



April 12, 2010

103-89505

DEP/DARM
Division of Air Resource Management
2600 Blair Stone Road MS 5500
Tallahassee, Florida 32399-2400

RECEIVED

APR 14 2010

BUREAU OF
AIR REGULATION

Attention: Mr. Al Linero, P.E.

**RE: STANTON ENERGY CENTER, FACILITY ID NO. 0950137
MINOR SOURCE AIR CONSTRUCTION PERMIT APPLICATION
SCRUBBER MODIFICATION AND HAP REVISIONS**

Attached is an application for a minor source air construction permit for the Stanton Energy Center (SEC) Unit 1 FGD system, which is proposed to be modified with an upgrade to the mist eliminator vanes and fixed grid wash system. This upgrade is only to the mist eliminator part of the FGD system. There may be a slight improvement in acid gas control, but no significant impact on emissions is expected. The justification for this project is a lower maintenance design and increased reliability of the cleaning water lances.

In addition, this application serves to correct a misstatement in the current Title V (TV) operating permit. Previous permits have been unclear as to whether the Stanton Energy Center (SEC) is a major source of hazardous air pollutants (HAPs). Some previous construction and operation permits have either stated that this facility is not a major source of HAPs or that the facility is a "potential" major source of HAPs. Based on a review of data in the annual operating reports (AORs), it's clear that at least one HAP (HCl) exceeds the applicable 10 ton per year (TPY) threshold that would qualify this facility for major source HAP status. The appropriate box has been checked in this application form.

Finally, during the recent TV renewal (Permit No. 0950137-029-AV), the Department added a requirement for recurring (every 5 years) compliance testing for emissions of mercury, beryllium, lead and fluorides from Unit 2. This application serves to request that these limits, as well as the associated testing requirements, be removed from the permit.

Enclosed are an original and three copies of the application package. OUC would appreciate your timely processing of the application. Please contact me at (813) 287-1717 if you have any questions.

Sincerely,

GOLDER ASSOCIATES INC.

Scott Osbourn, PE
Associate and Senior Consultant

Enclosure

Cc: Caroline Shine, DEP Central District
Garfield Blair, OUC Director of Environmental Affairs



Golder Associates Inc.
5100 W. Lemon Street, Suite 208
Tampa, FL 33609 USA
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Golder Associates: Operations in Africa, Asia, Australasia, Europe, North America and South America



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BUREAU OF
AIR REGULATION

MINOR SOURCE AIR CONSTRUCTION PERMIT APPLICATION

SCRUBBER MODIFICATION AND HAP REVISIONS
STANTON ENERGY CENTER
ORLANDO, ORANGE COUNTY, FLORIDA

REPORT

Submitted To: Florida Department of Environmental Protection
Division of Air Resource Management
2600 Blair Stone Rd., MS 5500
Tallahassee, FL 32399-2400

Submitted By: Golder Associates Inc.
5100 W. Lemon Street
Suite 208
Tampa, FL 33609 USA

Distribution: 4 Copies - Department of Environmental Protection
2 Copies - OUC
2 Copies - Golder Associates Inc.

April 2010

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PART I
FDEP APPLICATION FOR AIR PERMIT



Department of Environmental Protection

Division of Air Resource Management

APPLICATION FOR AIR PERMIT - LONG FORM

I. APPLICATION INFORMATION

Air Construction Permit – Use this form to apply for an air construction permit:

- For any required purpose at a facility operating under a federally enforceable state air operation permit (FESOP) or Title V air operation permit;
- For a proposed project subject to prevention of significant deterioration (PSD) review, nonattainment new source review, or maximum achievable control technology (MACT);
- To assume a restriction on the potential emissions of one or more pollutants to escape a requirement such as PSD review, nonattainment new source review, MACT, or Title V; or
- To establish, revise, or renew a plantwide applicability limit (PAL).

Air Operation Permit – Use this form to apply for:

- An initial federally enforceable state air operation permit (FESOP); or
- An initial, revised, or renewal Title V air operation permit.

To ensure accuracy, please see form instructions.

Identification of Facility

1. Facility Owner/Company Name: Orlando Utilities Commission	
2. Site Name: Stanton Energy Center	
3. Facility Identification Number: 0950137	
4. Facility Location... Stanton Energy Center Street Address or Other Locator: 5100 South Alafaya Trail City: Orlando County: Orange Zip Code: 32193	
5. Relocatable Facility? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6. Existing Title V Permitted Facility? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

Application Contact – Stanton Energy Center

1. Application Contact Name: David R. Baez	
2. Application Contact Mailing Address... Organization/Firm: Orlando Utilities Commission Street Address: P.O. Box 3193 City: Orlando State: FL Zip Code: 32802	
3. Application Contact Telephone Numbers... Telephone: (407) 658 - 6444 ext. 3691 Fax: (407) 244 - 8794	
4. Application Contact E-mail Address: dbaez@ouc.com	

Application Processing Information (DEP Use)

1. Date of Receipt of Application: 4/2/10	3. PSD Number (if applicable):
2. Project Number(s): 0950137 - 092 A	4. Siting Number (if applicable):

APPLICATION INFORMATION

Purpose of Application

This application for air permit is being submitted to obtain: (Check one)

Air Construction Permit

- Air construction permit.
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL).
- Air construction permit to establish, revise, or renew a plantwide applicability limit (PAL), and separate air construction permit to authorize construction or modification of one or more emissions units covered by the PAL.

Air Operation Permit

- Initial Title V air operation permit.
- Title V air operation permit revision.
- Title V air operation permit renewal.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is required.
- Initial federally enforceable state air operation permit (FESOP) where professional engineer (PE) certification is not required.

Air Construction Permit and Revised/Renewal Title V Air Operation Permit (Concurrent Processing)

- Air construction permit and Title V permit revision, incorporating the proposed project.
- Air construction permit and Title V permit renewal, incorporating the proposed project.

Note: By checking one of the above two boxes, you, the applicant, are requesting concurrent processing pursuant to Rule 62-213.405, F.A.C. In such case, you must also check the following box:

- I hereby request that the department waive the processing time requirements of the air construction permit to accommodate the processing time frames of the Title V air operation permit.

Application Comment

APPLICATION INFORMATION

This application is for a minor source air construction permit for SEC Unit 1. The proposed project would modify the Unit 1 FGD system with an upgrade to the mist eliminator vanes and fixed grid wash system. This upgrade is only to the mist eliminator part of the FGD system. There may be a slight improvement in acid gas control, but no significant impact on emissions is expected. The justification for this project is a lower maintenance design and increased reliability of the cleaning water lances.

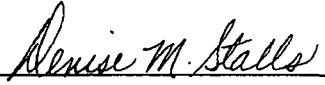
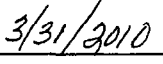
In addition, this application serves to correct a misstatement in the current Title V (TV) operating permit. Previous permits have been unclear as to whether the Stanton Energy Center (SEC) is a major source of hazardous air pollutants (HAPs). Some previous construction and operation permits have either stated that this facility is not a major source of HAPs or that the facility is a "potential" major source of HAPs. Based on a review of data in the annual operating reports (AORs), it's clear that at least one HAP (HCl) exceeds the applicable 10 ton per year (TPY) threshold that would qualify this facility for major source HAP status. The appropriate box has been checked in this application form.

Finally, during the recent Title V renewal (Permit No. 0950137-029-AV), the Department added a requirement for recurring (every 5 years) compliance testing for emissions of mercury, beryllium, lead and fluorides from Unit 2. This application serves to request that these limits, as well as the associated testing requirements, be removed from the permit.

APPLICATION INFORMATION

Owner/Authorized Representative Statement

Complete if applying for an air construction permit or an initial FESOP.

1. Owner/Authorized Representative Name : Denise M. Stalls, Vice President of Human and Environmental Resources Department
2. Owner/Authorized Representative Mailing Address... P.O. Box 3193, Orlando FL 32802 Organization/Firm: Orlando Utilities Commission Street Address: Reliable Plaza, 100 West Anderson City: Orlando State: FL Zip Code: 32802
3. Owner/Authorized Representative Telephone Numbers... Telephone: (407) 423 - 9168 ext. Fax: (407) 236 - 9606
4. Owner/Authorized Representative E-mail Address: <u>dstalls@ouc.com</u>
5. Owner/Authorized Representative Statement: <i>I, the undersigned, am the owner or authorized representative of the corporation, partnership, or other legal entity submitting this air permit application. To the best of my knowledge, the statements made in this application are true, accurate and complete, and any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department.</i>  Signature  Date

APPLICATION INFORMATION

Application Responsible Official Certification

Complete if applying for an initial, revised, or renewal Title V air operation permit or concurrent processing of an air construction permit and revised or renewal Title V air operation permit. If there are multiple responsible officials, the "application responsible official" need not be the "primary responsible official."

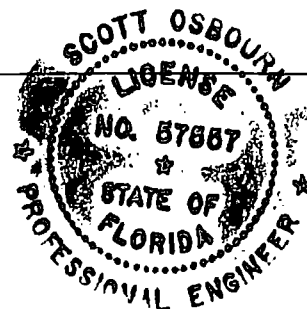
1. Application Responsible Official Name:
2. Application Responsible Official Qualification (Check one or more of the following options, as applicable): <input type="checkbox"/> For a corporation, the president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit under Chapter 62-213, F.A.C. <input type="checkbox"/> For a partnership or sole proprietorship, a general partner or the proprietor, respectively. <input type="checkbox"/> For a municipality, county, state, federal, or other public agency, either a principal executive officer or ranking elected official. <input type="checkbox"/> The designated representative at an Acid Rain source, CAIR source, or Hg Budget source.
3. Application Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
4. Application Responsible Official Telephone Numbers... Telephone: ext. Fax:
5. Application Responsible Official E-mail Address:
6. Application Responsible Official Certification: <p>I, the undersigned, am a responsible official of the Title V source addressed in this air permit application. I hereby certify, based on information and belief formed after reasonable inquiry, that the statements made in this application are true, accurate and complete and that, to the best of my knowledge, any estimates of emissions reported in this application are based upon reasonable techniques for calculating emissions. The air pollutant emissions units and air pollution control equipment described in this application will be operated and maintained so as to comply with all applicable standards for control of air pollutant emissions found in the statutes of the State of Florida and rules of the Department of Environmental Protection and revisions thereof and all other applicable requirements identified in this application to which the Title V source is subject. I understand that a permit, if granted by the department, cannot be transferred without authorization from the department, and I will promptly notify the department upon sale or legal transfer of the facility or any permitted emissions unit. Finally, I certify that the facility and each emissions unit are in compliance with all applicable requirements to which they are subject, except as identified in compliance plan(s) submitted with this application.</p> <p>_____ Signature</p> <p>_____ Date</p>

APPLICATION INFORMATION

Professional Engineer Certification

1. Professional Engineer Name: Scott H. Osbourn, Senior Consultant Registration Number: 57557
2. Professional Engineer Mailing Address... Organization/Firm: Golder Associates, Inc. Street Address: 5100 West Lemon Street, Suite 114 City: Tampa State: FL Zip Code: 33609
3. Professional Engineer Telephone Numbers... Telephone: (813) 287-1717 ext. Fax: (813) 287-1716
4. Professional Engineer E-mail Address: sosbourn@golder.com
5. Professional Engineer Statement: <i>I, the undersigned, hereby certify, except as particularly noted herein*, that:</i> <i>(1) To the best of my knowledge, there is reasonable assurance that the air pollutant emissions unit(s) and the air pollution control equipment described in this application for air permit, when properly operated and maintained, will comply with all applicable standards for control of air pollutant emissions found in the Florida Statutes and rules of the Department of Environmental Protection; and</i> <i>(2) To the best of my knowledge, any emission estimates reported or relied on in this application are true, accurate, and complete and are either based upon reasonable techniques available for calculating emissions or, for emission estimates of hazardous air pollutants not regulated for an emissions unit addressed in this application, based solely upon the materials, information and calculations submitted with this application.</i> <i>(3) If the purpose of this application is to obtain a Title V air operation permit (check here <input type="checkbox"/>, if so), I further certify that each emissions unit described in this application for air permit, when properly operated and maintained, will comply with the applicable requirements identified in this application to which the unit is subject, except those emissions units for which a compliance plan and schedule is submitted with this application.</i> <i>(4) If the purpose of this application is to obtain an air construction permit (check here <input checked="" type="checkbox"/>, if so) or concurrently process and obtain an air construction permit and a Title V air operation permit revision or renewal for one or more proposed new or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that the engineering features of each such emissions unit described in this application have been designed or examined by me or individuals under my direct supervision and found to be in conformity with sound engineering principles applicable to the control of emissions of the air pollutants characterized in this application.</i> <i>(5) If the purpose of this application is to obtain an initial air operation permit or operation permit revision or renewal for one or more newly constructed or modified emissions units (check here <input type="checkbox"/>, if so), I further certify that, with the exception of any changes detailed as part of this application, each such emissions unit has been constructed or modified in substantial accordance with the information given in the corresponding application for air construction permit and with all provisions contained in such permit.</i> _____ Signature (seal) _____ Date <u>4/12/10</u>

* Attach any exception to certification statement.



II. FACILITY INFORMATION

A. GENERAL FACILITY INFORMATION

Facility Location and Type

1. Facility UTM Coordinates...		2. Facility Latitude/Longitude...	
Zone 17	East (km) 483.5	Latitude (DD/MM/SS) 28° 29' 1" N	Longitude (DD/MM/SS) 81° 10' 7" W
	North (km) 3150.6		
3. Governmental Facility Code:	4. Facility Status Code:	5. Facility Major Group SIC Code:	6. Facility SIC(s):
4	Active	49	4911
7. Facility Comment :			

Facility Contact – Stanton Energy Center

1. Facility Contact Name: David R. Baez, Project Engineer, Environmental Affairs
2. Facility Contact Mailing Address... Organization/Firm: Orlando Utilities Commission Street Address: P.O. Box 3193 City: Orlando State: FL Zip Code: 32802
3. Facility Contact Telephone Numbers: Telephone: (407) 658 - 6444 ext. 3691 Fax: (407) 244 - 8794
4. Facility Contact E-mail Address: <u>dbaез@ouc.com</u>

Facility Primary Responsible Official

Complete if an “application responsible official” is identified in Section I that is not the facility “primary responsible official.”

1. Facility Primary Responsible Official Name:
2. Facility Primary Responsible Official Mailing Address... Organization/Firm: Street Address: City: State: Zip Code:
3. Facility Primary Responsible Official Telephone Numbers... Telephone: () - ext. Fax: () -
4. Facility Primary Responsible Official E-mail Address:

Facility Regulatory Classifications

Check all that would apply *following* completion of all projects and implementation of all other changes proposed in this application for air permit. Refer to instructions to distinguish between a “major source” and a “synthetic minor source.”

1. <input type="checkbox"/> Small Business Stationary Source	<input type="checkbox"/> Unknown
2. <input type="checkbox"/> Synthetic Non-Title V Source	
3. <input checked="" type="checkbox"/> Title V Source	
4. <input checked="" type="checkbox"/> Major Source of Air Pollutants, Other than Hazardous Air Pollutants (HAPs)	
5. <input type="checkbox"/> Synthetic Minor Source of Air Pollutants, Other than HAPs	
6. <input checked="" type="checkbox"/> Major Source of Hazardous Air Pollutants (HAPs)	
7. <input type="checkbox"/> Synthetic Minor Source of HAPs	
8. <input checked="" type="checkbox"/> One or More Emissions Units Subject to NSPS (40 CFR Part 60)	
9. <input type="checkbox"/> One or More Emissions Units Subject to Emission Guidelines (40 CFR Part 60)	
10. <input type="checkbox"/> One or More Emissions Units Subject to NESHAP (40 CFR Part 61 or Part 63)	
11. <input type="checkbox"/> Title V Source Solely by EPA Designation (40 CFR 70.3(a)(5))	
12. Facility Regulatory Classifications Comment: Note that Item 6 above is now checked.	

List of Pollutants Emitted by Facility

1. Pollutant Emitted	2. Pollutant Classification	3. Emissions Cap [Y or N]?
SO2	A	N
CO	A	N
NOX	A	N
PM	A	N
PM10	A	N
VOC	A	N
HAP	A	N

B. EMISSIONS CAPS

Facility-Wide or Multi-Unit Emissions Caps

1. Pollutant Subject to Emissions Cap	2. Facility-Wide Cap [Y or N]? (all units)	3. Emissions Unit ID's Under Cap (if not all units)	4. Hourly Cap (lb/hr)	5. Annual Cap (ton/yr)	6. Basis for Emissions Cap

7. Facility-Wide or Multi-Unit Emissions Cap Comment:

C. FACILITY ADDITIONAL INFORMATION

Additional Requirements for All Applications, Except as Otherwise Stated

1.	Facility Plot Plan: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>5/21/09</u>
2.	Process Flow Diagram(s): (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>5/21/09</u>
3.	Precautions to Prevent Emissions of Unconfined Particulate Matter: (Required for all permit applications, except Title V air operation permit revision applications if this information was submitted to the department within the previous five years and would not be altered as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Previously Submitted, Date: <u>5/21/09</u>

Additional Requirements for Air Construction Permit Applications

1.	Area Map Showing Facility Location: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (existing permitted facility)
2.	Description of Proposed Construction, Modification, or Plantwide Applicability Limit (PAL): <input checked="" type="checkbox"/> Attached, Document ID: <u>See Report</u>
3.	Rule Applicability Analysis: <input checked="" type="checkbox"/> Attached, Document ID: <u>See Report</u>
4.	List of Exempt Emissions Units: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable (no exempt units at facility)
5.	Fugitive Emissions Identification: <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
6.	Air Quality Analysis (Rule 62-212.400(7), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
7.	Source Impact Analysis (Rule 62-212.400(5), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
8.	Air Quality Impact since 1977 (Rule 62-212.400(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
9.	Additional Impact Analyses (Rules 62-212.400(8) and 62-212.500(4)(e), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable
10.	Alternative Analysis Requirement (Rule 62-212.500(4)(g), F.A.C.): <input type="checkbox"/> Attached, Document ID: _____ <input checked="" type="checkbox"/> Not Applicable

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for FESOP Applications -- NA

1. List of Exempt Emissions Units: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable (no exempt units at facility)

Additional Requirements for Title V Air Operation Permit Applications -- NA

1. List of Insignificant Activities: (Required for initial/renewal applications only) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable (revision application)

2. Identification of Applicable Requirements: (Required for initial/renewal applications, and for revision applications if this information would be changed as a result of the revision being sought) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable (revision application with no change in applicable requirements)

3. Compliance Report and Plan: (Required for all initial/revision/renewal applications) <input type="checkbox"/> Attached, Document ID: _____ Note: A compliance plan must be submitted for each emissions unit that is not in compliance with all applicable requirements at the time of application and/or at any time during application processing. The department must be notified of any changes in compliance status during application processing.
--

4. List of Equipment/Activities Regulated under Title VI: (If applicable, required for initial/renewal applications only) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Equipment/Activities Onsite but Not Required to be Individually Listed <input type="checkbox"/> Not Applicable
--

5. Verification of Risk Management Plan Submission to EPA: (If applicable, required for initial/renewal applications only) <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable

6. Requested Changes to Current Title V Air Operation Permit: <input type="checkbox"/> Attached, Document ID: _____ <input type="checkbox"/> Not Applicable
--

C. FACILITY ADDITIONAL INFORMATION (CONTINUED)

Additional Requirements for Facilities Subject to Acid Rain, CAIR, or Hg Budget Program

1. Acid Rain Program Forms:

Acid Rain Part Application (DEP Form No. 62-210.900(1)(a)):

Attached, Document ID: _____ Previously Submitted, Date: 5/21/09

Not Applicable (not an Acid Rain source)

Phase II NO_x Averaging Plan (DEP Form No. 62-210.900(1)(a)1.):

Attached, Document ID: _____ Previously Submitted, Date: _____

Not Applicable

New Unit Exemption (DEP Form No. 62-210.900(1)(a)2.):

Attached, Document ID: _____ Previously Submitted, Date: _____

Not Applicable

2. CAIR Part (DEP Form No. 62-210.900(1)(b)):

Attached, Document ID: _____ Previously Submitted, Date: 5/21/09

Not Applicable (not a CAIR source)

3. Hg Budget Part (DEP Form No. 62-210.900(1)(c)):

Attached, Document ID: _____ Previously Submitted, Date: _____

Not Applicable (not a Hg Budget unit)

Additional Requirements Comment

PART II
APPLICATION REPORT

1.0 INTRODUCTION AND EXECUTIVE SUMMARY

This application is for a minor source air construction permit for a modification of the Unit 1 Flue Gas Desulfurization (FGD) system. Based on discussions with OUC, Golder understands that the Unit 1 FGD system will be modified with an upgrade to the mist eliminator vanes and fixed grid wash system. This upgrade is only to the mist eliminator part of the FGD system. There may be a slight improvement in acid gas control, but no significant impact on emissions is expected. The justification for this project is a lower maintenance design and increased reliability of the cleaning water lances.

As a result of this permitting action, no increase in the corresponding allowable emissions limits [either concentration (ppm) or mass (lb/hr)] is sought and there is a slight possibility that this proposed upgrade project may actually result in a reduction in certain actual emissions. An emissions baseline assessment of the highest past actual emissions is presented and future (i.e., post-modification) emissions will be tracked, reported and compared to this baseline to determine whether a significant emission rate (SER) increase occurs.

This application also serves to correct a misstatement in the current Title V (TV) operating permit. Previous permits have been unclear as to whether the Stanton Energy Center (SEC) is a major source of hazardous air pollutants (HAPs). Some previous construction and operation permits have either stated that this facility is not a major source of HAPs or that the facility is a "potential" major source of HAPs. Based on a review of data in the annual operating reports (AORs), it's clear that at least one HAP (HCl) exceeds the applicable 10 ton per year (TPY) threshold that would qualify this facility for major source HAP status. The appropriate box has been checked on the attached application form.

Finally, during the recent TV renewal (Permit No. 0950137-029-AV), the Department added a requirement for recurring (every 5 years) compliance testing for emissions of mercury, beryllium, lead and fluorides from Unit 2. This application serves to request that these limits, as well as the associated testing requirements, be removed from the permit. Associated information is presented in an appendix to this report.

This air permit application consists of the appropriate application form [Part I; DEP Form 62-210.900(1)], a technical description of the project (Part II Section 2.0), a regulatory applicability analysis for the project (Part II Section 3.0) and a findings and conclusions section (Part II Section 4.0). An emissions summary and analysis is presented in Appendix A to this report. Relevant specifications for the proposed equipment to be used in the scrubber upgrade are provided in Appendix B. Finally, Appendix C presents the initial 1996 stack test report for Unit 2 HAPs, as well as the requested permit language revisions in a track change format.

2.0 PROJECT DESCRIPTION

The proposed modification to the Unit 1 FGD system will be an upgrade to the mist eliminator vanes and fixed grid wash system. Specifically, this capital project is for the installation of the upgraded mist eliminator vanes and fixed grid wash system on the Unit-1 FGD system. The existing Combustion Engineering (CE) A-Frame design of fiberglass mist eliminator vanes and wash system have been in service since 1987 and need to be upgraded in the very near future. The upgraded two-stage polysulfone mist eliminator system will provide significantly improved performance and reliability over the current three-stage mist eliminator/bulk entrainment system (ME/BES) system. The improvements include: 1) higher droplet break-through velocity; 2) improved on-line cleaning; 3) low operating pressure drop; 4) reliable and low maintenance design; and 5) material of construction improvement; polysulfone is a homogeneous thermoplastic that has the added benefit of a high continuous temperature rating, increased corrosion resistance due to its homogeneous nature and high impact strength, further increasing vane (assembly) life.

Relevant specifications for the proposed equipment to be used are provided in Appendix B to this report. Specifically, attached are a series of three figures that illustrate the general location of the proposed upgrade within the absorber modules, as well as further detail on the arrangement of the mist eliminator vanes and the fixed grid wash system.

3.0 REGULATORY APPLICABILITY

Under Federal and State of Florida PSD review requirements, all major new or modified sources of air pollutants regulated under the Clean Air Act (CAA) must be reviewed and a pre-construction permit issued. EPA has approved Florida's State Implementation Plan (SIP), which contains PSD regulations; therefore, PSD approval authority has been granted to the FDEP. For projects approved under the Florida PPSA, the PSD program is delegated.

A "major facility" is defined as any 1 of 28 named source categories that have the potential to emit 100 TPY or more, or any other stationary facility that has the potential to emit 250 TPY or more of any pollutant regulated under CAA. "Potential to emit" means the capability, at maximum design capacity, to emit a pollutant after the application of control equipment. Once a new source is determined to be a "major facility" for a particular pollutant, any pollutant emitted in amounts greater than the PSD significant emission rates is subject to PSD review. For an existing source for which a modification is proposed, the modification is subject to PSD review if the net increase in emissions due to the modification is greater than the PSD significant emission rates.

PSD review is used to determine whether significant air quality deterioration will result from the new or modified facility. Federal PSD requirements are contained in 40 Code of Federal Regulations (CFR) 52.21, *Prevention of Significant Deterioration of Air Quality*. The State of Florida has adopted the federal PSD regulations by reference [Rule 62-212.400, Federal Administrative Code (F.A.C.)]. Major facilities and major modifications are required to undergo the following analysis related to PSD for each pollutant emitted in significant amounts:

- Control technology review,
- Source impact analysis,
- Air quality analysis (monitoring),
- Source information, and
- Additional impact analyses.

Unit 1 is a part of the Stanton Energy Center (SEC) complex, which is a major facility under FDEP Rules. The proposed modification to the mist eliminator vanes and fixed grid wash system would constitute a physical change. Because there is a physical change, the project could be a modification as defined in the FDEP Rules in 62-210.200 and under the PSD rules in 62-212.400 F.A.C. PSD review would be required for the project if there were a significant net increase in emissions.

Determining the amount of the change, if any, in the facility's emissions would be performed by following the requirements in 40 CFR Parts 52.21(b)(21)(v) and 52.21(b)(33) based on a tons/year comparison. The demonstration will be based on continuous emission monitoring systems (CEMs) for SO₂, NO_x and

CO and compliance tests for PM and VOCs. This is similar, as previously authorized by FDEP, for the Unit 1 burner replacement project (Permit No. 0950137-009-AC).

The annual emission report, referenced above, has been submitted 3 times on an annual basis (of the five year period required), that demonstrated in accordance with 40 CFR 52.21 (b)(21)(v) and (b)(33) that the physical changes did not result in emissions increases of these pollutants. This demonstration was submitted to the Florida Department of Environmental Protection (FDEP).

These applicable rules in 40 CFR 52.21 are stated as follows:

52.21(b)(21)(v) For an electric utility steam generating unit (other than a new unit or the replacement of an existing unit) actual emissions of the unit following the physical or operational change shall equal the representative actual annual emissions of the unit, provided the source owner or operator maintains and submits to the Administrator on an annual basis for a period of 5 years from the date the unit resumes regular operation, information demonstrating that the physical or operational change did not result in an emissions increase. A longer period, not to exceed 10 years, may be required by the Administrator if he determines such a period to be more representative of normal source post-change operations.

52.21(b)(33) Representative actual annual emissions means the average rate, in tons per year, at which the source is projected to emit a pollutant for the two-year period after a physical change or change in the method of operation of a unit, (or a different consecutive two-year period within 10 years after that change, where the Administrator determines that such period is more representative of normal source operations), considering the effect any such change will have on increasing or decreasing the hourly emissions rate and on projected capacity utilization. In projecting future emissions the Administrator shall:

(i) Consider all relevant information, including but not limited to, historical operational data, the company's own representations, filings with the State or Federal regulatory authorities, and compliance plans under title IV of the Clean Air Act; and

(ii) Exclude, in calculating any increase in emissions that results from the particular physical change or change in the method of operation at an electric utility steam generating unit, that portion of the unit's emissions following the change that could have been accommodated during the representative baseline period and is attributable to an increase in projected capacity utilization at the unit that is unrelated to the particular change, including any increased utilization due to the rate of electricity demand growth for the utility system as a whole.

OUC proposes to meet the requirements of 40 CFR 52.21(b)(21)(v) based on the definition of "representative actual annual emissions" in 40 CFR 52.21(b)(33). As discussed above, the SEC is a base load facility. Tables A-1 through A-5 present the annual emissions (NO_x, CO, SO₂, PM, PM₁₀ and VOCs) and the heat input reported in the Annual Operating Report (AOR) for the period 2005 through 2009. These tables also present the capacity factors for Unit 1 for these years. These data demonstrate the consistent operation of Unit 1. During the period 2005 through 2009, the capacity factor based on heat input ranged from 81 percent in 2008 to 86 percent in 2007, except for the unusual year of 2005, which is a capacity factor high of 97 percent. The average capacity factors for the years 2005, 2006, 2007, 2008 and 2009 were 97, 83, 86, 81 and 84 percent, respectively. The average two-year capacity factors based

on heat input were 90, 85, 84 and 83 percent for the periods 2005-2006, 2006-2007, 2007-2008 and 2008-2009, respectively. The average 5-year capacity factor was 86 percent.

It should be noted that the capacity factors are determined by the annual heat input as measured by the CEMs, required under the EPA Acid Rain Program. When comparing these values to other heat input measurement methods (e.g., determined from fuel flow and the fuel's heating value, etc.) there may be variability in results.

Table A-6 presents the annual average emissions for each consecutive two-year period from 2005 through 2009 based on the annual average emissions in Tables A-1 through A-5. The annual average emissions for each consecutive two-year period is consistent with the current EPA policy for steam generating units under the provisions in 40 CFR 52.21 (b)(3)(vi)a and (b)(21)(v). The highest two consecutive two years for emissions are proposed as the basis for future comparisons.

4.0 FINDINGS AND CONCLUSION

SEC Unit 1 is normally operated as a baseload unit, but, as is evident from Table A-6, for any given year operation can vary slightly due to electric demand and operational variability due to outages and maintenance. Unit 1 is a part of the SEC complex, which is a major facility under FDEP Rules. The proposed upgrade to the mist eliminator vanes and fixed grid wash system would constitute a physical change. This upgrade is only to the mist eliminator part of the FGD system, so there is not expected to be any significant impact on emissions. Because there is a physical change, the project could be a modification as defined in the FDEP Rules in 62-210.200 and under the PSD rules in 62-212.400 F.A.C. PSD review would be required for the project if there were a significant net increase in emissions.

Determining the amount of the change, if any, in the facility's emissions would be performed by following the requirements in 40 CFR Parts 52.21(b)(21)(v) and 52.21(b)(33) based on a tons/year comparison. The demonstration will be based on continuous emission monitoring systems (CEMs) for SO₂, NO_x and CO and compliance tests for PM and VOCs. This is similar, as previously authorized by FDEP, to the Unit 1 burner replacement project (Permit No. 0950137-009-AC).

The annual emission report, referenced above, has been submitted for Unit 1, three times on an annual basis (of the five year period required), that demonstrated in accordance with 40 CFR 52.21 (b)(21)(v) and (b)(33) that the physical changes did not result in emissions increases of these pollutants. This demonstration was submitted to the Florida Department of Environmental Protection (FDEP). OUC proposes to continue to submit these annual reports for a 5 year period (post-modification) to demonstrate that a significant emission increase has not occurred as a result of the proposed project.

APPENDIX A
EMISSIONS SUMMARY AND ANALYSIS

TABLE A-1

**2005 FACILITY EMISSIONS SUMMARY
Stanton Energy Center - ID No. 0950137**

Air Pollutant	Emission Unit 1 (TPY)	Operating Rate	
		Heat Input (mmBtu/hr)	Capacity Factor (%)
CO*	1,304	36,475,115	97
NO _x	7,343		
PM	73		
PM ₁₀	73		
SO ₂	6,059		
VOC	18		

* The CO CEMs were certified on 1/21/09. Estimates use 2005 heat input and 2009 annual average of 0.071 lb/mmBtu.

TABLE A-2

**2006 FACILITY EMISSIONS SUMMARY
Stanton Energy Center - ID No. 0950137**

Air Pollutant	Emission Unit 1 (TPY)	Operating Rate	
		Heat Input (mmBtu/hr)	Capacity Factor (%)
CO*	1,117	31,233,371	83
NO _x	6,125		
PM	141		
PM ₁₀	141		
SO ₂	5,486		
VOC	16		

* The CO CEMs were certified on 1/21/09. Estimates use 2006 heat input and 2009 annual average of 0.071 lb/mmBtu.

TABLE A-3

**2007 FACILITY EMISSIONS SUMMARY
Stanton Energy Center - ID No. 0950137**

Air Pollutant	Emission Unit 1 (TPY)	Operating Rate	
		Heat Input (mmBtu/hr)	Capacity Factor (%)
CO	1,152	32,228,342	86
NO _x	5,995		
PM	64		
PM ₁₀	64		
SO ₂	4,611		
VOC	16		

* The CO CEMs were certified on 1/21/09. Estimates use 2007 heat input and 2009 annual average of 0.071 lb/mmBtu.

TABLE A-4

**2008 FACILITY EMISSIONS SUMMARY
Stanton Energy Center - ID No. 0950137**

Air Pollutant	Emission Unit 1 (TPY)	Operating Rate	
		Heat Input (mmBtu/hr)	Capacity Factor (%)
CO	1,082	30,267,692	81
NO _x	5,866		
PM	121		
PM ₁₀	121		
SO ₂	3,933		
VOC	15		

* The CO CEMs were certified on 1/21/09. Estimates use 2008 heat input and 2009 annual average of 0.071 lb/mmBtu.

TABLE A-5

**2009 FACILITY EMISSIONS SUMMARY
Stanton Energy Center - ID No. 0950137**

Air Pollutant	Emission Unit 1 (TPY)	Operating Rate	
		Heat Input (mmBtu/hr)	Capacity Factor (%)
CO	1,121	31,366,416	84
NO _x	4,779		
PM	47		
PM ₁₀	47		
SO ₂	2,415		
VOC	16		

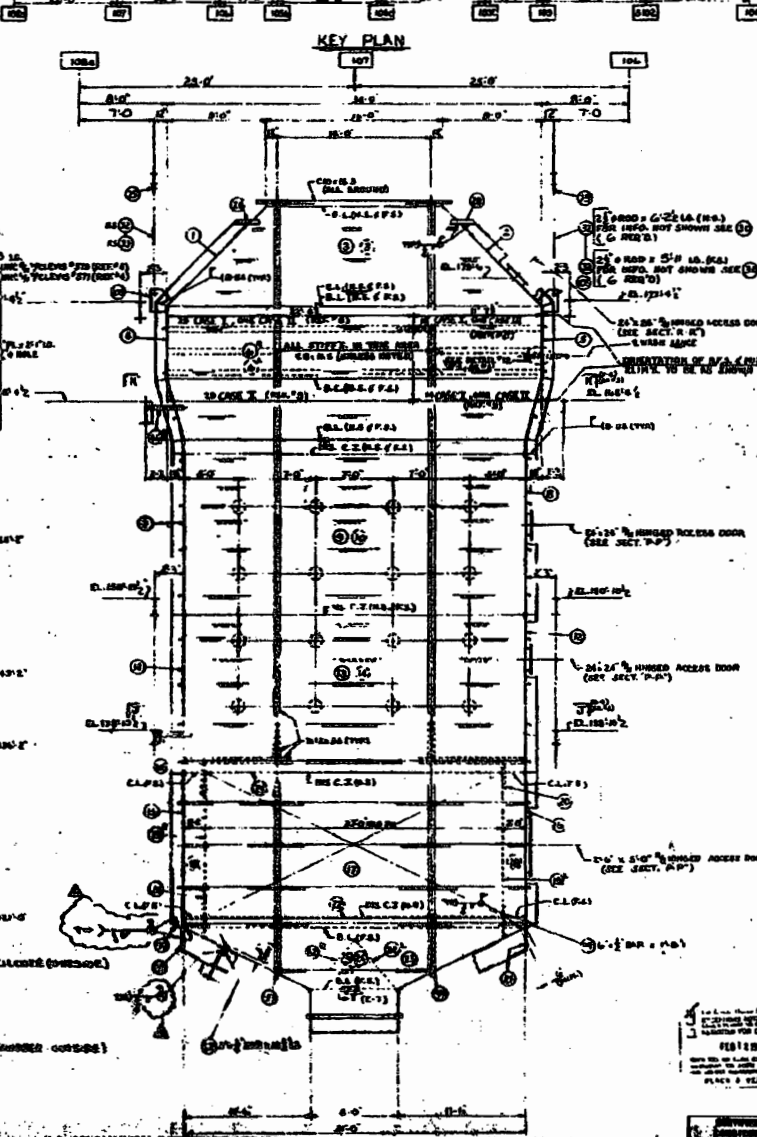
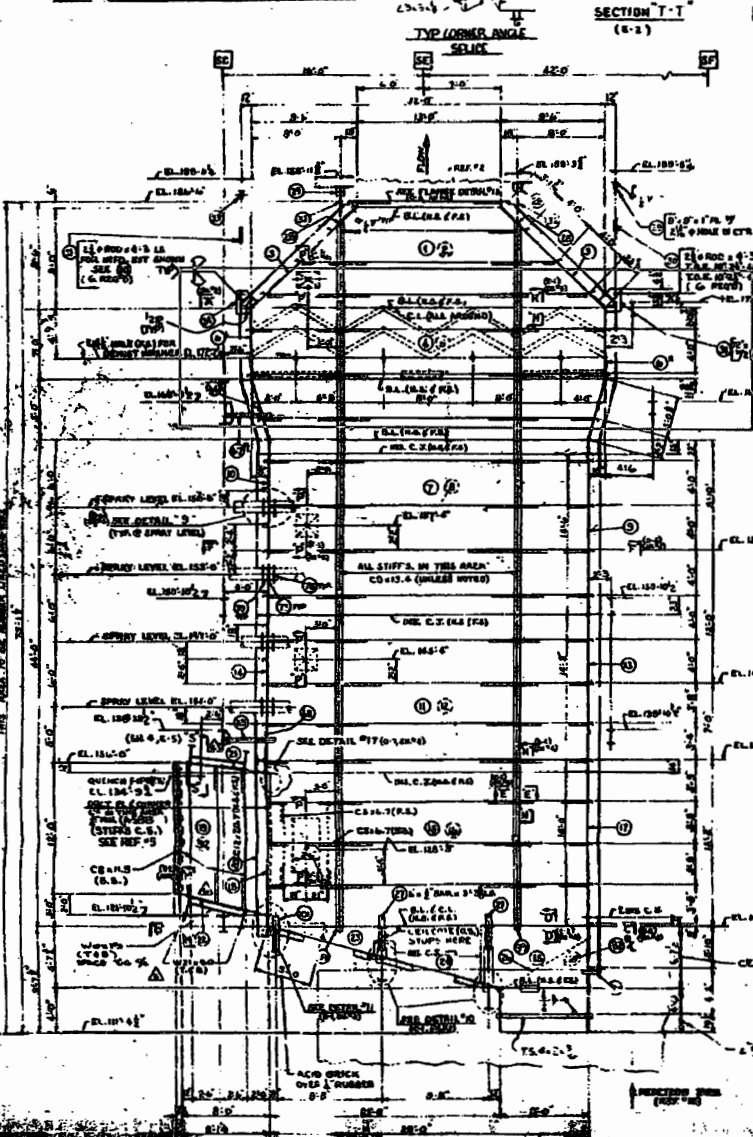
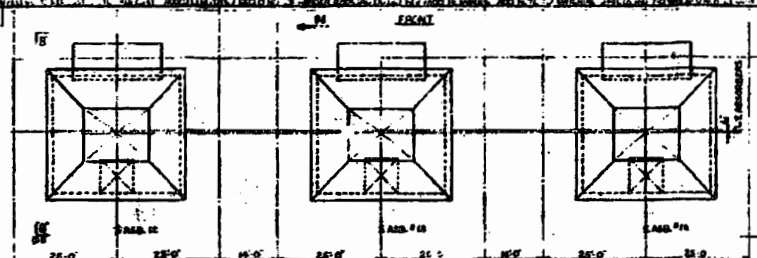
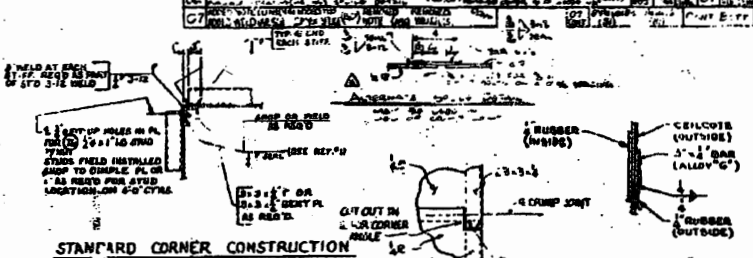
* The CO CEMs were certified on 1/21/09. Estimates use 2009 heat input and 2009 annual average of 0.071 lb/mmBtu.

TABLE A-6

EMISSION ANALYSIS
Stanton Energy Center - ID No. 0950137

Air Pollutant	Total 2005 Emissions	Total 2006 Emissions	Total 2007 Emissions	Total 2008 Emissions	Total 2009 Emissions	Highest 2-yr Average	CY
CO	1,304	1,117	1,152	1,082	1,121	1,211	2005-2006
NO _x	7,343	6,125	5,995	5,866	4,779	6,734	2005-2006
PM	73	141	64	121	47	107	2005-2006
PM ₁₀	73	141	64	121	47	107	2005-2006
SO ₂	6,059	5,486	4,611	3,933	2,415	5,773	2005-2006
VOC	18	16	16	15	16	17	2005-2006
Heat Input	36,475,115	31,233,371	32,228,342	30,267,692	31,366,416	33,854,243	2005-2006
(%)	97	83	86	81	84	90	2005-2006

APPENDIX B
EQUIPMENT SPECIFICATIONS



NO.	DESCRIPTION	DATE
1	ISSUED FOR PERMITS	11/15/68
2	ISSUED FOR CONSTRUCTION	11/15/68
3	ISSUED FOR AS-BUILT	11/15/68
4	ISSUED FOR RECORD	11/15/68
5	ISSUED FOR ARCHIVE	11/15/68
6	ISSUED FOR REVISION	11/15/68
7	ISSUED FOR REVIEW	11/15/68
8	ISSUED FOR APPROVAL	11/15/68
9	ISSUED FOR FINAL	11/15/68
10	ISSUED FOR CLOSURE	11/15/68

NO.	TITLE	DATE
1	ISSUED FOR PERMITS	11/15/68
2	ISSUED FOR CONSTRUCTION	11/15/68
3	ISSUED FOR AS-BUILT	11/15/68
4	ISSUED FOR RECORD	11/15/68
5	ISSUED FOR ARCHIVE	11/15/68
6	ISSUED FOR REVISION	11/15/68
7	ISSUED FOR REVIEW	11/15/68
8	ISSUED FOR APPROVAL	11/15/68
9	ISSUED FOR FINAL	11/15/68
10	ISSUED FOR CLOSURE	11/15/68

ERECTOR NOTE

1. THIS SYSTEM IS DESIGNED WITHOUT REGARD TO LOCATION OF DAMAGED OR PART WHICH MAY BE REPAIR, REACTION WHICH MAY BE INDICATED BY THESE PART MUST BE TAKEN CARE OF BY THE ERECTOR BY PROVIDING ADEQUATE STAYS & BRACING

2. WELDS PROVIDED FOR ALIGNMENT ONLY. ERECTION CONTRACTOR IS RESPONSIBLE FOR WELDABILITY AND STABILITY OF COMPONENT DURING ERECTION

3. ALL WELDS SHALL BE WELDED INSIDE

4. ALL WELDS SHALL BE WELDED INSIDE

5. SEE REF. 'A' FOR WELDING PROCEDURES

6. REMOVE ALL FT-OF DUCTS FROM WELDS & SMOOTH IN AREA OF RUBBER LINING

7. (SEE DET.)

8. ALL WELDS TO BE COMPLETE BEFORE RUBBER LINING IS INSTALLED

9. NO WELDING TO BE DONE ON COMPONENT

10. WELDS SHALL BE WELDED INSIDE

11. WELDS SHALL BE WELDED INSIDE

12. WELDS SHALL BE WELDED INSIDE

13. WELDS SHALL BE WELDED INSIDE

14. WELDS SHALL BE WELDED INSIDE

15. WELDS SHALL BE WELDED INSIDE

16. WELDS SHALL BE WELDED INSIDE

17. WELDS SHALL BE WELDED INSIDE

18. WELDS SHALL BE WELDED INSIDE

19. WELDS SHALL BE WELDED INSIDE

20. WELDS SHALL BE WELDED INSIDE

GENERAL NOTES

1. THREE (3) DIMENSIONS AS SHOWN FOR PL. UNIT (SEE KEY PLAN)

2. ALL PL. UNITS UNLESS NOTED (MATERIAL UNLESS NOTED)

3. ALL DIMENSIONS TO INSIDE OF PL. UNLESS NOTED

4. ALL DIMENSIONS TO INSIDE OF PL. UNLESS NOTED

5. ALL DIMENSIONS TO INSIDE OF PL. UNLESS NOTED

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18. ALL DIMENSIONS TO INSIDE OF PL. UNLESS NOTED

19. ALL DIMENSIONS TO INSIDE OF PL. UNLESS NOTED

20. ALL DIMENSIONS TO INSIDE OF PL. UNLESS NOTED

WORK THIS SHEET

SHEET 1 OF 4 09102-68-2500

SHEET 2 OF 4 09102-68-2501

SHEET 3 OF 4 09102-68-2502

SHEET 4 OF 4 09102-68-2512

MECH FILE COPY

SHEET 1 OF 4

ARRANGEMENT - ABSORB

ORLANDO UTILITIES COMMISSION

STANTON ENERGY CENTER - UNIT 1

BLACK & VEATCH FILE 8877-68-0202-1

POWER SYSTEMS

CONSULTING ENGINEERING

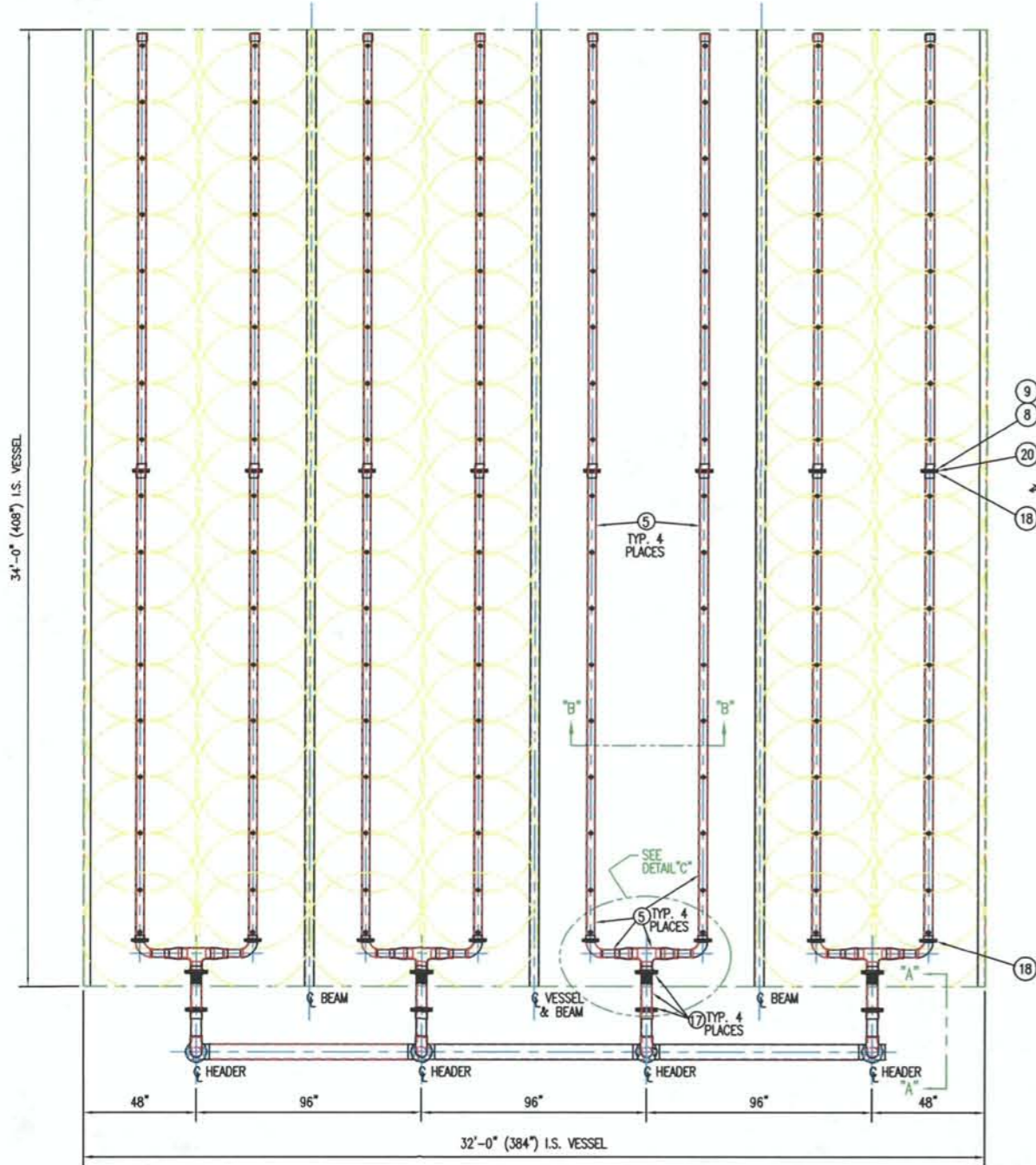
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Miami, Florida 33136

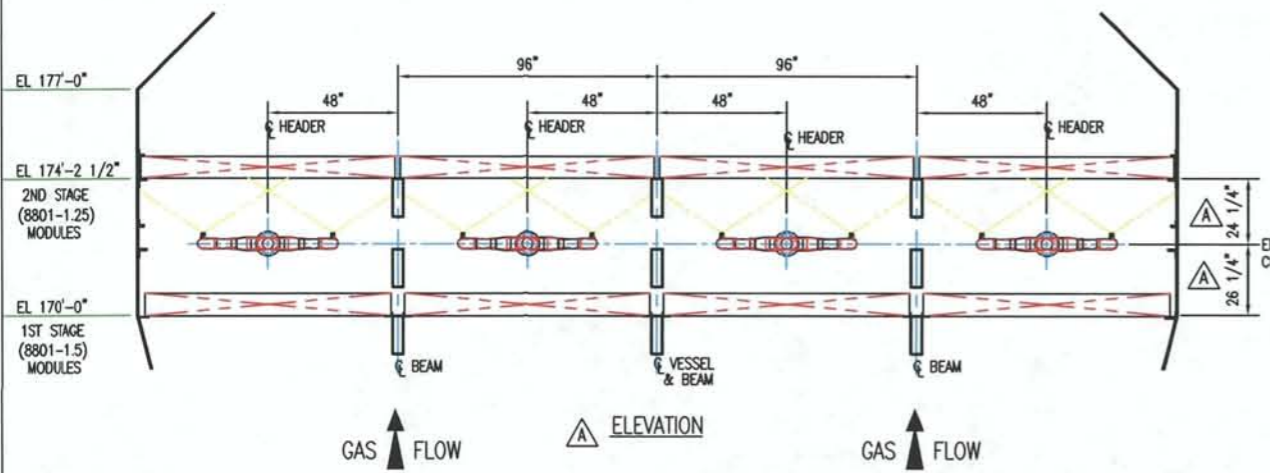
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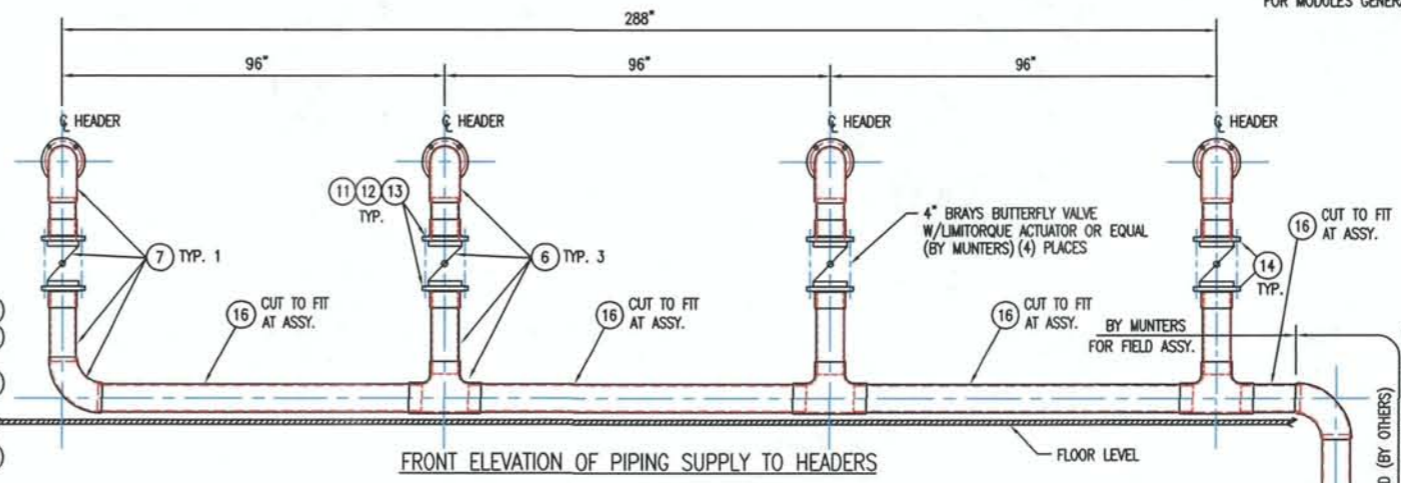
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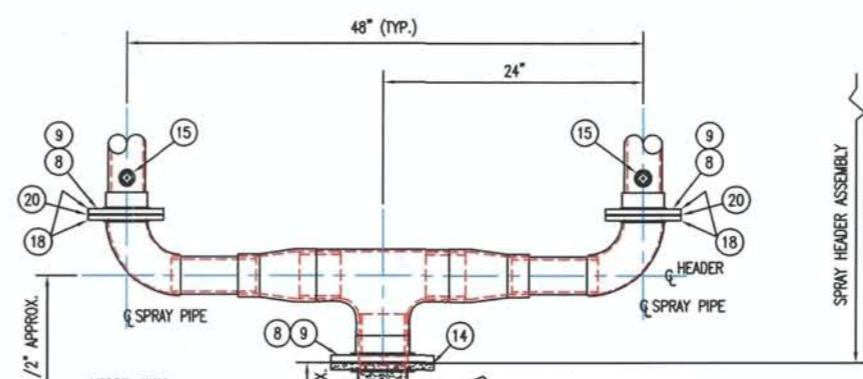
PLAN VIEW WASH HEADERS



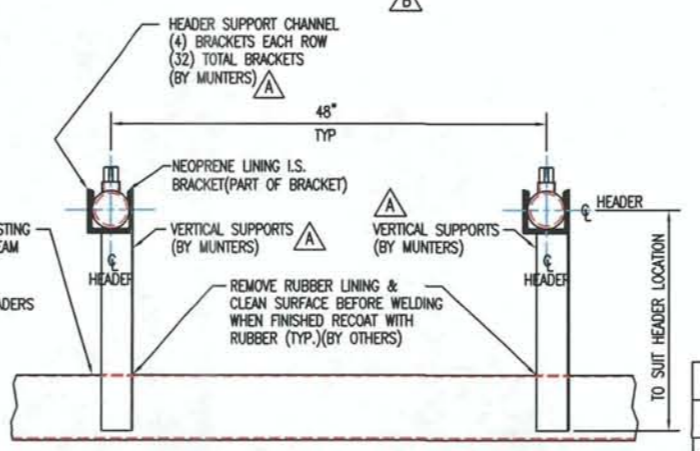
ELEVATION



FRONT ELEVATION OF PIPING SUPPLY TO HEADERS

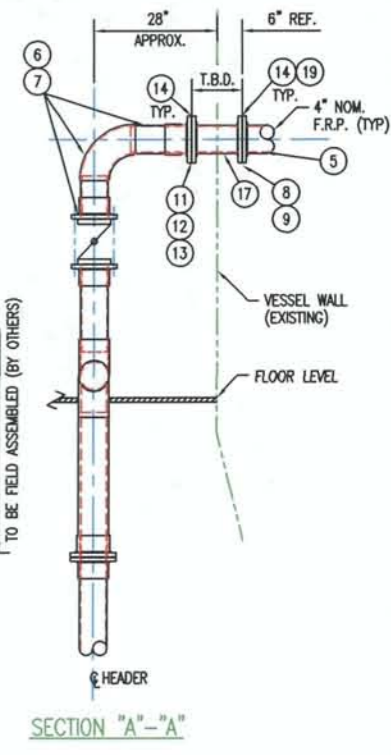


DETAIL "C" PLAN VIEW SEE DWG. (DD-34911E-01) FOR DETAILS



SECTION "B"- "B" INTERMEDIATE WASH SYSTEM SUPPORT BRACKETS

NOTES
 1. SEE D-34911-01 FOR MODULE ASSEMBLY & FOR ADDITIONAL NOTES
 2. ALL OTHER EQUIPMENT TO BE SHIPPED AS COMPONENTS.
 3. ALL PARTS TO BE MARKED FOR FIELD ASSEMBLY.
 4. ALL SUPPORTS TO BE SUPPLIED BY OTHERS.
REFERENCE:
 FOR MODULES GENERAL ARRANGEMENT SEE MUNTERS DRAWING D-34911-01



SECTION "A"- "A"

ORLANDO UTILITIES COMMISSION
 MIST ELIMINATOR & SPRAY WASH SYSTEM
 STATION - STANTON 1
 B & W CONTRACT NUMBER - 444-0024
 B & W PROJECT No. - 223N
 B & W PURCHASE ORDER NUMBER - BAX109393

ITEM NO.	PART NO.	PART NAME / DESCRIPTION	MATL.	REQ.
20	THIS DRAWING	GASKET - FULL FACE 3" NOM. (150#)	NEOP.	16
19	THIS DRAWING	FLAT FACE FLANGE 4" NOM. (150#)	FRP	4
18	THIS DRAWING	FLAT FACE FLANGE 3" NOM. (150#)	FRP	32
17	DD-34911F-01	SPOOL PIECE ASSEMBLY (RUBBER COATED)	C.S	4
16	THIS DRAWING	4" NOM. FRP PIPE	FRP	28'
15	THIS DRAWING	NOZZLE (90°) 1" NOM. (14 G.P.M. @ 30 P.S.I.)	PP	136
14	THIS DRAWING	GASKET - FULL FACE 4" NOM. FLANGE	NEOP.	16
13	THIS DRAWING	FLAT WASHER 5/8"	304SS	192
12	THIS DRAWING	NUT 5/8"-11	304SS	192
11	THIS DRAWING	5/8"-11x5 LG. FULL THD. STUD	304SS	96
10				
9	THIS DRAWING	NUT 5/8"-11	FRP	192
8	THIS DRAWING	5/8"-11x5 LG. FULL THD. STUD	FRP	96
7	DD-34911E-05	VALVE ASSEMBLY W/ELBOW	FRP	1
6	DD-34911E-04	VALVE ASSEMBLY W/TEE	FRP	3
5	DD-34911E-01	SPRAY HEADER ASSEMBLY	FRP	4

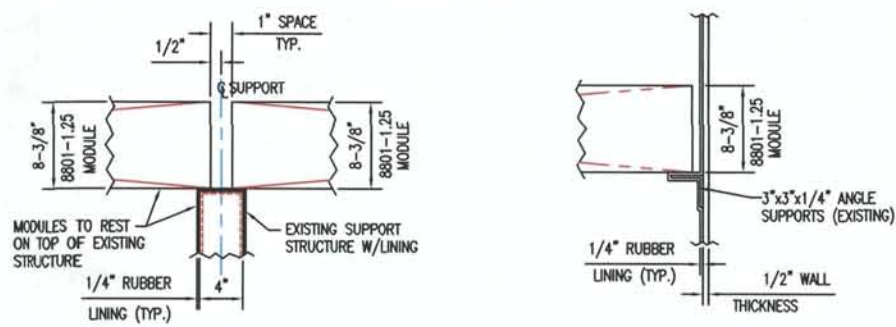
CERTIFIED FOR CONSTRUCTION
 DATE: 5/22/2009
 BY
 David L. Carter

SYM.	REVISION	BY	DATE
B	REVISED B.O.M. AND UPDATED DRAWING	DC	5/22/2009
A	REVISED PER CUSTOMER MARKED PRINT	SJ	6/17/2008

DRWN BY	SCALE	DATE
SJ	3/8"=1'	5/16/08

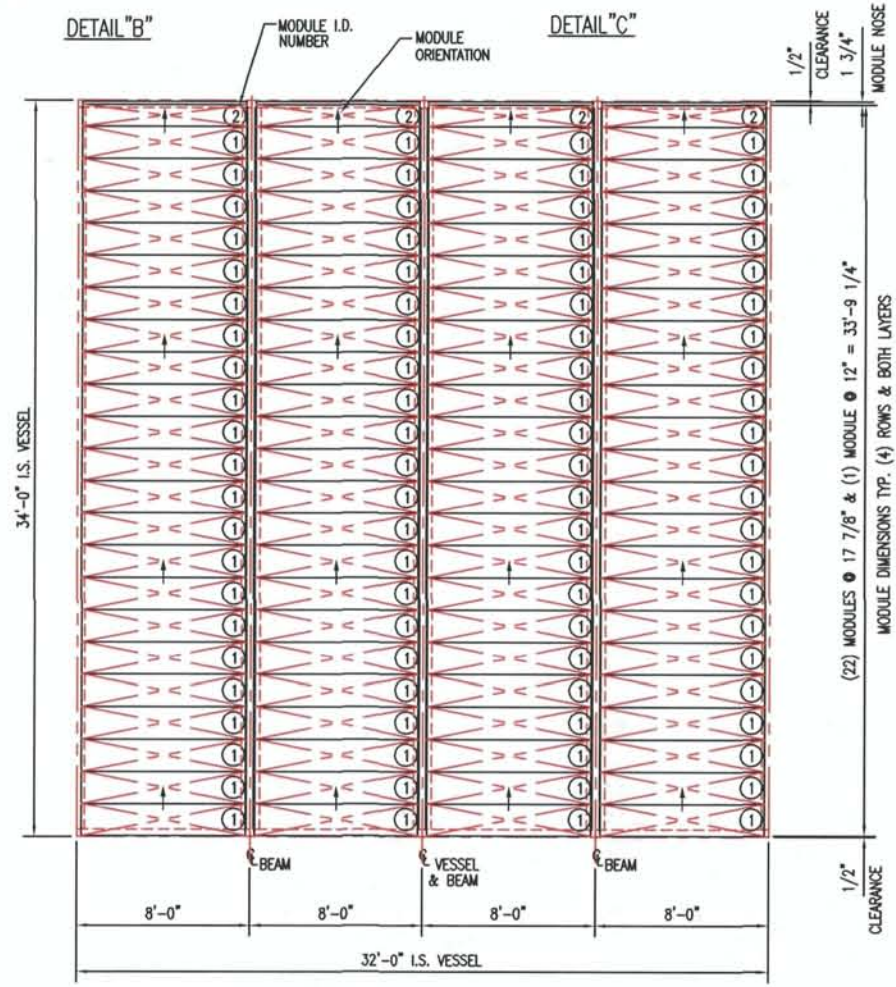
GENERAL ARRANGEMENT: FIXED GRID WASH SYSTEM
 W/8801-1.25 & 1.5 MODULES IN A 32'-0"x34'-0" I.S. VESSEL
 DRAWING NUMBER: D-34911-02
 SHEET OF: 1
 REV. B

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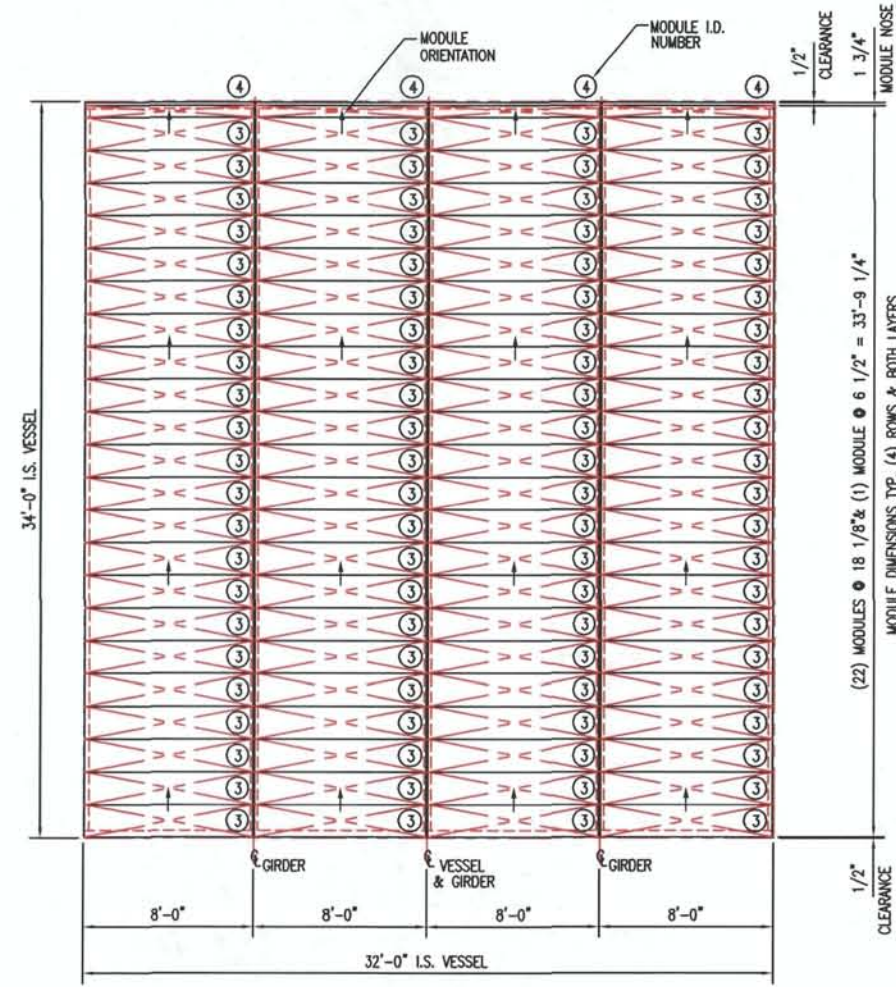


- NOTES**
1. MATERIAL: PROFILES - POLYSULFONE
SPACERS - PPGC
SPRAY WASH PIPING - FRP
SPRAY NOZZLES - PP
 2. MUNTERS TO SUPPLY 8801-1.5 & 8801-1.25 MODULES, SPRAY WASH HEADERS & SPRAY NOZZLES ONLY.
 3. ALL PARTS TO BE MARKED FOR FIELD ASSEMBLY.
 4. WEIGHT APPROX.: FULL SIZE 8801-1.50 MODULES - 48 LBS. PER. MODULE
8801-1.25 MODULES - 44 LBS. PER. MODULE
 5. SEE MUNTERS FORM EB-IMFME-0501 LATEST REV. FOR INSPECTION & MAINTENANCE INSTRUCTIONS.
 6. LAYERS (STAGE 1 & 2) ARE TO BE LABELED/PACKAGED BY LAYER & TOWER.

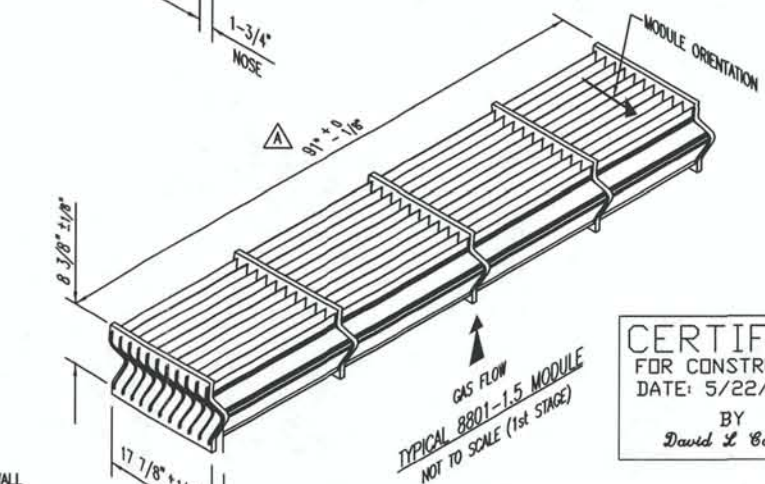
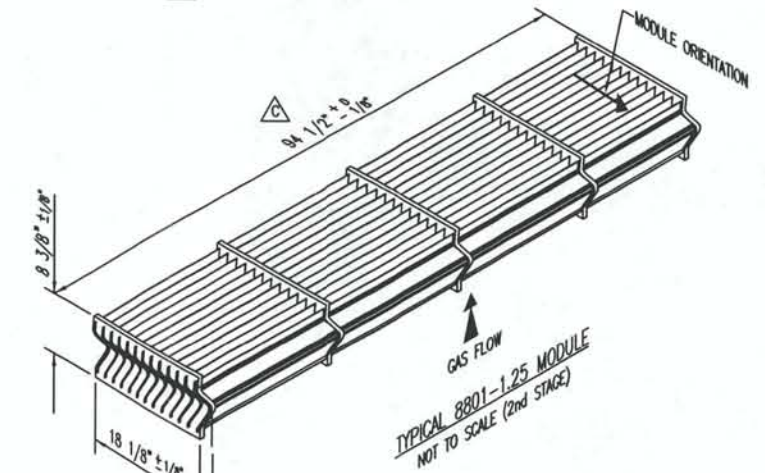
REFERENCE:
FOR SPRAY WASH SYSTEM GENERAL ARRANGEMENT SEE MUNTERS DRAWING D-34911-02
CUSTOMER DRAWING - 09182-4E-2501 Rev.07



PLAN VIEW 1st STAGE 8801-1.5 MODULES
(SPRAY WASH NOT SHOWN FOR CLARITY)

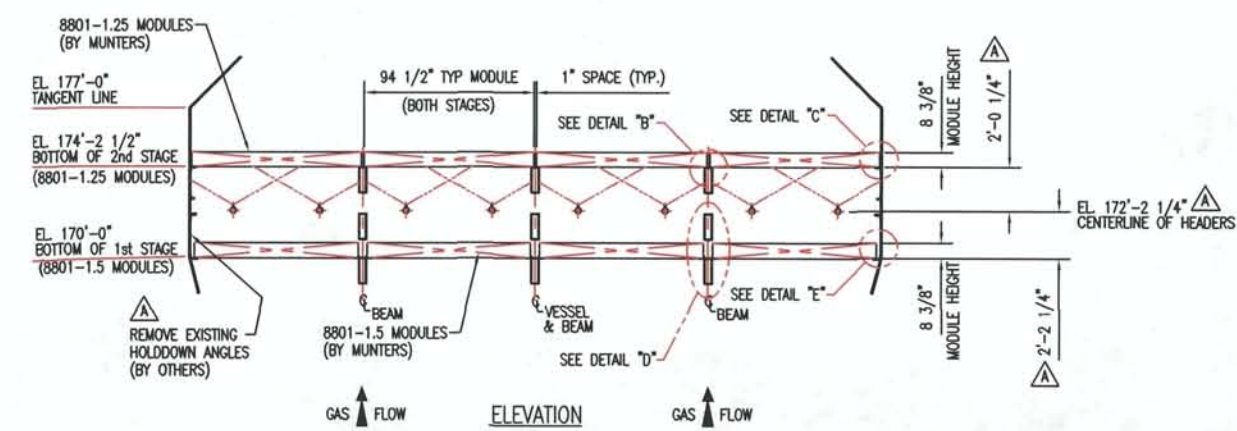


PLAN VIEW 2nd STAGE 8801-1.25 MODULES
(SPRAY WASH NOT SHOWN FOR CLARITY)

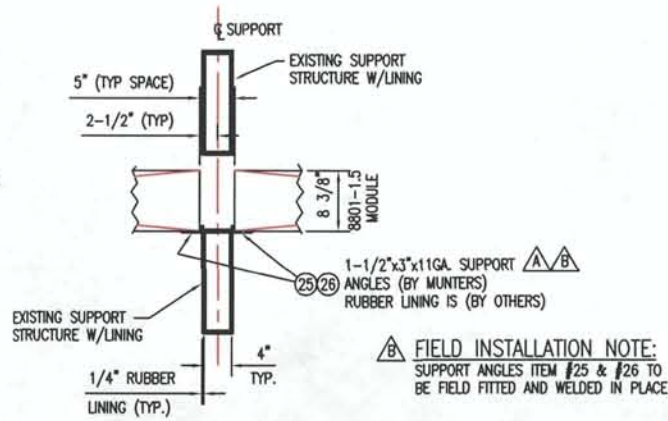


CERTIFIED FOR CONSTRUCTION
DATE: 5/22/2009
BY
David L. Barber

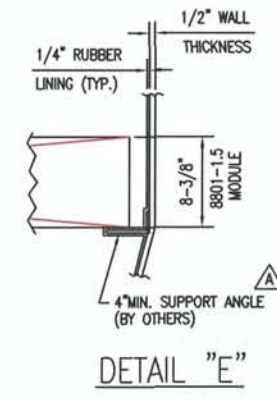
ORLANDO UTILITIES COMMISSION
MIST ELIMINATOR & SPRAY WASH SYSTEM
STATION - STANTON 1
B & W CONTRACT NUMBER - 444-0024
B & W PROJECT No. - 223N
B & W PURCHASE ORDER NUMBER - BAX109393



ELEVATION



DETAIL "D"



DETAIL "E"

FIELD INSTALLATION NOTE:
SUPPORT ANGLES ITEM #25 & #26 TO BE FIELD FITTED AND WELDED IN PLACE

ITEM NO.	PART NO.	PART NAME / DESCRIPTION	MATL.	REQ.
26	THIS DRAWING	SUPPORT ANGLE 1 1/2x3x11GAx12'-0"	C.S.	6
25	THIS DRAWING	SUPPORT ANGLE 1 1/2x3x11GAx11'-0"LG.	C.S.	12
4	BD-34911D	MODULE (8801-1.25) 6-1/2x94 1/2"	POLSUL	4
3	BD-34911C	MODULE (8801-1.25) 18-1/8x94 1/2"	POLSUL	88
2	BD-34911B	MODULE (8801-1.5) 12'x91"	POLSUL	4
1	BD-34911	MODULE (8801-1.5) 17-7/8'x91"	POLSUL	88

SYMBOL	REVISION	BY	DATE	TITLE
C	REVISED 2nd STAGE MODULE SIZE UPDATED DRAWING & B.O.M.	DC	5/22/2009	GENERAL ARRANGEMENT: 8801-1.5 & 8801-1.25 MODULES IN 32'-0" Wx34'-0" LG VESSEL (2 STAGE)
B	REVISED PER CUSTOMER MARKED PRINT AND EMAIL DATED 7/7/2008	DC	7/10/2008	
A	REVISED PER CUSTOMER MARKED PRINT	SJ	6/17/2008	

DRAWN BY	SJ	SCALE	N.T.S.
CHECKED BY	DC	DATE	5/13/08
APPROVED BY	DLC	FOR B&W ORLANDO UTILITIES 6709-34911 (42968)	

DRAWING NUMBER	D-34911-01	SHEET OF	REV. C
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APPENDIX C
HAP SUPPORTING DATA

SECTION III. EMISSIONS UNITS AND SPECIFIC CONDITIONS.

Subsection A. Emissions Units 001 and 002

- A.10. Carbon Monoxide. Emissions of CO from Unit 1 shall not exceed 0.18 lb/mmBtu heat input on a 30-operating day rolling average as demonstrated by the required continuous emissions monitoring system (CO-CEMS). Carbon monoxide (CO) emissions from Unit No. 2 shall not exceed 0.15 lb/million Btu heat input on a 30-operating day rolling average as demonstrated by the required CO-CEMS. Based upon a heat input of 4286 million Btu/hr, CO emissions shall not exceed 643 lb/hr (2,816 TPY). [PSD-FL-084; 0950137-015-AC, Specific Condition 9.]
- A.11. Volatile Organic Compounds. Volatile Organic Compounds (VOC) emissions from Unit No. 2 shall not exceed 0.015 lb/million Btu heat input. Based upon a heat input of 4,286 million Btu/hr, VOC emissions shall not exceed 64 lb/hr (282 TPY). [PSD-FL-084]
- A.12. Sulfuric Acid Mist. Sulfuric acid mist (H₂SO₄) emissions from Unit No. 2 shall not exceed 0.033 lb/million Btu heat input. Based upon a heat input of 4,286 million Btu/hr, H₂SO₄ emissions shall not exceed 140 lb/hr (613 TPY). [PPS PA 81-14/SA1]
- ~~A.13. Beryllium. Beryllium (Be) emissions from Unit No. 2 shall not exceed 5.2×10^{-6} lb./million Btu heat input. Based upon a heat input of 4286 million Btu/hr, Be emissions shall not exceed 0.022 lb./hr (0.1 TPY). [PPS PA 81-14/SA1]~~
- ~~A.14. Mercury. Mercury (Hg) emissions from Unit No. 2 shall not exceed 1.1×10^{-5} lb/million Btu heat input. Based upon a heat input of 4,286 million Btu/hr, Hg emissions shall not exceed 0.046 lb/hr (0.2 TPY). [PPS PA 81-14/SA1]~~
- ~~A.15. Lead. Lead (Pb) emissions from Unit No. 2 shall not exceed 1.5×10^{-4} lb/million Btu heat input. Based upon a heat input of 4,286 million Btu/hr, Pb emissions shall not exceed 0.64 lb/hr (2.8 TPY). [PPS PA 81-14/SA1]~~
- ~~A.16. Fluorides. Fluorides (F1) emissions from Unit No. 2 shall not exceed 4.2×10^{-4} lb/million Btu heat input. Based upon a heat input of 4,286 million Btu/hr, F1 emissions shall not exceed 1.8 lb/hr (7.9 TPY). [PPS PA 81-14/SA1]~~

Excess Emissions

Rule 62-210.700 (Excess Emissions), F.A.C., cannot vary any requirement of an NSPS, NESHAP or Acid Rain program provision.

- A.17. Excess Emissions Allowed. Excess emissions resulting from malfunction shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized but in no case exceed two hours in any 24 hour period unless specifically authorized by the Department for longer duration. [Rule 62-210.700(1), F.A.C.]
- A.18. Excess Emissions Allowed. Excess emissions resulting from startup or shutdown shall be permitted provided that best operational practices to minimize emissions are adhered to and the duration of excess emissions shall be minimized. [Rule 62-210.700(2), F.A.C.]
- A.19. Excess Emissions Prohibited. Excess emissions which are caused entirely or in part by poor maintenance, poor operation, or any other equipment or process failure which may reasonably be prevented during startup, shutdown or malfunction shall be prohibited. [Rule 62-210.700(4), F.A.C.]

Monitoring of Operations

- A.20. CAM Plan. These emissions units are subject to the Compliance Assurance Monitoring (CAM) requirements contained in the attached Appendix CAM. Failure to adhere to the monitoring requirements specified does not necessarily indicate an exceedance of a specific emissions limitation; however, it may constitute good reason to require compliance testing pursuant to Rule 62-297.310(7)(b), F.A.C. [40 CFR 64; Rules 62-204.800 and 62-213.440(1)(b)1.a., F.A.C.]

SECTION III. EMISSIONS UNITS AND SPECIFIC CONDITIONS.

Subsection A. Emissions Units 001 and 002

Method	Description of Method and Comments
or 6C	
7, 7A, 7C, 7D or 7E	Determination of Nitrogen Oxides Emissions from Stationary Sources
8	Determination of Sulfuric Acid Mist Emissions
9	Visual Determination of the Opacity of Emissions from Stationary Sources
10	Determination of Carbon Monoxide Emissions from Stationary Sources {Note: The method shall be based on a continuous sampling train.}
12	Determination of Lead Emissions
13A, 13B	Determination of Fluoride Emissions
17	Determination of In-Stack Particulate Matter (PM) Emissions
18	Determination of VOC Emissions
19	Determination of Sulfur Dioxide Removal Efficiency and Particulate Matter, Sulfur Dioxide, and Nitrogen Oxides Emission Rates (Optional F-factor method may be used to determine flow rate and gas analysis to calculate mass emissions in lieu of Methods 1-4.)
20	Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines
25, 25A, 25B	Method for Determining Gaseous Organic Concentrations (Flame Ionization)
101A	Determination of Hg Emissions
104	Determination of Be Emissions
108	Determination of Hg Emissions

The above methods are described in 40 CFR 60, Appendix A, and adopted by reference in Rule 62-204.800, F.A.C. No other methods may be used unless prior written approval is received from the Department. [62-297.401, F.A.C.; PPS PA 81-14/SA1; PSD-FL-084; and 40 CFR 60.49Da]

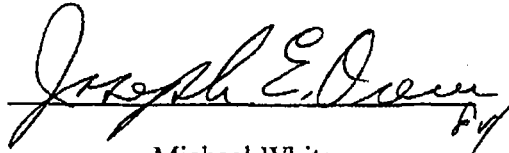
- A.29. ~~A.26.~~ Common Testing Requirements.** Unless otherwise specified, tests shall be conducted in accordance with the requirements and procedures specified in Appendix TR, Facility-Wide Testing Requirements, of this permit. [Rule 62-297.310, F.A.C.]
- A.30. ~~A.27.~~ Annual Compliance Tests Required.** During each federal fiscal year (October 1st to September 30th), each EU shall be tested to demonstrate compliance with the emissions standards for particulate matter, NO_x, SO₂ and visible emissions. [Rule 62-297.310(7), F.A.C.; and PPS PA 81-14/SA1]
- A.31. ~~A.28.~~ Compliance Tests Prior To Renewal.** Compliance tests shall be performed for both Unit 1 and Unit 2 for particulate matter, NO_x, SO₂, visible emissions and carbon monoxide once every 5 years. Compliance tests shall be performed for Unit 2 for volatile organic compounds and sulfuric acid mist, mercury, beryllium, lead and fluoride once every 5 years. The tests shall occur prior to obtaining a renewed operating permit to demonstrate compliance with the emission limits in Specific Conditions **A.5. – A.16.** [Rules 62-210.300(2)(a) and 62-297.310(7)(a), F.A.C.]

Work Order No. 03405-004-001

**Unit 2 Compliance Testing
at the Orlando Utilities Commission,
Curtis H. Stanton Energy Center
Black & Veatch
August 1996**

Prepared For

BLACK & VEATCH
8400 Ward Parkway Street
Kansas City, Missouri 64114

A handwritten signature in cursive script, appearing to read "Joseph E. Deen" with a large "P" and "4" written below it.

Michael White
Approved for Transmittal
September 1996

Prepared By

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1635 Pumphrey Ave.
Auburn, Alabama 36830-4303

27 September 1996



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SECTION 1 INTRODUCTION

Roy F. Weston, Inc. (WESTON®) was retained by Black & Veatch (B&V) to conduct emission testing on Unit 2 at the Curtis H. Stanton Energy Center in Orlando, Florida. Table 1-1 lists the parameters tested. The purpose of the testing was to demonstrate compliance with Florida Department of Environmental Protection (FDEP) permit limitations.

**TABLE 1-1
STACK EMISSION COMPLIANCE TESTING^a**

Particulate Matter (PM)
Particulate Matter Less than 10 Microns (PM ₁₀)
Opacity
Carbon Monoxide (CO)
Sulfur Dioxide (SO ₂)
Fluorides (F)
Sulfuric Acid Mist (H ₂ SO ₄)
Volatile Organic Compounds (VOC)
Lead (Pb)
Beryllium (Be)
Mercury (Hg)
Nitrogen Oxides (NO _x)

^aAll testing performed at 450 mw.

WESTON performed the emission testing during 5-9 August 1996 with a project team comprised of the following individuals.

Name	Project Role
Michael Steele	Program Manager
Joe Oven	Project Manager
David Elam	Technical Advisor/ Quality Assurance

Name	Project Role
Jeff Burdette	Technical Advisor/ Quality Assurance
Barry Jackson	Technical Advisor/ Quality Assurance
Michael White	Technical Director
Greg Sims	Data Quality Control
Doug Lincoln	Test Team Leader
Chuck Dewey	Test Team Member
Rick Irvin	Test Team Member
Jim Wallis	Test Team Member

Mr. Tom Ringwelski of B&V coordinated the testing with Orlando Utilities Commission (OUC) operations and served as WESTON's technical contact throughout the effort. Mr. Gary Kuberski of FDEP was present during testing.

This report is organized into three sections and supporting appendices. Section 2 summarizes the test program results. Section 3 references the sampling and analytical procedures used to perform the test program. Supporting data are provided in the appendices.



SECTION 2 RESULTS AND DISCUSSION

Table 2-1 compares the results of emission testing to FDEP permit limitations. Tables 2-2 through 2-8 summarize the test results. All run times in tables and on field data reflect daylight savings time. The results for each source are below the applicable standard for the source. Some differences between the calculated results shown in the appendices and the reported results in the summary tables are due to rounding the results for presentation. If one or more values are less than the detection limit, a value of 50 percent of the detection limit was used for those particular value(s) in calculating the mean.

**TABLE 2-1
SUMMARY OF EMISSION TEST RESULTS**

	Mean Test Value	Permit Limit
<u>Particulate Matter/Particulate Matter < 10µm</u>		
lb/hr	25.1	85.7
lb/MMBtu	0.01	0.02
<u>Opacity</u>		
%	0.0	20
<u>Carbon Monoxide</u>		
lb/hr	260	643
lb/MMBtu	0.13	0.15
<u>Sulfur Dioxide</u>		
lb/MMBtu	0.15	0.25 ^a
<u>Fluorides as Hydrogen Fluoride</u>		
lb/hr	0.25	1.8
x 10 ⁻⁴ lb/MMBtu	0.63	4.2
<u>Sulfuric Acid Mist</u>		
lb/hr	51	140
lb/MMBtu	0.012	0.033
<u>Volatile Organic Compounds as Carbon</u>		
lb/hr	0.6	64
lb/MMBtu	<0.001 ^b	0.015
<u>Lead</u>		
lb/hr	<0.01 ^b	0.64
x 10 ⁻⁴ lb/MMBtu	<0.1 ^b	1.5
<u>Beryllium</u>		
lb/hr	<0.001 ^b	0.022
x 10 ⁻⁶ lb/MMBtu	0.04	5.2
<u>Mercury</u>		
lb/hr	0.007	0.046
x 10 ⁻⁵ lb/MMBtu	0.17	1.1
<u>Nitrogen Oxides</u>		
lb/MMBtu	0.164	0.17 ^a

^a30-day rolling average.

^bThese values have been rounded for reporting purposes.

TABLE 2-2
PARTICULATE MATTER AND OPACITY
EMISSION DATA - STACK

	Run 1	Run 2	Run 3	Mean
Date	8/6/96	8/6/96	8/6/96	---
Time Began	1046	1350	1710	---
Time Ended	1310	1639	1930	---
Stack Gas Data				
Temperature, °F	125	124	125	125
Velocity, ft/sec	61	63	63	63
Moisture, %	13	13	13	13
CO ₂ Concentration, %	12.4	12.3	12.3	12.4
O ₂ Concentration, %	6.2	6.3	6.4	6.3
VFR, x 10 ⁵ dscfm	4.4	4.6	4.6	4.6
F-factor, scf/MMBtu	9780	9780	9780	9780
Particulate Matter^a				
Isokinetic Sampling Rate, %	105	95	100	100
Concentration, gr/ft ³	0.007	0.006	0.006	0.006
Emission Rate, lb/hr	27.5	25.0	22.9	25.1
Permit Limit, lb/hr	---	---	---	85.7
Emission Factor, lb/MMBtu	0.01	0.01	0.01	0.01
Permit Limit, lb/MMBtu	---	---	---	0.02
Visible Emissions^b				
Opacity, %	0.0	0.0	0.0	0.0
Permit Limits, %	---	---	---	20

^aPM includes PM < 10µm

^bOpacity run times were as follows: 1145 - 1245; 1525 - 1625; 1721 - 1821.

**TABLE 2-3
CARBON MONOXIDE AND SULFUR DIOXIDE
EMISSION DATA - STACK**

	Run 2 ^a	Run 3	Run 4	Mean
Date	8/6/96	8/6/96	8/6/96	---
Time Began	1204	1351	1529	---
Time Ended	1304	1451	1629	---
Stack Gas Data				
Temperature, °F	125	124	124	124
Velocity, ft/sec	61	63	63	62
Moisture, %	13	13	13	13
CO ₂ Concentration, %	12.4	12.3	12.3	12.3
O ₂ Concentration, %	6.2	6.3	6.3	6.3
VFR, x 10 ⁵ dscfm	4.4	4.6	4.6	4.5
F-factor, scf/MMBtu	9780	9780	9780	9780
Carbon Monoxide				
Concentration, ppm	154	117	124	132
Emission Rate, lb/hr	298	235	248	260
Permit Limit, lb/hr	---	---	---	643
Emission Factor, lb/MMBtu	0.16	0.12	0.12	0.13
Permit Limit, lb/MMBtu	---	---	---	0.15
Sulfur Dioxide				
Concentration, ppm	66	64	70	66
Emission Rate, lb/hr	291	294	321	302
Emission Factor, lb/MMBtu	0.15	0.15	0.16	0.15
Permit Limit, lb/MMBtu ^b	---	---	---	0.25

^aRun 1 was voided due to pulverizer brought into service.

^b30-day rolling average.

**TABLE 2-4
FLUORIDE EMISSION DATA - STACK**

	Run 1	Run 2	Run 3	Mean
Date	8/7/96	8/7/96	8/8/96	---
Time Began	1123	1358	0840	---
Time Ended	1339	1612	1055	---
Stack Gas Data				
Temperature, °F	126	125	127	126
Velocity, ft/sec	64	64	61	63
Moisture, %	14	13	13	13
CO ₂ Concentration, %	12.2	12.2	12.3	12.2
O ₂ Concentration, %	6.7	6.5	6.4	6.5
VFR, x 10 ⁵ dscfm	9.8	10	9.4	9.7
F-factor, scf/MMBtu	9780	9780	9780	9780
Fluorides as Hydrogen Fluoride				
Isokinetic Sampling Rate, %	100	99	103	101
Concentration, ppm	<0.2	<0.2	<0.2	0.1
Emission Rate, lb/hr	<0.5	<0.5	<0.5	0.25
Permit Limit, lb/hr	---	---	---	1.8
Emission Factor, x 10 ⁻⁴ lb/MMBtu	<1.3	<1.3	<1.2	0.63
Permit Limit, x 10 ⁻⁴ lb/MMBtu	---	---	---	4.2

**TABLE 2-5
SULFURIC ACID MIST EMISSION DATA - STACK**

	Run 1	Run 2	Run 3	Mean
Date	8/7/96	8/7/96	8/7/96	---
Time Began	0915	1248	1536	---
Time Ended	1134	1503	1740	---
Stack Gas Data				
Temperature, °F	126	123	123	124
Velocity, ft/sec	64	63	62	63
Moisture, %	14	13	13	13
CO ₂ Concentration, %	12.1	12.2	12.2	12.2
O ₂ Concentration, %	6.6	6.6	6.5	6.6
VFR, x 10 ⁵ dscfm	9.9	9.9	9.7	9.8
F-factor, scf/MMBtu	9780	9780	9780	9780
Sulfuric Acid Mist				
Isokinetic Sampling Rate, %	103	101	101	102
Concentration, mg/dscm	10	9.9	21	14
Emission Rate, lb/hr	39	36	78	51
Permit Limit, lb/hr	----	----	----	140
Emission Factor, lb/MMBtu	0.009	0.009	0.019	0.012
Permit Limit, lb/MMBtu	----	----	----	0.033

TABLE 2-6
VOLATILE ORGANIC COMPOUNDS
EMISSION DATA - STACK

	Run 1	Run 2	Run 3	Mean
Date	8/7/96	8/7/96	8/7/96	---
Time Began	1216	1335	1501	---
Time Ended	1316	1435	1601	---
Stack Gas Data				
Temperature, °F	126	125	123	125
Velocity, ft/sec	64	64	62	63
Moisture, %	14	13	13	13
CO ₂ Concentration, %	12.2	12.2	12.2	12.2
O ₂ Concentration, %	6.7	6.5	6.5	6.5
VFR, x 10 ⁵ dscfm	9.8	10	9.7	9.8
F-factor, scf/MMBtu	9780	9780	9780	9780
VOC as Carbon				
Isokinetic Sampling Rate, %	100	99	101	100
Concentration, ppm	0.3	0.3	0.3	0.3
Emission Rate, lb/hr	0.6	0.6	0.6	0.6
Permit Limit, lb/hr	---	---	---	64
Emission Rate, lb/MMBtu	0.0002	0.0002	0.0002	0.0002
Permit Limit, lb/MMBtu	---	---	---	0.015

**TABLE 2-7
LEAD, BERYLLIUM, AND MERCURY
EMISSION DATA - STACK**

	Run 1	Run 2	Run 3	Mean
Date	8/8/96	8/8/96	8/8/96	---
Time Began	0842	1110	1335	---
Time Ended	1057	1325	1641	---
Stack Gas Data				
Temperature, °F	127	124	122	124
Velocity, ft/sec	61	60	60	61
Moisture, %	14	13	12	13
CO ₂ Concentration, %	12.3	12.4	12.4	12.4
O ₂ Concentration, %	6.4	6.4	6.4	6.4
Isokinetic Sampling Rate, %	97	95	95	96
VFR, x 10 ⁵ dscfm	9.4	9.4	9.5	9.4
F-factor, scf/MMBtu	9780	9780	9780	9780
Lead				
Concentration, µg/dscm	<0.19	<0.19	0.25	0.15
Emission Rate, lb/hr	<0.001	<0.001	0.001	0.00067
Permit Limit, lb/hr	---	---	---	0.64
Emission Factor, x 10 ⁻⁴ lb/MMBtu	<0.002	<0.002	0.002	0.0013
Permit Limit, x 10 ⁻⁴ lb/MMBtu	---	---	---	1.5
Beryllium				
Concentration, µg/dscm	<0.09	<0.10	<0.09	0.047
Emission Rate, lb/hr	<0.0003	<0.0003	<0.0003	0.00015
Permit Limit, lb/hr	---	---	---	0.022
Emission Factor, x 10 ⁻⁶ lb/MMBtu	<0.08	<0.08	<0.08	0.040
Permit Limit, x 10 ⁻⁶ lb/MMBtu	---	---	---	5.2
Mercury^a				
Concentration, µg/dscm	3.1	<2.4	<2.5	1.8
Emission Rate, lb/hr	0.011	<0.009	<0.009	0.0067
Permit Limit, lb/hr	---	---	---	0.046
Emission Factor, x 10 ⁻⁵ lb/MMBtu	0.3	<0.2	<0.2	0.17
Permit Limit, x 10 ⁻⁵ lb/MMBtu	---	---	---	1.1

^aMercury levels were found only in Run 1. The reported value for Run 1 was not confirmed by the subsequent sample runs. The associated field and lab data were reviewed and no cause for the variation was indicated in the sampling, analytical procedures, or data handling procedures.

**TABLE 2-8
NITROGEN OXIDES EMISSION DATA - STACK**

	Run 2 ^a	Run 3	Run 4	Mean
Date	8/8/96	8/8/96	8/8/96	---
Time Began	1045	1204	1322	---
Time Ended	1145	1304	1422	---
Stack Gas Data				
Temperature, °F	126	124	122	124
Velocity, ft/sec	60	60	60	60
Moisture, %	14	13	12	13
CO ₂ Concentration, %	12.4	12.4	12.4	12.4
O ₂ Concentration, %	6.4	6.4	6.4	6.4
VFR, x 10 ⁵ dscfm	9.4	9.4	9.5	9.4
F-factor, scf/MMBtu	9780	9780	9780	9780
Nitrogen Oxides				
Isokinetic Sampling Rate, %	96	95	95	95
Concentration, ppm	99	99	100	99
Emission Rate, lb/hr	663	663	683	670
Emission Factor, lb/MMBtu	0.164	0.163	0.166	0.164
Permit Limit, lb/MMBtu ^b	---	---	---	0.17

^aRun 1 was void to ammonia alarm set off. Ammonia injection was stopped for a five minute period while the system was reset.

^b30-day rolling average.