-hour average	42.1	5	58	100.1	150	370,443	4,342,725	1,130	330	1991
	Annual average	16.6	1	21	37.9	50	371,100	4,342,712	971	6	1990
NO2	Annual average	2.2	1	33.9	36.1	100	370,943	4,342,625	882	356	1994
SO2	3-hour average	96.4	25	220.0	316.4	1300	371,065	4,342,525	782	4	1993
	24-hour average	62.4	5	49.8	112.2	365	371,082	4,342,613	871	5	1994
	Annual average	18.5	1	13.1	31.6	80	371,082	4,342,613	871	5	1990
CO	1-hour average	76.3	2,000	4,465	4,541	40,000	371,065	4,342,515	772	4	1993
	8-hour average	62.9	500	2,977	3,040	10,000	371,082	4,342,613	871	5	1991
Pb	3-Month average2	0.000	0.3	ND	0.000	1.5					

Modeling Results - Source Group ALL (Source Groups 7 + 8) - All AES Sparrows Point + ECRON SP Sources

							Receptor Location of Maximum Impact				
Pollutant	Averaging Period	Max. Impact (ug/m3)1	Significant Impact Level (ug/m3)	Background Conc. (ug/m3)3	Total Conc. (ug/m3)	AAQS (ug/m3)	UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N	Year
PM10	24-hour average	42.2	5	58	100.2	150	370,443	4,342,725	1130	330	1991
	Annual average	17.0	1	21	38.3	50	371,100	4,342,712	971	6	1990
NO2	Annual average	16.2	1	33.9	50.1	100	371,143	4,341,825	159	60	1994
SO2	3-hour average	96.6	25	220.0	316.6	1300	371,065	4,342,525	782	4	1993
	24-hour average	62.5	5	49.8	112.3	365	371,082	4,342,613	871	5	1994
	Annual average	18.7	1	13.1	31.8	80	371,082	4,342,613	871	5	1990
CO	1-hour average	12068.4	2,000	4,465	16,534	40,000	369,686	4,341,862	1325	275	1992
	8-hour average	843.2	500	2,977	3,820	10,000	369,686	4,341,862	1325	275	1992
Pb	3-Month average2	0.002	0.3	ND	0.002	1.5	371,102	4,341,786	105	67	1994

Resource Report 9

Appendix B

Revised Tables

TABLE 9B-2 (Revised 6-22-07): AIR QUALITY IMPACT ANALYSIS CALCULATIONS AND SUMMARIES - LNG TERMINAL OPERATIONS
Sparrows Point LNG Terminal
Stack Parameters and Emission Rates for Model Input

	Stack #1	Stack #2	Stack #3	Stack #4	Stack #5	Stack #6	Stack #7	Stack #8	Stack #9	Stack #10
Parameter	HW Heater #1	HW Heater #2	HW Heater Malfunction Condition	HW Heater @ 25% Load (Power Plant Scenario)	Fresh Water Fire Pump	Salt Water Fire Pump #1	Salt Water Fire Pump #2	Salt Water Fire Pump #3	Salt Water Fire Pump #4	Salt Water Fire Pump #5
UTM X coord. (NAD27, Zone 18), m	371,009.7	371,009.7	371,005.6	371,005.6	370,911.4	370,814.7	370,810.8	370,806.9	370,802.9	370,799.0
UTM Y coord. (NAD27, Zone 18), m	4,341,708.3	4,341,708.3	4,341,745.1	4,341,745.1	4,341,850.2	4,341,804.3	4,341,804.0	4,341,803.6	4,341,803.2	4,341,802.8
Stack Height, m.	30.48	30.48	30.48	30.48	7.62	7.62	7.62	7.62	7.62	7.62
Stack Temp., deg. K	408.0	408.0	408.0	408.00	699.7	699.7	699.7	699.7	699.7	699.7
Stack diameter, m.	1.37	1.37	1.37	1.37	0.18	0.20	0.20	0.20	0.20	0.20
Stack exit velocity, m/s	30.82	30.82	30.82	7.71	37.42	53.48	53.48	53.48	53.48	53.48
Exhaust rate, m3/sec	45.55	45.55	45.55	11.39	0.93	1.73	1.73	1.73	1.73	1.73
PM10/PM2.5 (24-hr), g/sec	0.3276	0.3276	0.3276	0.082	0.0083	0.0064	0.0064	0.0064	0.0064	0.0064
PM10/PM2.5 (annual), g/sec	0.3276	0.3276	0.3276	0.082	5.71E-05	4.39E-05	4.39E-05	4.39E-05	4.39E-05	4.39E-05
SO2 (3-hr), g/sec	0.0048	0.0048	0.0048	0.0012	0.0005	0.0011	0.0011	0.0011	0.0011	0.0011
SO2 (24-hr), g/sec	0.0048	0.0048	0.0048	0.0012	0.0005	0.0011	0.0011	0.0011	0.0011	0.0011
SO2 (annual), g/sec	0.0048	0.0048	0.0048	0.0012	3.32E-06	7.33E-06	7.33E-06	7.33E-06	7.33E-06	7.33E-06
NO2 (annual), g/sec	0.1735	0.1735	0.1735	0.043	0.0036	0.0077	0.0077	0.0077	0.0077	0.0077
CO (1-hr), g/sec	0.3175	0.3175	1.5876	0.079	0.0375	0.0758	0.0758	0.0758	0.0758	0.0758
CO (8-hr), g/sec	0.3175	0.3175	0.3969	0.079	0.0375	0.0758	0.0758	0.0758	0.0758	0.0758
Pb (3-month), g/sec	2.17E-05	2.17E-05	2.17E-05	5.43E-06	3.57E-06	6.67E-06	6.67E-06	6.67E-06	6.67E-06	6.67E-06

	Stack #11	Stack #12	Stack #13	Stack #14	Stack #15	Stack #16	Stack #17	Stack #18	Stack #19
Parameter	Salt Water Fire Pump #6	Standby Diesel Generator	Vent Stack	LNG Ship Offloading	LNG Ship hoteling	Tug Boats in Security & Safety Zone	USCG Boats in Security & Safety Zone	Power Plant (CTG/HRSG)	Cooling Tower
UTM X coord. (NAD27, Zone 18), m	370,795.1	370,959.8	370,777.4	370,753.2	370,771.6	370,257.4	370,201.9	371,003.7	370,924.9
UTM Y coord. (NAD27, Zone 18), m	4,341,802.4	4,341,861.8	4,341,599.6	4,341,887.2	4,341,955.5	4,341,921.5	4,341,871.1	4,341,886.1	4,341,790.4
Stack Height, m.	7.62	7.62	54.71	40.00	40.00	10.67		30.48	14.94
Stack Temp., deg. K	699.7	678.6	199.7	755.2	755.2	755.22	755.22	321.89	298.00
Stack diameter, m.	0.20	0.20	0.61	0.61	0.61	0.46	0.08	8.53	10.06
Stack exit velocity, m/s	53.48	220.28	47.16	27.48	17.47	15.04	102.97	8.30	7.43
Exhaust rate, m3/sec	1.73	7.14	13.77	8.02	5.10	2.47	0.47	474.84	590.04
PM10/PM2.5 (24-hr), g/sec	0.0064	0.0290	0.0069	0.17	0.10	0.137	0.0022	2.04	0.071
PM10/PM2.5 (annual), g/sec	4.39E-05	1.98E-04	3.96E-05	0.057	0.033	0.068	0.0007	2.05	0.071
SO2 (3-hr), g/sec	0.0011	0.0045	0.0049	1.96	3.42	0.122	0.0012	0.04	
SO2 (24-hr), g/sec	0.0011	0.0045	0.0049	1.47	0.86	0.040	0.0008	0.04	
SO2 (annual), g/sec	7.33E-06	3.08E-05	2.77E-05	0.50	0.29	0.020	0.0003	0.04	
NO2 (annual), g/sec	0.0077	0.0361	0.00002	1.12	0.65	1.240	0.069	3.04	
CO (1-hr), g/sec	0.0758	0.4322	0.0173	0.35	0.61	0.89	11.96	4.14	
CO (8-hr), g/sec	0.0758	0.4322	0.0173	0.35	0.61	0.33	4.98	4.14	
Pb (3-month), g/sec	6.67E-06	2.80E-05	3.47E-07	8.50E-06	4.94E-06	1.13E-05			

RR9 Appendix 9A + 9B (all)_6-21-07(MIH).xls model input 8/25/2007

ECRON SP Point Sources:

Note: All ECRON modeling input parameters for point and fugitive PM10 emissions sources were obtained from ECRON SP, Baltimore, Maryland Refined Air Dispersion Modeling Analysis, January 15, 2006, Tables 2, 3 and 4 and ISC3P input files provided by MDE. Emission rates for other criteria pollutants from ECRON point sources that emit other than PM10 were obtained from ECRON's air permit application emissions documentation (revised 1/3/07), as summarized below:

Source Description	Source ID	NO2 (lb/hr)	NO2 (TPY)	SO2 (lb/hr)	SO2 (TPY)	CO (lb/hr)	CO (TPY)
Cooling tower cell 1	CTC1						
Cooling tower cell 2	CTC2						
Cooling tower cell 3	CTC3						
Cooling tower cell 4	CTC4						
Boiler	BOILER1	1.00	4.38	0.03	0.13	1.75	7.665
Boiler	BOILER2	1.00	4.38	0.03	0.13	1.75	7.665
Barge Loadout, RTO 4	S34	1.21	2.60	0.007	0.003	2.23	5.31
RTO 123 and dryers	S10	1.00	4.38	18.340	80.33	12.22	53.53
Unloading Baghouse	S20						
Hammermill Baghouse	S30						
DDG Loading Baghouse	S90						

		NO2 (g/sec)		SO2 (g/sec)		CO (g/sec)	
		1-24 hr avg.	Annual avg.	1-24 hr avg.	Annual avg.	1-24 hr avg.	Annual avg.
Boiler	BOILER1	0.126	0.126	0.004	0.004	0.221	0.221
Boiler	BOILER2	0.126	0.126	0.004	0.004	0.221	0.221
Barge Loadout, RTO 4	S34	0.152	0.075	0.0009	0.0001	0.281	0.153
RTO 123 and dryers	S10	0.126	0.126	2.311	2.311	1.540	1.540

TABLE 9B-3 (Revised 6-22-07): AIR QUALITY IMPACT ANALYSIS CALCULATIONS AND SUMMARIES - LNG TERMINAL OPERATIONS

Sparrows Point LNG Terminal

Source Groups Used in Modeling Analysis

Source Group	Description	Source IDs
1	LNG Terminal stationary sources (without Power Plant), including HW Heaters, emergency fire pumps and generator, and vent stack	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13
2	LNG Terminal stationary sources (Source Group 1) + LNG Ship Offloading	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14
3	Emergency Fire Pumps and Standby Generator	5, 6, 7, 8, 9, 10, 11, 12
4	All LNG Terminal stationary sources + LNG ship offloading + hoteling + tugs and USCG security boats in moored safety zone	1, 2, 3, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17
5	LNG Terminal stationary sources (with Power Plant), including CTG/HRSG, HW Heaters (1 @ 25% load), emergency fire pumps and generator, vent stack, and cooling tower	4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 18, 19
6	LNG Terminal with Power Plant stationary sources (Source Group 5) + LNG Ship Offloading	4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 18, 19
7	All LNG Terminal with Power Plant stationary sources + LNG ship offloading + hoteling + tugs and USCG security boats in moored safety zone	4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19

TABLE 9B-6 (Revised 6-22-07): AIR QUALITY IMPACT ANALYSIS CALCULATIONS AND SUMMARIES - LNG TERMINAL OPERATIONS

Sparrows Point LNG Terminal

Summary of AERMOD Modeling Results By Scenario and Model Year

		AERMOD NO2 Impacts, Annual Average (µg/m3) (AAQS = 100, SIL = 1)							UTM Coordinates		Distance from Stack	Azimuth, degrees
Source Group	Description	1990	1991	1992	1993	1994	Max.	Max. Year	East (m)	North (m)	(m)	from N.
1	Terminal sources	1.8	1.6	2.0	2.0	2.1	2.1	1994	371,113	4,341,703	115	111
2	Terminal + LNG offloading	3.1	2.9	3.5	3.5	3.7	3.7	1994	371,113	4,341,703	115	111
3	Emergency fire pumps and engine	0.7	0.7	0.6	0.6	0.6	0.7	1991	371,092	4,341,869	151	35
4	All: Terminal+Offloading+Marine	6.2	6.0	5.6	5.7	6.1	6.2	1990	370,960	4,341,930	190	346
5	Terminal + Power Plant	10.5	8.8	11.1	10.9	11.6	11.6	1994	371,143	4,341,825	159	60
6	Terminal + Power Plant + Offload	12.1	10.2	12.8	12.5	13.4	13.4	1994	371,143	4,341,825	159	60
7	All: Terminal+Power Plant+Offloading+Marine	14.7	12.3	15.4	15.0	16.1	16.1	1994	371,143	4,341,825	159	60
8	All BCRON SP sources	2.1	2.2	2.2	2.2	2.1	2.2	1994	370,943	4,342,625	882	356
All	All AES Sparrows Point + BCRON SP	14.8	12.5	15.6	15.2	16.2	16.2	1994	371,143	4,341,825	159	60

		AERMOD SO2 Impacts, Annual Average (µg/m³) (AAQS = 80, SIL = 1)							UTM Coordinates		Distance from Stack	Azimuth, degrees
Source Group	Description	1990	1991	1992	1993	1994	Max.	Max. Year	East (m)	North (m)	(m)	from N.
1	Terminal sources	0.04	0.04	0.04	0.05	0.05	0.05	1994	371,113	4,341,703	115	111
2	Terminal + LNG offloading	0.81	0.94	0.84	0.87	0.94	0.94	1994	371,102	4,341,786	105	67
3	Emergency fire pumps and engine	0.0006	0.0006	0.0006	0.0005	0.0006	0.0006	1994	371,102	4,341,786	105	67
4	All: Terminal+Offloading+Marine	1.34	1.19	1.32	1.36	1.46	1.46	1994	371,102	4,341,786	105	67
5	Terminal + Power Plant	0.13	0.11	0.13	0.13	0.14	0.14	1993	371,143	4,341,825	159	60
6	Terminal + Power Plant + Offload	0.90	0.93	0.96	0.98	1.07	1.07	1994	371,102	4,341,786	105	67
7	All: Terminal+Power Plant+Offloading+Marine	1.32	1.18	1.44	1.48	1.59	1.59	1994	371,102	4,341,786	105	67
8	All BCRON SP sources	18.5	17.9	17.2	16.2	17.2	18.5	1990	371,082	4,342,613	871	5
All	All AES Sparrows Point + BCRON SP	18.7	18.1	17.3	16.4	17.4	18.7	1990	371,082	4,342,613	871	5

		AERMOD SO2 Impacts, 24-Hour Average (µg/m³) (AAQS = 365, SIL = 5)							UTM Coordinates		Distance from Stack	Azimuth, degrees
Source Group	Description	1990	1991	1992	1993	1994	Max.	Max. Year	East (m)	North (m)	(m)	from N.
1	Terminal sources	0.30	0.28	0.28	0.27	0.30	0.30	1994	371,116	4,341,725	112	100
2	Terminal + LNG offloading	15.46	13.45	12.71	15.63	14.46	15.63	1993	370,893	4,341,975	256	334
3	Emergency fire pumps and engine	0.29	0.28	0.28	0.26	0.27	0.29	1990	371,092	4,341,869	151	35
4	All: Terminal+Offloading+Marine	16.30	14.49	14.00	17.06	16.30	17.06	1993	370,909	4,342,022	293	341
5	Terminal + Power Plant	0.81	0.74	0.72	0.70	0.77	0.81	1990	371,143	4,341,825	159	60
6	Terminal + Power Plant + Offload	15.46	13.44	12.71	15.63	14.46	15.63	1993	370,893	4,341,975	256	334
7	All: Terminal+Power Plant+Offloading+Marine	16.50	14.48	14.48	17.06	16.43	17.06	1993	370,909	4,342,022	293	341
8	All BCRON SP sources	60.7	57.8	57.7	57.1	62.4	62.4	1994	371,082	4,342,613	871	5
All	All AES Sparrows Point + BCRON SP	61.3	58.9	58.1	57.3	62.5	62.5	1994	371,082	4,342,613	871	5

		AERMOD SO2 Impacts, 3-Hour Average (µg/m³) (AAQS = 1,300, SIL = 25)							UTM Coordinates		Distance from Stack	Azimuth, degrees
Source Group	Description	1990	1991	1992	1993	1994	Max.	Max. Year	East (m)	North (m)	(m)	from N.
1	Terminal sources	0.58	0.58	0.57	0.51	0.57	0.58	1991	371,092	4,341,869	151	35
2	Terminal + LNG offloading	44.59	43.46	43.60	44.74	42.83	44.74	1993	370,893	4,341,975	256	334
3	Emergency fire pumps and engine	0.58	0.58	0.57	0.51	0.53	0.58	1991	371,092	4,341,869	151	35
4	All: Terminal+Offloading+Marine	82.43	79.53	76.30	74.20	79.12	82.43	1990	371,239	4,341,878	269	60
5	Terminal + Power Plant	1.22	1.16	1.30	1.21	1.27	1.30	1992	371,143	4,341,825	159	60
6	Terminal + Power Plant + Offload	44.59	43.46	43.60	44.74	42.83	44.74	1993	370,893	4,341,975	256	334
7	All: Terminal+Power Plant+Offloading+Marine	82.49	79.53	76.40	74.36	79.46	82.49	1990	371,239	4,341,878	269	60
8	All BCRON SP sources	93.9	89.0	93.0	96.4	91.7	96.4	1993	371,065	4,342,525	782	4
All	All AES Sparrows Point + BCRON SP	94.1	89.1	93.1	96.6	91.9	96.6	1993	371,065	4,342,525	782	4

Source Group	Description	AERMOD PM10/PM2.5 Impacts, Annual Average ($\mu g/m^3$) (AAQS = 50/15, SIL = 1/0.3)					Max.	Max. Year	UTM Coordinates		Distance from Stack (m)	Azimuth, degrees from N.
		1990	1991	1992	1993	1994			East (m)	North (m)		
1	Terminal sources	2.77	2.39	3.01	3.10	3.24	3.24	1994	371,113	4,341,703	115	111
2	Terminal + LNG offloading	2.85	2.44	3.09	3.18	3.32	3.32	1994	371,113	4,341,703	115	111
3	Emergency fire pumps and engine	0.004	0.004	0.004	0.004	0.004	0.004	1994	371,102	4,341,786	105	67
4	All: Terminal+Offloading+Marine	2.95	2.53	3.20	3.29	3.44	3.44	1994	371,113	4,341,703	115	111
5	Terminal + Power Plant	6.70	3.63	7.09	7.03	7.43	7.43	1994	371,143	4,341,825	159	60
6	Terminal + Power Plant + Offload	6.79	3.70	7.18	7.00	7.52	7.52	1994	371,143	4,341,825	159	60
7	All: Terminal+Power Plant+Offloading+Marine	6.92	3.81	7.32	7.21	7.86	7.86	1994	371,143	4,341,825	159	60
8	All BCRON SP sources	16.6	13.7	15.9	15.4	16.3	16.6	1990	371,100	4,342,712	971	6
All	All ABS Sparrows Point + BCRON SP	17.0	16.1	16.2	15.7	16.7	17.0	1990	371,100	4,342,712	971	6

Source Group	Description	AERMOD PM10/PM2.5 Impacts, 24-Hr. Average ($\mu g/m^3$) (AAQS = 150/35, SIL = 5/2)					Max.	Max. Year	UTM Coordinates		Distance from Stack (m)	Azimuth, degrees from N.
		1990	1991	1992	1993	1994			East (m)	North (m)		
1	Terminal sources	11.2	9.8	11.6	8.7	11.0	11.6	1992	370,788	4,341,417	394	214
2	Terminal + LNG offloading	12.1	10.5	12.8	10.4	11.7	12.8	1992	371,113	4,341,703	115	111
3	Emergency fire pumps and engine	1.0	1.0	0.9	1.0	1.1	1.1	1994	370,960	4,341,930	190	346
4	All: Terminal+Offloading+Marine	12.7	11.4	13.5	10.9	12.5	13.5	1992	371,113	4,341,703	115	111
5	Terminal + Power Plant	31.7	29.1	28.3	27.5	28.0	31.7	1990	371,143	4,341,825	159	60
6	Terminal + Power Plant + Offload	32.2	29.7	28.8	28.4	28.8	32.2	1990	371,143	4,341,825	159	60
7	All: Terminal+Power Plant+Offloading+Marine	32.8	30.5	29.5	29.1	29.5	32.8	1990	371,143	4,341,825	159	60
8	All BCRON SP sources	39.8	42.1	41.7	38.0	41.0	42.1	1991	370,443	4,342,725	1130	330
All	All ABS Sparrows Point + BCRON SP	40.2	42.2	41.7	38.1	41.1	42.2	1991	370,443	4,342,725	1130	330

Source Group	Description	AERMOD CO Impacts, 8-Hour Average ($\mu g/m^3$) (AAQS = 10,000, SIL = 500)					Max.	Max. Year	UTM Coordinates		Distance from Stack (m)	Azimuth, degrees from N.
		1990	1991	1992	1993	1994			East (m)	North (m)		
1	Terminal sources	72.0	71.0	80.4	74.2	82.4	82.4	1994	371,116	4,341,725	112	100
2	Terminal + LNG offloading	73.3	73.5	82.1	76.4	83.4	83.4	1994	371,116	4,341,725	112	100
3	Emergency fire pumps and engine	39.9	39.7	37.9	35.9	37.7	39.9	1990	371,092	4,341,869	151	35
4	All: Terminal+Offloading+Marine	692.8	645.3	840.8	647.6	682.5	840.8	1992	369,686	4,341,862	1325	275
5	Terminal + Power Plant	97.5	95.1	100.5	98.7	107.8	107.8	1994	371,143	4,341,825	159	60
6	Terminal + Power Plant + Offload	99.2	97.5	100.9	101.5	112.1	112.1	1994	371,143	4,341,825	159	60
7	All: Terminal+Power Plant+Offloading+Marine	693.9	645.3	842.9	647.6	683.4	842.9	1992	369,686	4,341,862	1325	275
8	All BCRON SP sources	60.3	60.4	62.2	39.5	62.9	62.9	1991	371,082	4,342,613	871	5
All	All ABS Sparrows Point + BCRON SP	694.3	645.4	843.2	648.8	684.8	843.2	1992	369,686	4,341,862	1325	275

Source Group	Description	AERMOD CO Impacts, 1-Hour Average ($\mu g/m^3$) (AAQS = 40,000, SIL = 2,000)					Max.	Max. Year	UTM Coordinates		Distance from Stack (m)	Azimuth, degrees from N.
		1990	1991	1992	1993	1994			East (m)	North (m)		
1	Terminal sources	113.6	116.4	117.8	114.0	118.4	118.4	1994	371,113	4,341,703	115	111
2	Terminal + LNG offloading	119.0	118.7	120.6	117.8	121.7	121.7	1994	371,113	4,341,703	115	111
3	Emergency fire pumps and engine	65.3	63.7	63.6	64.4	61.8	65.3	1990	371,143	4,341,825	159	60
4	All: Terminal+Offloading+Marine	11532.9	11608.8	12066.1	9812.9	10808.0	12066.1	1992	369,830	4,341,647	1180	265
5	Terminal + Power Plant	147.4	147.0	147.3	151.3	144.4	151.3	1993	371,143	4,341,825	159	60
6	Terminal + Power Plant + Offload	153.1	151.2	151.3	155.6	148.7	155.6	1993	371,143	4,341,825	159	60
7	All: Terminal+Power Plant+Offloading+Marine	11548.6	11609.1	12066.5	9816.7	10808.0	12066.5	1992	369,686	4,341,862	1325	275
8	All BCRON SP sources	75.9	75.5	73.9	76.3	75.7	76.3	1993	371,065	4,342,515	772	4
All	All ABS Sparrows Point + BCRON SP	11550.7	11609.1	12068.4	9816.8	10808.0	12068.4	1992	369,686	4,341,862	1325	275

Source Group	Description	AERMOD Pb Impacts, 3-Month Average ($\mu g/m^3$) (AAQS = 1.5, SIL = 0.3)					Max.	Max. Year	UTM Coordinates		Distance from Stack (m)	Azimuth, degrees from N.
		1990	1991	1992	1993	1994			East (m)	North (m)		
1	Terminal sources	0.002	0.002	0.002	0.002	0.002	0.002	1994	371,102	4,341,786	105	67
2	Terminal + LNG offloading	0.002	0.002	0.002	0.002	0.002	0.002	1994	371,102	4,341,786	105	67
3	Emergency fire pumps and engine	0.002	0.002	0.002	0.002	0.002	0.002	1994	371,102	4,341,786	105	67
4	All: Terminal+Offloading+Marine	0.002	0.002	0.002	0.002	0.002	0.002	1994	371,102	4,341,786	105	67
5	Terminal + Power Plant	0.002	0.002	0.002	0.002	0.002	0.002	1994	371,102	4,341,786	105	67
6	Terminal + Power Plant + Offload	0.002	0.002	0.002	0.002	0.002	0.002	1994	371,102	4,341,786	105	67
7	All: Terminal+Power Plant+Offloading+Marine	0.002	0.002	0.002	0.002	0.002	0.002	1994	371,102	4,341,786	105	67
8	All BCRON SP sources	0.0	0.0	0.0	0.0	0.0	0.0				4357568	185
All	All ABS Sparrows Point + BCRON SP	0.002	0.002	0.002	0.002	0.002	0.002	1994	371,102	4,341,786	105	67

RRG Appendix 9A + 9B (all)_6-21-07(MH).xls refined out+summ 6/25/2007

TABLE 9B-7: AIR QUALITY IMPACT ANALYSIS CALCULATIONS AND SUMMARIES - LNG TERMINAL OPERATIONS

Sparrows Point LNG Terminal

Summary of Maximum AERMOD Impacts By Model Scenario

Modeling Results - Source Group 1 - LNG Terminal Stationary Sources (Without Power Plant)

Pollutant	Averaging Period	Max. Impact (μg/m³)[1]	Significant Impact Level (μg/m³)	Background Conc. (μg/m³)[2]	Total Conc. (μg/m³)	AAQS (μg/m³)	Receptor Location of Maximum Impact: UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N.	Year
PM10	24-hour average	11.6	5	58	69.6	150	370,788	4,341,417	394	214	1992
	Annual average	3.2	1	21	24.5	50	371,113	4,341,703	115	111	1994
PM2.5	24-hour average	11.6	2	37.0	[redacted]	35	370,788	4,341,417	394	214	1992
	Annual average	3.2	0.3	15.1	[redacted]	15	371,113	4,341,703	115	111	1994
NO2	Annual average	2.1	1	33.9	36.0	100	371,113	4,341,703	115	111	1994
SO_2	3-hour average	0.6	25	220.0	220.5	1300	371,092	4,341,869	151	35	1991
	24-hour average	0.3	5	49.8	50.1	365	371,116	4,341,725	112	100	1994
	Annual average	0.1	1	13.1	13.1	80	371,113	4,341,703	115	111	1994
CO	1-hour average	118.4	2,000	4,465	4,584	40,000	371,113	4,341,703	115	111	1994
	8-hour average	82.4	500	2,977	3,059	10,000	371,116	4,341,725	112	100	1994
Pb	3-Month average[3]	0.002	0.3	ND	0.002	1.5	371,102	4,341,786	105	67	1994

Modeling Results - Source Group 2 - LNG Terminal Stationary Sources + LNG Ship Offloading (Without Power Plant)

Pollutant	Averaging Period	Max. Impact (μg/m³)[1]	Significant Impact Level (μg/m³)	Background Conc. (μg/m³)[2]	Total Conc. (μg/m³)	AAQS (μg/m³)	Receptor Location of Maximum Impact: UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N.	Year
PM10	24-hour average	12.8	5	58	70.8	150	371,113	4,341,703	115	111	1992
	Annual average	3.3	1	21	24.6	50	371,113	4,341,703	115	111	1994
PM2.5	24-hour average	12.8	2	37.0	[redacted]	35	371,113	4,341,703	115	111	1992
	Annual average	3.3	0.3	15.1	[redacted]	15	371,113	4,341,703	115	111	1994
NO2	Annual average	3.7	1	33.9	37.6	100	371,113	4,341,703	115	111	1994
SO_2	3-hour average	44.7	25	220.0	264.7	1300	370,893	4,341,975	256	334	1993
	24-hour average	15.6	5	49.8	65.4	365	370,893	4,341,975	256	334	1993
	Annual average	0.9	1	13.1	14.0	80	371,102	4,341,786	105	67	1994
CO	1-hour average	121.7	2,000	4,465	4,587	40,000	371,113	4,341,703	115	111	1994
	8-hour average	83.4	500	2,977	3,060	10,000	371,116	4,341,725	112	100	1994
Pb	3-Month average[3]	0.002	0.3	ND	0.002	1.5	371,102	4,341,786	105	67	1994

Modeling Results - Source Group 4 - LNG Terminal Stationary Sources + LNG Ship Offloading + Marine Vessels (Without Power Plant)

Pollutant	Averaging Period	Max. Impact (μg/m³)[1]	Significant Impact Level (μg/m³)	Background Conc. (μg/m³)[2]	Total Conc. (μg/m³)	AAQS (μg/m³)	Receptor Location of Maximum Impact: UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N.	Year
PM10	24-hour average	13.5	5	58	71.5	150	371,113	4,341,703	115	111	1992
	Annual average	3.4	1	21	24.7	50	371,113	4,341,703	115	111	1994
PM2.5	24-hour average	13.5	2	37.0	[redacted]	35	371,113	4,341,703	115	111	1992
	Annual average	3.4	0.3	15.1	[redacted]	15	371,113	4,341,703	115	111	1994
NO2	Annual average	6.2	1	33.9	40.1	100	370,980	4,341,930	190	346	1990
SO_2	3-hour average	82.4	25	220.0	302.4	1300	371,239	4,341,878	269	60	1990
	24-hour average	17.1	5	49.8	66.8	365	370,909	4,342,022	293	341	1993
	Annual average	1.5	1	13.1	14.6	80	371,102	4,341,786	105	67	1994
CO	1-hour average	12066.1	2,000	4,465	16,531	40,000	369,830	4,341,647	1,180	265	1992
	8-hour average	840.8	500	2,977	3,818	10,000	369,686	4,341,862	1,325	275	1992
Pb	3-Month average[3]	0.002	0.3	ND	0.002	1.5	371,102	4,341,786	105	67	1994

Modeling Results - Source Group 5 - LNG Terminal + Power Plant Stationary Sources

Pollutant	Averaging Period	Max. Impact (µg/m³)[1]	Significant Impact Level (µg/m³)	Background Conc. (µg/m³)[2]	Total Conc. (µg/m³)	AAQS (µg/m³)	Receptor Location of Maximum Impact				Year
							UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N.	
PM10	24-hour average	31.7	5	58	89.7	150	371,143	4,341,825	159	60	1990
	Annual average	7.4	1	21	28.7	50	371,143	4,341,825	159	60	1994
PM2.5	24-hour average	31.7	2	37.0	[redacted]	35	371,143	4,341,825	159	60	1990
	Annual average	7.4	0.3	15.1		15	371,143	4,341,825	159	60	1994
NO2	Annual average	11.6	1	33.9	45.5	100	371,143	4,341,825	159	60	1994
SO_2	3-hour average	1.3	25	220.0	221.3	1300	371,143	4,341,825	159	60	1992
	24-hour average	0.8	5	49.8	50.6	365	371,143	4,341,825	159	60	1990
	Annual average	0.1	1	13.1	13.2	80	371,143	4,341,825	159	60	1993
CO	1-hour average	151.3	2,000	4,465	4,616	40,000	371,143	4,341,825	159	60	1993
	8-hour average	107.8	500	2,977	3,085	10,000	371,143	4,341,825	159	60	1994
Pb	3-Month average[3]	0.002	0.3	ND	0.002	1.5	371,102	4,341,786	105	67	1994

Modeling Results - Source Group 6 - LNG Terminal + Power Plant Stationary Sources + LNG Ship Offloading

Pollutant	Averaging Period	Max. Impact (µg/m³)[1]	Significant Impact Level (µg/m³)	Background Conc. (µg/m³)[2]	Total Conc. (µg/m³)	AAQS (µg/m³)	Receptor Location of Maximum Impact				Year
							UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N.	
PM10	24-hour average	32.2	5	58	90.2	150	371,143	4,341,825	159	60	1990
	Annual average	7.5	1	21	28.8	50	371,143	4,341,825	159	60	1994
PM2.5	24-hour average	32.2	2	37.0	[redacted]	35	371,143	4,341,825	159	60	1990
	Annual average	7.5	0.3	15.1		15	371,143	4,341,825	159	60	1994
NO2	Annual average	13.4	1	33.9	47.3	100	371,143	4,341,825	159	60	1994
SO_2	3-hour average	44.7	25	220.0	264.7	1300	370,893	4,341,975	256	334	1993
	24-hour average	15.6	5	49.8	65.4	365	370,893	4,341,975	256	334	1993
	Annual average	1.1	1	13.1	14.2	80	371,102	4,341,786	105	67	1994
CO	1-hour average	155.6	2,000	4,465	4,621	40,000	371,143	4,341,825	159	60	1993
	8-hour average	112.1	500	2,977	3,089	10,000	371,143	4,341,825	159	60	1994
Pb	3-Month average[3]	0.002	0.3	ND	0.002	1.5	371,102	4,341,786	105	67	1994

Modeling Results - Source Group 7 - LNG Terminal + Power Plant Stationary Sources + LNG Ship Offloading + Marine Vessels

Pollutant	Averaging Period	Max. Impact (µg/m³)[1]	Significant Impact Level (µg/m³)	Background Conc. (µg/m³)[2]	Total Conc. (µg/m³)	AAQS (µg/m³)	Receptor Location of Maximum Impact				Year
							UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N.	
PM10	24-hour average	32.8	5	58	90.8	150	371,143	4,341,825	159	60	1990
	Annual average	7.7	1	21	29.0	50	371,143	4,341,825	159	60	1994
PM2.5	24-hour average	32.8	2	37.0	[redacted]	35	371,143	4,341,825	159	60	1990
	Annual average	7.7	0.3	15.1		15	371,143	4,341,825	159	60	1994
NO2	Annual average	16.1	1	33.9	50.0	100	371,143	4,341,825	159	60	1994
SO_2	3-hour average	82.3	25	220.0	302.4	1300	371,239	4,341,876	269	60	1990
	24-hour average	17.1	5	49.8	66.8	365	370,909	4,342,022	293	341	1993
	Annual average	1.6	1	13.1	14.7	80	371,102	4,341,786	105	67	1994
CO	1-hour average	12066.5	2,000	4,465	16,532	40,000	369,886	4,341,862	1,325	275	1992
	8-hour average	842.9	500	2,977	3,820	10,000	369,886	4,341,862	1,325	275	1992
Pb	3-Month average[3]	0.002	0.3	ND	0.002	1.5	371,102	4,341,786	105	67	1994

Modeling Results - Source Group 8 - All ECRON SP Sources

Pollutant	Averaging Period	Max. Impact (µg/m³)[1]	Significant Impact Level (µg/m³)	Background Conc. (µg/m³)[2]	Total Conc. (µg/m³)	AAQS (µg/m³)	Receptor Location of Maximum Impact				Year
							UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N.	
PM10	24-hour average	42.1	5	58	100.1	150	370,443	4,342,725	1,130	330	1991
	Annual average	16.6	1	21	37.9	50	371,100	4,342,712	971	6	1990
PM2.5	24-hour average	42.1	2	37.0	[redacted]	35	370,443	4,342,725	1,130	330	1991
	Annual average	16.6	0.3	15.1		15	371,100	4,342,712	971	6	1990
NO2	Annual average	2.2	1	33.9	36.1	100	370,943	4,342,825	882	356	1994
SO_2	3-hour average	96.4	25	220.0	316.4	1300	371,065	4,342,525	782	4	1993
	24-hour average	62.4	5	49.8	112.2	365	371,082	4,342,613	871	5	1994
	Annual average	18.5	1	13.1	31.6	80	371,082	4,342,613	871	5	1990
CO	1-hour average	76.3	2,000	4,465	4,541	40,000	371,065	4,342,515	772	4	1993
	8-hour average	62.9	500	2,977	3,040	10,000	371,082	4,342,613	871	5	1991
Pb	3-Month average[3]	0.000	0.3	ND	0.000	1.5					

Modeling Results - Source Group ALL (Source Groups 7 + 8) - All AES Sparrows Point + ECRON SP Sources

RR9 Appendix 9A + 9B (all)_6-21-07(MH).xls refined out+summ 6/25/2007

Pollutant	Averaging Period	Max. Impact (µg/m³)[1]	Significant Impact Level (µg/m³)	Background Conc. (µg/m³)[1]	Total Conc. (µg/m³)	AAQS (µg/m³)	Receptor Location of Maximum Impact: UTM East (m)	UTM North (m)	Distance from Stack (m)	Azimuth, degrees from N.	Year
PM10	24-hour average	42.2	5	58	100.2	150	370,443	4,342,725	1129.9	330.1	1991
	Annual average	17.0	1	21	38.3	50	371,100	4,342,712	971.5	3.6	1990
PM2.5	24-hour average	42.2	2	37.0	[redacted]	35	370,443	4,342,725	1129.9	330.1	1991
	Annual average	17.0	0.3	15.1	[redacted]	15	371,100	4,342,712	971.47	3.58	1990
NO2	Annual average	16.2	1	33.9	50.1	100	371,143	4,341,825	150.0	59.1	1994
SO_2	3-hour average	86.6	25	230.0	316.6	1300	371,065	4,342,525	782.1	4.4	1993
	24-hour average	62.5	5	49.8	112.3	365	371,082	4,342,613	871.2	3.9	1994
	Annual average	18.7	1	13.1	31.8	80	371,082	4,342,613	871.23	3.03	1990
CO	1-hour average	12068.4	2,000	4,465	16,534	40,000	369,686	4,341,862	1324.7	275.1	1992
	8-hour average	843.2	500	2,977	3,820	10,000	369,686	4,341,862	1324.7	275.1	1992
Pb	3-Month average[1]	0.002	0.3	ND	0.002	1.5	371,102	4,341,786	105	67	1994

1. Highest second high modeled concentrations were used to evaluate all short-term impacts (1-hour to 24-hour). Highest modeled concentrations were used to evaluate annual impacts.

TABLE 9B-8 (Revised 6-22-07): AIR QUALITY IMPACT ANALYSIS CALCULATIONS AND SUMMARIES

Sparrows Point LNG Terminal

List of Model Input and Output Files

Input Files:	Output Files:	Description
AERMOD Refined Modeling Files		
SMNO90.ADI	SMNO90.ADO	NOX, annual average, 1990
SMNO91.ADI	SMNO91.ADO	NOX, annual average, 1991
SMNO92.ADI	SMNO92.ADO	NOX, annual average, 1992
SMNO93.ADI	SMNO93.ADO	NOX, annual average, 1993
SMNO94.ADI	SMNO94.ADO	NOX, annual average, 1994
SMSO390.ADI	SMSO390.ADO	SO2, 3-hr average, 1990
SMSO391.ADI	SMSO391.ADO	SO2, 3-hr average, 1991
SMSO392.ADI	SMSO392.ADO	SO2, 3-hr average, 1992
SMSO393.ADI	SMSO393.ADO	SO2, 3-hr average, 1993
SMSO394.ADI	SMSO394.ADO	SO2, 3-hr average, 1994
SMSO2490.ADI	SMSO2490.ADO	SO2, 24-hr average, 1990
SMSO2491.ADI	SMSO2491.ADO	SO2, 24-hr average, 1991
SMSO2492.ADI	SMSO2492.ADO	SO2, 24-hr average, 1992
SMSO2493.ADI	SMSO2493.ADO	SO2, 24-hr average, 1993
SMSO2494.ADI	SMSO2494.ADO	SO2, 24-hr average, 1994
SMSOA90.ADI	SMSOA90.ADO	SO2, annual average, 1990
SMSOA91.ADI	SMSOA91.ADO	SO2, annual average, 1991
SMSOA92.ADI	SMSOA92.ADO	SO2, annual average, 1992
SMSOA93.ADI	SMSOA93.ADO	SO2, annual average, 1993
SMSOA94.ADI	SMSOA94.ADO	SO2, annual average, 1994
SMPMA90.ADI	SMPMA90.ADO	PM, annual average, 1990
SMPMA91.ADI	SMPMA91.ADO	PM, annual average, 1991
SMPMA92.ADI	SMPMA92.ADO	PM, annual average, 1992
SMPMA93.ADI	SMPMA93.ADO	PM, annual average, 1993
SMPMA94.ADI	SMPMA94.ADO	PM, annual average, 1994
SMPM2490.ADI	SMPM2490.ADO	PM, 24-hr average, 1990
SMPM2491.ADI	SMPM2491.ADO	PM, 24-hr average, 1991
SMPM2492.ADI	SMPM2492.ADO	PM, 24-hr average, 1992
SMPM2493.ADI	SMPM2493.ADO	PM, 24-hr average, 1993
SMPM2494.ADI	SMPM2494.ADO	PM, 24-hr average, 1994
SMCO190.ADI	SMCO190.ADO	CO, 1-hr average, 1990
SMCO191.ADI	SMCO191.ADO	CO, 1-hr average, 1991
SMCO192.ADI	SMCO192.ADO	CO, 1-hr average, 1992
SMCO193.ADI	SMCO193.ADO	CO, 1-hr average, 1993
SMCO194.ADI	SMCO194.ADO	CO, 1-hr average, 1994
SMCO890.ADI	SMCO890.ADO	CO, 8-hr average, 1990
SMCO891.ADI	SMCO891.ADO	CO, 8-hr average, 1991
SMCO892.ADI	SMCO892.ADO	CO, 8-hr average, 1992
SMCO893.ADI	SMCO893.ADO	CO, 8-hr average, 1993
SMCO894.ADI	SMCO894.ADO	CO, 8-hr average, 1994
SMPb2490.ADI	SMPb2490.ADO	Pb, 24-hr average, 1990
SMPb2491.ADI	SMPb2491.ADO	Pb, 24-hr average, 1991
SMPb2492.ADI	SMPb2492.ADO	Pb, 24-hr average, 1992
SMPb2493.ADI	SMPb2493.ADO	Pb, 24-hr average, 1993
SMPb2494.ADI	SMPb2494.ADO	Pb, 24-hr average, 1994
BPIP Prime Files:		
SP******.BPI	SP******.PRO	BPIP Input and Output Files For AERMOD Prime Refined Runs
SACTI Files:		
Mult**.out	Tables**.out	SACTI model input and output files.
Prep**.out		

Attachment C

Figures 9.3-6 and 9.3-7

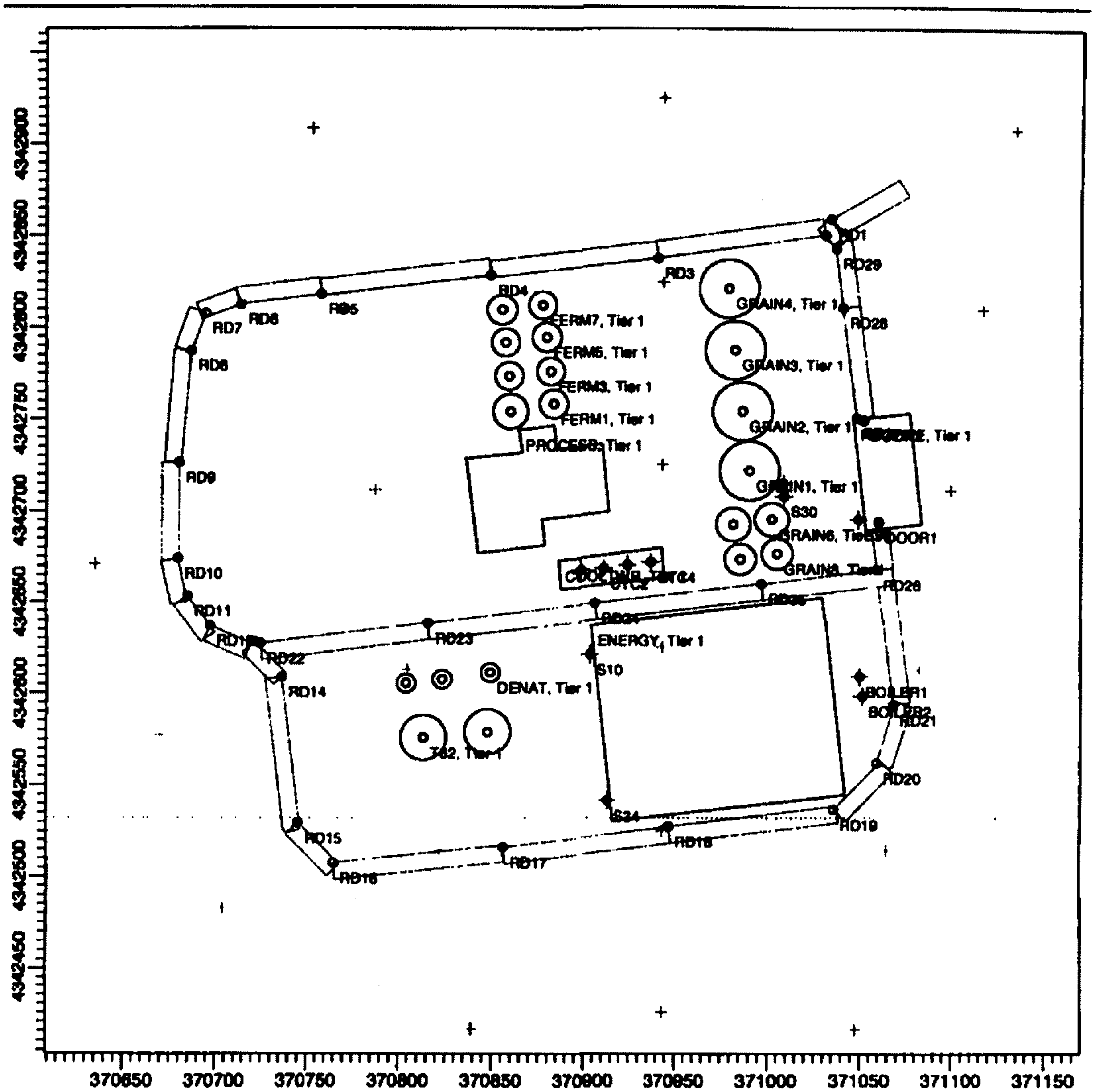
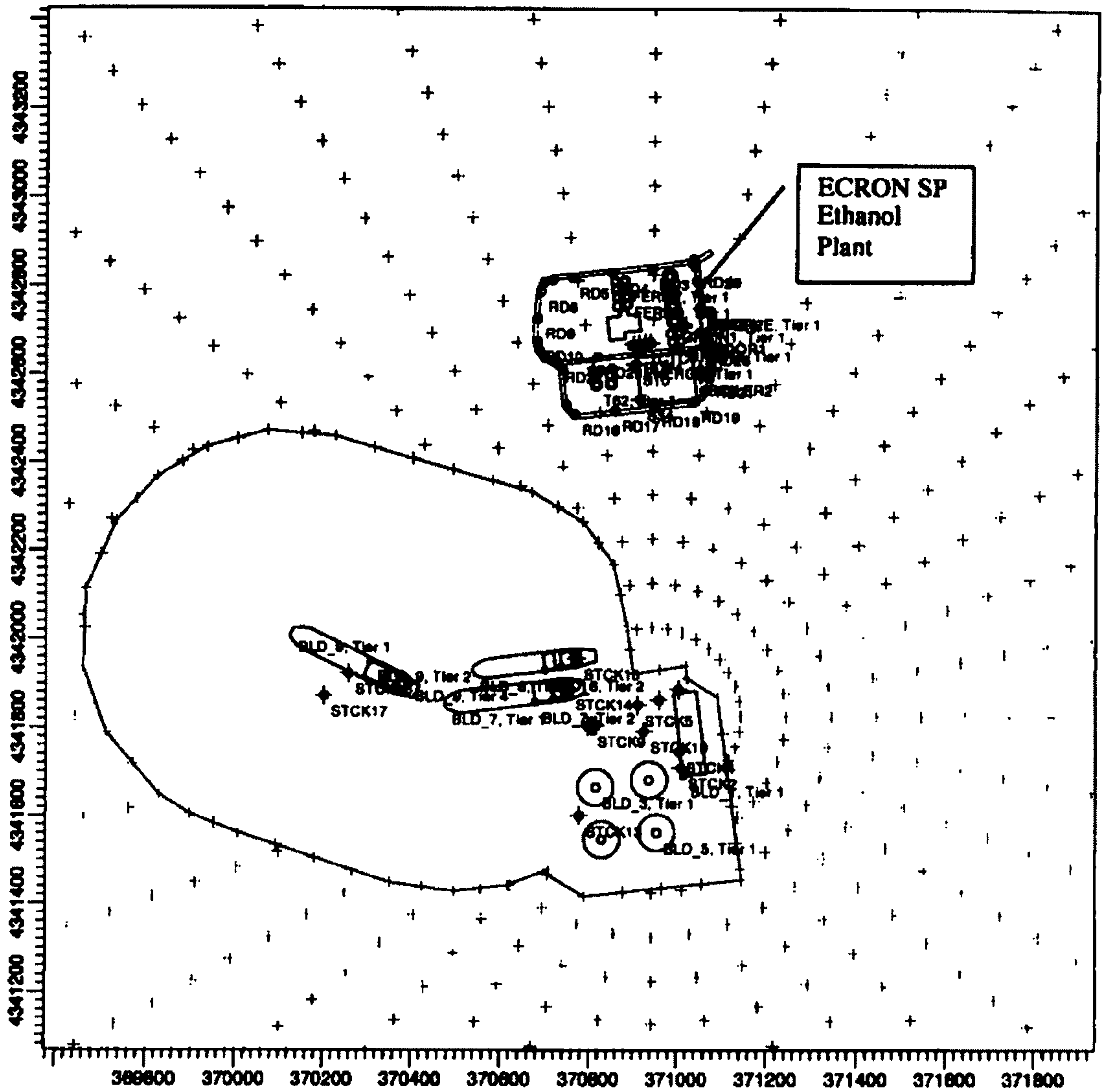


Figure 9.3-6
Sparrows Point Project

AERMOD Model Setup Showing ECRON SP Buildings and Emission Sources
(UTM Grid units in meters)



Note: There will be a maximum of two LNG ships at any time at the LNG Terminal, including the berths and turning basin. The three LNG ships in the figure are shown only to clarify the dispersion modeling setup (location and size of structures) to account for plume downwash effects when all sources, including marine vessels, are modeled concurrently.

Figure 9.3-7
Sparrows Point Project

AERMOD Model Setup Showing Relationship Between LNG Terminal and ECRON SP Buildings, Emission Units and Near-Field Receptors
(UTM Grid units in meters)

Attachment D

CD Containing Input and Output Files from Revised Modeling Scenarios

Attachment D includes input and output files and is contained in the CD submitted with this filing.